



Partnerships for
INFRASTRUCTURE



WORLD BANK GROUP



GALERIO
ENVIRONMENTAL
CONSULTANCY INC.
Partner in Development

Consultancy Services for the
Due Diligence and Options Analysis
for the proposed Mindanao Transport Connectivity Improvement Project

Environment and Social Management Framework (ESMF) - Appendices

Version 2.3 | July 3, 2024

LIST OF APPENDICES

Appendix 1. MTCIP Environmental and Social Impact Assessment (ESIA)	1
Appendix 2. Subproject Environmental and Social Risks and Impacts Screening Form	240
Appendix 3. PEISS Forms and Templates	425
Appendix 3-A. Environmental Impact Statement Outline	425
Appendix 3-B. Sample IEE Checklist Application Form	427
Appendix 3-C. Project Description Report Outline	447
Appendix 3-D. Environmental Performance Report and Management Plan (EPRMP)Outline	448
Appendix 4. Labor Management Procedures.....	450
Appendix 5. Resettlement Policy Framework	477
Appendix 6. Indigenous Peoples Policy Framework	533
Appendix 8. Stakeholder Engagement Framework.....	565
Appendix 9. Philippine Laws and Regulations	566
Appendix 10. MTCIP Contract Packages.....	703
Appendix 11. Environmental Provisions in the Contract including EMP, EMoP and GRM..	705
Appendix 12. Subproject Environmental and Social Monitoring and Reporting Templates	724
Appendix 12-A. Checklist for Evaluation of Site-Specific ESMP of Contractor	724
Appendix 12-B. Self-Monitoring Report Form	727
Appendix 12-C. Compliance Monitoring Report Template.....	743
Appendix 12-D. Environmental & Social Safeguards Inspection Checklist	746
Appendix 13. DPWH Project Contract Management Application (PCMA) Online Monitoring System	747
Appendix 14. PENRO-Bukidnon Certification of MTCIP Link Road 1 Location	748

Appendix 1. MTCIP Environmental and Social Impact Assessment (ESIA)



Consultancy Services for the
Due Diligence and Options Analysis
for the proposed Mindanao Transport Connectivity Improvement Project

Draft Environment and Social Impact Assessment (ESIA)

Version 2.3 | May 24, 2024

TABLE OF CONTENTS

Executive Summary	9
ES.1 Project Background	10
ES.2 Purpose of the Draft Environmental and Social Impact Assessment.....	10
ES.3 Policy, Legal, and Administrative Frameworks.....	10
ES.4 Project Description	11
ES.5 Summary of Natural and Socio-Economic Features of the Project Area	12
ES.6 Assessment of Environmental and Social Impacts and Mitigating Measures	12
ES.7 Analysis of Alternatives	12
ES.8 Stakeholders' Engagement and Grievance Redress Mechanism (GRM)	13
ES.9 Environmental and Social Management Plan (ESMP).....	13
ES.10 Project Timeline.....	13
ES.11 Conclusions and Recommendations.....	14
1. INTRODUCTION	20
1.1 Project Background	20
1.2 Scope of the ESIA	20
1.3 Approach and Methodology	21
1.4 ESIA Study Team.....	22
2. LEGAL AND INSTITUTIONAL FRAMEWORK	24
2.1 Philippine Environmental Laws & Regulations.....	24
2.2 International Conventions, Treaties and Protocols Ratified by the Philippines	40
2.3 World Bank Frameworks, Policies, and Standards	41
2.4 Comparative/Gap Analysis between WB ESSs and the GOP laws and Regulations	42
3. DESCRIPTION OF THE PROJECT	48
3.1 Project Context.....	48
3.2 Proposed Project.....	48
3.3 Project Components.....	50
3.4 Utility Requirements	52
3.5 Construction Materials and Equipment	52
3.6 Project Phases	55
3.7 Manpower.....	56
3.8 Project Schedule	57
3.9 Project Cost.....	59
4. BASELINE DATA	62
4.1 Project Influence Areas (PIAs)	62
4.2 Land	63
4.3 Water.....	133
4.4 Air and Noise	142
4.5 Historical Climate and Projected Climate Change	148
4.6 People	158
5. ENVIRONMENTAL AND SOCIAL IMPACTS AND MITIGATING MEASURES	175
5.1 Introduction.....	175
5.2 Assessment of Risks/Impacts	175
5.3 Potential Impacts and Mitigating Measures during Pre-Construction and Construction Phases	178
5.4 Potential Impacts during Operation Phase.....	191

5.5	Cumulative Impact Assessment	193
6.	ANALYSIS OF ALTERNATIVES	194
6.1	Alternative for Project Categorization	194
6.2	Alternative for Alignment Options	195
6.3	Alternative for Project Management	200
6.4	Alternative for Resources	201
6.5	No Project Option	201
7.	STAKEHOLDERS' ENGAGEMENT	203
7.1	Stakeholder Identification	203
7.2	Information Disclosure, Consultation and Participation	207
7.3	Grievances Redress Mechanism (GRM)	208
8.	ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN (ESMP)	213
8.1	Environmental and Social Management Plan	213
8.2	Chance Finds Procedure	223
8.3	Environmental and Social Monitoring Plan	226
8.4	Capacity Strengthening on Environmental and Social (ES) Aspects	231
8.5	Implementation Arrangements	231
9.	CONCLUSION AND RECOMMENDATIONS	236

LISTS OF TABLES

Table 1-1. ESIA Study Team	22
Table 2-1. The PEISS and Related Directives for Environmental Protection and Management	25
Table 2-2. Other Relevant Regulations	26
Table 2-3. Description of Project Categories for EIA under PEISS	29
Table 2-4. Summary of Documents Required for ECC or CNC Application	29
Table 2-5. Classification of Water Body	30
Table 2-6. Surface Water Quality Standards	30
Table 2-7. Applicable National Ambient Air Quality Standards	31
Table 2-8. Standards for Ambient Noise	32
Table 2-9. Relevant Permits Required for the Project	32
Table 2-10. Laws on Land Acquisition and Resettlement	33
Table 2-11. Laws on Indigenous Peoples	36
Table 2-12. Labor Management	39
Table 2-13. Cultural Heritage and Chance Finds	40
Table 2-14. International Conventions, Treaties, and Protocols Ratified by the Philippines	40
Table 2-15. Gap Analysis Between World Bank ESS and Relevant Philippine Laws and Regulations	43
Table 3-1: Road Works Under the MTCIP	51
Table 3-2. Quarry Sources of Road Construction Materials Located Near the Main Corridors and Link Roads	53
Table 3-3. Summary of Manpower	56
Table 3-4. Contract Option	59
Table 3-5. Proposed Packages for Main Corridor (50 km) and Local Link Roads (20 km)	61
Table 4-1. Land Use within 40-Meter RROW of the Main Corridor	63
Table 4-2. Land Use of the Main Corridor within Cagayan de Oro City, Misamis Oriental	64
Table 4-3. Land use of the Main Corridor within Manolo Fortich, Bukidnon	64
Table 4-4. Land Use of the Main Corridor within Sumilao, Bukidnon	66
Table 4-5. Land use of the Main Corridor within Malaybalay, Bukidnon	66
Table 4-6. Land Use of Main Corridor within Maramag, Bukidnon	68
Table 4-7. Land use of Main Corridor within Davao City, Davao del Sur	69
Table 4-8. Land Use of the Main Corridor within Impasug-ong, Bukidnon	70
Table 4-9. Land Use of the Main Corridor within Panabo City, Davao del Norte	71
Table 4-10. Land use of the Main Corridor within Digos City, Davao del Sur	72
Table 4-11. Land Use of the Main Corridor within Malungon, Sarangani	73
Table 4-12. Land use of the Main Corridor within General Santos City, Sarangani	74
Table 4-13. Land Use in Link Road 1	75
Table 4-14. Land use in Link Road 2	76
Table 4-15. Land use in RROW for Link Road 3	76
Table 4-16. Length of MTCIP Within Flood Prone Areas	104
Table 4-17. Portion of MTCIP that are Prone to Landslides	112
Table 4-18. Summary Results for Plant Diversity Assessment	117
Table 4-19. Plant Forms in MTCIP	119
Table 4-20. IUCN Conservation Status	119
Table 4-21. List of Fauna Species and IUCN Conservation Status	130
Table 4-22. Water Quality Sampling Stations and Schedules	137
Table 4-23. Result of Laboratory Analysis for Surface Water Quality	140
Table 4-24. Air Quality and Noise Level Sampling Locations	142
Table 4-25. MTCIP Air Quality Sampling Results	144

Table 4-26. Permissible Noise Exposure	146
Table 4-27. Noise Sampling Locations and Site Descriptions	146
Table 4-28. Noise Measurement Results	147
Table 4-29. Estimated Gaseous Emissions of the Project	157
Table 4-30. LGUs covered by MTCIP	159
Table 4-31. Regional and Provincial Population, Gender, No. of Households, Average Family Size in MTCIP Area along MTCIP area	160
Table 4-32. Ethnic Household Population (Main Corridor and Link Roads) of Region X	162
Table 4-33. Ethnic Household Population (Main Corridor and Link Roads) of Region XI	162
Table 4-34. Ethnic Household Population (Main Corridor and Link Roads) of Region XII	163
Table 4-35. Poverty Threshold and Incidence, by Province and Highly Urbanized City, 2021	164
Table 4-36. Age Dependency Ratio of the Household Population, by Province/City, 2015	164
Table 4-37. Leading Causes of Morbidity and Mortality by Region	165
Table 4-38. Population by Highest Educational Attainment by Region, 2015	166
Table 4-39. Number of Public and Private Schools, by Region and Level of Education, SY 2020-2021	166
Table 4-40. Labor Force Participation, Region X Northern Mindanao, by Province	167
Table 4-41. Labor Force Participation, Region XI Davao Region, by Province	167
Table 4-42. Labor force participation, Region XII SOCCSKSARGEN, by Province	168
Table 4-43. Employment by sector, by region	168
Table 4-44. Employed persons by major industry group, by region, 2021	168
Table 4-45. Agricultural Production by Major Crop, by Region and Province	169
Table 4-46. Location of Traffic Surveys	172
Table 5-1. Summary of Impact Assessment for the MTCIP	176
Table 5-2. Summary of Project-Affected Land, per Road	188
Table 5-3. Summary of Project-Affected Structures, by Road, by Option	188
Table 5-4. Summary of project-affected households, by road, by option	188
Table 6-1. Project Threshold for Coverage Screening and Categorization (yellow for Link Roads and orange for Main Corridor)	194
Table 6-2. Summary of Alignment Options	195
Table 7-1. Summary of DDOA Activity and Stakeholder Engagement Methodology	204
Table 8-1. Environmental and Social Management Plan for the MTCIP	215
Table 8-2. Environmental and Social Monitoring Plan for the MTCIP	227
Table 8-3. Responsibilities for the ESMP Implementation	233
Table 9-1. Summary of Environmental and Social Management Measures Implementation Costs	236

LISTS OF FIGURES

Figure 2-1. Summary Flowchart of the EIA Process	28
Figure 3-1. Location Map of MTCIP	50
Figure 3-2. Project Schedule	58
Figure 3-3. Map of District Offices of DPWH	60
Figure 4-1. Land Use Map of MTCIP – Cagayan de Oro City, Misamis Oriental	64
Figure 4-2. Land Use Map of MTCIP – Manolo Fortich	65
Figure 4-3. Land Use Map of MTCIP – Sumilao	66
Figure 4-4. Land Use Map of MTCIP- Malaybalay City	67
Figure 4-5. Land Use Map of MTCIP - Valencia City	68
Figure 4-6. Land Use Map of MTCIP - Maramag	69
Figure 4-7. Land Use Map of MTCIP - Davao City	70
Figure 4-8. Land Use Map of MTCIP - Impasug-Ong	71
Figure 4-9. Land Use Map of MTCIP - Panabo City	72
Figure 4-10. Land Use Map of MTCIP - Digos City	73
Figure 4-11. Land Use Map of MTCIP - Malungon	74
Figure 4-12. Land Use Map of MTCIP - General Santos City	75
Figure 4-13. Geologic Map of Region X	78
Figure 4-14. Geologic Map of Region XI	79
Figure 4-15. Geologic Map of Region XII	82
Figure 4-16. Terrain Map of Region X	84
Figure 4-17. Terrain Map of Region XI	85
Figure 4-18. Terrain Map of Region XII	86
Figure 4-19. Soil Map of Region X	87
Figure 4-20. Soil Map of Region XI	88
Figure 4-21. Soil Map of Region XII	88
Figure 4-22. Active Faults Map of Region X	90
Figure 4-23. Active Faults Map of Region XI	90
Figure 4-24. Active Faults Map of Region XII	91
Figure 4-25. Peak Ground Acceleration Map on Rock Sites	92
Figure 4-26. Peak Ground Acceleration Map on Stiff Soils	93
Figure 4-27. Liquefaction Susceptibility Map for Region X	94
Figure 4-28. Liquefaction Susceptibility Map for Region XI	95
Figure 4-29. Liquefaction Susceptibility Map of Region XII	95
Figure 4-30. Tsunami Prone Areas in Region X	96
Figure 4-31. Tsunami Prone Areas in Region XI	97
Figure 4-32. Tsunami Prone Areas in Region XII	97
Figure 4-33. Active Volcanic Centers in Region X	98
Figure 4-34. Potentially Active Volcanic Centers in Region XI	99
Figure 4-35. Active Volcanic Centers in Region XII	99
Figure 4-36. Storm Surge Prone Areas Along the MTCIP	100
Figure 4-37. Flood Susceptibility Map of Region X	103
Figure 4-38. Flood Susceptibility Map of Region XI	103
Figure 4-39. Flood Susceptibility Map of Region XII	104
Figure 4-40. Sea Level Rise Susceptibility Map X	105
Figure 4-41. Sea Level Rise Susceptibility Map XI	106
Figure 4-42. Sea Level Rise Susceptibility Map XII	106

Figure 4-43. Landslide Susceptibility Map of Region X.	108
Figure 4-44. Landslide Susceptibility Map of Region XI	110
Figure 4-45. Landslide Susceptibility Map of Region XII	111
Figure 4-46. Transect Map of Flora Assessment of Main Corridor	113
Figure 4-47. Transect map of Flora Assessment of Link Road 1	114
Figure 4-48. Transect map of Flora Assessment of Link Road 2	115
Figure 4-49. Transect map of Flora Assessment of Link Road 3	116
Figure 4-50. Biodiversity Area	117
Figure 4-51. Flora Diversity and Species Richness and Evenness	118
Figure 4-52. Sensitivity of Main Corridor (Cagayan de Oro-Bukidnon-Davao)	121
Figure 4-53. Sensitivity of Main Corridor (Davao – General Santos)	122
Figure 4-54. Sensitivity of Link Road 1	123
Figure 4-55. Sensitivity of Link Road 2	123
Figure 4-56. Sensitivity of Link Road 3	124
Figure 4-57. Transect Map of Fauna Assessment in Main Corridor	126
Figure 4-58. Transect Map of Fauna Assessment in Link Road 1	128
Figure 4-59. Transect Map of Fauna Assessment in Link Road 2	129
Figure 4-60. Transect Map of Fauna Assessment in Link Road 3	130
Figure 4-61. River Systems in Region X	135
Figure 4-62. River Systems in Region XI	135
Figure 4-63. River systems in Region XII	136
Figure 4-64. Water Sampling Stations along Link Road 2	138
Figure 4-65. Water Sampling Stations along Link Road 3	138
Figure 4-66. Air Quality and Noise Level Sampling Locations	143
Figure 4-67. Climate Map of the Philippines, PAGASA 2007	149
Figure 4-68. Tropical Cyclones Incidence, Map of the Philippines	150
Figure 4-69. Average Rainfall along MTCIP	151
Figure 4-70. Maximum and Minimum Temperature along MTCIP	151
Figure 4-71. Seasonal Temperature Increase in 2020 and 2050 under Medium Range Emission Scenario in Regions 10, 11 and 12.	153
Figure 4-72. Current and Projected Number of Dry Days in the Philippines in 2020 and 2050	154
Figure 4-73. Current and Projected Extreme Rainfall in the Philippines in 2020 and 2050	154
Figure 4-74. Seasonal Rainfall Change in 2020 and 2050 under Medium Range Emission Scenario in Regions 10, 11 and 12.	155
Figure 4-75. Frequency of Extreme Events in 2020 and 2050 under Medium Range Emission Scenario in Regions 10, 11 and 12.	155
Figure 4-76. Certificate of Ancestral Domain Titles	163
Figure 4-77. Map of traffic survey locations in the Main Corridor and Link Roads	173
Figure 6-1. Options for the Main Corridor	196
Figure 6-2. Options for the Link Road 1	197
Figure 6-3. Options for the Link Road 2	197
Figure 6-4. Options for the Link Road 3	198
Figure 7-1. Detailed GRM Flowchart for MTCIP	209
Figure 8-1. Project Organizational Chart	231

LIST OF PLATES

Plate 4-1. Sheared and Fractured Andesites KM 1460+255	77
Plate 4-2. Clastic Sedimentary Rocks KM 1468 +178	77
Plate 4-3. Tuffaceous Sandstone on Link Road 2	79
Plate 4-4. Andesites with Characteristic Spheroidal Weathering at KM 1648	80
Plate 4-5. Tuff Overlain by Terrace Gravel Deposits at KK 1635	81
Plate 4-6. Quaternary Alluvial Deposits Along Flood Plain Near KM 1613	81
Plate 4-7. Road on the Right Side Leads to the Mt. Kitanglad Range Natural Park	83
Plate 4-8. Regularly Flooded Portion of Davao-Cotabato Road Main Corridor at KM 1549	102
Plate 4-9. Portion of Link Road 3 in Sta. Maria, Davao del Sur (surface runoff is regularly diverted into the roadway)	102
Plate 4-10. Drone Shot of Ongoing Works Along a Large Unstable Slope in KM 1453	108
Plate 4-11. Active Landslide Along a Winding Section Near KM 1598 +525	109
Plate 4-12. Beddings that are Daylighting with Respect to the Orientation of the Roadcut in KM 1592	109
Plate 4-13. Landslide Affecting the Road in Link Road 2 (125.3401021°E 7.2909774°N)	110
Plate 4-14. Landslide in Link Road 3 which Covered the Existing Logging Road (125.3710217°E 6.4231535°N)	111
Plate 4-15. Photograph of Fauna Assessment	125
Plate 4-16. Water Sampling in New Diclum Bridge, Bukidnon Province	137
Plate 4-17. Typical Tagakaulo housing unit (Link Road 3) in Sitio Upper Lilan, Brgy. San Miguel, Malungon, Sarangani Province	161
Plate 4-18. Higa-onon Community Learns about MTCIP (Link Road 1) in Impasug-ong, Bukidnon Province	162
Plate 4-19. Children in Sitio Bantalaan, Brgy. San Miguel, Malungon, Sarangani Province	165
Plate 4-20. Pongpong Elementary School, in Brgy. Pongpong, Santa Maria, Davao Occidental (Link Road 3)	167
Plate 4-21. Large Scale Banana Plantation (Sumifru firm) in Link Road 1 of Brgy. Capitan Bayong, Impasug-ong, Bukidnon Province	170
Plate 4-22. Pineapple Plantation in Brgy. Cawayan, Impasug-ong, Bukidnon Province	170
Plate 4-23. Cassava and Banana Farms in Link Road 2 in Brgy. Bantol, Davao	171
Plate 4-24. Habal-Habal Users in Santa Maria, Davao Occidental	171

LIST OF ANNEXES

Annex 1. Detailed Road Works for Main Corridor Rehabilitation	241
Annex 2. Inventory of Road Works in the Main Corridor	242
Annex 3. Road Works Map for Link Road 1	257
Annex 4. Detailed Road Works for Link Road 1	258
Annex 5. Inventory of Road Works in the Link Road 1	259
Annex 6. Road Works Map of Link Road 2	262
Annex 7. Detailed Road Works for Link Road 2	263
Annex 8. Inventory of Road Works in Link Road 2	264
Annex 9. Road Works Map of Link Road 3	267
Annex 10. Detailed Road Works for Link Road 3	269
Annex 11. Inventory of Road Work in Link Road 3	270
Annex 12. Road Safety Countermeasures	274
Annex 13. Typical Section	276
Annex 14. DENR Certification	279
Annex 15. Flora and Fauna Assessment Methodology	280
Annex 16. Ambient Air Quality Sampling Methodology	286
Annex 17. PAGASA Climatological Normal and Extreme	290
Annex 18. LGU Covered by the MTCIP	296
Annex 19. Environmental Risk Assessment (ERA)	298
Annex 20. Documentation of Public Consultation, September 26-29, 2023	307
Annex 21. Documentation of Key Informant Interview (KII), October 16 and 19, 2023	356
Annex 22. Documentation of Focus Group Discussions (FGDs), October 17, 18, and 20, 2023	364
Annex 23. Environmental and Social Management Measures Implementation Costs Per Package	396
Annex 24. Office Order of DPWH Officials/Personnel Assigned to the Due Diligence and Options Analysis (DDOA)/ Feasibility Studies (FS) and Detailed Engineering Design (DED) for MTCIP	414

ABBREVIATIONS & ACRONYMS

ADB	Asian Development Bank
BMB	Biodiversity Management Bureau
CADT	Certificate of Ancestral Domain Title
CARP	Comprehensive Agrarian Reform Program
CDO	Cagayan de Oro City
CFP	Chance Find Procedure
CLOA	Certificate of Land Ownership Agreement
CNC	Certificate of Non-Coverage
ECC	Environmental Compliance Certificate
ECA	Environmental Critical Area
EIA	Environmental Impact Assessment
ECP	Environmentally Critical Project
EMB	Environmental Management Bureau
ESS	Environmental and Social Standards
dB	decibels
DAO	DENR Administrative Order
DDOA	Due Diligence and Option Analysis
DED	Detailed engineering design
DPWH	Department Public Works and Highway
DENR	Department of Environment and Natural Resources
DEO	District Engineering Office
DOLE	Department of Labor and Employment
DRAM	DPWH Right-of-Way Acquisition Manual
GAA	General Appropriations Act
HLURB	Housing and Land Use Regulatory Board
IAEECC	Inter-Agency Energy Efficiency and Conservation Committee
ICC	Indigenous Cultural Community
IPRA	Indigenous People Republic Act
IUCN	International Union for Conservation of Nature
LMB	Land Management Bureau
MC	Main Corridor
MGB	Mines and Geosciences Bureau
MTCIP	Mindanao Transport Connectivity Improvement Project
NAMRIA	National Mapping and Resource Information Authority
NIPAS	National Integrated Protection Areas System
NCCAP	National Climate Change Action Plan
NCIP	National Commission of indigenous People
NHA	National Housing Authority
NPCC	National Pollution Control Commission
PAGASA	Philippine Atmospheric, Geophysical and Astronomical Services Administration
PD	Presidential Decree
PEISS	Philippine Environmental Impact Statement System
PHIVOLCS	Philippine Institute for Volcanology and Seismology
PNSDW	Philippine National Standard for Drinking Water
RAP	Resettlement Action Plan
RROW	Road Right of Way
SEA	Sexual Exploitation and Abuse
SH	Sexual Harassment
LR	Link Road
LGU	Local Government Unit
UDHA	Urban Development and Housing Act
UNFCC	United Nations Framework Convention on Climate Change
WHO	World Health Organization

Executive Summary

ES.1 Project Background

The Mindanao Transport Connectivity Improvement Project (MTCIP) is a comprehensive initiative aimed at enhancing road infrastructure in the Main Corridor, a vital national highway network linking the cities of Cagayan de Oro, Davao, and General Santos.

In addition to its tangible infrastructural improvements, the MTCIP is expected to generate a wide array of socio-economic benefits for the communities along the Main Corridor and beyond. These include improved access to markets, increased trade opportunities, enhanced connectivity for residents and businesses, and ultimately, a boost to the overall economic growth and development of Mindanao.

ES.2 Purpose of the Draft Environmental and Social Impact Assessment

The Draft Environmental and Social Impact Assessment (ESIA) Report is conducted to evaluate the project's design and potential impacts comprehensively. This assessment focuses on gathering and analyzing baseline data related to land, water, air, and people aspects within project influence areas. By identifying alternative options and integrating mitigating measures, the ESIA aims to minimize adverse effects while ensuring a balance between development, environmental protection, and social considerations.

ES.3 Policy, Legal, and Administrative Frameworks

The Draft ESIA Report aligns with the legal and institutional framework as well as relevant regulations governing the environmental and social sectors in the Philippines. In addition to adhering to Government of the Philippines (GoP) laws and regulations, the ESIA also complies with the World Bank Environmental and Social Standards (ESSs), thereby enhancing the overall impact assessment process.

The MTCIP are categorized as Category B (*Link Roads*) and D (*Main Corridor*) as per the Revised Procedural Manual for Department of Environment and Natural Resources (DENR) Administrative Order, Series of 2003, and Environmental Management Bureau (EMB) MC 2014-005 (Revised Guidelines for Coverage Screening and Standardized Requirements under the Philippine EIS System). Under this category, multiple Certificate of Non-Coverage (CNC) will be secured for the 20 sections (less than 2 km in length, scattered across the three regions) of the Multiple Corridor subject to improvement. Meanwhile, Environmental Compliance Certificate (ECC) will be secured for Link Roads.

On the other hand, based on the WB risk rating classification, the environmental and social risk classification for MTCIP is assessed to be “Substantial” due to potential risks and significant impacts arising from the type, magnitude/scale and location of the project. MTCIP covers mostly existing roads; however, project activities will require substantial quantities of construction materials, power, and water. Repair and construction of roads and bridges will generate noise, dust, gaseous pollutants, vibration, and waste, which will continue even during the project operational phase and pose public health concerns, especially to sensitive receptors adjacent to the roads, though anticipated to be within GOP regulatory standards.

Road widening and clearing activities, which will result in the loss of roadside vegetation and wildlife disturbances, again to a limited extent within the RROW, can be avoided and/or

reduced, compensated for, or offset through tree planting. The construction of new bridges, which may lead to soil erosion, siltation of waterways, changes in surface runoff direction, and impacts on aquatic organisms, shall be compliant with regulatory standards, temporary, and reversible. The presence of sensitive receptors, steep slopes, and hydro-geological hazards also contribute to risks to community and public health and safety; however, these risks can be mitigated through engineering design measures and the application of nature-based solutions. Project activities are not expected to be located in ecologically sensitive or biodiversity-rich areas and will take place within existing road segments. In addition, project activities or sources of construction material, e.g., quarry sites and/or camp sites, will follow exclusion principles to avoid ecologically sensitive areas. Potential risks and impacts may be significant but are mostly temporary, predictable, mitigable, and/or reversible, and the magnitude and spatial extent are likely to be limited in geographic scope and within the technical footprint of the project. The legal and regulatory environment of the project is well-defined and consistent with ESS3, ESS4, and ESS6 requirements. DPWH is well experienced in implementing projects financed by the WB and other financial institutions. It also has the technical and institutional capacity to manage risks and impacts consistent with the WB's ESF and the country's regulations.

Social risks are rated "Substantial" owing to the significant involuntary resettlement that will be involved in the infrastructure components of the Project, some subproject areas being in ancestral domains and the involvement of Indigenous Peoples (some of whom may need to be relocated), and the conflict situation in which the Project will be implemented. The project will entail hiring workers, who may originate outside the project sites and LGUs. This will lead to a labor influx in the local community, presenting risks of sexual exploitation and abuse/sexual harassment (SEA/SH) and an increase in gender and child related violence and cultural insensitivity. However, Philippine legislations on labor management, right-of-way acquisition and Indigenous Peoples are substantially aligned with ESS 2,4,5,6,7 and 8 with some gaps on compensation for income losses and on cases involving expropriation. DPWH has extensive experience in land acquisition using Philippine laws, but some local practices would need to be fully aligned with the requirements of ESS 5. Indigenous Peoples are among the beneficiaries of the three subproject link roads under Component 1.

ES.3.1 Environmental Standards

In addition to national laws and policies (environmental standards on water quality, air quality, noise level, land acquisition and resettlement, indigenous peoples, labor, and cultural heritage), international conventions, treaties, and protocols (ICTPs) ratified by the GoP will also govern the implementation of the proposed MTCIP.

The proposed Project will also comply with the World Bank Environmental and Social Framework (ESF) and World Bank Environmental, Health, and Safety (EHS) Guidelines for Road Projects.

ES.4 Project Description

The key components of the MTCIP include upgrading major national highways, or Main Corridor, and local roads, or Link Roads, in Regions X, XI, and XII. Implementation will be spearheaded by the Department of Public Works and Highways (DPWH), with oversight from the Unified Project Management Office (UPMO)—Roads Management Cluster II (RMC II). Additionally, support from DPWH Region X, XI, and XII offices, as well as district offices, ensures comprehensive coverage and efficient execution across the designated regions.

The project will span from 2024 to 2030, encompassing several phases: pre-construction, construction, demobilization, and operation. These phases involve detailed engineering design, civil works such as road widening and rehabilitation, dismantling of temporary facilities, and long-term performance-based maintenance.

This project, with a total project cost of US\$572.00 million jointly financed by the World Bank and the GoP, seeks to bolster transportation connectivity, particularly benefiting the agricultural sector by facilitating product movement and enhancing access to rural areas.

ES.5 Summary of Natural and Socio-Economic Features of the Project Area

The Project Influence Area (PIA) was delineated to determine the area to be impacted by the project. Primary and secondary data on land, water, air, and people were collected to determine the baseline environmental conditions of the PIA.

ES.6 Assessment of Environmental and Social Impacts and Mitigating Measures

The potential risks and impacts of the project on the land, water, air, and people were assessed as to whether positive or negative, magnitude (i.e., in terms of extent, duration, and intensity), and likelihood or probability of the impact happening per project development phase and activities. Significant negative impacts will be formulated with mitigation measures following the WB Mitigation Hierarchy (i.e., avoid or prevent where possible, mitigate, reduce, minimize, compensate, and/or offset) to acceptable levels or compliance with regulations.

ES.7 Analysis of Alternatives

Analysis of alternatives were conducted considering the alternatives for project categorization, alignment options, project management, resources and no project option. The Technical Options Analysis for the MTCIP subprojects—the Main Corridor (MC) and the Link Roads (LR) 1; 2; and 3—was conducted taking into consideration salient aspects of the project, including the technical, environmental, social, financial, and economic aspects of the different project alternatives. The different criteria under environmental and social are presented in **Table ES - 1**. These criteria are rated based on their impact level following a seven-point scale ('1' being highly negative, '4' being not significant or neutral, and '7' being major or highly positive). Considering a wide range of impacts and stakeholder perspectives, factors in the identification and selection of criteria for the environmental and social categories included expert judgment, especially due to the limited availability of historical and research data. The results of ESRA are specifically analyzed in correlation to the relevant World Bank E&S Standards (ESS).

Table ES-1. Criteria under Environmental and Social Categories

Environmental	
Water Quality	The effect on local water bodies, including measures for water pollution control, sediment runoff, and protection of aquatic ecosystems.
No. of Trees Affected	Loss of trees along the proposed rehabilitation areas.
Geologic Hazards	Length of the alignment that runs through areas that are identified as landslide-prone and flood-prone.
Land Use	Effectuated land use change of forestland and agricultural lands along the project alignment.
Social	
No. of Affected Structures	Loss of residential, residential-commercial, commercial and community structures along the proposed rehabilitation areas.
No. of PAP for Relocation	Physical and economic displacement of project affected people (PAPS) due to land acquisition for the proposed road rehabilitation.

Social		
Impact to Population	to	The potential for the project to stimulate economic growth, create job opportunities, increase property values, and enhance the local economy.
Impact to Vulnerable Groups	to	Road safety and security of PAPs considered as vulnerable groups.

ES.8 Stakeholders' Engagement and Grievance Redress Mechanism (GRM)

The stakeholders, including vulnerable groups that could be impacted by the project were identified. The stakeholders' engagement was conducted following the national laws and regulations to inform them about the project and to gather suggestions for mitigating the negative impacts.

The stakeholder's engagement was conducted in September 2023. About 242 people participated in the activity. About 40 people were interviewed as part of the Key Informant Interviews (KII) in October 2023, and 8 people participated in the Focus Group Discussions (FGDs). The public consultations in September 2023 and the focus group discussions in October 2023 provided opportunities not only for DPWH UPMO to introduce MTCIP but also generated information on the perceived risks and impacts and suggested mitigation measures. Follow-up key informant interviews with Local Government Unit (LGU) officials in October and November 2023 were made to validate these inputs.

The stakeholder consultations for MTCIP apply WB ESS10: open engagement with stakeholders and providing opportunities for stakeholder views to be considered in the project design and during implementation. Even at the DDOA phase, the consultations initiate the implementation of the MTCIP Stakeholder Engagement Plan.

Grievance Redress Mechanism (GRM) is established for the project in compliance with Republic Act 10752, the DPWH Right-of-Way Acquisition Manual (DRAM), and World Bank safeguard requirements.

ES.9 Environmental and Social Management Plan (ESMP)

The Draft ESIA includes a generic Environmental and Social Management Plan (ESMP) that will be updated during the Detailed Engineering Design (DED) of the Project, during the construction and operational phases of the project. The matrix of the ESMP is presented in the **Table ES-2**. An Environmental and Social Monitoring Plan (ESMoP) will be required at all project phases to ensure the implementation of the commitments and to verify the effectiveness of the measures in mitigating the identified potential impacts.

ES.10 Project Timeline

Figure ES-1 shows the timeline for the main phases of the project where in the steps of the E and S Management will be implemented and applied from Detailed Engineering Design (DED) onwards.

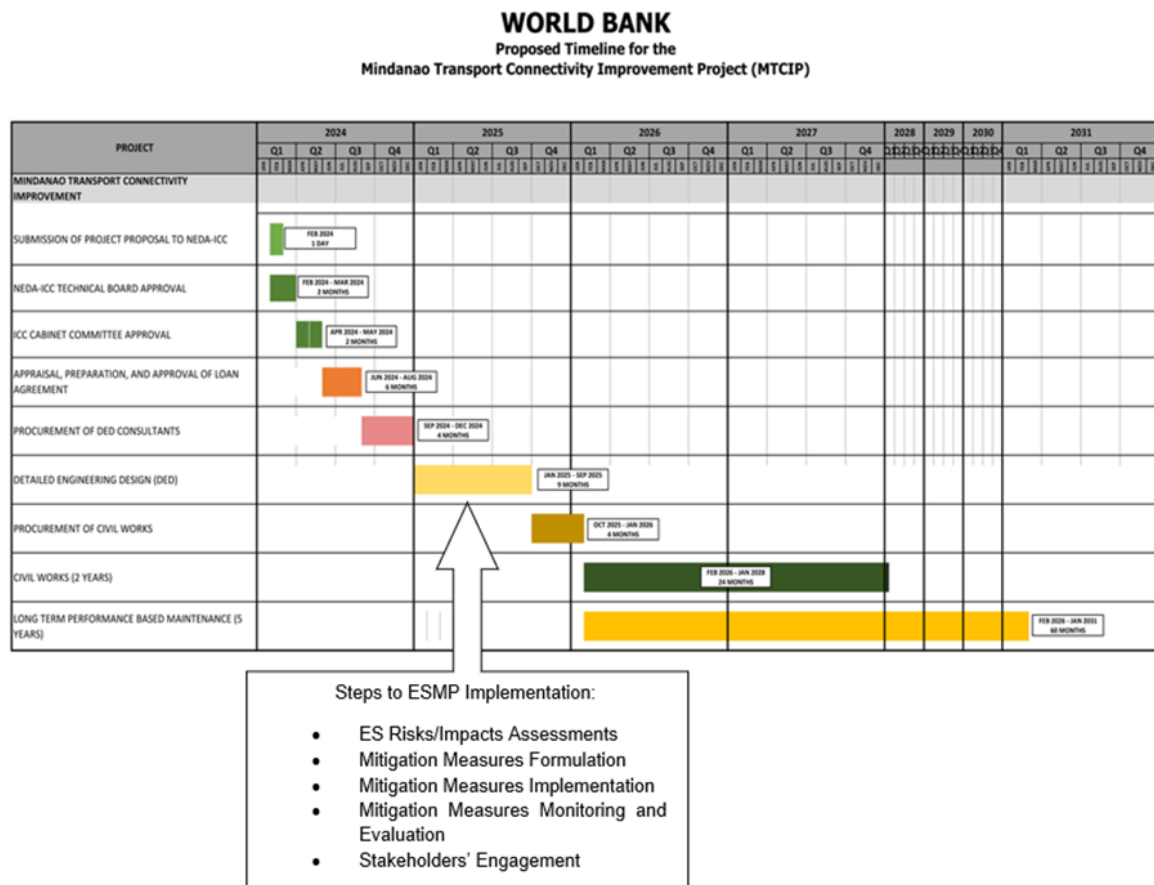


Figure ES-1: Project Schedule

ES.11 Conclusions and Recommendations

In summary, the MTCIP represents a crucial investment in the future of Mindanao, laying the groundwork for sustainable development and prosperity. By adhering to rigorous environmental and social standards and placing a strong emphasis on inclusive growth, the project aims to leave a lasting positive impact on the region and its people.

Table ES-2. Environmental and Social Management Plan for the MTCIP

Project Phase / Activities	Environmental Component(s)	Potential Impact(s) before Mitigation	Mitigating/Enhancement Measures
PRE-CONSTRUCTION AND CONSTRUCTION PHASE			
Acquisition of Applicable Permits and Licenses	People	(+) Disclosure of project information to stakeholders and concerned government authorities	<ul style="list-style-type: none"> • Submit complete requirements for processing of permit application.
Land Acquisition for the RROW	People	(-) Displacement/ disturbance of settlers, properties, and livelihood	<ul style="list-style-type: none"> • Prepare and implement Resettlement Action Plan in accordance with the Resettlement Policy Framework Coordinate with the concerned city/municipal and barangay LGUs. • Conduct audit and prepare Remedial/Corrective Action Plan as needed for prior incomplete land acquisition and compensation
	People	(-) Involuntary resettlement of IP households	<ul style="list-style-type: none"> • Prepare and implement of Indigenous Peoples Plan (IPP)
Hiring of Workers	People	(+) Generation of employment opportunities	<ul style="list-style-type: none"> • Prioritize hiring of qualified workers within the host barangays. • Coordinate with the PESO of concerned city/municipal LGUs and the barangays for posting of labor requirements.
		(-) Possible SEA/SH	<ul style="list-style-type: none"> • Orientation of contractors/workers on this issue. • Sensitize GRM to address SEA/SH concerns • Implementation of the MTCIP Labor Management Procedures
Site Preparation / Vegetation Clearing / Utilities Relocation	Land	(-) Loss of vegetation	<ul style="list-style-type: none"> • Limit vegetation clearing to the approved project development area. • Apply for tree cutting permit, as necessary. • Comply with the tree replacement guidelines as provided in JMC 2014-01 (i.e., 100 seedlings/ saplings/ propagules replacement for every tree cut).

Project Phase / Activities	Environmental Component(s)	Potential Impact(s) before Mitigation	Mitigating/Enhancement Measures
	Water	(-) Possible siltation of nearby water bodies	<ul style="list-style-type: none"> Establish sediment traps, erosion barriers, and/or silt curtains as applicable. Ensure regular removal of silt and sediments.
	People	(-) Threat to delivery of basic services	<ul style="list-style-type: none"> Coordinate with the concerned utility service providers and residents on the schedule of utilities relocation.
Construction of Temporary Facilities and Influx of Construction Workers	Land, Water, People	(-) Generation of domestic solid wastes	<ul style="list-style-type: none"> Implement solid waste management plan in accordance with RA 9003.
	Land, Water, People	(-) Generation of domestic wastewater	<ul style="list-style-type: none"> Ensure provision of adequate sanitation facilities for the workers.
	People	(-) Community health and safety risks, including peace and order	<ul style="list-style-type: none"> Coordinate with the host city/municipal and barangay LGUs and local PNP for maintaining peace and order for the duration of the construction activities. Ensure strict implementation of drug- and alcohol-free work environment.
Civil Works for the Main Corridor and Link Roads Main Corridor (i.e., Road Widening, Repair of Damaged Road Sections, Implementation of Slope Protection Measures, Drainage Works, Installation of Road Safety Infrastructures) Link Roads (i.e., Upgrading from Unpaved Roads to Concrete, Repair of Damaged Road Sections, Construction and Rehabilitation of Bridges, Implementation of Slope Protection Measures, Drainage Works, Installation of Road Safety Infrastructure)	Land	(-) Ground vibration from heavy equipment and vehicles	<ul style="list-style-type: none"> Notify nearby residents in advance about the use of heavy equipment that may generate ground vibration. Apply non-vibration and/or vibration-avoiding techniques during construction, whenever possible. Ensure compliance of hauling trucks with road weight limits.
	Land, Water, People	(-) Generation of construction spoils/debris and other solid wastes	<ul style="list-style-type: none"> Implement solid waste management plan in accordance with RA 9003.
	Land, Water, People	(-) Generation of hazardous wastes	<ul style="list-style-type: none"> Ensure proper onsite handling of hazardous waste in accordance with RA 6969. Ensure proper transport, treatment, storage, and disposal of hazardous waste by DENR-registered transporters and facilities.

Project Phase / Activities	Environmental Component(s)	Potential Impact(s) before Mitigation	Mitigating/Enhancement Measures
	Water	(-) Possible siltation of nearby water bodies	<ul style="list-style-type: none"> • Apply erosion and sediment control measures to minimize runoff to nearby canals/waterways. • Implement proper staging techniques to minimize spillage of paving materials to nearby canals/waterways.
	Land, Water	(-) Potential contamination of soil/water from accidental oil spills/leaks from heavy equipment and vehicles	<ul style="list-style-type: none"> • Implement oil spill management plan.
	Air, People	(-) Generation of dust	<ul style="list-style-type: none"> • Avoid dust-generating activities during windy days, if possible. • Minimize unnecessary earth movement. • Apply dust control measures, such as water spraying and use of canvas cover for soil piles. • Ensure wearing of PPE by workers to protect from airborne dust.
	Air, People	(-) Generation of air emissions and noise	<ul style="list-style-type: none"> • Ensure regular maintenance of heavy equipment and vehicles. • Avoid performing noisy activities at nighttime. • Locate noise-generating sources away from sensitive receptors (e.g., schools, hospitals, worship areas). • Use noise control devices (e.g., temporary noise barriers/deflectors, mufflers), as necessary. • Ensure wearing of PPE by workers to protect from excessive noise.
	People	(-) Occupational health and safety risks	<ul style="list-style-type: none"> • Provide training on construction safety for workers. • Ensure wearing of proper and complete PPE by construction workers. • Ensure supervision of construction activities by trained professionals.

Project Phase / Activities	Environmental Component(s)	Potential Impact(s) before Mitigation	Mitigating/Enhancement Measures
			<ul style="list-style-type: none"> Implement occupational health and safety policy.
	People	(-) Community health and safety risks, including road safety	<ul style="list-style-type: none"> Install safety barriers to prevent unauthorized access to construction areas. Provide early warning devices and/or road safety signs.
	People	(-) Threat to delivery of basic services/resource competition	<ul style="list-style-type: none"> Coordinate with the concerned utility service providers and residents on the schedule of utilities relocation.
	People	(-) Traffic congestion	<ul style="list-style-type: none"> Implement traffic management plan in coordination with the local authorities.
DEMOBILIZATION AND OPERATIONAL PHASE			
Dismantling of Temporary Facilities and Clearance/Clearing of Construction Debris and Waste	Land, Water	(-) Generation of debris and other solid wastes	<ul style="list-style-type: none"> Implement solid waste management plan in accordance with RA 9003.
	Air, People	(-) Generation of dust, air emissions, and noise	<ul style="list-style-type: none"> Apply dust control measures, such as water spraying and use of canvas cover for soil piles. Ensure wearing of PPE by workers to protect from airborne dust and excessive noise. Ensure regular maintenance of heavy equipment and vehicles. Avoid performing noisy activities at nighttime. Use noise control devices (e.g., temporary noise barriers/deflectors, mufflers), as necessary.
	People	(-) Occupational health and safety risks	<ul style="list-style-type: none"> Provide training on construction safety for workers. Ensure wearing of proper and complete PPE by workers. Ensure supervision of construction activities by trained professionals. Implement occupational health and safety policy.

Project Phase / Activities	Environmental Component(s)	Potential Impact(s) before Mitigation	Mitigating/Enhancement Measures
Road Operations and Long-Term Performance Based Maintenance (LTPBM)	Water	(-) Increased rate of surface water runoff	<ul style="list-style-type: none"> Implement stormwater management practices.
	People	(+) Enhancement of employment and livelihood opportunities	<ul style="list-style-type: none"> Prioritize hiring of qualified workers within the host barangays. Coordinate with the PESO of concerned city/municipal LGUs and the barangays for posting of labor requirements.
	People	(-) Generation of road traffic noise	<ul style="list-style-type: none"> Install “No Blowing of Horn” signage at road sections adjacent to noise sensitive areas such as schools, hospitals, and worship places.
	People	(-) Occupational health and safety risks	<ul style="list-style-type: none"> Provide training on construction safety for workers. Ensure wearing of proper and complete PPE by maintenance workers. Ensure supervision of maintenance activities by trained professionals. Implement occupational health and safety policy.
	People	(-) Traffic safety risks	<ul style="list-style-type: none"> Install and maintain signs, signals, markings, and other devices that regulate traffic. Impose appropriate speed limits.

1. INTRODUCTION

1.1 Project Background

The Proposed Mindanao Transport Connectivity Improvement Project (MTCIP) was conceptualized from the Technical Assistance: “Strengthening Road Connectivity to Support Agriculture and Regional Development in Mindanao” completed in March 2020 by the World Bank Group with the support of the Australian Government through the Australia-World Bank Philippines Development Trust Fund. The MTCIP focuses on road upgrading and improvement, incorporating climate resilience into road design and asset management, and the enhancement of road safety measures along the 421.12 km Cagayan de Oro-Davao-General Santos Road Corridor, as well as the new construction and upgrading of three local road sections connecting to the previously mentioned national road corridor.

The primary goal of the project is to support the agriculture sector of Mindanao by providing and enabling a more efficient movement of agriculture products from the hinterlands to markets and to make the mountainous and isolated rural areas more accessible so that they can be reached with ease, convenience, and safety.

The World Bank has expressed its continued support to DPWH in improving transport connectivity in Mindanao’s agricultural hinterlands and main markets to deepen efforts in promoting inclusive growth and shared prosperity in the region. The MTCIP focuses on road upgrading and improvement, incorporating climate resilience into road design and asset management, and enhancing road safety measures along the four road types included in the project: national roads (Main Corridor) and three local roads (Link Roads).

The Environmental and Social Impact Assessment (ESIA) defines significant impacts through risks/impacts assessments for key resources and features associated with proposed activities. It presents recommendations and measures to prevent or mitigate recognized effects, formulates and arranges compensatory measures, and offers a monitoring plan with Environmental Quality Performance Levels (EQPLs). Correspondingly, it likewise lists key consultation and coordination activities and attendant issues and concerns that have been tackled during the assessment.

The ESIA aims to systematically analyze, evaluate, and manage all anticipated environmental and social impacts that the project may derive. It aims to strike a balance between development initiatives and environmental considerations. Ultimately, the assessment results will improve project design and implementation through measures aimed at minimizing, if not totally preventing, adverse social and environmental impacts.

1.2 Scope of the ESIA

This Draft ESIA Report is based on information available at the time of preparation, which includes environmental and social baseline data and preliminary design concepts. This report covers four main components (land, air, water and people) of the Main Corridor and three Link Roads. It is evident that as the project progresses, certain information may not be up-to-date due to changes in baseline conditions. This eventuality reinforces the need to constantly update the existing database to ensure that issues related to environmental and social concerns are appropriately addressed.

1.3 Approach and Methodology

1.3.1 Land

The methodologies employed to obtain the primary data for the land component consist of:

- a. Review of available literature and studies
- b. Reconnaissance survey
- c. Geohazards and Geologic Mapping
- d. Rock sampling identification
- e. Soil sampling and analysis
- f. Flora assessment: transect method
- g. Fauna assessment: passive and active methods

This was supplemented by the requested secondary data from various authorities and sources, including DENR (Mines and Geosciences Bureau (MGB), EMB, and Biodiversity Management Bureau (BMB)), Philippine Institute for Volcanology and Seismology (PHIVOLCS), Philippine Atmospheric, Geophysical and Astronomical Services Administration (PAGASA), LGUs, and DPWH. For the secondary data, online sources of relevant information were also included in the review and analysis of project site environmental characterization.

1.3.2 Water

A variety of methodologies were employed to determine the baseline environmental conditions of the water component. These include:

- a. Review of all available secondary information
- b. Detailed field investigations
- c. Water sampling

As part of this module, the quality of the rivers and creeks that pass under the MTCIP was sampled. The results of the water sampling were compared with the guideline values and standards based on DAO 2016-08 and 2021-19. This is being done to establish a baseline for the concerned bodies of water, as classified by EMB-DENR, and to ensure that the project does not significantly affect their quality. To address any water quality deterioration, various mitigation measures will be taken, including water sampling and monitoring of selected parameters at the affected river stations. These parameters are pH, temperature, dissolved oxygen (DO), total suspended solids (TSS), total dissolved solids (TDS), conductivity, maximum allowable limits. It should be noted, however, that the final scope of work within the main corridor will not include any bridgeworks that would significantly affect water quality in the area.

1.3.3 Air

In order to assess the ambient air baseline conditions within the MTCIP, the following methods were used:

- Desktop review of available secondary data sourced from the Philippine Atmospheric, Geophysical, and Astronomical Services Administration (PAGASA);
- Desktop review of the DENR, DOH, and other international agencies on pertinent regulations and guidelines/standards on air quality.
- Reconnaissance survey and field investigation.

The air quality sampling results are limited to the following parameters relevant to a road project based on RA 8749 (Clean Air Act): PM_{2.5}, PM₁₀, SO₂, and NO₂. Results from the air quality sampling were compared with the National Ambient Air Quality Guideline Values (NAAQGV) of the Implementing Rules and Regulations (IRR) of the Philippine Clean Air Act of 1999 (R.A. 8749), while the results from noise measurements were compared with National Pollution Control Commission (NPCC) Memorandum Circular No. 002 Series of the 1980 National Ambient Noise Standards and the 2007 Environmental, Health, and Safety (EHS) Guidelines of the IFC for Noise Management.

1.3.4 People

Estimating the project-affected population for the DDOA was done by counting the project-affected structures.

For the Main Corridor, an approximation of the affected structures was made using Google Earth and a count of the digitized structures within a 25-m RROW width. This methodology makes the assumption that 20% of the structures are used for residential purposes, while the rest are for commercial and other uses.

For the link roads, the project-affected population was estimated using an actual count of the structures within the 20-meter width of the road. The 20-m road right-of-way includes a 13.4-m carriageway (3.35 m x 4 lanes) and a 1.5-m paved shoulder. The survey included a count and a classification of the use of the structures. The actual count was validated by a GIS estimation of the digitized structures.

In the stakeholder identification and analysis, vulnerable groups were identified within the project area of influence. These vulnerable groups include indigenous peoples, women, solo parents, persons with disabilities, youth and children, and poor and informal settlers' families. These vulnerable groups were consulted and engaged during the formulation of the ESMP and will continue to be involved in the implementation of the ESMP.

The number of informal settler households among the project-affected population was estimated using secondary data from the barangay profiles of all barangays along the three link roads. The secondary information was corroborated with key informants, particularly through key informant interviews with barangay officials.

The identification of the social risks and impacts involved multiple MTCIP stakeholders at various levels of government as well as among sectoral representatives, particularly indigenous peoples, older persons, youth, women, and persons with disabilities.

1.4 ESIA Study Team

This Draft ESIA Report for the MTCIP has been prepared by Galerio Environmental Consultancy Inc. for the Department of Public Works and Highways (DPWH), the lead proponent for the said project. **Table 1-1** presents the ESIA study team.

Table 1-1. ESIA Study Team

Name	Role in the ESIA Study	Qualification
Leonila P. Galerio	Team Leader, Biologist	EIA Registration No. IPCO 021 MSc in Environmental Resource and Management Master in Entrepreneurship B.S. in Biology 18 years

Name	Role in the ESIA Study	Qualification
Julia Echavez	Senior Environmental Specialist	MSc in Environmental Engineering MSc in Public Health Management BS in Chemical Engineering 37 years
Carmeli Chavez	Senior Social Specialist	M.A in Urban and Regional Planning M.A. in Demography B.A. Honours in Sociology B.A in Philosophy 20 years
Oda Beltran	Social Specialist	MSc Agronomy (Farming System) B.S. Agriculture (Weed Science) 35 years
Vanessa Vianca S. Pallarco	Conflict Specialist	B.S. in Arts in Organizational Communication MS in International Studies 13 years
Abigail June L. Agus	Geologist, Hydrologist, GIS Specialist	MSc in Geoinformation Science and Earth Observation B.S. in Geology 20 years
Jefferson Cruz	Forester	MSc in Urban and Regional Planning BS in Forestry 18 years
Thelma D. Dela Cruz	ERA Specialist	Doctor of Philosophy in Environmental Science (candidate) Master of Occupational Health Master of Science (Environmental Science) Doctor of Veterinary Medicine 24 years
Devaney Kreye G. Ocampo	Assistant Geologist/Geophysics	B.S. in Geology 5 years
Hans Frederick B. Quesada	Assistant Geologist/Researcher	B.S in Geology 1 year
Robeen John A. Gerodiaz	Forester/Researcher	B.S. in Forestry 5 years
Maricel R. Dagooc	Forester / Project Coordinator	B.S. in Forestry 5 years
Ariana Kissa G. Saro	Forester/Researcher	B.S in Forestry 1 year
Sphen Tristan Alberio	Researcher	B.S in Environmental Science 4 year
Jecar I. Dela Cerna	Researcher/Project Coordinator	B.S. in Agro-Forestry 5 years
Darvin Louis L. Cadungog	Air sampling technician	B.S. in Agro-Forestry 5 years

2. LEGAL AND INSTITUTIONAL FRAMEWORK

2.1 Philippine Environmental Laws & Regulations

Environmental law is the legal framework specifically addressing issues related to the protection and preservation of the environment. It is a set of legal rules that are specifically addressed to activities that may have potential impacts on the environment, both natural and man-made.

Under the Philippine setting, environmental law encompasses all the protections of the environment that emanate from the following to wit:

Constitution—the fundamentally highest law of the land.

Pertinent provisions of our Philippine Constitution relative to environmental protection:

a. 1987 Philippine Constitution, Article XII, Section 2

*“All lands of the public domain, waters, minerals, coal, petroleum, and other mineral oils, all forces of potential energy, fisheries, forests or timber, wildlife, flora and fauna, and other natural resources are **owned by the State**. With the exception of agricultural lands, all other natural resources shall not be alienated.”*

The above constitutional provision is the embodiment of jura regalia, or the Regalian doctrine, which reserves to the State ownership of all natural resources. The Regalian doctrine is an exercise of the State's sovereign power as owner of lands in the public domain and of the patrimony (natural resources) of the nation.

1. International Laws
2. Laws and Regulations Promulgated by Regulatory Agencies or Implementing Rules and Regulations (IRR); and
3. Supreme Court Decisions interpreting these Laws & Regulations

The pertinent regulatory bodies, procedures, laws, and global environmental accords are listed below.

Presidential Decree (PD) 1586 defines the Philippine Environmental Impact Statement System (PEISS), which is one of the main environmental laws in the Philippines that governs and safeguards the natural and social environments. An Environmental Impact Assessment (EIA) must be performed for any project or endeavor that has the potential to have a major negative impact on the environment. This requirement applies to all national government agencies and instrumentalities, including government-owned and controlled corporations. By enabling the government, decision-makers, project proponents, and impacted communities to manage adverse environmental effects or risks, the PEISS helps to achieve and maintain a reasonable and orderly balance between socioeconomic development and environmental protection. The following regulations are added to the PEISS:

PD 1586: The Philippine Environmental Impact Statement System

Republic Act (RA) 6969: Toxic Substances and Hazardous and Nuclear Wastes Control Act of 1990

RA 8749: The Philippine Clean Air Act of 1999

RA 9003: The Ecological Solid Waste Management Act of 2000

RA 9275: The Philippine Clean Water Act of 2004

RA 9512: Environmental Awareness and Education Act of 2008

The **Environmental Compliance Certificate (ECC)** is issued to a project proponent after a thorough review of their EIA report. The ECC outlines the commitments of the proponent that are necessary for the project to comply with existing environmental regulations or to operate within best environmental practices. Moreover, the ECC contains specific measures and conditions that the proponent has to undertake before, during, and even after the operations phase to mitigate identified environmental impacts.

Various **Memorandum Circulars (MCs)** have also been issued to fill in the gaps of the IRR, along with other rules and regulations related to the PEISS (**Table 2-1**) and other relevant regulations.

Table 2-1. The PEISS and Related Directives for Environmental Protection and Management

Directive	Brief Description
Presidential Decree No. 1121 18 April 1977 Creation of the National Environmental Protection Council (NEPC)	One of the functions is to formulate policies and issue guidelines for the establishment of environmental quality standards and environmental impact assessments.
Presidential Decree No. 1151 06 June 1977 Philippine Environmental Policy	Provides the country's framework for environmental protection and management. The decree outlines the government's commitment to maintaining a balanced and healthful ecology while considering economic and social development.
Presidential Decree No. 1152 06 June 1977 Philippine Environmental Code	It serves as the comprehensive law that addresses environmental management and protection in the Philippines. It covers various aspects, including pollution control, natural resources management, and environmental impact assessments. The code outlines measures for pollution control, waste management, and protection of air and water quality.
Presidential Proclamation 2146 14 December 1981	Proclamation of certain areas and types of ECP and within scope of EIA
PD 1586 11 June 1978	The Philippine Environmental Impact Statement System (PEISS). It establishes an Environmental Impact Statement System including other environmental management related; introduced the concept of ECPs and ECAs
Administrative Order No. 42 02 November 2002	Rationalizing the implementation of the Philippine EIS System and delegation of the signing of ECCs for non-ECPs located in ECS to the EMB Regional Directors.
DENR Administrative Order No. 30 Series of 2003 (DAO 03-30) 30 June 2003	IRR for the Philippine EIS System (PD 1586) rationalizing and streamlining the implementation of the Philippine Environmental Impact Statement (EIS) System established under Presidential Decree (PD) No. 1586, Presidential Proclamation No. 2146 defining the scope of the EIS System and pursuant to Administrative Order No. 42 issued by the Office of the President on November 2, 2002.
EMB Memorandum Circular 2007-002 21 August 2007	Revised Procedural Manual for DAO 2003 – 30. It contains the various rules of procedures of the EIS System particularly in the conduct of the EIA process including fines and penalties for violations of PD 1586.

Directive	Brief Description
EMB MC No. 2011-005 Republic Act 10174 Amending the Climate Change Act of 2009	incorporation of DRR/CCA concerns in the EIA System [enhanced EIS Screening and IEE Checklist] An act establishing the people's survival fund to provide long-term finance streams to enable the government to effectively address the problem of climate change, amending for the purpose republic act no. 9729, otherwise known as the "climate change act of 2009", and for other purposes.
EMB Memorandum Circular 2014-005	Revised Guidelines for Coverage Screening and Standardized Requirements under the Philippine EIS System
DENR AO 2017-15 02 May 2017	Guidelines on Public Participation under the Philippine EIS System
EMB Memorandum Circular 2019-003	Updated Guidelines in the Processing and Issuance of ECC for Category B Projects
DENR MO 2023-01	Guidelines on Project ECC Applications within or with Close Proximity to Protected Areas or RAMSAR Sites

2.1.1 Other Relevant Regulations

Other relevant regulations that need to be complied with or referred to in the preparation of environmental impact assessments required for development projects are shown in **Table 2-2**.

Table 2-2. Other Relevant Regulations

Regulation	Brief Description	Classification
Presidential Decree No. 984 18 August 1976 National Pollution Control Decree of 1976	This decree establishes policies and guidelines for the prevention, abatement, and control of environmental pollution. It provides legal framework for addressing various types of pollution, including air, water, and land pollution.	Environmental Protection and Management Pollution Control
Republic Act No. 6969 26 October 1990 Toxic Substances and Hazardous and Nuclear Wastes Control Act of 1990 DAO No. 2013-22 04 December 2013	It establishes a framework for the management of toxic chemicals and hazardous wastes, ensuring their proper handling, disposal, and monitoring to prevent adverse impacts on human health and the environment.	Environmental Protection and Management
Republic Act No. 7586 01 June 1992 National Integrated Protected Areas System (NIPAS) Act of 1992 As Amended by Republic Act No. 11038 22 June 2018 Expanded National Integrated Protected Areas System Act of 2018	The law designates certain areas as protected areas to conserve and promote sustainable use of biological diversity and natural resources.	Biodiversity
Republic Act No. 8749 23 June 1999 Philippine Clean Air Act of 1999 DAO No. 2000-81 7 November 2000	The law provides a comprehensive framework for air quality management, emission standards, and control measures to mitigate the adverse effects of air pollution on public health and the environment.	Environmental Protection and Management Pollution Control
Republic Act No. 9003 26 January 2001 Ecological Solid Waste Management Act of 2000 DAO 2001-34	It addresses the issue of solid waste management. It outlines guidelines for the proper disposal, segregation, collection, recycling, and treatment of solid wastes.	Environmental Protection and Management Pollution Control

Regulation	Brief Description	Classification
20 December 2001	Implementing Rules and Regulation of RA No. 9003	
Republic Act No. 9275 22 March 2004 Philippine Clean Water Act of 2004	It establishes guidelines for the prevention, control, and abatement of pollution from water discharges. The law regulates activities that may lead to water pollution, sets water quality standards, and empowers government agencies to monitor and enforce compliance.	Environmental Protection and Management Pollution Control
DAO No. 2016-08 24 May 2016 DAO No. 2021-19 30 June 2021	Water Quality Guidelines and General Effluent Standards Updated Water Quality Guidelines (WQG) and General Effluent Standards (GES) for Selected Parameters	Environmental Protection and Management Pollution Control
DOH AO No. 2017-10 23 June 2017	Philippine National Standards for Drinking Water of 2017	Environmental Health Protection
Republic Act No. 11285	Energy Efficiency and Conservation Act of 2019	Energy Regulation
Presidential Decree 856	Sanitation Code of the Philippines	Health and Sanitation
DENR AO 2003-24 30 June 2003	Pursuant to RA 9175, Requiring the securing of Chainsaw Permit for cutting/clearing of trees from DENR	Biodiversity
DENR AO 2003-27 August 2003	Self-Monitoring Report (SMR) System	Environmental Protection and Management
DENR MC 2004-26 & 2007-03	Requiring Permit to Operate Generator Sets	Environmental Protection and Management Pollution Control
DENR AO 2004-59 11 August 2004	Forest Land use Agreement (FLAg)	Environmental Protection and Management
DENR AO 2007-17 25 July 2007	Pursuant to RA 7586, (1992), National Integrated Protected Areas System/, Rules and Regulations on Special use Agreement within Protected Area (SAPA)	Environmental Protection and Management
DENR MO 2012-02 05 November 2012	Uniform Seedling Replacement Ratio for Cut Trees	Biodiversity
RA 7942 3 March 1995	Philippine Mining Act (RA 7942) requiring Quarry Permit to be secured from the Local Government	Environmental Protection and Management
RA 8048 7 June 1995	Philippine Coconut Authority (PCA) Permit to cut Coconut Trees	Biodiversity
DENR AO 1987-78, DENR AO 1988-86, DENR AO 2000-21	Special Tree Cutting Permit (STCP)	Biodiversity
DENR AO 2016-23	Adoption of Euro4/IV Emission Limits/Standards	Environmental Protection and Management Pollution Control
DENR AO 2020-14 21 October 2020	Establishing Air Quality Index (AQI) for PM _{2.5} and amending the provisional short term guideline values for PM _{2.5} at 35 ug/Ncm	Environmental Protection and Management Pollution Control
DENR AO 2017-11 2017	Updated National List of Threatened Philippine Plants and their Categories	Biodiversity
DENR AO 2019-09 2019	Updated List of Threatened Philippine Fauna and their Categories	Biodiversity

Regulation	Brief Description	Classification
DENR AO 2000-08	Implementing Guidelines on Engineering Geological and Geo-Hazard Assessment (EGGA)	Environmental Protection and Management
DPWH DO 2023-025	Implementation of Slope Protection Supplemental Guidelines	DPWH Guidelines
DPWH DO 2003-05	Stipulating the necessary guidelines for the preparation of land acquisition and resettlement action plan for infrastructure projects	
DPWH DO 2017-65	Stipulating the scope and delegation of the ROW functions and creation and composition of ROW task forces	
DPWH DO 2019-142	Clearing of Structures/Improvements, Trees/Crops within ROW Limits of Projects	
DPWH DO 2022-159	Implementation of Social & Environmental Management System Operations Manual	
DPWH DO 2003-327	Guidelines for Land Acquisition and Resettlement Action Plans (LAPRAPs) for Infrastructure Projects	
NCIP AO 3 s 2012	Revised Guidelines on Free and Prior Informed Consent (FPIC) and Related Processes of 2012	
Occupational Safety and Health Standards 1989	Amended Philippine Occupational Safety and Health Standards	Health and Safety

2.1.2 Overview of the Philippine Environmental Impact Assessment Process

The Philippine EIA process consists of six sequential stages: 1) screening, 2) scoping, 3) EIA study and report preparation, 4) EIA review and evaluation, 5) decision-making (issuance or denial of ECC), and 6) post-ECC monitoring, validation, and evaluation/audit stage. **Figure 2-1** presents a summary flowchart of the EIA process and highlights stages that require public involvement.

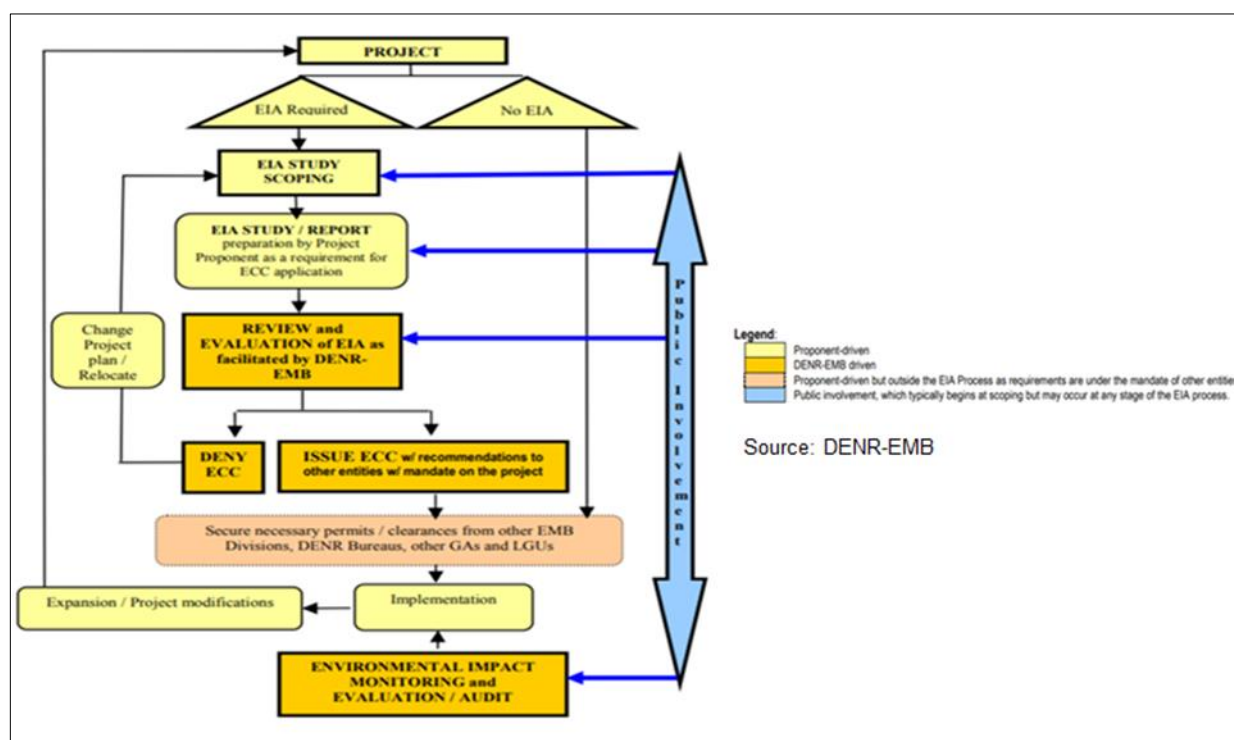


Figure 2-1. Summary Flowchart of the EIA Process**2.1.2.1 Projects Requiring EIA**

At the project screening, the type and location of the project become the basis for project categorization. More specifically, environmentally critical projects (ECPs) or those located in environmentally critical areas (ECAs) and presumed to have significant impacts on the environment are subject to EIA. **Table 2-3** presents the four major categories based on EMB Memorandum Circular No. 2014-005, or the Revised Guidelines for Coverage Screening and Standardized Requirements.

Table 2-3. Description of Project Categories for EIA under PEISS

Category	Type and Location of the Project
Category A Environmentally Critical Projects (ECPs)	Projects or undertakings that are classified as ECPs under the Presidential Proclamation No. 2146 (1981), Proclamation No. 803 (1996), and any other projects that may later be declared as such by the President of the Philippines. Proponents of these projects implemented from 1982 onward are required to secure an ECC.
Category B Non-Environmentally Critical Projects (NECP) but located in Environmentally Critical Areas (ECAs)	Projects or undertakings that are not classified as ECP under Category A but that are likewise deemed to significantly affect the quality of the environment by virtue of being located in ECA as declared under Proclamation 2146 and according to the parameters set forth in the succeeding sections. Proponents of these projects, implemented from 1982 onwards, are required to secure an ECC.
Category C Environmental Enhancement or Direct Mitigation Project	Projects or undertakings not falling under Category A or B that are intended to directly enhance the quality of the environment or directly address existing environmental problems.
Category D Non-Covered Project	Projects or undertakings that are deemed unlikely to cause a significant adverse impact on the quality of the environment according to the parameters set forth in the screening guidelines. These projects are not covered by the Philippine EIS system and are not required to secure an ECC. However, such non-coverage will not be construed as an exemption from compliance with other environmental laws and government permitting requirements.

2.1.2.2 Types of Reports Required for ECC

Projects covered under the EIA are required to submit documents for the application of either the ECC or the Certificate of Non-Coverage (CNC). **Table 2-4** shows a summary of the project groups, the documents to be complied with, and the deciding authority for each category based on EMB MC 2014-005.

Table 2-4. Summary of Documents Required for ECC or CNC Application

Project Group	Project	Documents For Application	Required ECC/CNC	Decision Document	Deciding Authority
Category A ECP	A-1: New	Co-located	PEIS	ECC	EMB Central Office
		Single	EIS		
	A-2: Existing and to be expanded, modified and/or rehabilitated.	Co-located	PEPRMP in case programmatic monitoring data are available		
		Single			

Project Group		Project	Documents For Application	Required ECC/CNC	Decision Document	Deciding Authority
	A-3: Operating without ECC		EPRMP in case monitoring data is available. EIS if no monitoring data is available.			
Category B NECP in ECA	B-1: New	Co-located	PEIS		ECC	EMB Regional Office in the region where the project is located
		Single	EIS, IEEC		ECC	
	B-2: Existing and to be expanded, modified and/or rehabilitated.	Single	EPRMP, Checklist	EPRMP	ECC	
		Co-located	PEPRMP		ECC	
Category C Environmental Enhancement or Direct Mitigation Project	B-3: Operating without ECC	Co-located/ single	Project Description (Part I and II) (to confirm non-coverage or further classify as either Category A or B)		CNC	EMB Regional Office in the region where the project is located
Category D Non-Covered Project			Project Description (Part 1 only) Project prior to 1982 – Proof of Project Implementation prior to 1982 without expansion/alteration/modification shall be submitted (if applying for CNC) to 1982 – Proof of Project Implementation prior to 1982 without expansion/alteration/modification shall be submitted (if applying for CNC)		CNC	EMB Regional Office in the region where the project is located

2.1.3 Environmental Standards

2.1.3.1 Surface Water Quality

DAO No. 2016-08 provides the Water Quality Guidelines (WQG) and General Effluent Standards (GES) for different classifications of water bodies. These are presented in **Table 2-5** and

Table 2-6. An updated WQG and GES for selected parameters were provided in DAO 2021–19.

Table 2-5. Classification of Water Body

Class	Description
Class AA	Public Water Supply Class I – Intended primarily for waters having watersheds, which are uninhabited and/or otherwise declared as protected areas, and which require only approved disinfection to meet the latest Philippine National Standards for Drinking Water (PNSDW)
Class A	Public Water Supply Class II – Intended as sources of water supply requiring conventional treatment (coagulation, sedimentation, filtration and disinfection) to meet the PNSDW

Class	Description
Class B	Recreational Water Class I – Intended for primary contact recreation (bathing, swimming, etc.)
Class C	Fishery Water for the propagation and growth of fish and other aquatic resources. Recreational Water Class II – for boating, fishing, or similar activities For agriculture, irrigation, and livestock watering
Class D	Navigable waters

Table 2-6. Surface Water Quality Standards

Parameter	Class A	Class B	Class C
Color	50	50	75 TCU
Temperature	26-30°C	26-30°C	25-31°C
pH (Range)	6.5-8.5	6.5-8.5	6.5-9.0
Dissolved Oxygen (DO)	5 mg/L	5 mg/L	5 mg/L
Biochemical Oxygen Demand (BOD)	3	5 mg/L	7 mg/L
Total Suspended Solids (TSS)	50 mg/L	65 mg/L	80 mg/L
Surfactants (MBAS)	0.2 mg/L	0.3 mg/L	1.5 mg/L
Oil and Grease (Petroleum Ether Extracts)	1 mg/L	1 mg/L	2 mg/L
Nitrate as Nitrogen	7 mg/L	7 mg/L	7 mg/L
Phosphate as Phosphorus	0.025 mg/L*	0.025 mg/L*	0.025 mg/L*
Phenolic Substances and Phenols	<0.001 mg/L	<0.001 mg/L	0.05 mg/L
Fecal Coliforms	50 MPN/100mL*	100 MPN/100mL*	200 MPN/100mL*
Chloride as Cl	250	250	350 mg/L
Copper (Dissolved Copper)	0.2 mg/L*	0.2 mg/L*	0.2 mg/L*
Arsenic (As)	0.01 mg/L	0.01 mg/L	0.02 mg/L
Cadmium (Cd)	0.003 mg/L	0.003 mg/L	0.005 mg/L
Chromium (Hexavalent)	0.01 mg/L	0.01 mg/L	0.01 mg/L
Cyanide (CN-)	0.07 mg/L	0.07 mg/L	0.1 mg/L
Lead (Pb)	0.01 mg/L	0.01 mg/L	0.05 mg/L
Total Mercury (Hg)	0.001 mg/L	0.001 mg/L	0.002 mg/L
Organophosphate as Malathion	1 µg/L	1 µg/L	3 µg/L

Note: *DAO 2021-19 (Updated WQG and GES for Selected Parameters)

2.1.3.2 Ambient Air Quality

DAO No. 2000-81, also known as the IRR of RA No. 8749 (Clean Air Act of 1999), sets the national ambient air quality standards (NAAQS) for criteria pollutants, while DAO No. 2013-13 provides for the provisional national ambient air quality guideline values for PM_{2.5}. **Table 2-7** presents the applicable NAAQS.

Table 2-7. Applicable National Ambient Air Quality Standards

Parameter	Unit of Measure	Averaging Time	Standard
Total suspended particulates	µg/normal cubic meter (Ncm)	24-hours	230
PM ₁₀	µg/Ncm		150
PM _{2.5}	µg/Ncm		50
SO ₂	µg/Ncm		180
NO ₂	µg/Ncm		150
Lead (Pb)	µg/Ncm		1.5
Carbon Monoxide (CO)	mg/Ncm	1-hour	35
Ozone (O ₃)	µg/Ncm		140

2.1.3.3 Ambient Noise Level

Below are the relevant Philippine regulations and/or guidelines pertaining to noise.

- National Pollution Control Commission (NPCC), Section 78, Table 1
- NPCC Memorandum Circular 1980-002

- Noise-permissible limits in workplaces, as regulated by the DOLE

The first two regulations are directives from DENR on environmental or ambient noise standards generally aimed to protect the public or communities that reside adjacent to or outside an establishment or facility, while the third regulation is about workplace noise standards by the Department of Labor and Employment (DOLE) for workers who may be exposed to unwanted sound (or noise) within their work areas.

The National Pollution Control Commission (NPCC) in 1976 developed ambient noise standards based on the land use of the area and the time of day. These criteria have not been amended or modified since 1980, and the DENR has adopted them to define the primary ambient noise standards as presented in **Table 2-8**.

Table 2-8. Standards for Ambient Noise

Category of Area	Description	Maximum Allowable Noise Level, dB (A)		
		Daytime	Morning/Early Evening	Nighttime
Class AA	Generally quiet areas such as areas within 100 meters from school sites, nursery schools, hospitals and special homes for the aged.	50	45	40
Class A	Areas primarily used for residential purposes	55	50	45
Class B	Areas zoned or used as commercial area	65	60	55
Class C	Areas zoned or used as a light industrial area	70	65	60
Class D	Areas zoned or used as a heavy industrial area	75	70	65

2.1.3.4 *Permits for Project Construction and Operation*

Prior to any construction work for the project, the permits listed in **Table 2-9** need to be secured from the appropriate government agencies and local government units.

Table 2-9. Relevant Permits Required for the Project

Name of Permit	Brief Description
Environmental Compliance Certificate (ECC)	A document issued by the DENR/EMB after a positive review of an ECC application certifies that the proponent has complied with all the requirements of the EIS System and has committed to implementing its approved Environmental Management Plan.
Certificate of No Overlap (CNO)	A certificate issued by the National Commission on Indigenous People (NCIP) stating that the project did not affect
Permit to Cut (Coconut)	A permit must first be secured and issued by the PCA prior to the cutting of coconut trees.
Tree Cutting Permit (TCP)	Inside resettlement areas, reservations, etc., and trees in public and private places that pose damage to human lives and/or properties as evaluated by DENR
Tree Cutting within Titled/Private Land	Naturally grown trees (non-premium and premium species)
Permit to Operate – Air Pollution Control Installation (PTO-APSI)	This permit must be secured for the project use of generators.
Certification Precondition (CP) or CNO	This is issued by the National Commission on Indigenous Peoples (NCIP) to certify the compliance of the project with the requirements of the Indigenous Peoples' Rights Act (IPRA) of 1997.

Name of Permit	Brief Description
ECC and Permit to Operate for Quarry, Batching Plant and Crusher Plant	A document issued by the DENR-EMB certifying the project operations will not bring about unacceptable environmental impacts and conditions, as well as environmental safeguards that the proponents should comply with.
Pollution Control Accreditation Certification	Certifications issued by the DENR-EMB to personnel with appropriate training in accordance with the Philippine Clean Air Act, Clean Water Act, and other environmental laws.
Safety Officer Certification	Issued by the Occupational Safety and Health Standards (OSHS) of the Department of Labor and Employment (DOLE) for personnel qualified to oversee safety and health programs.
Hazardous Waste Generator's ID	Issued by the DENR-EMB based on the provisions of Republic Act N0.6969 (Toxic Substances and Hazardous Materials) and the Nuclear Wastes Control Act of 1990.
Business Permit of Contractors	Issued by the head of the LGU where the main office of the contractor is located.
Electric and Water Connection Permits	Permits to be secured by the contractor from the local electric and water cooperatives.

2.1.4 Social

2.2 International Conventions, Treaties and Protocols Ratified by the Philippines

The international conventions, treaties, and protocols (ICTPs) that the Philippines has ratified is presented in **Table 2-14**.

Table 2-14. International Conventions, Treaties, and Protocols Ratified by the Philippines

Category	Name of Treaty (Year Ratified)	Date Ratified
Biodiversity	• Convention on International Trade in Endangered Species of Wild Fauna and Flora, 1973	• November 1981
	• Convention on Biological Diversity, 1992	• June 1992
	• Convention on the Conservation of Migratory Species of Wild Animals, 1983 (1994, February)	• February 1994
	• Convention on Wetlands of International Importance, 1971 (1994, November)	• November 1994
	• Cartagena Protocol on Biosafety, 2000 (to the Convention on Biological Diversity (2006, October)	• October 2006
	• Nagoya Protocol on Access to Genetic Resources & the Fair & Equitable Sharing of Benefits Arising from their Utilization-Supplementary Agreement to the Convention of Biological Diversity	• September 2015
Climate Change	• Vienna Convention for the Protection of the Ozone Layer, 1985	• July 1991
	• Montreal Protocol on Substances that Deplete the Ozone Layer, 1987	• July 1991
	• London Amendment (to the Montreal Protocol), 1990	• August 1993
	• United Nations Framework Convention on Climate Change, 1994	• November 2003
	• Kyoto Protocol to the United Nations Convention on Climate Change, 1998	• November 2003
	• Paris Agreement Adopted in the 21st Session of the Conference of Parties to the United Nations Framework Convention on Climate Change, 2015	• December 2017
Pollution	• Basel Convention on the Control of Transboundary Movements of Hazardous wastes and their Disposal, 1992	• October 1993

Category	Name of Treaty (Year Ratified)	Date Ratified
Historical/Cultural Heritage	<ul style="list-style-type: none"> UNESCO Convention Concerning the Protection of the World Cultural and National Heritage, 1972 	<ul style="list-style-type: none"> May 1985

2.3 World Bank Frameworks, Policies, and Standards

2.3.1 World Bank Environmental and Social Framework (ESF)

The World Bank has several frameworks, policies, and standards that provide a comprehensive set of guidelines and requirements for the planning, implementation, and monitoring of road investment projects financed by the World Bank. They cover aspects such as environmental and social safeguards, procurement processes, financial management, and risk assessment. The Environmental and Social Framework (ESF) is a set of policies and standards established by the World Bank to address environmental and social risks and impacts associated with projects financed by the Bank. It aims to protect people and the environment from potential adverse impacts that could arise from World Bank-financed projects. It applies to all World Bank Investment Project Financing (IPF) on or after October 1, 2018. The ESF consists of the World Bank's Vision for Sustainable Development, the Environmental and Social Policy for Investment Project Financing, and the ten Environmental and Social Standards (ESSs). The ESSs set out the requirements for Borrowers relating to the identification, assessment, and mitigation of environmental and social (E&S) risks and impacts associated with projects financed by the Bank.

The 10 environment and social standards are as follows:

- ESS1: Assessment and Management of Environmental and Social Risks and Impacts
- ESS2: Labor and Working Conditions
- ESS3: Resource Efficiency and Pollution Prevention and Management
- ESS4: Community Health and Safety
- ESS5: Land Acquisition, Restrictions on Land Use and Involuntary Resettlement
- ESS6: Biodiversity Conservation and Sustainable Management of Living Natural Resources
- ESS7: Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities
- ESS8: Cultural Heritage
- ESS9: Financial Intermediaries
- ESS10: Stakeholder Engagement and Information Disclosure

For road projects specifically, the ESF applies to IPF for road construction, maintenance, or improvement projects. The ESF requires the Borrowers to comply with the ESSs throughout the life of the project, which includes addressing direct and indirect linkages to climate change-related risks. The ESF also mandates the Borrowers to assess and manage environmental and social risks and impacts arising from road projects, including potential adverse impacts on communities from project-related activities. Additionally, the ESF requires the Borrowers to engage in meaningful consultation with stakeholders, identify appropriate methods and tools to assess and manage potential environmental and social risks, and monitor the environmental and social performance of road projects in accordance with the ESSs.

2.3.2 World Bank Environmental, Health, and Safety (EHS) Guidelines for Road Projects

The Environmental, Health, and Safety (EHS) Guidelines are technical reference documents with general and industry-specific examples of Good International Industry Practice (GIIP). The General EHS Guidelines are designed to be used together with the relevant Industry Sector EHS Guidelines.

2.3.2.1 World Bank Group (WBG) General EHS Guidelines¹

The General EHS Guidelines contain the following information:

- Environmental (Air Emissions and Ambient Air Quality, Energy Conservation, Wastewater and Ambient Water Quality, Water Conservation, Hazardous Materials Management, Waste Management, Noise, Contaminated Land)
- Occupational Health and Safety (General Facility Design and Operation, Communication and Training, Physical Hazards, Chemical Hazards, Biological Hazards, Radiological Hazards, Personal Protective Equipment, Special Hazard Environments, Monitoring)
- Community Health and Safety (Water Quality and Availability, Structural Safety of Project Infrastructure, Life and Fire Safety, Traffic Safety, Transport of Hazardous Materials, Disease Prevention, Emergency Preparedness and Response)
- Construction and Decommissioning (Environment, Occupational Health and Safety, Community Health, and Safety)

2.4 Comparative/Gap Analysis between WB ESSs and the GOP laws and Regulations

Table 2-15 presents the comparative/gap analysis between the WB ESSs and the GoP laws and regulations and the corresponding measures aimed at closing the gap.

¹ [Final - General EHS Guidelines_APRIL 29.doc \(ifc.org\)](#)

Table 2-15. Gap Analysis Between World Bank ESS and Relevant Philippine Laws and Regulations

World Bank ESS	Counterpart Philippine Legislation	Comparative/Gap Analysis	Response Measures
ESS - Assessment and Management of Environmental and Social Risks and Impacts	<p>PD 1586 (1987) – Philippine EIS System: DENR AO 2003-30: EMB MC No. 2007-002- Revised Procedural Manual of DAO 2003-30; EMB MC 2014-005- Revised Guidelines for Coverage Screening and Standard Requirements.</p> <p>DPWH Social and Environmental Management Systems Manual of 2016</p>	<p>The WB ESS1, as well as the PEISS, applies to MTCIP.</p> <p>Considering the project component's location, nature and size, the project components are covered by the Philippine Environmental Impact Statement (EIS) System guidelines, thus will be required to secure an Environmental Compliance Certificate (ECC). Those sections which will not be covered will be issued with a Certificate of non-coverage (CNC).</p> <p>However, based on the screening process under DENR EMB MC No. 2014-005, MTCIP components, e.g. sections of the existing Main Corridor which will be repaired to address environmental related problems, e.g. slope protection, climate adaptation such as improvement of flood control structures, including installation of road safety barriers/signs components will not be covered by the PEISS, and issued with a Certificate of Non-Coverage (CNC).</p> <p>Furthermore, the type of EIA document needed to support the ECC application for MTCIP will depend on the scale/length of the road/bridge and on the presence/absence of critical slopes.</p> <p>Those sections of the Main Corridor which have been operating prior to 1982 and will undergo road widening within the existing RROW and the length of which is less than the threshold limit of 20 km or less than 10 km with critical (>50 degree) slopes, the supporting EIA document for ECC application will be IEE Checklist. Construction of the new link roads,</p>	<p>Under ESS1, An Environmental and Social Impact Assessment (ESIA) will be conducted and an ESMP including the additional necessary environmental instruments will be prepared for a selected Link Road project component.</p> <p>Likewise, under DENR EMB MC No. 2014-005, a link road and/or bridge, whether for upgrading or to be newly constructed, if the scale/length and presence of slopes is more than the threshold limits (see comparative/gap analysis column), then, an EIS (full EIA with EMP report) will be required.</p> <p>All MTCIP project components, either for construction of the new link Roads, or for the repair, rehab, widening or slope protection of the sections of the Main Corridor covered by the MTCIP, shall be secured with the appropriate environmental clearance certification-ECC or CNC, with the corresponding appropriate supporting EIA report.</p> <p>This draft ESIA also includes provision for the management of contractors to ensure contractor operations are consistent with the requirements of the ESS/GoP environmental regulations.</p>

World Bank ESS	Counterpart Philippine Legislation	Comparative/Gap Analysis	Response Measures
		depending on the scale, i.e. If within the threshold limits, ECC application shall be likewise required to be supported with an IEE Checklist, otherwise, an EIS report shall be required. Whether the required EIA report will be an IEE Checklist or an EIS, data from the ESIA and the ESMP can be utilized or extracted either for the preparation of the IEE Checklist or for the EIS report.	
ESS2 - Labor and Working Conditions	<p>RA 6715 – Labor Code of the Philippines</p> <p>RA 11058 - Occupational Safety and Health Standards Act and DOLE DO 198- 2018</p> <p>Joint Memorandum Circular No. 1, series 2020 – Occupational Safety and Health Standards for the Public Sector</p> <p>RA 66859 – Private Contractors to whom national, provincial, city and municipal public works projects to hire at least 50 % of unskilled and at least 30% of skilled labor requirements to be taken from bonafide residents in the province and/or city where the project is located.</p>	The Philippine labor laws and regulations contain the key elements of ESS2 that includes labor management procedures, terms and conditions of employment, rights of workers, occupational health and safety, non- discrimination and equal opportunity, prohibition on forced labor, and provisions on workers' organizations, grievance mechanism, and regulations for vulnerable workers, including child workers. However, the regulations are not clear on measures to prevent harassment, other than sexual and gender-based offenses, exploitation in the workplace, and on provision of social benefits and applicability of grievance mechanism to contract employees in the public sector.	Labor Management Procedures (LMP) will be prepared to fully align with the ESS2.
ESS3 - Resource Efficiency and Pollution Prevention and Management	<p>RA 8749 – Philippine Clean Air Act of 1999 and DENR AO 2000-81</p> <p>RA 9275 – Philippine Clean Water Act of 2004 and DENR AO 2016-08 and 2021-19</p> <p>RA 9003 – Ecological Solid Waste Management Act of 2000 and DENR AO 2001-34</p>	<p>Counterpart Philippine legislations conforms with the requirements of ESS3.</p> <p>Pertinent Philippine regulations/standards such as RA8749, RA9275, RA9003, and RA6969 will apply to road repair, rehabilitation, road widening including road/bridge construction activities which will create potential impacts related to air pollution from dust emission from site</p>	<p>The Environmental and Social Management Plan (ESMP) will be developed to manage the anticipated environmental and social impacts of the Project.</p> <p>The ESMP shall form part of the bid document for project contractors' compliance.</p>

World Bank ESS	Counterpart Philippine Legislation	Comparative/Gap Analysis	Response Measures
	<p>RA 6969 - Toxic Substances and Hazardous and Nuclear Wastes Control Act of 1990 and DENR AO 2013-22</p> <p>RA 11285 – Energy Efficiency and Conservation Act of 2019</p>	works and emission from equipment and construction vehicles used for construction; water pollution from runoff or soil erosion from stockpiled construction materials, wastewater from domestic sewage of construction workers, and accidental spillage of oil and other lubricants; noise from construction activities that may disturb nearby communities; generation of construction wastes and possibly hazardous materials such as used lead acid batteries, busted lamps, used oil, etc. Likewise, with ESS3 requirements, Quarry sites shall be secured with permits from the local government.	
ESS4 - Community Health and Safety	<p>PD 1586 (1987) - Philippine EIS System and DENR AO 2003-30</p> <p>Presidential Decree 856 – Sanitation Code of the Philippines</p> <p>RA 11058 - Occupational Safety and Health Standards</p> <p>DOLE Department Order 198-2018</p>	The ESS4 and pertinent GoP public health laws will apply to the Project. *** The repair/rehab/road widening works may be conducted near sensitive receptor premises such as school/clinics/other community service facilities, where civil works may pose hazards. There will be a number of vehicles transporting equipment and construction materials to the project site that may generate noise, dust, and temporary disturbance, and risk to vehicular accidents to staff and occupants of the school and health centers and to the nearby communities.	The Environmental and Social Management Plan (ESMP) will be developed to manage these anticipated environmental and social impacts of the Project.
ESS5 - Land Acquisition, Restrictions on Land Use and Involuntary Resettlement	<p>RA 10752 – An Act facilitating the Acquisition or Right of Way, Site or Location for National Government Infrastructure Projects.</p> <p>RA No. 8974 - An Act to Facilitate the Acquisition of Right-of-Way, Site or Location for</p>	<p>MTCIP project components will involve land acquisition or resettlement impacts. Temporary displacement or disruptions to household activities or farming operations are anticipated.</p> <p>Although the governing laws and policies in the country significantly meet the requirements of the international finance</p>	A Resettlement Policy Framework will be prepared in conjunction with this draft ESIA.

World Bank ESS	Counterpart Philippine Legislation	Comparative/Gap Analysis	Response Measures
	<p>National Government Infrastructure Projects and for Other Purposes.</p> <p>Art. III, Sect. 9 of the 1987 Constitution - Private property shall not be taken for public use without just compensation.</p> <p>RA 7279 Urban Development and Housing Act of 1992</p>	<p>institutions like the WB, some gaps are still unavoidable. These gaps are addressed in the RAP documents as “gap filling measures”.</p>	
ESS6 - Biodiversity Conservation and Sustainable Management of Living Natural Resources	<p>PD 705- Forestry Reform Code of the Philippines</p> <p>RA 9147- The Philippines' Wildlife Act</p> <p>RA 7586 and 11038 - National Integrated Protected Areas System</p> <p>DENR M.O. No. 2012-02- Uniform Replacement Ratio for Cut or Relocated Trees</p> <p>DENR AO No. 2017-11 (Threatened Flora) and 2019-09 (Threatened Fauna)</p>	<p>GoP's NIPAS, DENR's guidelines on uniform replacement of cut trees, and DPWH policies on minimizing cutting of trees and clearing of vegetation in road projects, are consistent with ESS6 requirements.</p>	<p>A site specific ESMP will be prepared to address the concern on protection of biodiversity conservation areas.</p>
ESS 7 - Indigenous People/Sub-Saharan African Historically Underserved Traditional Local Communities	<p>RA 8371 – Indigenous Peoples Rights Act (IPRA)</p> <p>DPWH DO No. 43, Series of 2020. Guidelines for Right-of-Way (ROW) Acquisition and Payment of Ancestral Domain Affected by the Implementation of National Government Infrastructure Projects</p>	<p>Some sections/components of MTCIP, particularly the new link roads, will traverse through identified ancestral domains of Indigenous Peoples (IPs).</p> <p>Engaging with IP communities is protected under NCIP Administrative Order No. 3 s. 2012 or the Revised Guidelines on FPIC of 2012. It is decisive and absolute in its procedures as implemented by NCIP.</p> <p>FPIC information requirements requiring validation are</p> <ul style="list-style-type: none"> (i) FBI Report; (ii) Identity of the IP Elders and Leaders; 	<p>An Indigenous Peoples Policy Framework will be developed for MTCIP.</p>

World Bank ESS	Counterpart Philippine Legislation	Comparative/Gap Analysis	Response Measures
		(iii) IP Decision-making process; (iv) Census of IPs/migrant IPs; (v) Area affected; (vi) Existence of boundary conflict with other ancestral domains; (vii) Conflict resolution mechanism and facilitate the conduct of the same by the chosen/selected Elders/Leaders; and (viii) Proceedings towards IP community consensus building.	
ESS8 - Cultural Heritage	RA 10066 – Philippine Cultural Heritage Act)	RA 10066 and ESS8 are applicable to this Project. Archaeological artifacts may be accidentally discovered during excavation or clearing activities for some road widening activities or for the new link roads.	A Chance Finds procedure will be developed and included in this draft ESIA based on the guidelines of the National Museum and the National Historical Institute.
ESS9 - Financial Intermediaries		ESS9 is not applicable to the Project. There are no Financial Intermediaries (FIs) or public and private financial services providers involved in the Project.	
ESS10 - Stakeholder Engagement and Information Disclosure	PD 1586 (1987) – Philippine EIS System DENR AO 2017-15 – guidelines on Public Participation under the Phil. EIS System Local Government Code of 1991 DPWH Social and Environmental Management Systems Manual of 2021	ESS10 applies to the Project. The public disclosure and consultations starting from the project preparation up to project implementation and operation, will enable stakeholders to give feedback on Project risks and impacts and that may help develop measures to address these issues. Key stakeholders of the Project include LGU officials, elders from the concerned IP, PAPs, and other interested parties.	The Stakeholder Engagement Framework (SEF) is developed to provide guidance in engaging stakeholders through open and participatory consultations with communities and affected persons.

3. DESCRIPTION OF THE PROJECT

3.1 Project Context

The Department of Public Works and Highways (DPWH) is in the process of securing a loan for the Mindanao Transport Connectivity Improvement Project (MTCIP) under the World Bank Group to strengthen road connectivity to support agriculture and regional development in Mindanao. The MTCIP is fully aligned with the Philippine Development Plan 2023-2028 as it supports the agricultural sector and contributes to the goal of expanding and upgrading infrastructure through the improvement of transport connectivity, embedding climate resilience in road design and asset management, and strengthening road safety measures along one of the important transport corridors, Cagayan de Oro-Davao-General Santos City Road.

The MTCIP aims to address the transportation and logistics challenges faced by the agricultural sector in Mindanao and increase the incomes of smallholder farmers. Its primary objective is to improve road connectivity, enhance climate resilience, and ensure road safety along the main national highways, including the 421.12 km Sayre Highway, Bukidnon-Davao Road, Digos-Makar Road, and Davao-Cotabato Road (Davao City-Junction Digos Section), which collectively form the Main Corridor (MC) passing through the cities of Cagayan de Oro (CDO), Davao, and General Santos. Additionally, the project plans to upgrade three local road sections with a total length of 129.86 kilometers connected to the Main Corridor. These local roads or Link Roads are Link Road 1 (Sayre Highway (Patulangan)-Cawayan-Kibenton Rd.-Intavas, La Fortuna-Sayre Highway), Link Road 2 (Fatima Malabog Rd.-Mahayahay-Polocon Rd.-Saloy Bantol Davao Bukidnon Rd. to Panabo City), and Link Road 3 (National Highway Jct Poblacion Malungon to Sta Maria Rd. Davao Occidental).

3.2 Proposed Project

3.2.1 Project Proponent

DPWH is the lead proponent for the Project as the Implementing Agency (IA), with the oversight of the Unified Project Management Office (UPMO)—Roads Management Cluster II (RMC II). The Project will be further complemented by the involvement of DPWH Region X, XI, and XII offices, alongside relevant district offices, ensuring comprehensive coverage and effective implementation across the targeted areas.

1.1.1 Project Objectives

The MTCIP's main goal is to improve transport infrastructure and accessibility across Mindanao to boost economic and social development needs. It will help farmers in remote areas by making transportation cheaper and easier. The Project also aims to enhance road users' safety along the Main Corridor and Link Roads with strategies geared towards protecting commuters, including drivers, passengers, pedestrians, and motorists, against accidents and crashes, as well as reducing the risks of such incidents occurring and minimizing their severity through different mitigation measures.

1.1.1 Project Location

The proposed MTCIP will improve the Main Corridor, connecting key areas across Mindanao, including six cities and 13 municipalities in eight provinces: Misamis Oriental, Bukidnon, Davao del Sur, Davao Occidental, Davao del Norte, Cotabato, Sarangani, and South Cotabato. These

regions fall under the jurisdiction of Northern Mindanao (Region X), Davao Region (Region XI), and Sarangani (Region XII).

Starting from Cagayan de Oro in the north and ending in General Santos City in the south, the Main Corridor passes through various municipalities and cities, including Manolo Fortich, Sumilao, Impasug-ong, Malaybalay City, Valencia City, Maramag, Quezon, and Kitaotao in Bukidnon. It then moves through Arakan in North Cotabato before entering Davao City and continuing through Sta. Cruz, Digos City, Hagonoy, Padada, Sulop, and Malalag in Davao del Sur, finally reaching Malungon and General Santos City in South Cotabato Province.

Additionally, the three Link Roads branch off from the Main Corridor, located in the northern, central, and southern regions. Link Road 1 is entirely within Impasug-ong, Bukidnon, in Region X. Link Road 2 starts at Panabo City, Davao del Norte, extends into Davao City in Region XI, and terminates at the intersection with the Main Corridor of Bantol Road. Link Road 3 in the south connects Malungon and Sarangani of Region XII to Sta. Maria, Davao Oriental of Region XI. The entire MTCIP route, including the Main Corridor and three Link Roads, passes through a total of 186 barangays. The Main Corridor is accessible to private and passenger cars, motorcycles, tricycles, buses, goods utility vehicles, agricultural and construction vehicles, and specialized vehicles like rigid trucks and truck trailers. The Link Roads are accessed mainly via passenger cars, motorcycles, tricycles, jeepneys, agricultural vehicles, rigid and trailer trucks, and goods utility vehicles. **Figure 3-1** shows the location map of MTCIP.



1.2 Project Components

The proposed MTCIP has five key components:

- **Connectivity:** (*Component 1: Improvements of selected local roads (“Link Roads”)*) - upgrading 116 km of selected local roads to national road standards with climate resilience and road safety measures.
- **Long-Term Road Asset Maintenance:** (*Component 2: Capacity, climate resilience and road safety enhancement of the CDO-Davao-GenSan Corridor (“Main Corridor”)*) - Road safety improvement and climate resilience (whole 421.12 km) and rehabilitation (124 km of damaged sections), and an Output Performance-Based Road Contract (OPRC) of 5-7 years.
- **Capacity Building:** (*Component 3: Capacity building and Institutional Development*) - capacity enhancement of DPWH and select LGUs (e.g., training, studies, knowledge exchange, among others).
- **Project Management:** (*Component 4: Project Management*) - Support DPWH's UPMO-Road Management Cluster II in project implementation.
- **Contingency Emergency Response Component (CERC):** (*Component 5: Contingent Emergency Response Component (CERC) to support post-disaster recovery*) - a zero-dollar component within a project that allows for funds to be quickly reallocated to emergency recovery activities in the event of a disaster.

The MTCIP would entail rehabilitation and upgrading of the Main Corridor and the three Link Roads with various types of works at different sections of the alignment, such as road widening, reblocking, asphalt overlay, road strip widening, road paving, bridge construction and rehabilitation, drainage construction, slope protection, sidewalks, and road shoulders. The road works per type under the MTCIP are presented in the **Table 3-1**. The details of road works for the Main Corridor and Link Roads are provided in the **Annex 1-13**.

Table 3-1: Road Works Under the MTCIP

Type	Road Works
Main Corridor Coordinates (WGS 84) 8°30'3.21"N, 124°45'2.11"E to 6° 7'6.73"N, 125° 8'44.13"E	<ul style="list-style-type: none"> • 421.12 km with road widening to 4 lanes • Construction of roadside elements (slope protection, drainage/ditch, shoulders) • Reconstruction of distressed PCCP and ACP • Road safety mitigation works
Link Road 1 Coordinates (WGS 84) 8°16'13.20"N, 125°0'59.41"E to 8°11'48.10"N, 124°58'14.37"E	<ul style="list-style-type: none"> • 9.0 km length to be paved with 28 cm thick PCCP • Earthworks: clearing and grubbing, embankment formation of 1.50 m thickness, subgrade and subbase works. PCCP with concrete paved shoulders on both sides, concrete lined ditch both sides, cross drains every 300 m, lateral drainpipes at entrance/exit to plantations, covered lined ditch at urban areas. Outfalls for drainage to be excavated. • Asphalt overlay of existing pavement (4.9 km) and road strip widening (4.9 km) • Bridge: Upgrading of existing spillway across Atugan River (leading to Intavas) to bridge
Link Road 2 Coordinates (WGS 84) 7°15'58.40"N, 125°19'50.39"E to 7°18'0.80"N, 125°40'49.71"E	<ul style="list-style-type: none"> • Construction of PCCP in unpaved sections (11.94 km) and road openings in the pre-determined alignments without roads from KM 42 to KM 56, construction of 3 bridges, 1 box culverts. • Reblocking (1.5 km) of distressed pavements. • Construction of paved shoulders and concrete-lined ditches (combination of covered (urban centers) and uncovered).

Type	Road Works
	<ul style="list-style-type: none"> Slope protection works including concrete masonry and soil nailing with netting (2.1 km)
Link Road 3 Coordinates (WGS 84) 6°22'42.41"N, 125°16'22.27"E to 6°33'6.12"N, 125°28'21.03"E	<ul style="list-style-type: none"> 45.03 km following the alignment determined by the Feasibility Study from DPWH-XII with modifications: construction of PCCP, 12 bridges, retain and rehabilitate 1 bridge, construction of additional cross-drains. Drainage concrete-lined ditches, paved shoulder, and slope protection work (masonry wall and soil nailing with netting).

1.3 Utility Requirements

1.3.1 Water Requirements and Sources

The water will be mainly used during construction. An estimated 69,000 m³ of water will be required by the Project during the construction phase. Initially, this water requirement will be sourced from a local water service provider near the project site and supplemented by auxiliary sources. This will need to be further studied during the DED stage.

1.3.2 Power Requirements and Sources

The electricity will be mainly used during construction. An estimated 495,600 kWh of electricity will be required by the Project during the construction phase. Initially, this power requirement will be sourced from a local electricity distributor in the region and supplemented by auxiliary sources. This will need to be further studied during the DED stage.

1.3.3 Other Support Facilities (Temporary)

1.3.3.1 General Works Areas

General Work Areas will be set up in specific segments of the Main Corridor and Link Roads. These areas will serve various purposes, including housing Contractor's offices, resident site staff offices, equipment, and machinery storage yards such as batching plant, crusher plant, asphalt plant, and quarry sites, as well as repair workshops, among other functions. The size and placement of these areas should be carefully evaluated, taking into account the extensive geographical span of the Main Corridor and Link Roads. It is expected that multiple work areas will be necessary to support construction activities effectively. Several work areas near the active construction sites may be needed for better logistics. This will be looked at more closely during the Detailed Engineering Design (DED) stage.

1.3.3.2 Dumping Area

Concrete from road reblocking activities and other unsuitable materials, such as in boring activities and earth works spoils, can be disposed of at designated waste management facilities like landfills or recycling centers equipped to handle construction debris, ensuring compliance with regulations and minimizing environmental impact. Opting for a nearby dumping site reduces transportation costs and improves logistical efficiency. Contractors are required to have disposal facilities that are able to accommodate the estimated debris volume generated by the project. This will be looked at more closely during the Detailed Engineering Design (DED) stage.

1.4 Construction Materials and Equipment

1.4.1 Source of Construction Materials

The construction materials, such as cement, asphalt, aggregates, etc., will be locally sourced from government-recognized cement manufacturing, batching, asphalt, and quarry plants along the project alignment. Error! Reference source not found. presents the quarry sources of construction materials located near the Main Corridors and Link Roads.

Table 3-2. Quarry Sources of Road Construction Materials Located Near the Main Corridors and Link Roads

Road Section	No. and Type of Quarries Nearby	Available Construction Materials	Potential Use (Purpose)
1.CDO - Bukidnon -Davao (Main Corridor) and Sayre Hwy-Cawayan-Kibenton Road (Link Road 1)	a. River Quarry – 26	a. River Quarry- Aggregates, Sand, Gravel, Boulders and Cobbles	River Aggregates Materials for; Item 200- Agg. Subbase Course Item 201-Agg Base Course Item 300-Agg Surface course Aggregates for Item 311-PCCP and Item 405-Structural concrete Boulders for; Item 505 -Riprap Item 506 -Stone masonry Item 507- Rubble Masonry Item 511- Gabions Item 516- Wet Stone Masonry
	b. Mountain Quarry - 10	b. Mountain Quarry- Limestone, Borrow Fill	Limestone (Mountain mix Materials) for Item 104- Embankment
2. Davao-Gen San (Main Corridor) and Two (2) Link Roads a. Fatima-Malabog- Rd-Saloy-Bantol-Davao-Bukidnon Road and b. Poblacion Sta Mari, Malungon Road	a. River Quarry- 95	a. River Quarry- Aggregates, Sand, Gravel, Boulders and Cobbles	River Aggregates Materials; Item 200- Agg. Subbase Course Item 201-Agg Base Course Item 300-Agg Surface course Aggregates for Item 311-PCCP and Item 405-Structural concrete Boulders for; Item 505 -Riprap Item 506 -Stone masonry Item 507- Rubble Masonry Item 511- Gabions Item 516- Wet Stone Masonry

Road Section	No. and Type of Quarries Nearby	Available Construction Materials	Potential Use (Purpose)
	b. Mountain Quarry -12	b. Mountain Quarry- Earth fill	Earth fill (Mountain mix Materials) for Item 104- Embankment
	c. Asphalt Batching Plants- 2	c. Asphalt mix	Asphalt mixes for Items 306,307, 310
	d. Concrete Batching Plants-16	d. Concrete mix	Concrete Mix for Items 311, 405, 407
	e. Concrete Products- 1	e. Concrete Products- RCPC and CHB	Item 500
	f. Crushing Plants- 5	crushed aggregates	Aggregates for Item 311-PCCP and Item 405-Structural concrete Crushed Aggregates for Item 202- Crushed Aggregate base course

1.4.2 List of Construction Materials and Equipment

The construction materials and equipment that will be used for the Project are presented in the following list.

1.4.2.1 Construction Materials

Subbase

Concrete:

Coarse Aggregate (Gravel)

Fine Aggregate (Sand)

Cement, 40 kg/bag

Asphalt Concrete:

Hot Mixed Asphalt

Emulsified Asphalt/Tack Coat

Bridge/Road/Rcbc:

Steel Casing

Reinforcing Steel

Structural steel, craneway

Form Lumber

Stone Masonry/Riprap

Boulders

Sand

Cement

RCPC

Crash Barrier

Guardrail

1.4.2.2 Equipment

A. Road Grader

B. Roal Roller – Static

C. Bulldozer

- D. Hydraulic Excavator
- E. Dump Truck
- F. Trailer Truck
- G. Payloader
- H. Water Truck
- I. Concrete Batch Plant
- J. Vibratory Roller
- K. Transit Mixer
- L. Asphalt Batch Plant
- M. Pneumatic Roller
- N. Crane
- O. Bored Piling Rig
- P. Vibratory Hammer
- Q. Pile Driving Rig
- R. Pile Hammer
- S. Welding Machine

1.5 Project Phases

1.5.1 Pre-Construction

The pre-construction phase involves procuring consultants, planning, obtaining permits and right-of-way (ROW), pre-qualifying contractors, and mobilizing for construction. These steps aid in developing detailed engineering designs, assisting project oversight, and providing project management expertise for efficient implementation and successful delivery.

1.5.2 Construction

The construction phase will encompass civil works both on the Main Corridor and Link Roads. Civil works on the Main Corridor will involve tasks such as road widening, repairing damaged sections, implementing slope protection measures to safeguard against landslides, carrying out drainage works, and installing road safety infrastructure such as sidewalks, traffic signs, and traffic lights. Similarly, civil works on the Link Roads will entail upgrading from unpaved roads to concrete surfaces, repairing damaged sections, constructing and rehabilitating bridges, implementing slope protection measures, addressing drainage issues, and installing road safety infrastructure.

1.5.3 Demobilization

The demobilization activities after construction will take place in the designated zones within the Main Corridor and Link Roads. This will include the dismantling of temporary accommodation, facilities, and structures, as well as retrieving all equipment. Construction areas will undergo clearance and cleaning to remove any debris or waste. Demobilization and restoration efforts will adhere to the established procedures and standards outlined in the approved civil works contract, in accordance with DPWH.

1.5.4 Operational

During the operational phase, long-term performance-based maintenance (LTPBM) will entail continuous monitoring and upkeep. Employing the LTPBM contract model within the MTCIP aims to enhance the efficiency and efficacy of the road maintenance program which part of Component 4: Project Management. This approach guarantees that the roads covered by the

contract maintain satisfactory conditions for users, encompassing usability, structural integrity, drainage, safety, and user comfort, over the entire duration of the MTCIP agreement.

1.6 Manpower

The estimated number of manpower needed throughout the various phases of the project is presented in **Table 3-3**.

Table 3-3. Summary of Manpower

Project Phase	No. of Manpower in Main Corridor	No. of Manpower in Link Roads
Pre-Construction Phase	100 -200	100 -200
Construction Phase	300 - 600	500 - 1000
Operation Phase	10 - 25	10 - 25

1.7 Pre-Construction

The pre-construction phase covers the Detailed Engineering Design (DED), which involves collaboration among the Project Proponent (DPWH), DED Consultant, Project Management Consultant (PMC), and Construction Supervision Consultant (CSC), all procured through a contract package managed by a consulting firm. The services provided will include developing comprehensive engineering design plans and specifications. It will assist the DPWH in project oversight from pre-construction to construction, offering specialized expertise in project management services encompassing planning, scheduling, and budgeting to ensure efficient implementation and successful project delivery. The estimated number of workers during construction will be finalized during the DED.

1.7.1 Construction

During construction, the labor force will include various professionals, such as engineers, project managers, surveyors, equipment operators, construction workers, traffic controllers, safety personnel, and quality inspectors. Determining the precise number of personnel for each role necessitates thorough project planning and assessment, accounting for variables such as work schedules, shifts, and productivity rates. An estimated 300 to 600 skilled and unskilled workers will be required for the Main Corridor, and 500 to 1,000 for the Link Roads.

1.7.2 Operation

During operation, an estimated 10 to 25 workers will be engaged to monitor road quality, ensure road safety, security, and passage, and conduct maintenance and repair work on the Main Corridor and Link Roads.

1.7.3 Equal Job Opportunity Policy

The project will enforce an equal job opportunity policy for employment, ensuring that all eligible candidates are given fair consideration for employment at all project phases, irrespective of their gender, age, or ethnicity. Contractors must comply with government laws pertaining to equal employment opportunity without any discrimination, such as the Labor Code of the Philippines (PD No. 442), Republic Act No. 6725, Republic Act No. 7277 (Magna Carta for Disabled Persons), Republic Act No. 10911 (Anti-Age Discrimination in Employment Act), and Republic Act No. 9710 (Magna Carta of Women).

1.8 Project Schedule

The project preparation, including the detailed engineering design (DED), will commence from 2024 to 2025. The start of civil works will be in 2026. The construction is projected to conclude by 2028. Additionally, long-term performance-based maintenance is scheduled to extend over a span of five years, from 2026 to 2030. **Figure 3-2** shows the project schedule.

WORLD BANK

Proposed Timeline for the Mindanao Transport Connectivity Improvement Project (MTCIP)

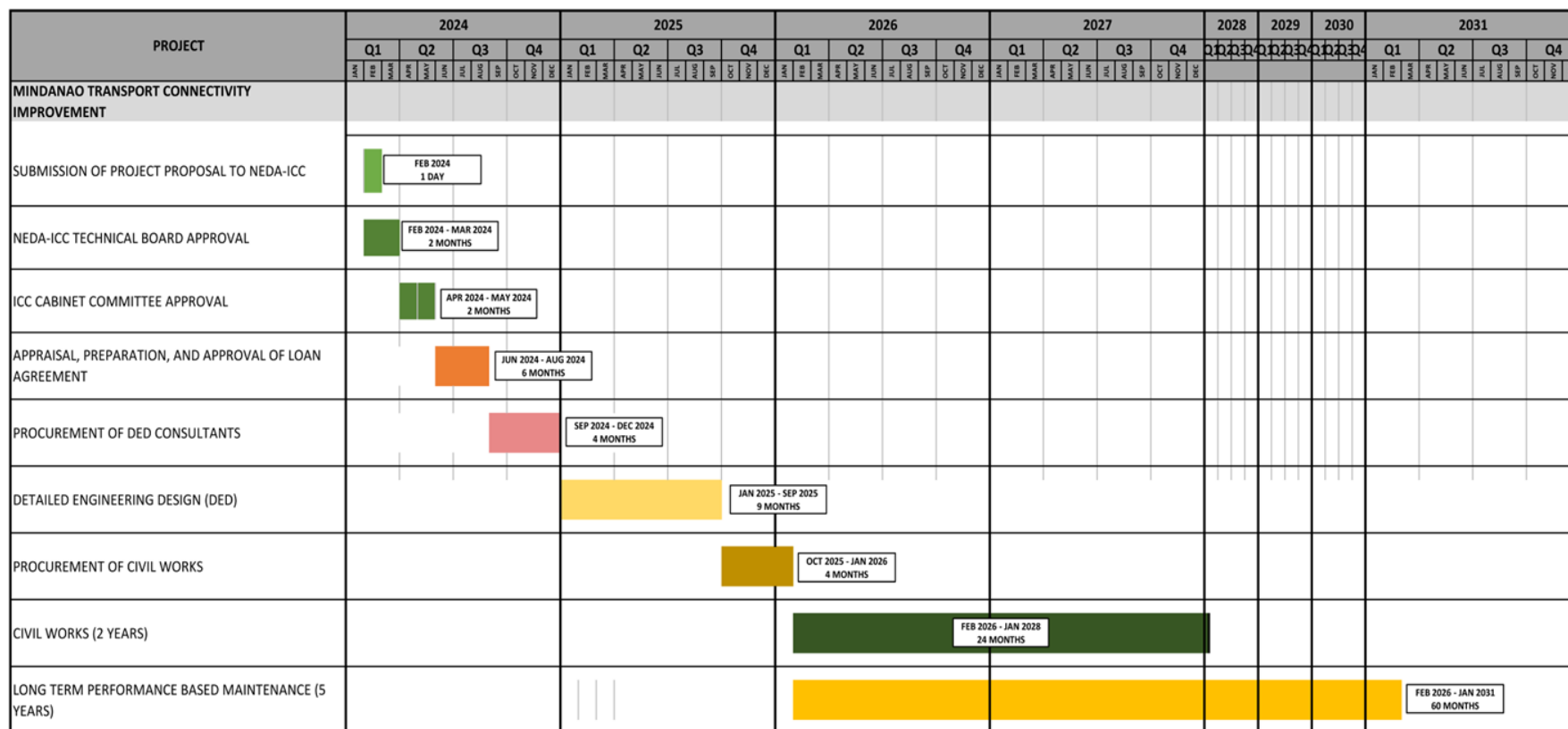


Figure 3-2. Project Schedule

1.9 Project Cost

The estimated project cost is US \$572.00 million, jointly financed by WB and GoP, of which US\$407.00 is World Bank (International Bank for Reconstruction and Development or IBRD) financing.

The improvements of the Link Roads (Component 1) have a total budget of US\$138.00 million to upgrade 129.86 km of local roads to national road standards, incorporating climate resilience and road safety measures. The component includes detailed engineering design and construction supervision consultant services, with the government responsible for land acquisition and resettlement.

The capacity, climate resilience, and road safety enhancement of the Main Corridor (Component 2) has a total budget of US\$368 million for the rehabilitation of 126.67 km of road sections categorized as 'bad or poor'. The project will repair damaged sections and upgrade the carriageway, with a focus on climate resilience and road safety enhancements and introduce a new Road Asset Management regime post-improvement.

With a total budget of US\$18.00 million, capacity building and institutional development (Component 3) will support the capacity enhancement of DPWH and select LGUs in transport network planning and asset management. Activities include setting up transport asset management systems, institutional strengthening studies, climate resilience mainstreaming, training on OPRC concepts, and technical studies for priority interventions.

Project Management (Component 4) is allocated US\$47.00 million to support the DPWH's UPMO-Road Management Cluster-II and the PIU in project implementation. It finances training, technical advisors, and consultants for various aspects of project implementation, including road safety, climate resilience, and compliance with WB technical, fiduciary, and safeguards.

The proposed project includes a Contingent Emergency Response Component (Component 5) to provide a rapid, pre-approved source of funding to address emergency response needs following a natural disaster, crisis, or severe economic shock. The CERC allows for the quick reallocation of funds within the project or the mobilization of additional funds to support emergency response and recovery efforts. As a contingent fund, CERC has zero allocation in the initial project budget, meaning it is not allocated any funds unless an emergency occurs. It acts as a placeholder within the project that can be activated to provide immediate financial resources when needed.

1.9.1 Contract Packaging Options

The evaluation of contract packaging options for the MCIP has led to the recommendation of a multiple contract model, which divides the project into packages of approximately 52 km each for the MC and two packages each for the LRs. This model is chosen for its balance between administrative efficiency and the benefits of smaller contracts, such as local participation and competition. This offers manageable project sizes, reduces administrative burdens, encourages competition, and facilitates coordination across the project stretch. **Table 3-4** presents the contract options. **Figure 3-3** shows the map of district offices of DPWH. **Table 3-5** presents the proposed packages for main corridor and local link roads.

Table 3-4. Contract Option

Options	Pros	Cons
Single Large Contract (entire MC and LREs)	<ul style="list-style-type: none"> - Simpler administration - Potentially lower overall cost due to economies of scale 	<ul style="list-style-type: none"> - Requires a very large contractor with significant resources - Higher risk for the DPWH if the contractor fails to perform - Less opportunity for local contractors to participate
Multiple Contracts (each 50 km for MC and 25 km for LR)	<ul style="list-style-type: none"> - More manageable project size for contractors - Wider participation opportunity for local contractors - Potentially fosters competition and innovation 	<ul style="list-style-type: none"> - Increased administrative complexity - Potential for inconsistencies in service delivery across different packages - Challenges in coordinating maintenance activities across the entire stretch

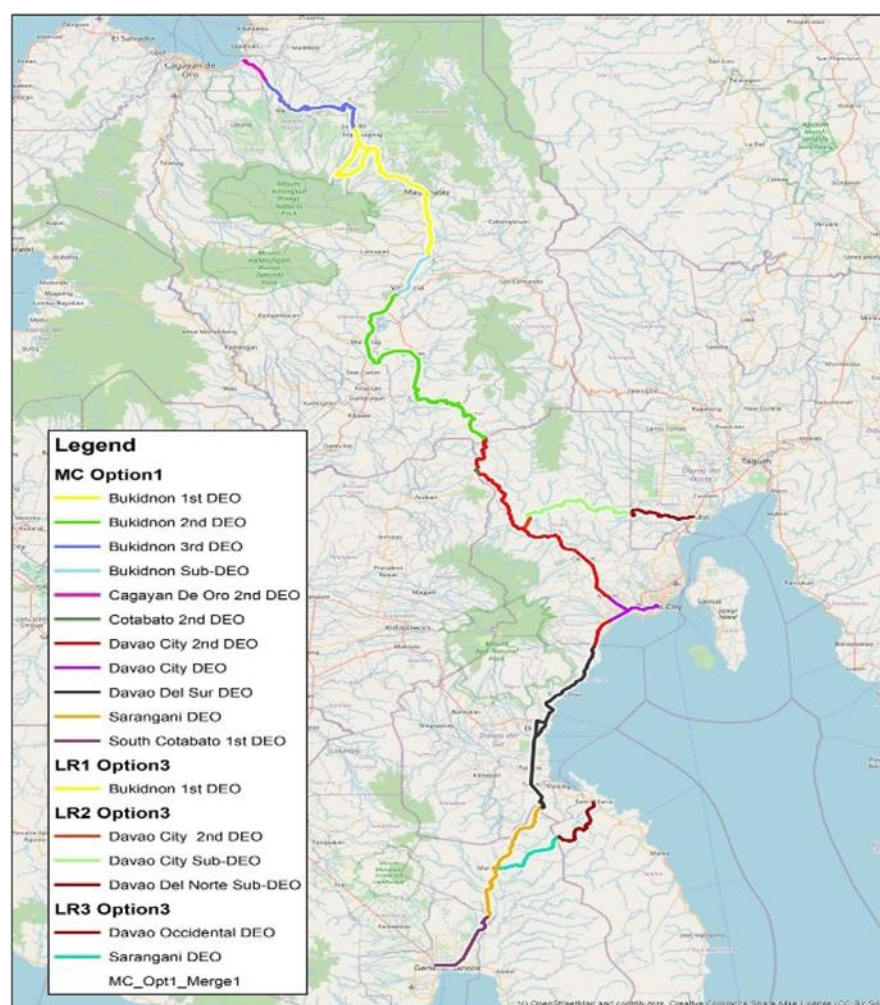


Figure 3-3. Map of District Offices of DPWH

Table 3-5. Proposed Packages for Main Corridor (50 km) and Local Link Roads (20 km)

Package Number	Section Name	Length in km	Contract cost in million Pesos
Main Corridor (50 km)			
Package 1	S00577MN S00621MN	50.575	PHP 4,451.22
Package 2	S00639MN	48.287	PHP 805.97
Package 3	S00639MN S00647MN	39.011	PHP 1,298.44
Package 4	S00654MN	58.38	PHP 995.36
Package 5	S01406MN	50.2	PHP 455.86
Package 6	S01406MN S01409MN S00039MN S00098MN	53.757	PHP 778.68
Package 7	S00162MN S00184MN S00202MN	58.458	PHP 1,428.48
Package 8	S00220MN S00231MN	63.583	PHP 1,408.54

Package	District, Province/Region	Length	Amount in million Pesos
Local Link Roads (20 km)			
Package 1 – LR1	Bukidnon 1st	25.03 km	PHP 1,315.85
Package 2- LR2	Davao City, Davao City Sub	40.16 km	PHP 2,012.49
Package 3 – LR2	Davao del Norte Sub DEO	19.24 km	PHP 487.00
Package 4 -LR3	Davao Occ DEO	17.90 km	PHP 1,239.43
Package 5- LR3	Sarangani DEO	27.13 km	PHP 1,138.91

2. BASELINE DATA

2.1 Project Influence Areas (PIAs)

According to WB Operational Policy (OP) 4.01, the Project Influence Area (PIA) refers to the territory expected to be impacted by the project and its associated ancillary aspects. This includes infrastructure like power lines, pipelines, canals, access roads, and construction sites, as well as any unplanned changes brought about by the project, such as new settlements or logging along roads. Additionally, the PIA may encompass various zones like the project's watershed, affected estuaries and coastal regions, areas needed for resettlement, regions affected by air pollution, migratory routes of humans, wildlife, or fish, and areas used for livelihood activities or customary religious ceremonies.

A remote assessment using the World Bank Geospatial ESF Risk Assessment Toolkit indicated the following project features relevant to its area of influence:

- overlaps with urban settlements defined as areas with a population density of more than 1,000 people per square kilometer;
- within 10 kilometers of intact core forest landscapes, Key Biodiversity Areas (KBAs), and Protected Areas (PAs). IBAT analysis confirmed that there is no critical habitat within the 10 km buffer from the project sites;
- located in an area with recent deforestation of primary forest;
- contains a major river or is within 1 kilometer of a major river or inland water body, posing potential flooding risks and pollution impacts on downstream areas and communities;
- and
- within 25 kilometers of known indigenous territories.

Within the Main Corridor, numerous residential, agriculture farms, schools, parks, oval grounds, golf clubs, government offices, malls, commercial, and industrial facilities are directly affected, as are existing temporary facilities for construction, all situated along the access roads of the national highway that pass through 19 interconnected cities (Cagayan de Oro, Malaybalay, Valencia, Davao, Digos, and General Santos) and municipalities (Manolo Fortich, Sumilao, Impasug-ong, Maramag, Quezon, Kitaotao, Arakan, Sta. Cruz, Hagonoy, Padada, Sulop, Malalag, and Malungon).

In Link Road 1, the primary direct impact areas encompass residential zones, agriculture farms, commercial and agro-industrial establishments, a greenhouse facility, a primary school, a church, and local government offices. These are situated along the access roads that pass through the Municipality of Impasug-ong, covering five barangays (Capitan Bayong, Cawayan, Kibenton, La Fortuna, and Poblacion).

In Link Road 2, the direct impact areas are residential zones, agriculture farms, commercial and agri-industrial establishments, schools (primary, secondary, tertiary), churches, local government offices, and gasoline stations across the access roads traversing Panabo City, covering 10 barangays (New Pandan (Poblacion), Gredu (Poblacion), New Visayas, Datu Abdul Dadia, Little Panay, Katipunan, Cacao, Kauswagan, Consolacion, Malativas), and Davao City with 6 barangays (Mabuhay, Malabog, Paquibato (Poblacion), Bantol, Malamba, Salaysay).

In Link Road 3, the direct impact areas are residential zones, agriculture farms, minor commercial and agri-industrial establishments, schools (primary and secondary), churches,

local government offices, gasoline stations across the access roads traversing Malungon, covering five barangays (Poblacion, Upper Mainit, San Miguel, San Roque, Kinabalan), and Sta. Maria with five barangays (Datu Intan, San Antonio, Pongpong, San Isidro, and Poblacion).

2.2 Land

2.2.1 Land Classification and Land Use

Within the stretch of the 40-m buffer zone (20 m each side) in the Main Corridor, the dominant land uses fall under the road and easement category with 32.26% of the overall percentage, followed by agricultural (23.45%), power, water, communication utilities (8.94%), residential (8.52%), and commercial (6.88%) uses.

In Link Road 1, the dominant land use within the 40-m buffer zone (20 m on each side) is for public roads and easements, mainly local roads (94.73%). While Link Roads 2 and 3 are dominated by forest (60.91%) and agricultural (87.64%) land use.

These data imply that the impact on the agricultural areas of the affected municipalities and cities in the Main Corridor and Link Road 1 is lesser compared to the cases of Link Road 2 and 3, since the existing land use in the Main Corridor and Link Road 1 is dominated by public roads and easements.

2.2.1.1 Main Corridor

The whole segment of the Main Corridor of the MTCIP covers a total of 1,508.59 ha of RROW land area. It is distributed into 19 land use classes, with the largest fraction falling within the land use zone of public roads and easements at 32.26% (486.60 ha). This is followed by agricultural land use with 23.45% (353.78 ha), utilities with 8.94% (134.81 ha), residential/settlement/resettlement/socialized housing with 8.52% (128.47 ha), and commercial with 6.88% (103.72 ha). Other land use classes are forest, mixed urban, tourism, water body/floodway, agro-forestry, agro-industrial, conservation area/greenbelt/green buffer, open space, institutional, parks/tree parks/recreation/playground, industrial, special use/planned unit development, quarry, and cemetery in decreasing order of land area (**Table 4-1**).

Table 4-1. Land Use within 40-Meter RROW of the Main Corridor

Category	Area, ha	Percent age
Residential/ settlement/ resettlement/ socialized housing	128.47	8.52%
Agricultural	353.78	23.45%
Agro-industrial	25.86	1.71%
Agro-forestry	33.63	2.23%
Commercial	103.72	6.88%
Mixed urban	39.32	2.61%
Public road/easement	486.60	32.26%
Forest	72.05	4.78%
Conservation area/ greenbelt/ green buffer	14.87	0.99%
Tourism	37.35	2.48%
Institutional	11.33	0.75%
Industrial	6.48	0.43%
Parks/ tree parks/ recreation/ playground	8.48	0.56%
Water body/ floodway	35.56	2.36%
Utilities	134.81	8.94%
Cemetery	0.21	0.01%

Category	Area, ha	Percent age
Open space	14.37	0.95%
Special use/ planned unit development	1.32	0.09%
Quarry	0.38	0.03%
Total	1508.59	100%

Disaggregated into municipalities and cities, the land use that is predominant in the Main Corridor section falling within the jurisdiction of Cagayan de Oro City is urban, which accounts for 39.3 ha of the total 50.52 ha of RROW within the city. The other land use is agricultural, comprising the remaining 11.2 ha (Table 4-2 and Figure 4-1).

Table 4-2. Land Use of the Main Corridor within Cagayan de Oro City, Misamis Oriental

Category	Area within the 40m RROW, ha
Urban Land Use	39.32
Agricultural	11.20
Total	50.52

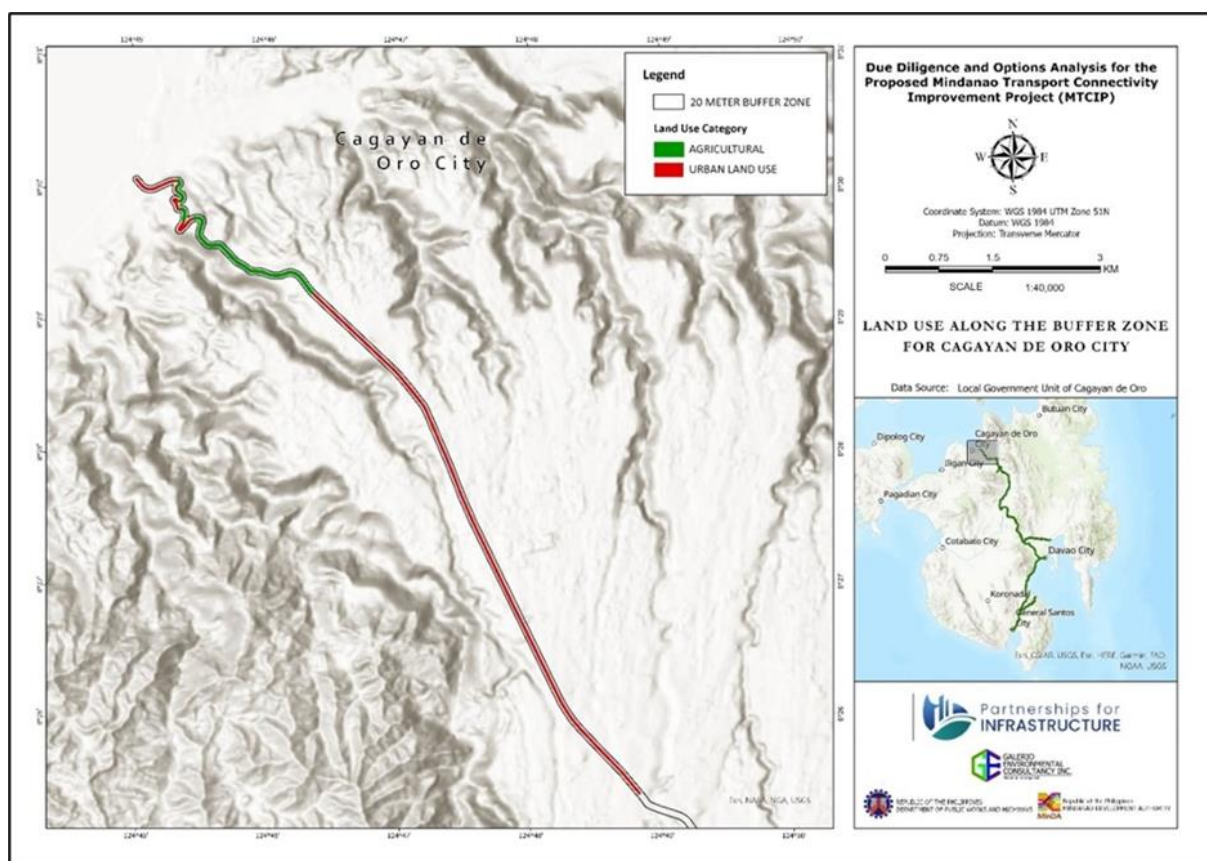


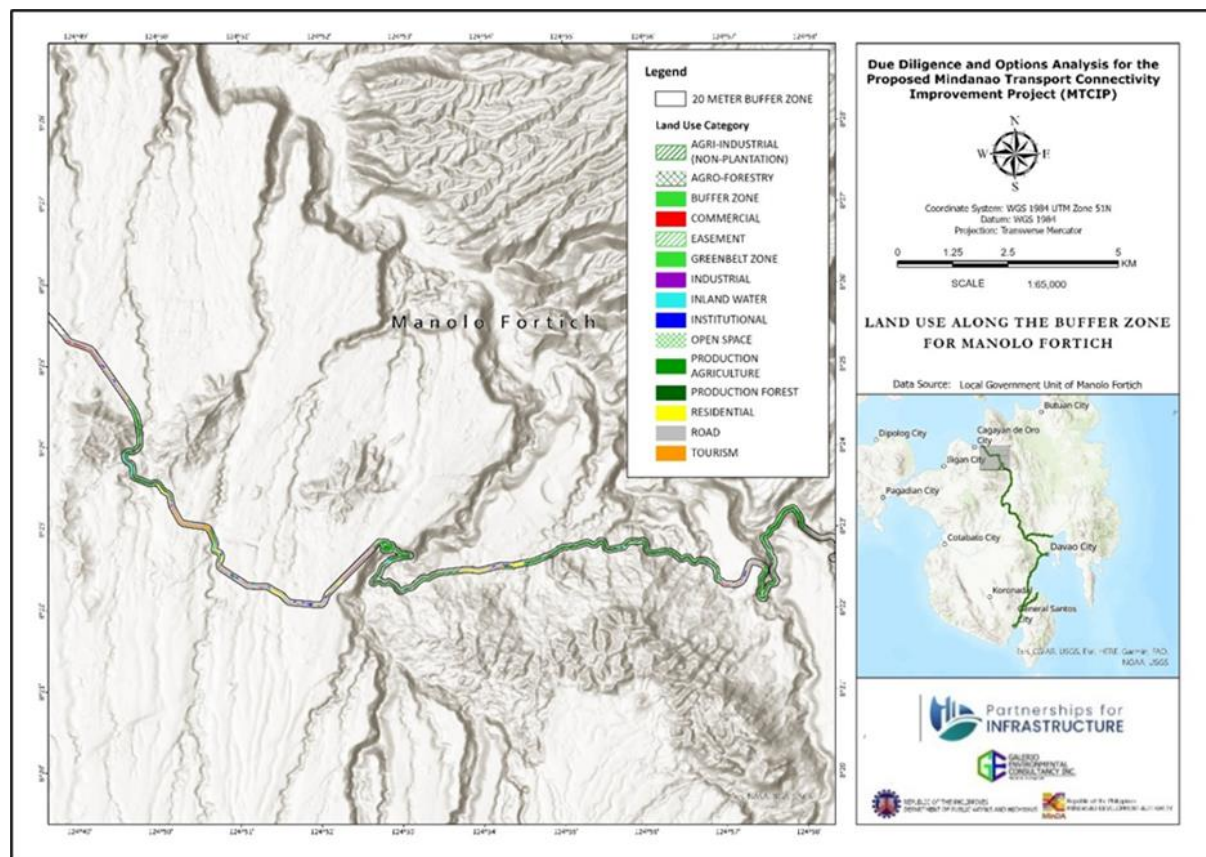
Figure 4-1. Land Use Map of MTCIP – Cagayan de Oro City, Misamis Oriental

In Manolo Fortich, the total RROW area is 115.185 hectares within the 40-meter RROW. The most prevalent land use has already been allocated for road use at 82.3 ha, followed by commercial land use at 9.66 ha. Production forests within this municipality that fall within the

Main Corridor RROW are 4.06 ha, with residential zones accounting for 1.73 ha (**Table 4-3** and **Figure 4-2**).

Table 4-3. Land use of the Main Corridor within Manolo Fortich, Bukidnon

Category	Area within the 40m RROW, ha
Agri-Industrial (Non-Plantation)	0.34
Agro-Forestry	0.01
Buffer Zone	0.05
Commercial	0.11
Easement	0.13
Greenbelt Zone	0.37
Industrial	0.45
Inland Water	0.99
Institutional	0.99
Open Space	1.04
Production Agriculture	1.73
Production Forest	4.06
Residential	9.66
Road	12.96
Tourism	82.30
Total	115.19



In Sumilao, the total RROW area is about 42.13 ha, which is subdivided into infrastructural roads at 21.54 ha and parks and recreation at 7.37 ha. The residential land use classification only covers 6.06 ha of the total RROW area of the MTCIP in this municipality (Table 4-4 and Figure 4-3).

Table 4-4. Land Use of the Main Corridor within Sumilao, Bukidnon

Category	Area within the 40m RROW, ha
Agri-Industrial	4.22
Commercial	0.77
General Institutional Zone	1.41
Industrial	0.76
Infra Roads	21.54
Parks and Recreation	7.37
Residential	6.06
Total	42.13

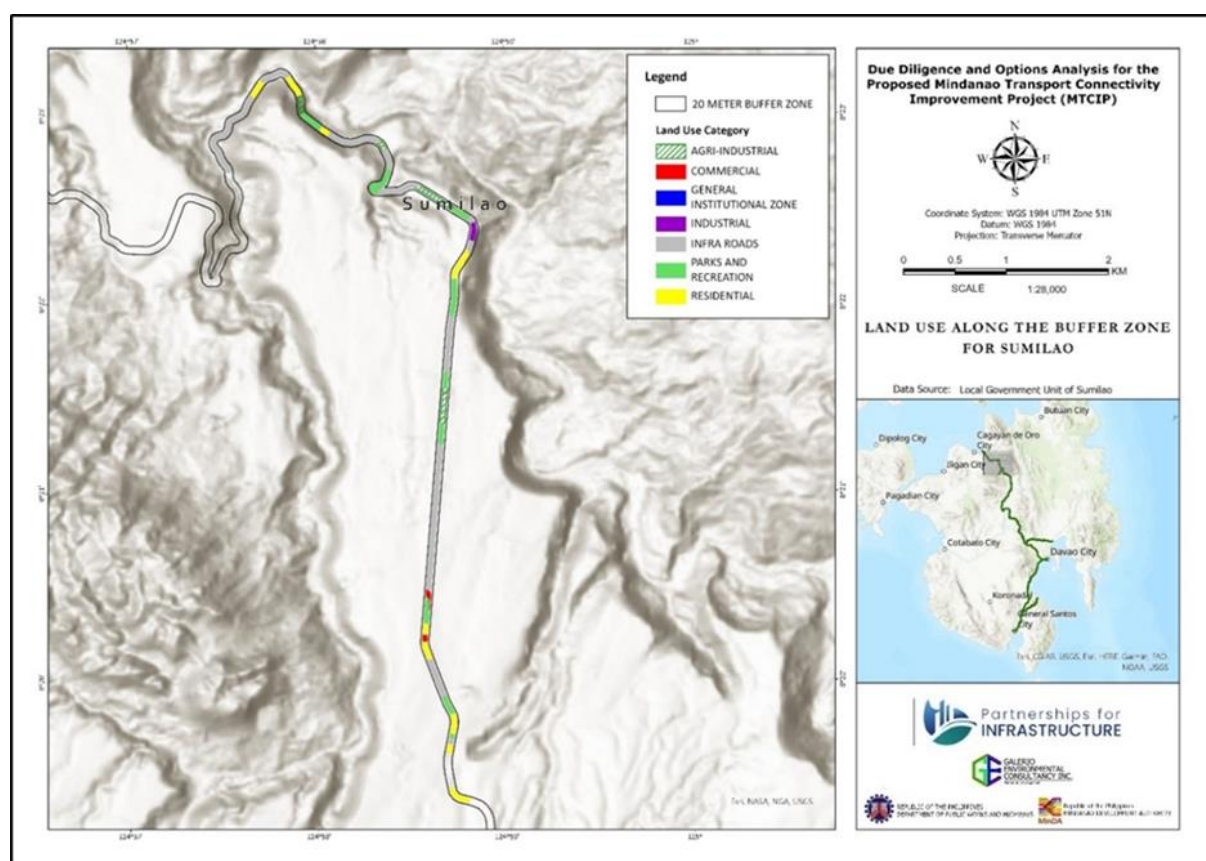


Figure 4-3. Land Use Map of MTCIP – Sumilao

In Malaybalay City, the total RROW is 139.63 ha. The largest is utilized for roads at 130.54 ha, followed by commercial uses, which cover 5.65 ha (Table 4-5 and Figure 4-4).

Table 4-5. Land use of the Main Corridor within Malaybalay, Bukidnon

Category	Area within the 40m RROW, ha
Agricultural Lands (Production)	0.48
Cemetery	0.21

Category	Area within the 40m RROW, ha
Commercial	5.65
Institutional	0.54
Parks/Playground	0.72
Proposed Road	0.51
Residential (General)	0.35
River	0.36
Riverbank Allowance	0.05
Road	130.54
Special Institution	0.13
Utilities	0.08
Total	139.63

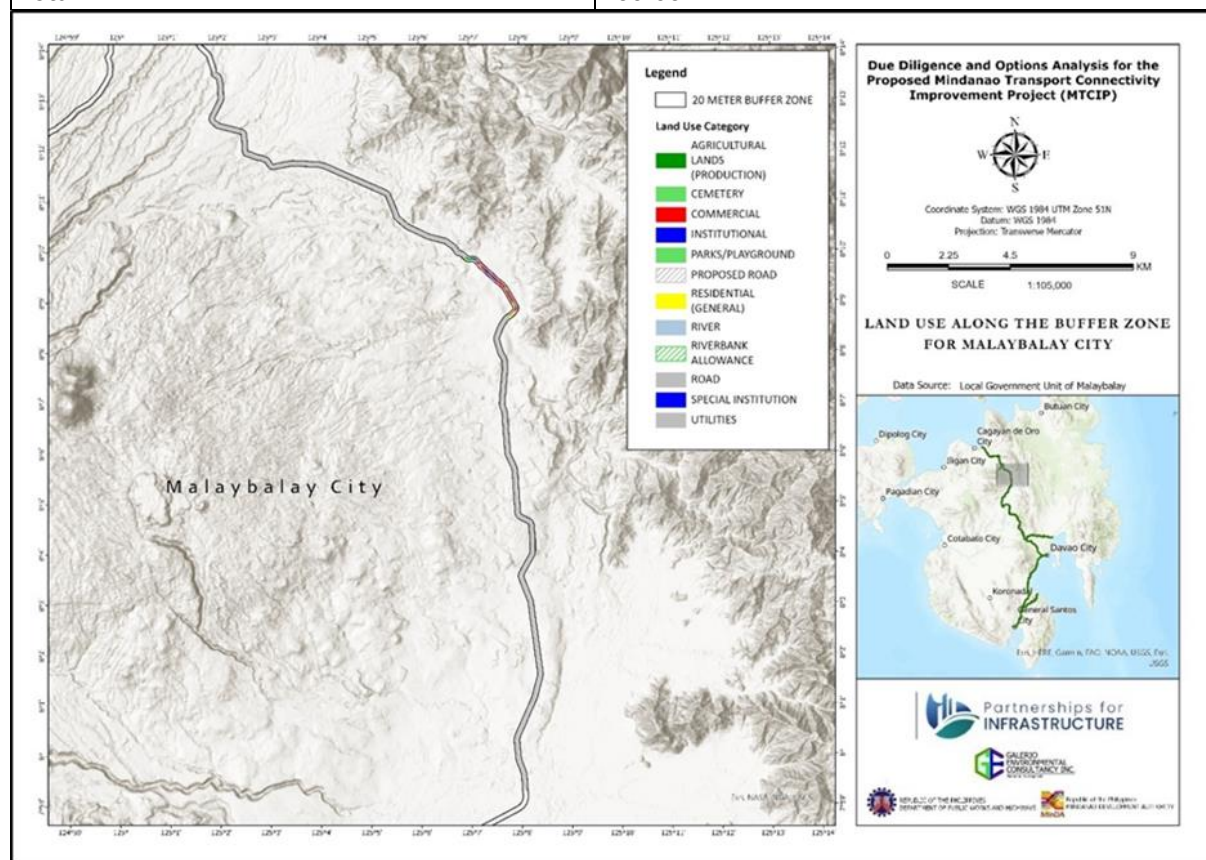


Figure 4-4. Land Use Map of MTCIP- Malaybalay City

In the City of Valencia, the whole RROW area, with a total of 57.55 ha, is already allocated for roads as its land use classification. No other classification falls within the 40-meter RROW zone. **Figure 4-5** shows the extent of the RROW classification within the jurisdiction of this city.

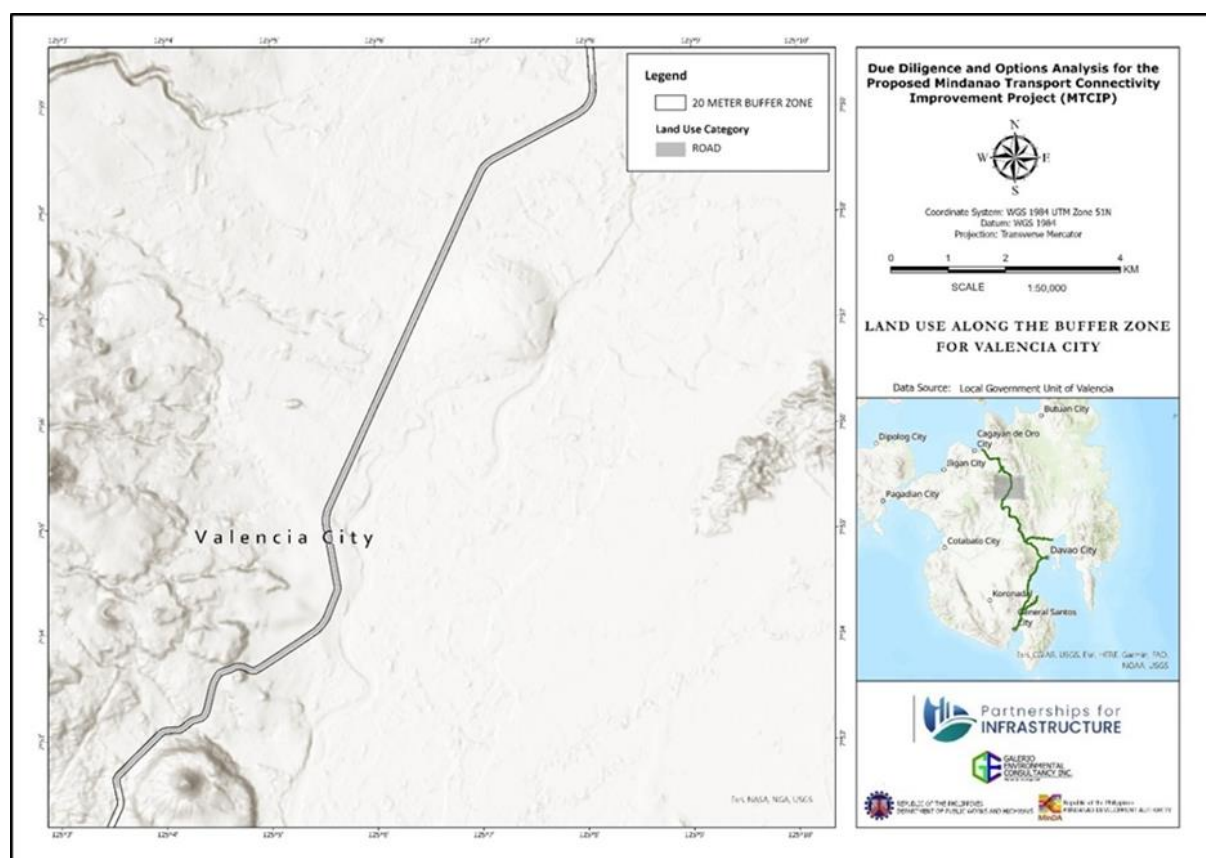


Figure 4-5. Land Use Map of MTCIP - Valencia City

In the Municipality of Maramag, the MTCIP RROW, with a total area of 102.12 ha, falls within 7 land use classifications. The majority is within Infrastructure/Utilities, Transportation, and Services (58.65 ha), followed by Settlement Area (24.77 ha), Agricultural Production (14.02 ha), Agricultural Protection (1.94 ha), Forest Production (1.45 ha), and Easement and Tourism with 0.589 and 0.681, respectively (Table 4-6 and **Figure 4-6**).

Table 4-6. Land Use of Main Corridor within Maramag, Bukidnon

Category	Area within the 40m RROW, ha
Agricultural Production	14.02
Agricultural Protection	1.94
Easement	0.59
Forest Production	1.45
Infrastructure/Utilities, Transportation, and Services	58.65
Settlement	24.78
Tourism	0.68
Total	102.12

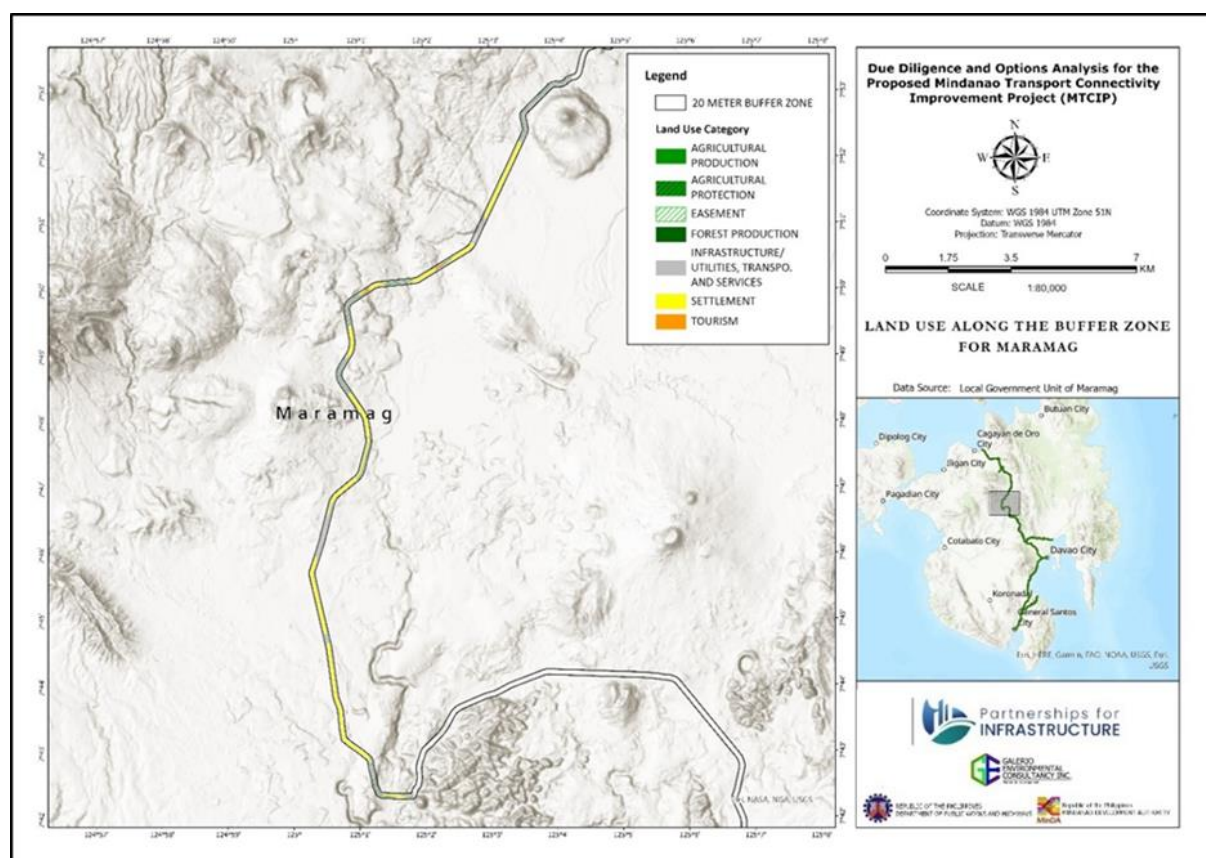


Figure 4-6. Land Use Map of MTCIP - Maramag

Passing through Davao City, the MTCIP covers a total of 415.67 ha of RROW land. This is covered by a total of twenty three (23) land uses with the largest being major commercial use at 79.33 ha followed by tourism development use with 35.63 ha and floodway mitigation zone covering 34.66 ha (Table 4-7 and **Figure 4-5**).

Table 4-7. Land use of Main Corridor within Davao City, Davao del Sur

Category	Area within the 40m RROW, ha
Agricultural non-Tillage	119.12
Agro-Industrial	0.29
Conservation	14.72
Floodway Mitigation	34.66
Heavy Industrial	0.42
High Density Residential	0.14
Infrastructure/Utilities	15.05
Institution	5.48
Landslide Mitigation	14.07
Light Industrial	3.02
Major Commercial	79.33
Marginal	21.11
Medium Density Residential	30.41
Medium Industrial	0.49
Minor Commercial	3.19
Open Space	0.24

Category	Area within the 40m RROW, ha
Parks and Recreation	0.40
Planned Unit Development	0.07
Prime Agricultural	24.38
Rural Settlement Area	12.73
Socialized Housing	0.52
Special Use	0.21
Tourism Development	35.63
Total	415.67

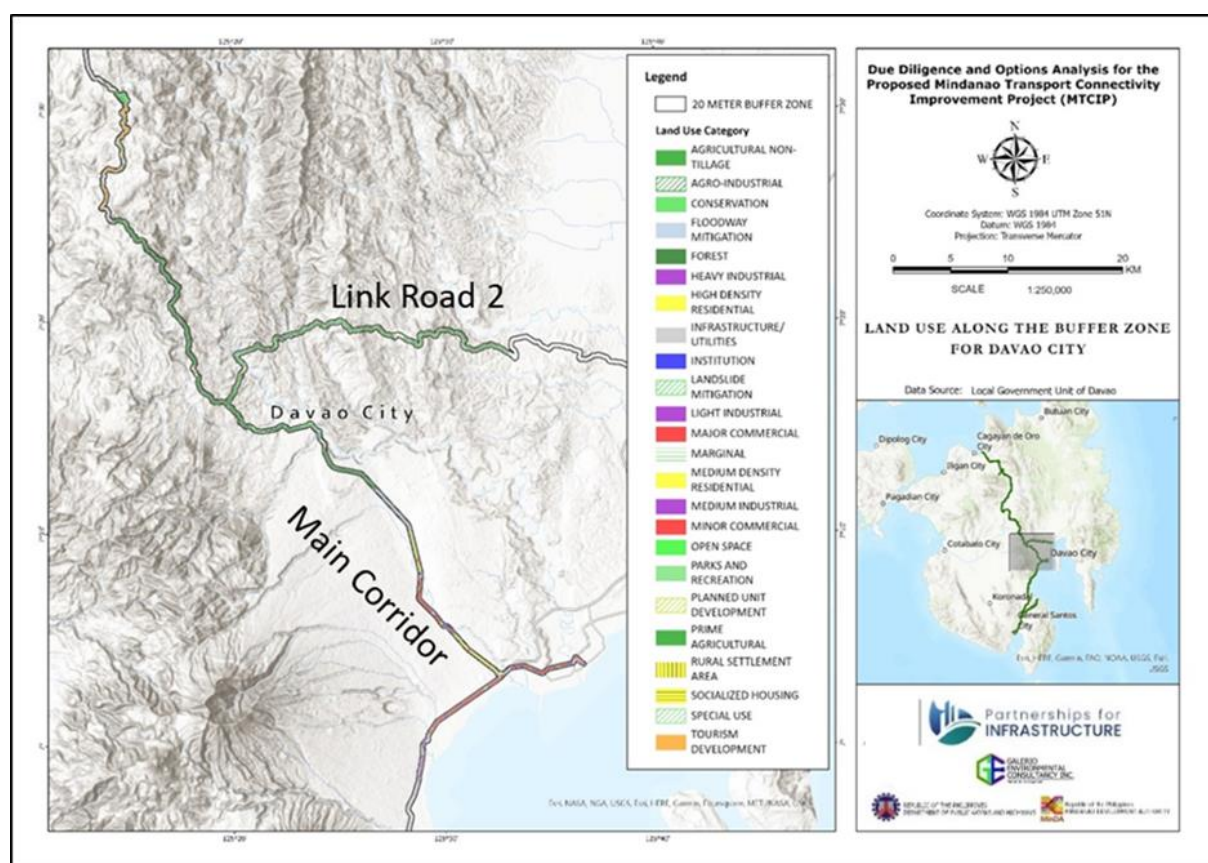


Figure 4-7. Land Use Map of MTCIP - Davao City

In the Impasug-ong area, the RROW is composed mostly of infrastructure land use classification at 19.089 ha, followed by agri-industrial at 0.601 ha. The remaining land use out of the total 20.152 ha of RROW land area is distributed to forest and production forest, agricultural production, residential, commercial, and buffer land uses, in decreasing order (Table 4-8 and Figure 4-6).

Table 4-8. Land Use of the Main Corridor within Impasug-ong, Bukidnon

Category	Area within the 40m RROW, ha
Buffer	0.002
Agriculture (Production)	0.149
Forest and Forest Land (Production)	0.294
Residential	0.016

Category	Area within the 40m RROW, ha
Agri-Industrial	0.601
Commercial	0.001
Infrastructure	19.089
Total	20.152

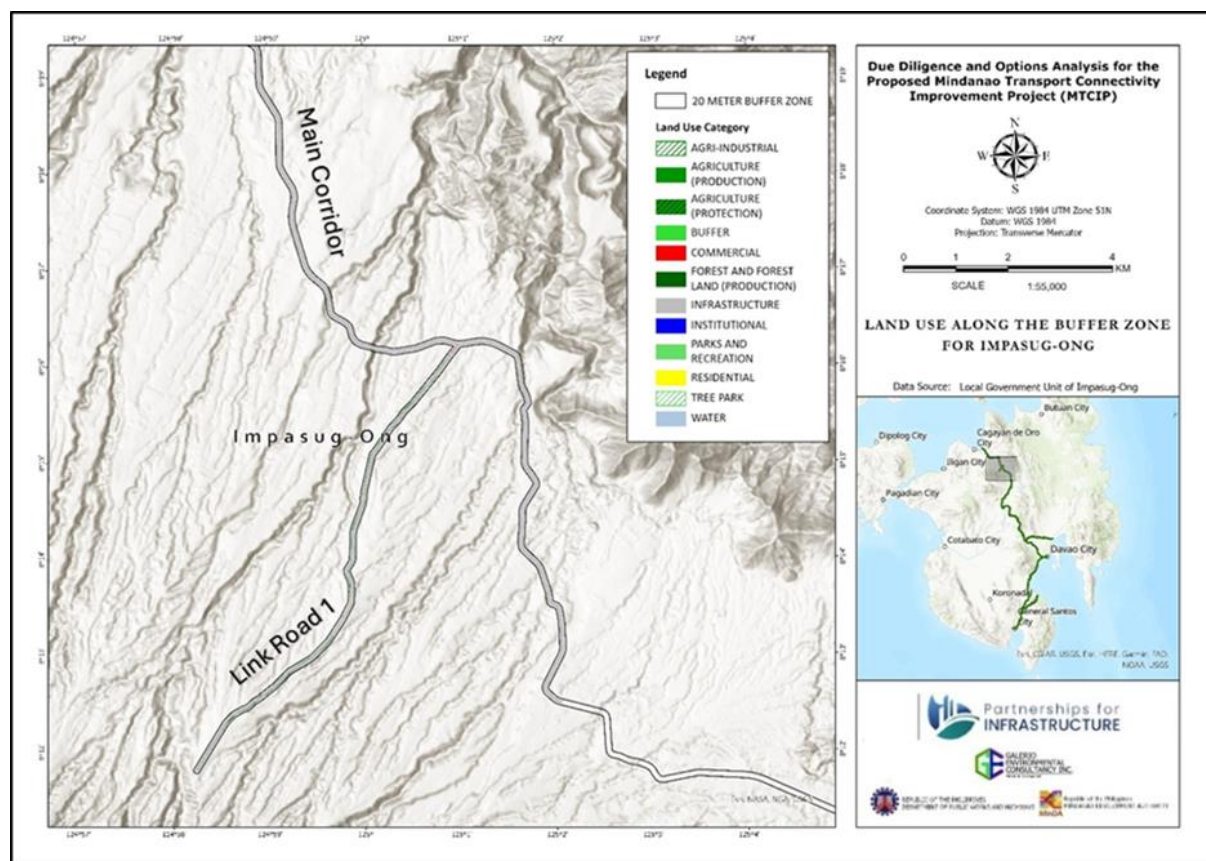


Figure 4-8. Land Use Map of MTCIP - Impasug-Ong

The total RROW area within the jurisdiction of Panabo City is 31.30 ha, which is classified into eleven (11) land classes. The largest of which is general commercial, followed by road and commercial - 2 (Table 4-9 and Figure 4-9).

Table 4-9. Land Use of the Main Corridor within Panabo City, Davao del Norte

Category	Area within the 40m RROW, ha
Agri-Industrial Zone	0.03
Buffer/Greenbelt Zone	0.01
Commercial - 2 (C-2) Zone	3.28
General Commercial Zone	15.12
General Institutional Zone	0.48
General Residential Zone	0.08
Industrial - 1 (I-1) Zone	0.27
Residential - 1 (R-1) Zone	0.05
Rivers	0.04
Road	11.80

Category	Area within the 40m RROW, ha
Utilities, Transportation and Services Zone	0.14
Total	31.30

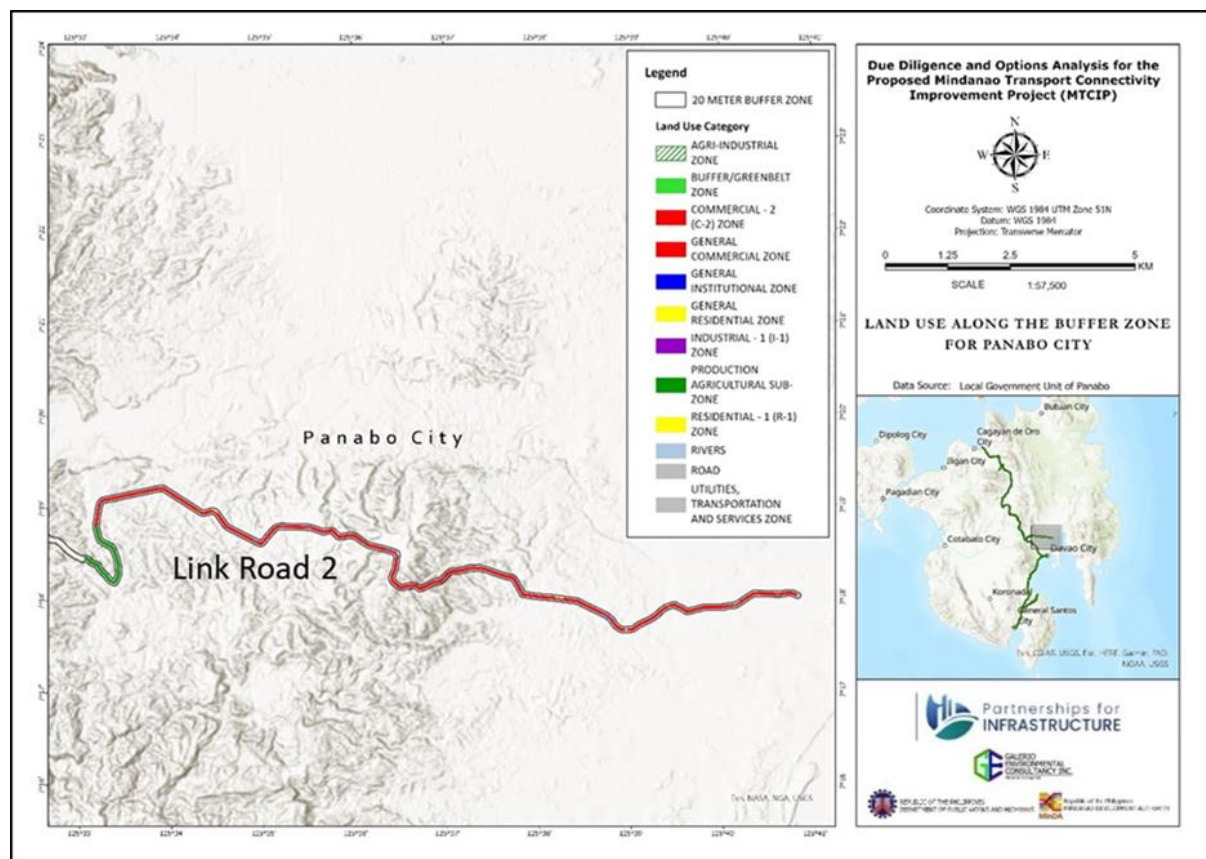


Figure 4-9. Land Use Map of MTCIP - Panabo City

Based on the existing Digos City Land Use Plan (2020), the RROW along the Main Corridor has been classified as primarily agricultural, followed by mostly residential lands at 17.99 ha and 10.38 ha, respectively, out of the total 38.02 ha of RROW land area (**Table 4-10** and **Figure 4-10**).

Table 4-10. Land use of the Main Corridor within Digos City, Davao del Sur

Category	Area within the 40m RROW, ha
Residential/ settlement/ resettlement/ socialized housing	10.38
Agricultural	17.99
Commercial	1.55
Tourism	1.57
Institutional	4.69
Grassland	1.84
TOTAL	38.02

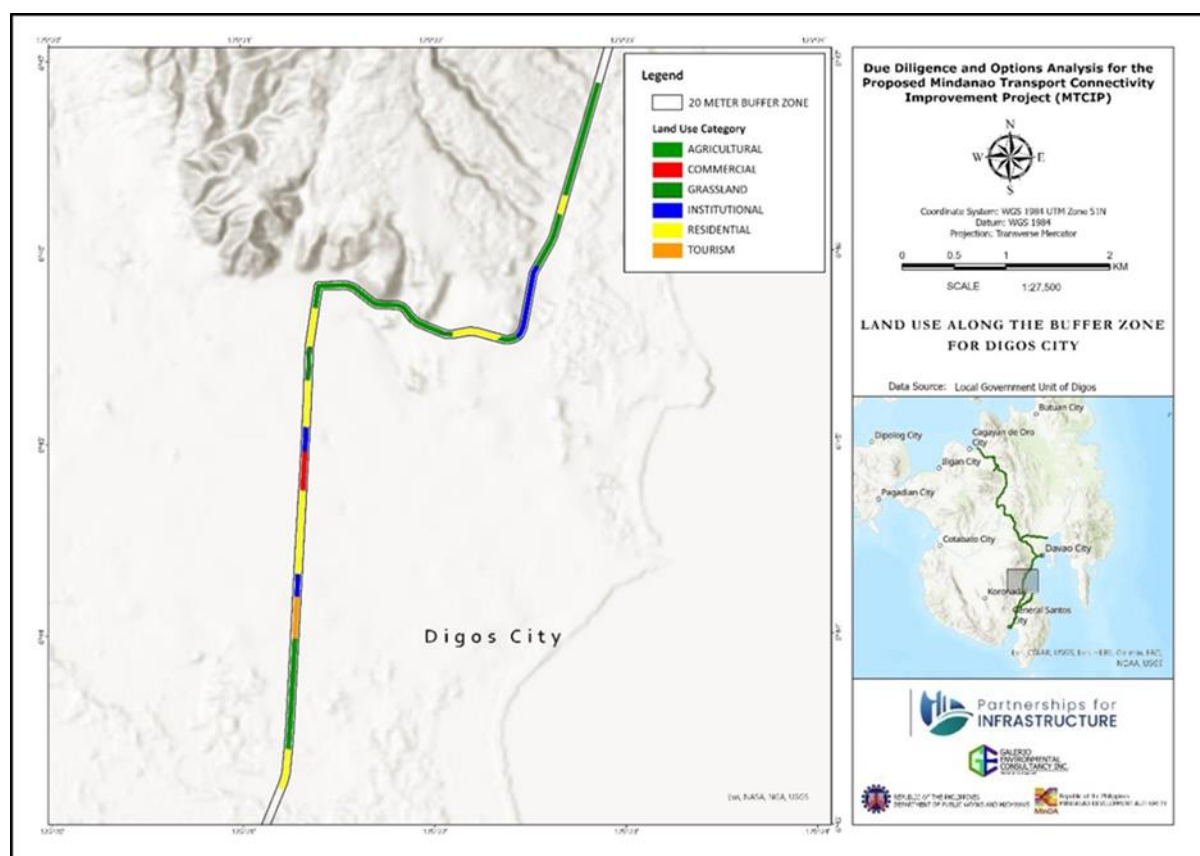


Figure 4-10. Land Use Map of MTCIP - Digos City

The land use within the RROW area in the Municipality of Malungon is dominated by agricultural production. It spans up to 137.58 ha (**Table 4-11** and **Figure 4-11**)

Table 4-11. Land Use of the Main Corridor within Malungon, Sarangani

Category	Area within the 40 RROW (Ha.)
Production Agriculture	137.58
TOTAL	137.58

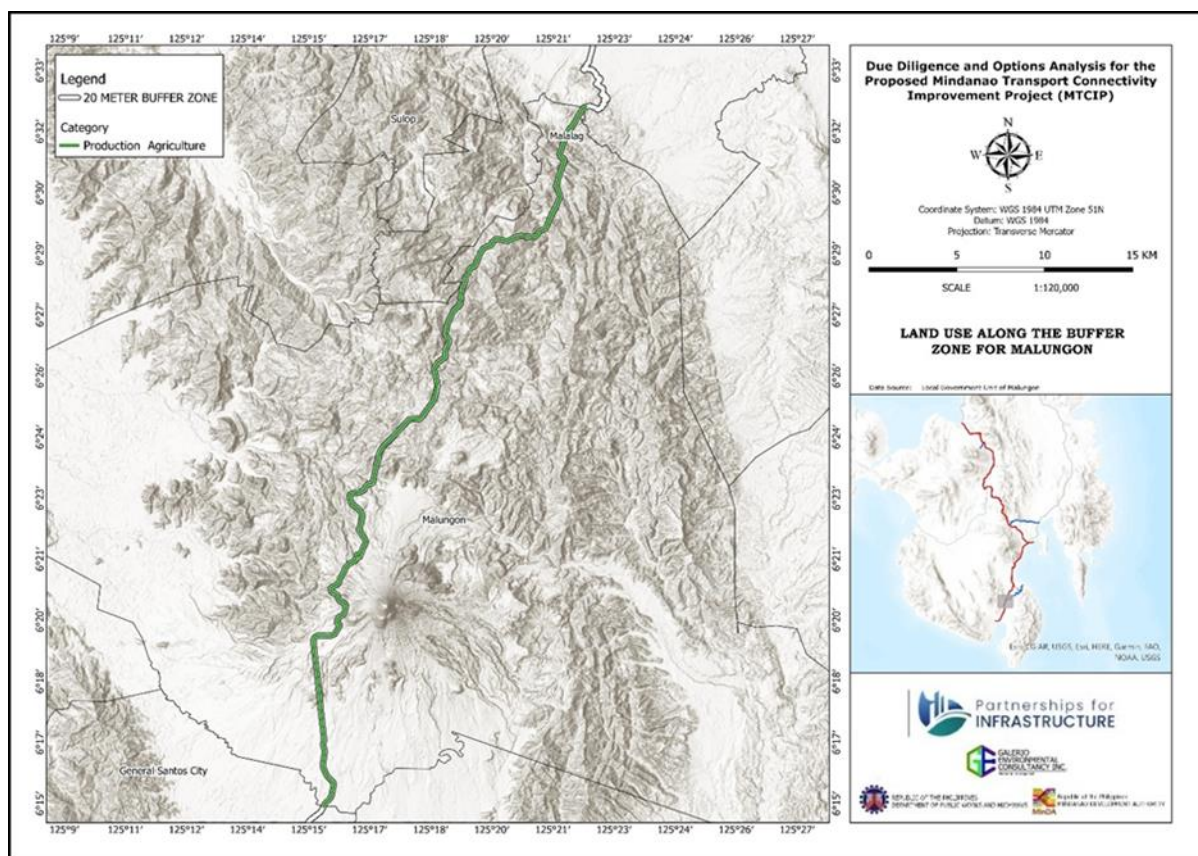


Figure 4-11. Land Use Map of MTCIP - Malungon

The extent of the 40-meter RROW in General Santos City has a total land area of 113.57 hectares. This is dominated by infrastructure and utilities at 76.07 ha, followed by the production forest at 18.59 ha. The residential, commercial, and agricultural categories follow the aforementioned categories, having 5.98 ha, 5.12 ha, and 3.08 ha, respectively (Table 4-12 and Figure 4-12).

Table 4-12. Land use of the Main Corridor within General Santos City, Sarangani

Category	Area within the 40m Buffer Zone (Ha.)
Agricultural	3.08
Quarry	0.38
Commercial	5.12
Institutional	2.59
Infrastructure/Utilities	76.07
Residential	5.98
Production Forest (18-30% slope northern)	18.59
River & Creeks	0.11
Industrial	1.66
Total	113.57

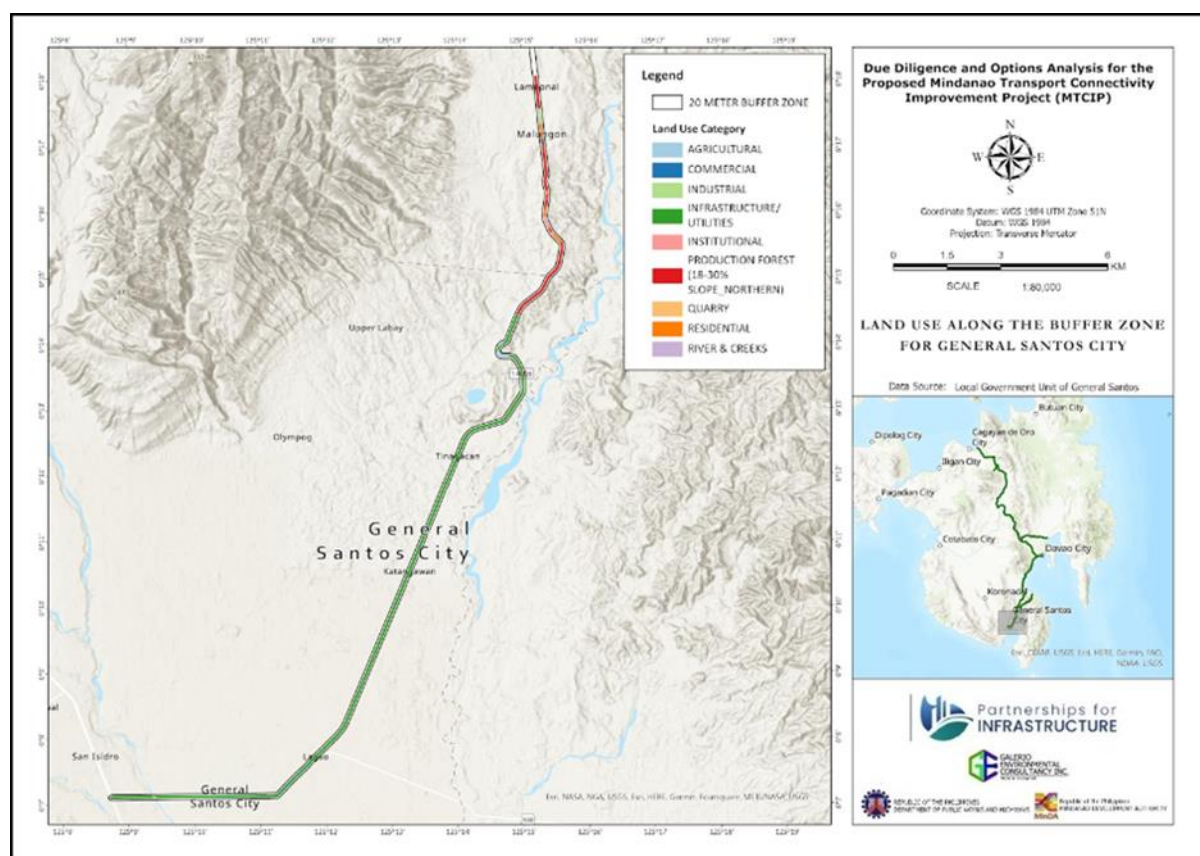


Figure 4-12. Land Use Map of MTCIP - General Santos City

2.2.1.2 Link Roads

The Link Roads' RROW was obtained within the 20-m RROW zone. In Link Road 1, a total of 20.15 ha comprises the RROW, with the largest already zoned as a public road or easement at 19.09 ha and the rest distributed to agro-industrial, agro-forestry, agricultural, conservation area, greenbelt, green buffer, commercial and residential, settlement, resettlement, and socialized housing in decreasing land area (**Table 4-13** and **Figure 4-6**).

Table 4-13. Land Use in Link Road 1

Category	Area, ha	Percentage
Residential/ settlement/ resettlement/ socialized housing	0.02	0.08%
Agricultural	0.15	0.74%
Agro-industrial	0.60	2.98%
Agro-forestry	0.29	1.46%
Commercial	0.00	0.01%
Public road/easement	19.09	94.73%
Conservation area/ greenbelt/ green buffer	0.00	0.01%
Total	20.15	100.00%

The RROW in Link Road 2 totals approximately 114.62 ha, with the dominant land use classification being agricultural, which covers more than 50%, followed by commercial at 16.05%. Other land classes within the RROW area are residential/settlement/resettlement/socialized housing, agro-industrial, water body/floodway, utilities, industrial, institutional, conservation area/greenbelt/green buffer, forest, and public road/easement, in increasing order (**Table 4-14**, **Figure 4-5**, and **Figure 4-9**)

Table 4-14. Land use in Link Road 2

Category	Area, ha	Percentage
Residential/ settlement/ resettlement/ socialized housing	10.55	9.21%
Agricultural	63.47	55.37%
Agro-industrial	0.03	0.02%
Commercial	18.40	16.05%
Public road/easement	11.80	10.30%
Forest	6.35	5.54%
Conservation area/ greenbelt/ green buffer	3.10	2.70%
Institutional	0.48	0.42%
Industrial	0.27	0.23%
Water body/ floodway	0.04	0.04%
Utilities	0.14	0.12%
Total	114.62	100.00%

The RROW in Link Road 3 has a total area of 62.7 hectares and is divided into eight (8) land use classes. The largest fraction is classified into forest land use with 28.16 ha which accounts for 44.91% of the total RROW area. This is followed by agricultural with 26.79 ha or 42.73% of the total RROW land. Details of the land use characteristics of Link Road 3 are presented in Table 4-15.

Table 4-15. Land use in RROW for Link Road 3

Category	Area, ha	Percentage
Residential/ settlement/ resettlement/ socialized housing	0.02	0.04%
Agricultural	26.79	42.73%
Agro-forestry	3.33	5.30%
Commercial	1.05	1.68%
Forest	28.16	44.91%
Institutional	0.24	0.38%
Grassland	1.28	2.04%
Landfill, Dump Site, Recycling Site, Materials Recovery Facility	1.84	2.93%
Total	62.70	100.00%

2.2.2 Geology

The geology of the areas traversed by the MTCIP is underlain by variable lithologies that are predominantly igneous but also include a significant number of metamorphic rocks and sedimentary suites. The underlying geology along the alignment may influence the stability of the Project which may pose risks and impact the overall safety of the road. The occurrence of “weak”, poorly consolidated, and/or significantly fractured and sheared lithologies may lead to landslides and rockfalls. The presence of limestones with significant dissolution features (karst) presents sinkhole hazards, which could potentially cause structural damage to the road infrastructure on the one hand and cause water quality problems on the other.

In Region X, the northern side of Sayre Highway mostly covers volcanic rocks, chiefly composed of pyroclastic eject and other materials found at the base of volcanic domes. This is similar to the middle portions of this highway. On the other hand, the southern side of this highway straddles numerous rocks, including dacite and andesite flows (**Plate 4-1**), marine and terrestrial sediments (**Plate 4-2**), which are sometimes associated with limestones, and a short extension towards the south covering rocks of shelf marine origins, mostly wackes, shales, and limestones. Link Road 1 runs through an area completely underlain by pyroclastics, like the northern Sayre Highway (**Figure 4-13**).



Plate 4-1. Sheared and Fractured Andesites KM 1460+255



Plate 4-2. Clastic Sedimentary Rocks KM 1468 +178

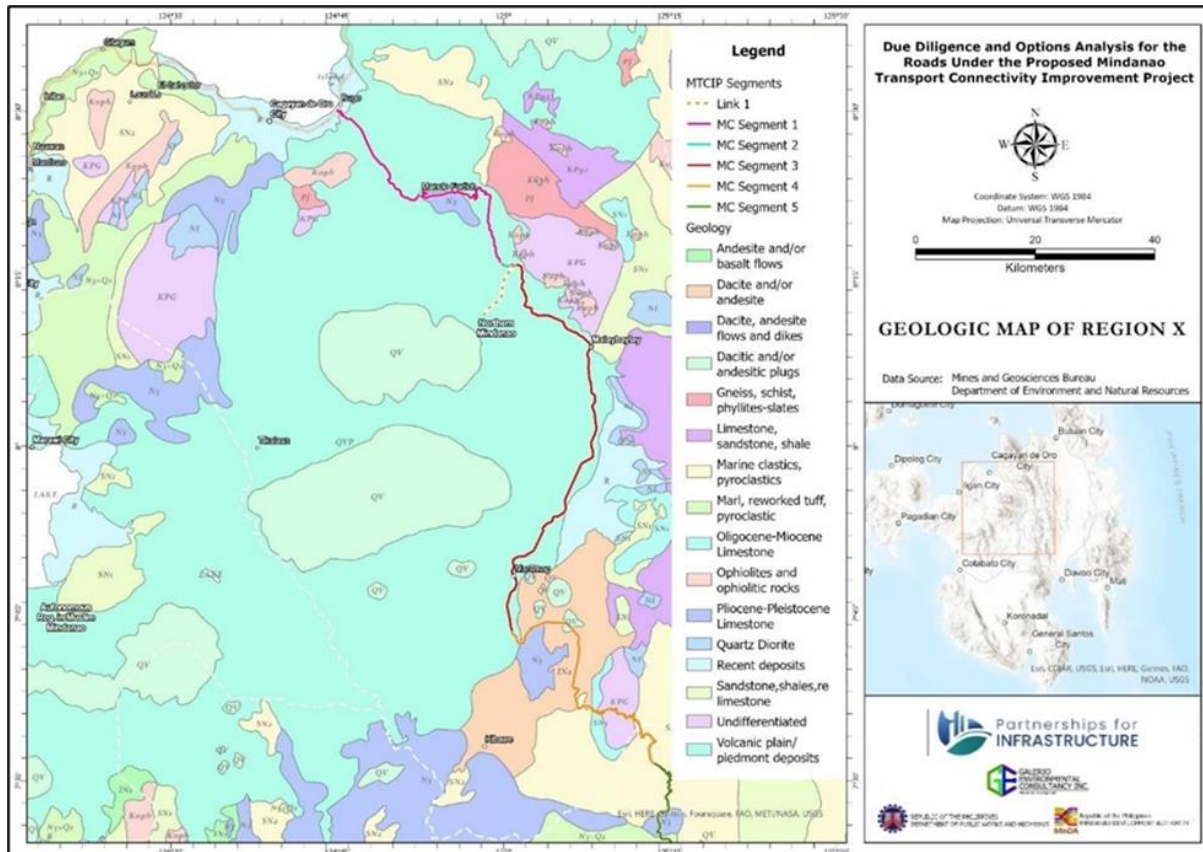


Figure 4-13. Geologic Map of Region X

In Region XI, the northern part of the alignment passes through a wide region of marine clastic rocks with some pyroclastic and tuffaceous sedimentary facies (**Figure 4-14**). This is within the Davao-Bukidnon Road. The southern extension of the latter runs through areas with chiefly volcanic and pyroclastic rocks sourced from the proximal Mt. Apo complex. Davao-Cotabato Road, which follows the coastal region, is covered with recent Quaternary alluvial deposits, the same as the northern part of Digos-Makar Road.

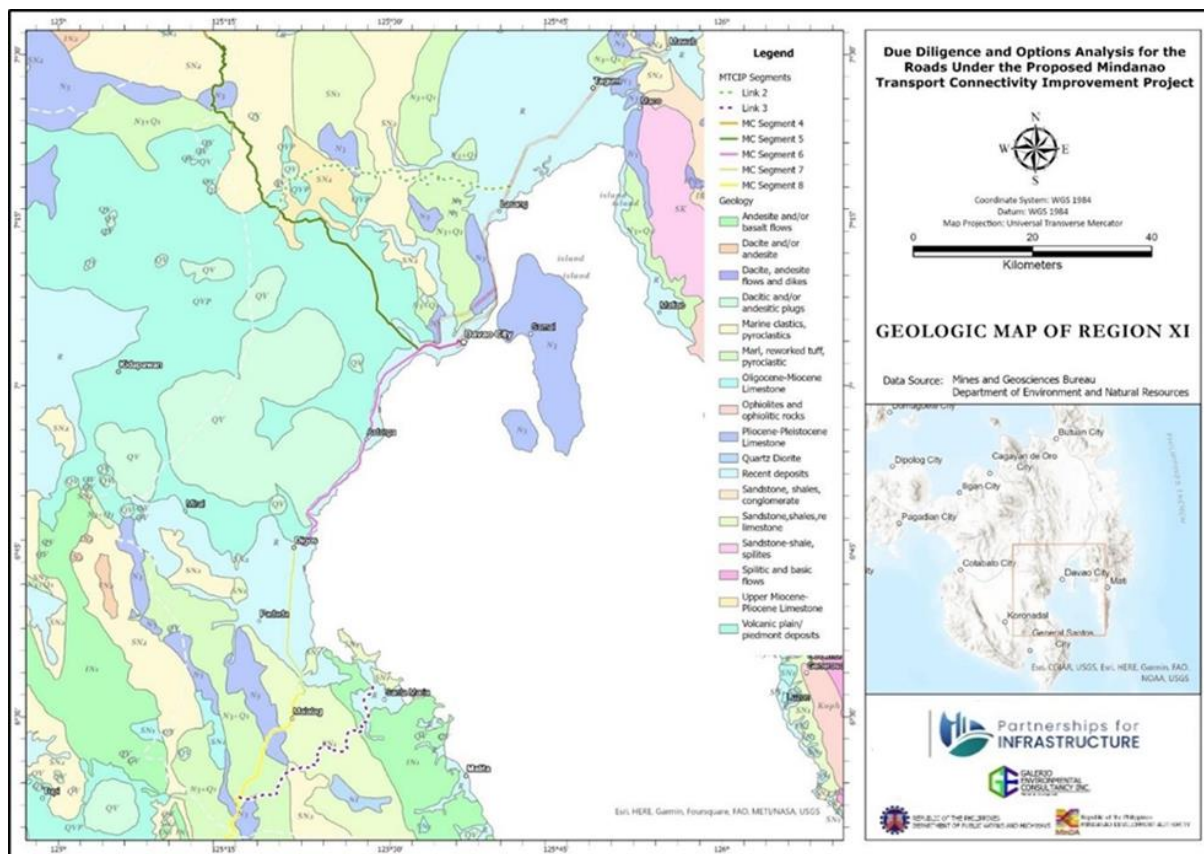


Figure 4-14. Geologic Map of Region XI



Plate 4-3. Tuffaceous Sandstone on Link Road 2



Plate 4-4. Andesites with Characteristic Spheroidal Weathering at KM 1648

Link Road 3 covers areas with gravel deposits, marine clastics, and tuffaceous sediments (**Plate 4-5**), wackes and shales with some limestone, a short stretch underlain by volcanic flows of andesites and basalts, and finally Quaternary alluvial deposits at their terminus along the coastal plains (**Plate 4-6**).

The southern portion of the Digos-Makar Road of the Main Corridor within Region XII lies on top of rock units that are mostly Quaternary alluvial deposits on its southern extension. However, upland areas along this segment are underlain by marine and terrestrial sedimentary rock, which includes limestones and reworked tuff (**Figure 4-15**).



Plate 4-5. Tuff Overlain by Terrace Gravel Deposits at KK 1635



Plate 4-6. Quaternary Alluvial Deposits Along Flood Plain Near KM 1613

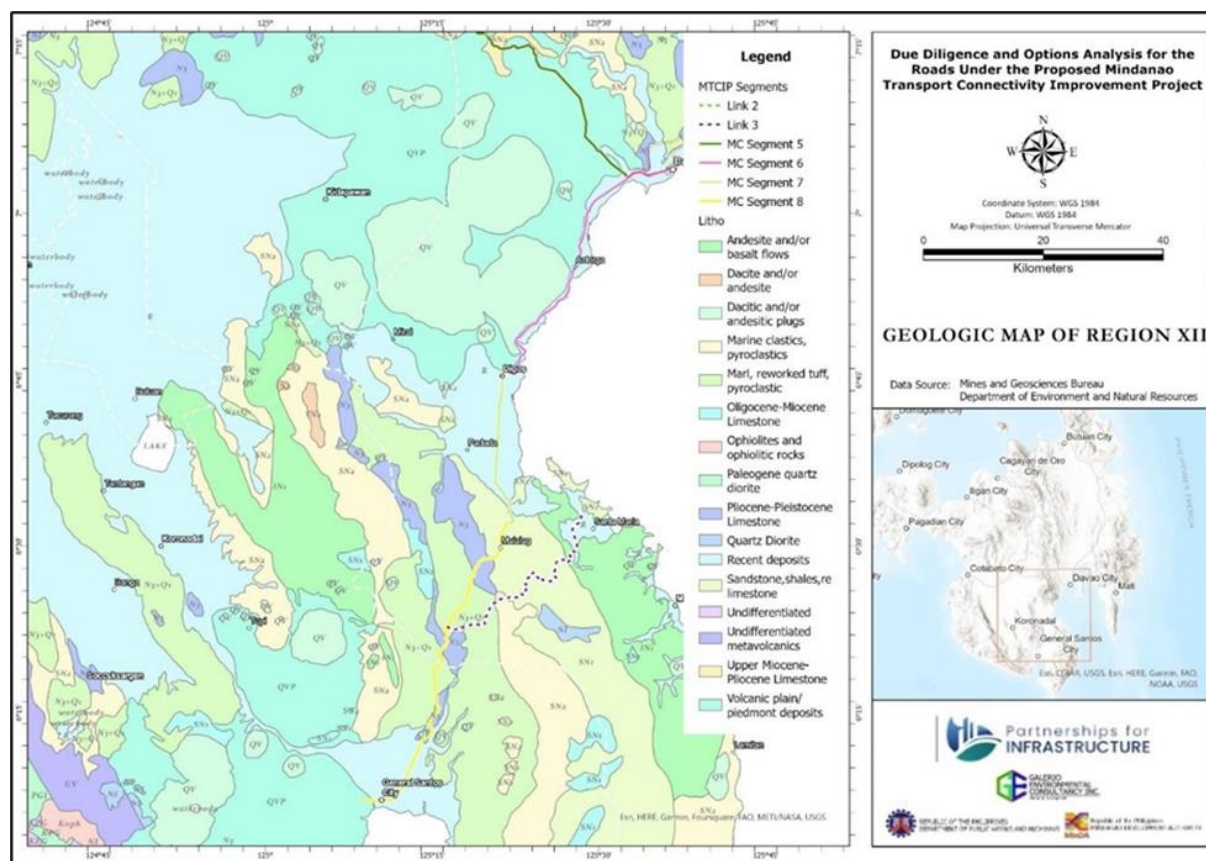


Figure 4-15. Geologic Map of Region XII

2.2.3 Terrain/Topography

The terrain along the Main Corridor and the Link Roads is presented herewith in reference to the topography of Regions X, XI, and XII. The topographic characteristics of the Project alignment will impact road safety conditions, as high or steep slope gradients may pose challenges to vehicles, affecting driver control and stability, which can be aggravated by inclement weather. The terrain is also a significant factor in designing bends and curves on roads, where sharp curves will reduce driver visibility and reaction times. In addition, surface drainage is greatly controlled by relative elevation, where depressed areas may accumulate water that may lead to hydroplaning, thereby reducing vehicular wheel traction. Furthermore, mountainous areas may require significant earth movement in order to attain acceptable road gradients, which will result in significant environmental impacts.

Geologically, Region X is a combination of plains, rolling hills, and mountains. Elevation along Sayre Highway, which starts at Puerto, Cagayan de Oro City, ranges from 142 m to 251 m and rises up to 622 m in Malaybalay City. About 60% of the city's area has above 30% slope, characterized by steep hills, mountains, and cliff-like streamside. About 25% are level, gently sloping, and undulating. While Valencia is 0-3% level to nearly level, Manolo Fortich has steep to very steep slopes, particularly at Brgy. San Vicente (**Figure 4-16**).

At Link Road 1, terrain at Brgy. Kapitan Bayong is level to nearly level, gently sloping to undulating at Brgy. Cawayan, then finally undulating to rolling at Brgy. Kibenton as it approaches the sloping upward entrance road to Mt. Kitanglad (**Plate 4-7**).



Plate 4-7. Road on the Right Side Leads to the Mt. Kitanglad Range Natural Park

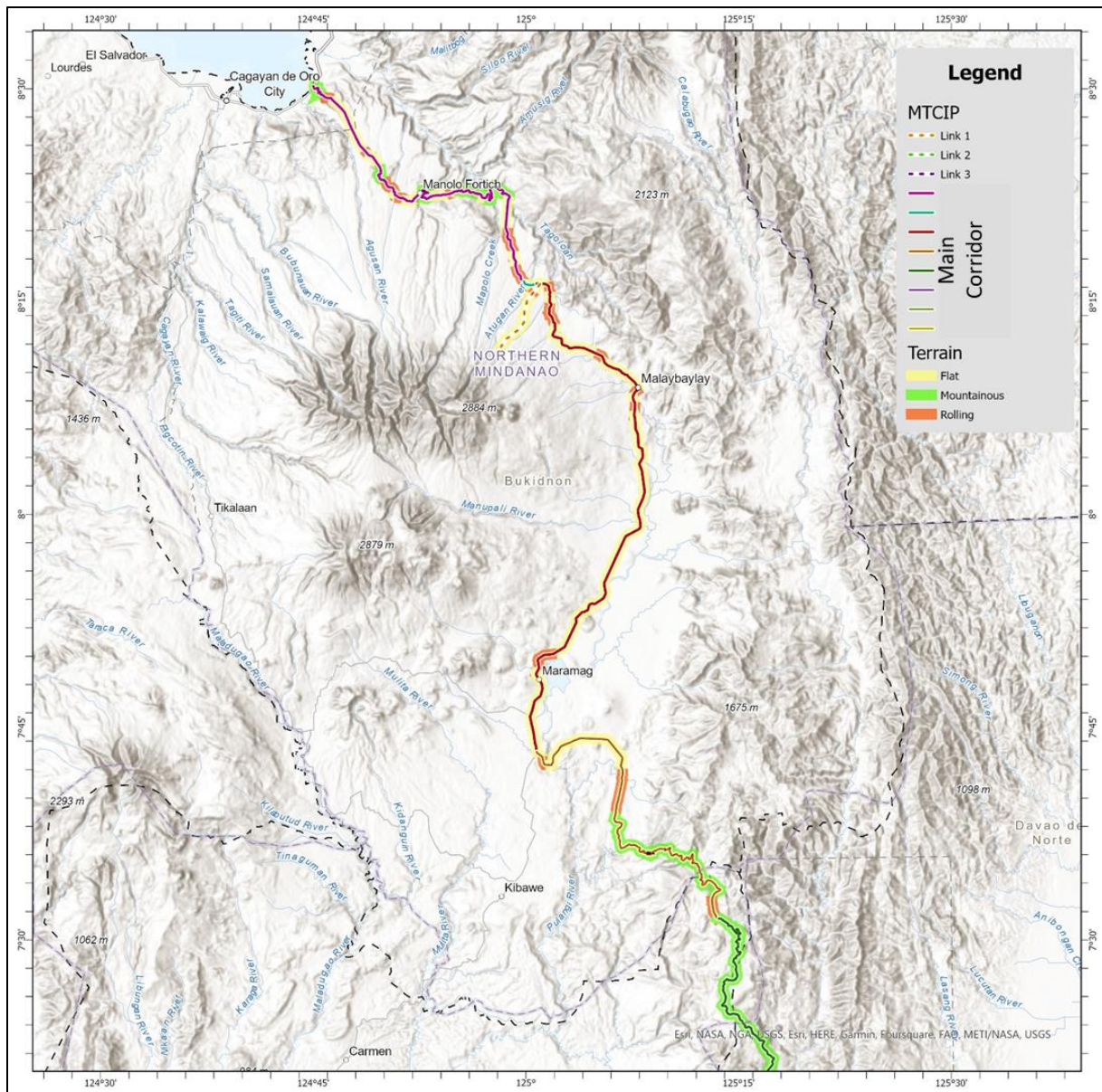


Figure 4-16. Terrain Map of Region X

The terrain of Region XI consists of flat, rolling, hilly, and mountainous portions, which are evenly distributed throughout the area. Davao City, which is traversed by the Main Corridor and where part of Link Road 2 is located, is hilly in the west (the Marilog district) and slopes down to the southeastern shore. Mount Apo, the highest peak in the Philippines, is located at the city's southwestern tip. The topography of Link Road 2, starting at the Marilog district, is rolling to moderately steep to very steep. Whereas from Davao City to Panabo City, it is gently sloping to level to nearly level (**Figure 4-17**).



Figure 4-17. Terrain Map of Region XI

Region XII's terrain varies from flat, fertile plains to an irregular landscape of wide valleys, scattered hills, and extensive mountain ranges.

Mountains and rolling hills dominate the landscape of Link Road 3 and the Main Corridor, passing through the municipalities of Sta. Maria in Davao Occidental and Malungon in Sarangani Province. Both provinces' topographic characteristics are attributed to the presence of the Alip Range, Daguma Range, Mt. Parker, and Mt. Matutum (**Figure 4-18**). The geology of the areas traversed by the MTCIP is underlain by variable lithologies from predominantly igneous but also include a significant number of metamorphic rocks and sedimentary suites as discussed in Section 4.2.2.

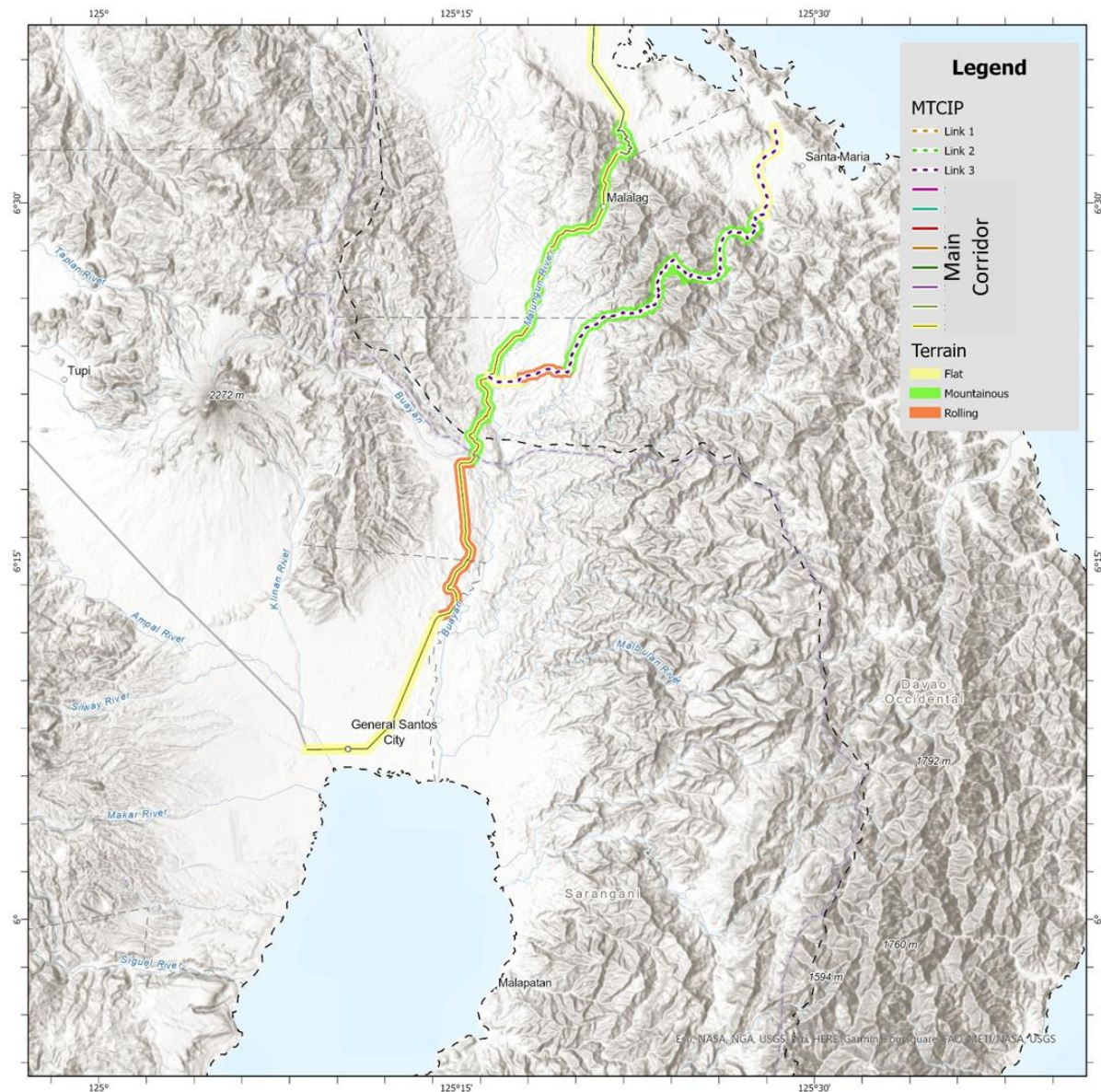


Figure 4-18. Terrain Map of Region XII

2.2.4 Pedology

The MTCIP passes through the whole length of Mindanao Island from north to south. It runs through areas of different types of underlying soil. The type of soil along the alignment will have a significant impact, depending on its different physical characteristics. It can influence foundation stability where soils with very high clay content can experience swelling during wet conditions and shrinking on dry spells, which may lead to road cracking and deformation. Drainage may also be affected by the type of underlying soil, as the permeability of this layer influences how well-drained the soils are in the road section, reducing the risk of hydroplaning. Also, the type of soil will influence the soil erosion potential of the area, which can lead to increased sediment content in the surrounding surface waters.

In Region X, the northern Sayre Highway of the Main Corridor mostly overlays clay soils, with a short portion along the northern edge falling within clay loam and complex soil areas. While

the middle and southern Sayre Highways also lie above undifferentiated soils. Link Road 1 is initially underlain by clay soils but then enters a section of loamy soils (**Figure 4-19**).

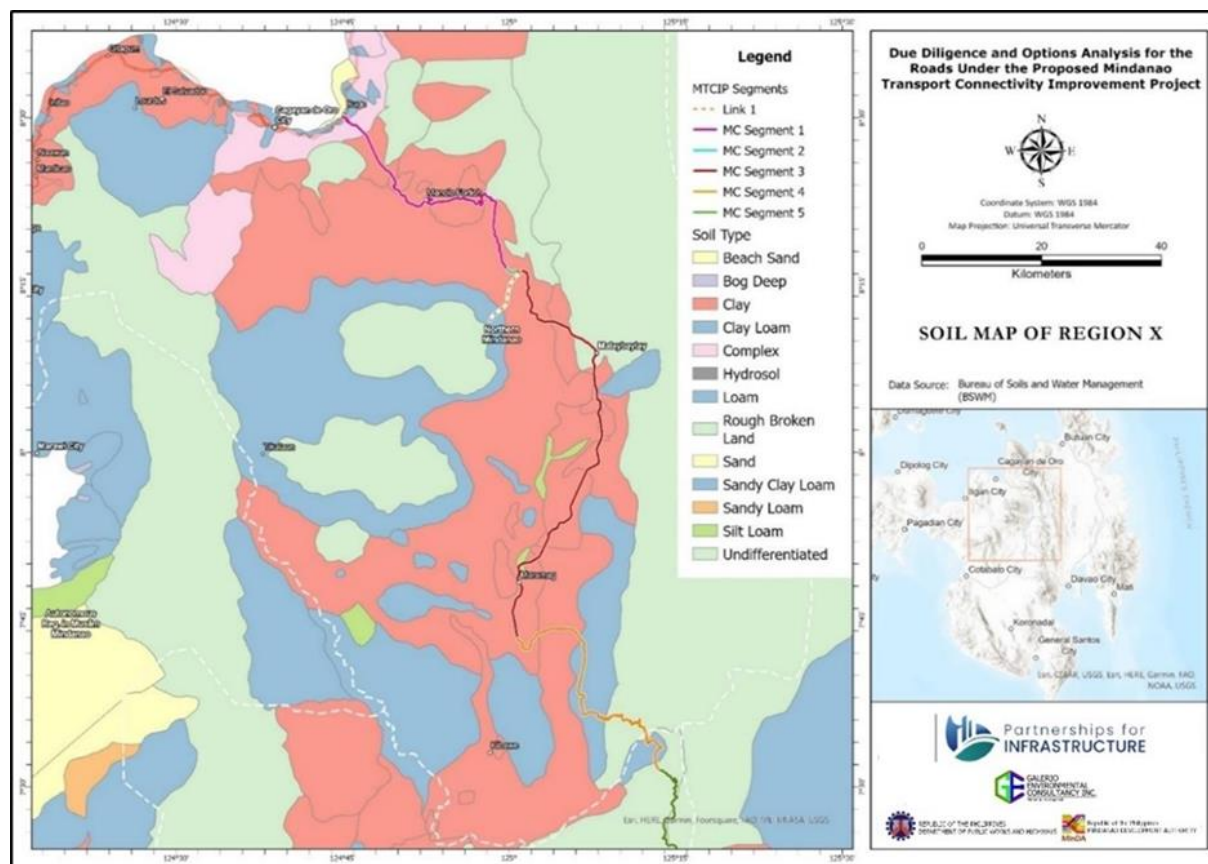


Figure 4-19. Soil Map of Region X

In Region XI, the MTCIP crosses areas with undifferentiated soils and clay along Davao-Bukidnon Road, then eventually enters an area with silty clay loam soils and clay loams in Davao-Cotabato Road and Northern Digos-Makar Road, in Region XII. Meanwhile, southern Digos-Makar Road passes through regions of loam and clay loam soils. For Link Road 2, it is underlain by at least five types of soils, including undifferentiated soil, sandy clay loam, clay loam, and silty clay loam soils. Whereas Link Road 3 falls within clay loam, silty clay loam, and loam soils (**Figure 4-20** and **Figure 4-21**).

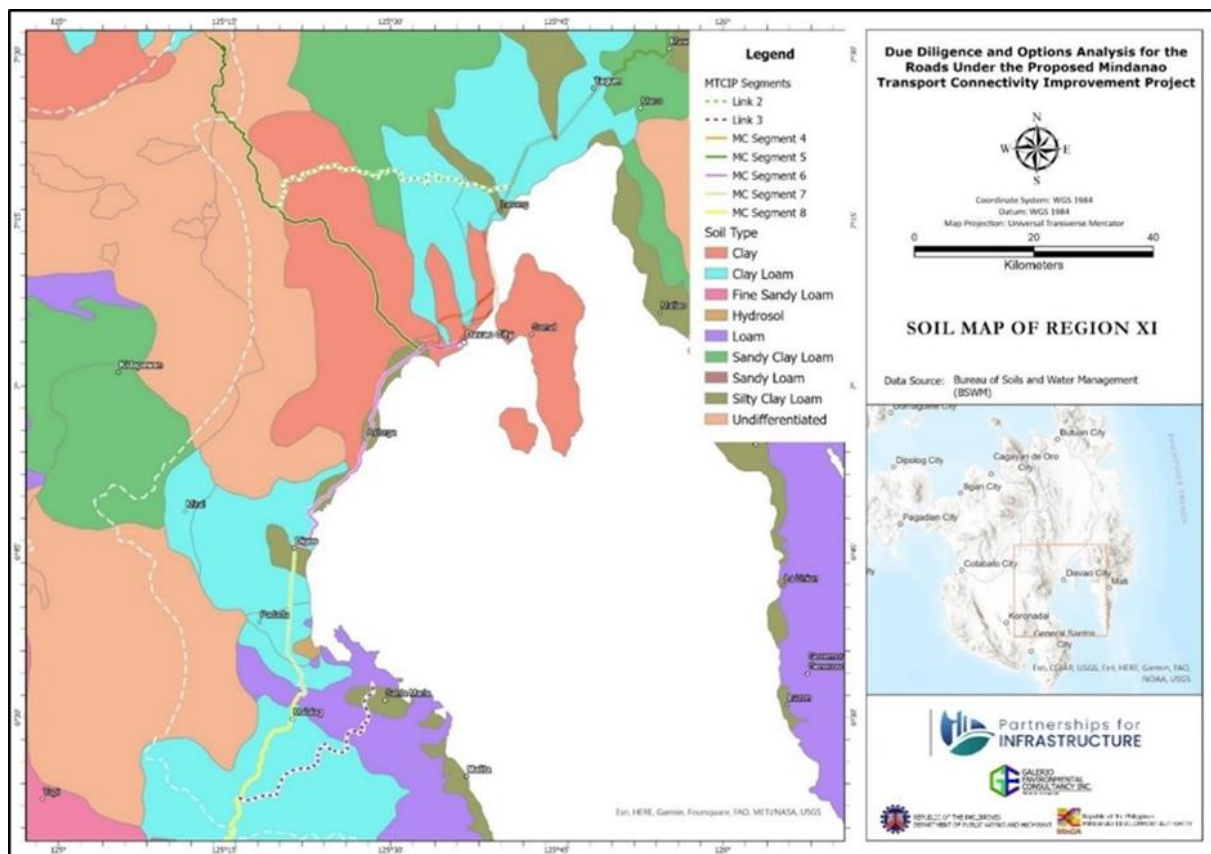


Figure 4-20. Soil Map of Region XI

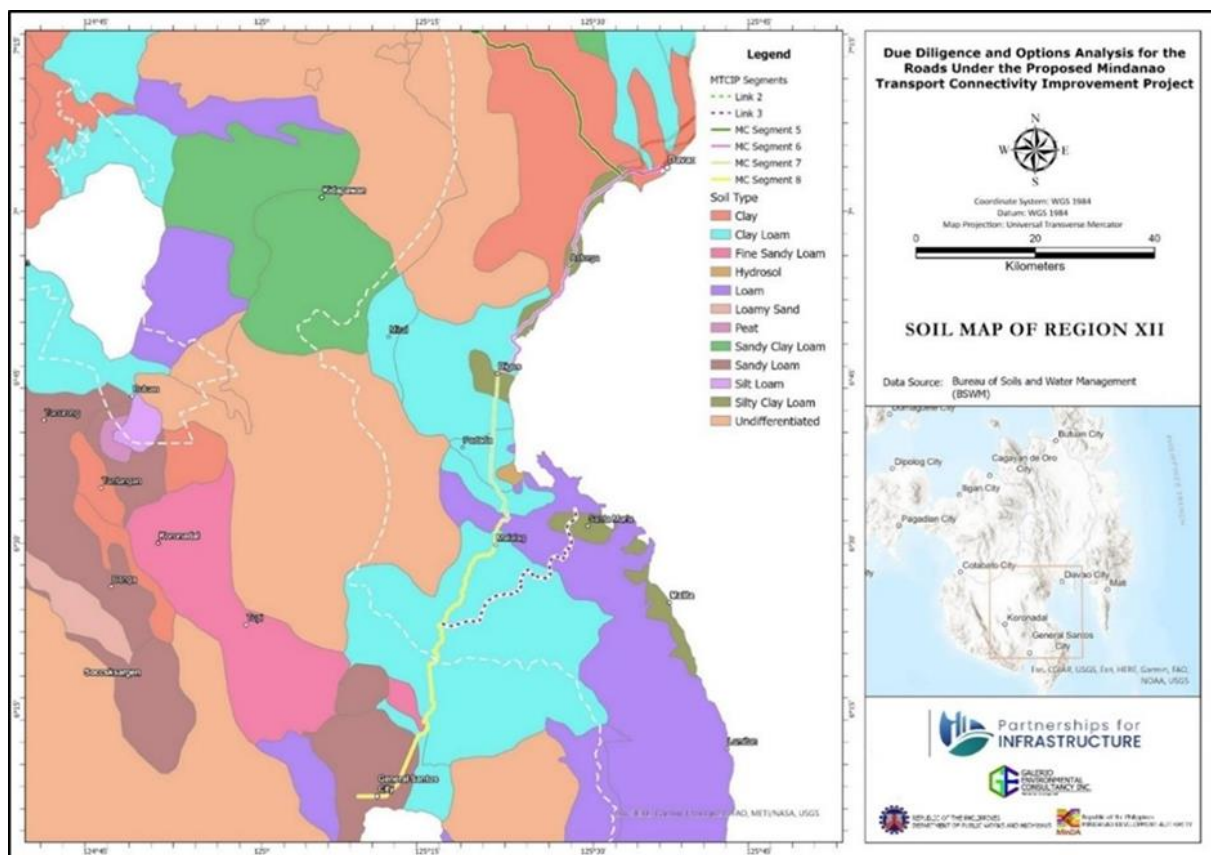


Figure 4-21. Soil Map of Region XII

2.2.5 Natural Hazards

2.2.5.1 Seismic Hazards

The Philippines is a country situated in a seismically active region where several plate boundaries converge, including the Philippine Sea Plate, Philippine Mobile Belt, Sunda Plate, and the Eurasian Plate. Tectonic readjustment along these areas results in minor as well as major seismic activities that result in devastation, particularly to rigid infrastructure.

Seismic hazards for highways include the risks and potential damage to the actual road network as well as associated facilities such as drainages, flood control, and slope protection structures. The chief seismic hazards that may affect the MTCIP are ground shaking and ground rupture, considering the different fault systems that transect Regions X, XI, and XII.

The alignment of the MTCIP traverses a few active and potentially active faults within Region X, specifically the Sayre Highway of the Main Corridor (**Figure 4-22**). Along the northern Sayre Highway, it crosses the approximate trace of the potentially active Dicklum Fault within the Municipality of Manolo Fortich in the vicinity of KM 1444. Middle Sayre Highway also transects another potentially active fault, the Valencia Fault, around the areas of KM 1504 and KM 1548 within the vicinity of Barangay Sumpong and Barangay Casisang. The southern extension of this segment is also cut by the active South Bukidnon Fault at approximately KM 1560. Moreover, the southern Sayre Highway runs through another splay of the aforementioned fault system within the area of KM 1564.

Within Region XI, Davao-Bukidnon Road, Davao-Cotabato Road, and Digos-Makar Road of the Main Corridor, as well as Link Roads 2 and 3, cross PHIVOLCS-identified fault traces (Figure 4-23). Along the Main Corridor, Davao-Bukidnon Road passes through approximate traces of the Central Davao Fault System at KM 1673 (Tamugan Fault), KM 1673 (Lacson Fault), KM 1683, KM 1687-1688, and KM 1692. Davao-Cotabato Road follows the approximate trace of the Lacson Fault from KM 1528 to KM 1535. The municipalities of Malalag and Sta. Maria is cut by the northwest-southeast trending Tangbunan Fault, which also intersects northern Digos-Makar Road at KM 1588.

On the other hand, Link Road 2 passes through an approximate trace of the active Central Davao Fault System at KM 1514+644 and KM 1513+131. The southern extension of the Tangbunan Fault is also transected by Link Road 3 around the geographic coordinates 6.4768697°N, 125.4553106°E.

The MTCIP extension within Region XII consists of a portion of Link Road 3 and the southern Digos-Makar of the Main Corridor (**Figure 4-24**). Based on the alignments, Southern Digos-Makar Road will cross the Makilala-Malungon Fault of the Cotabato Fault System at KM 1619. While the western side of Link Road 3 will not be susceptible to ground rupture.

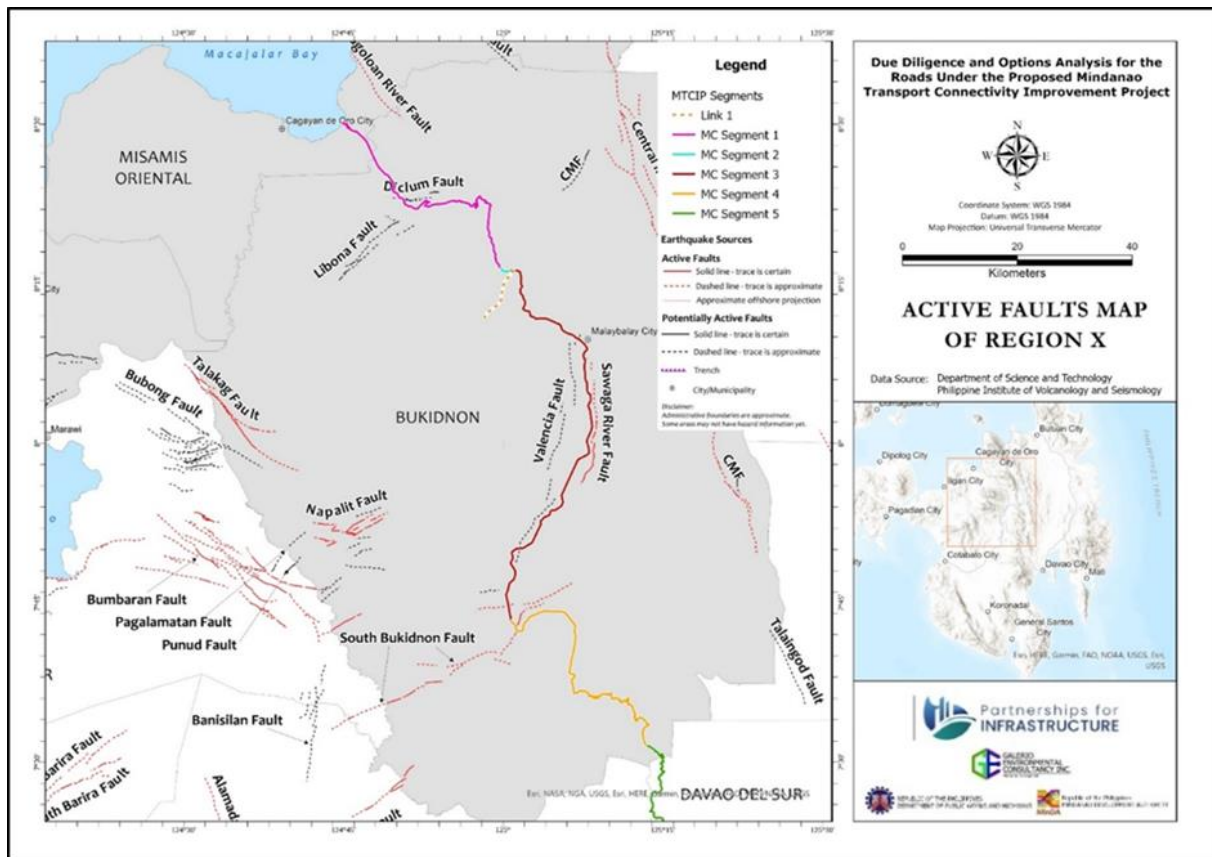


Figure 4-22. Active Faults Map of Region X

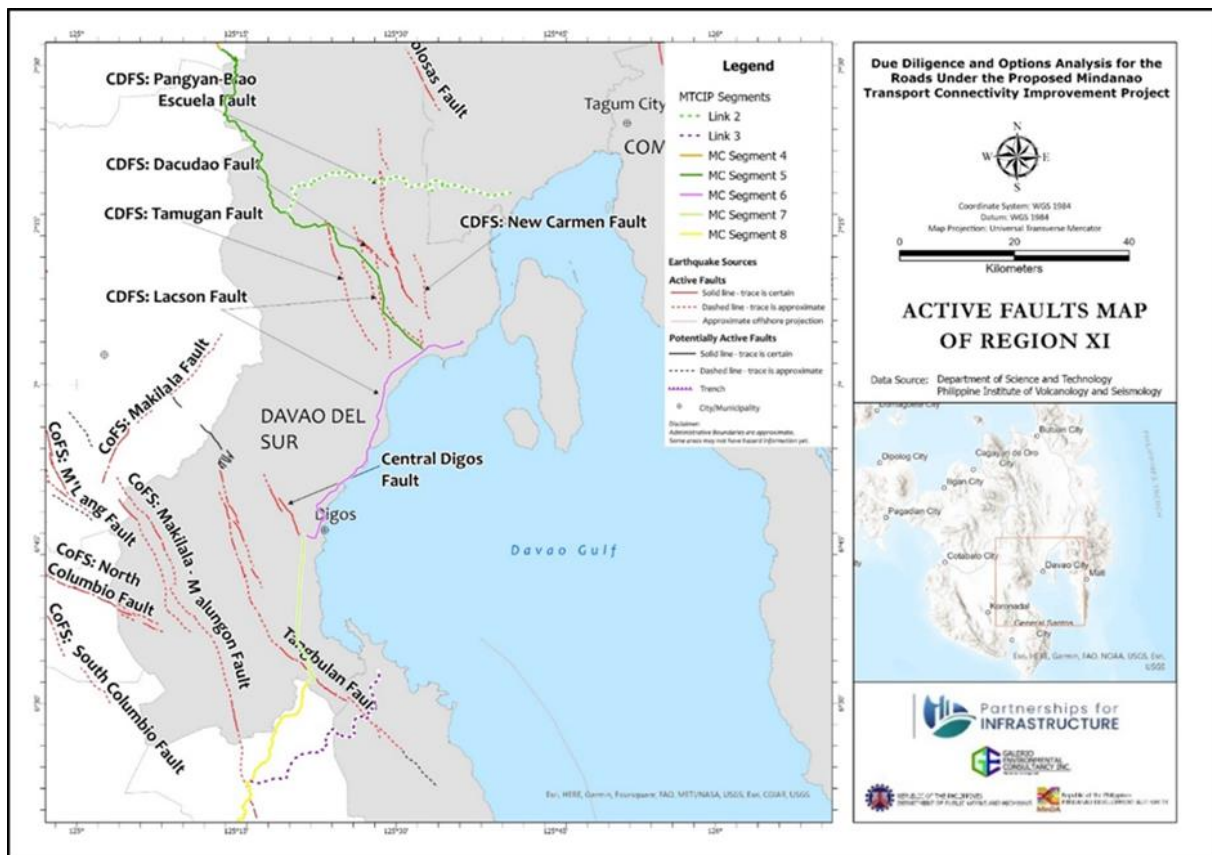


Figure 4-23. Active Faults Map of Region XI

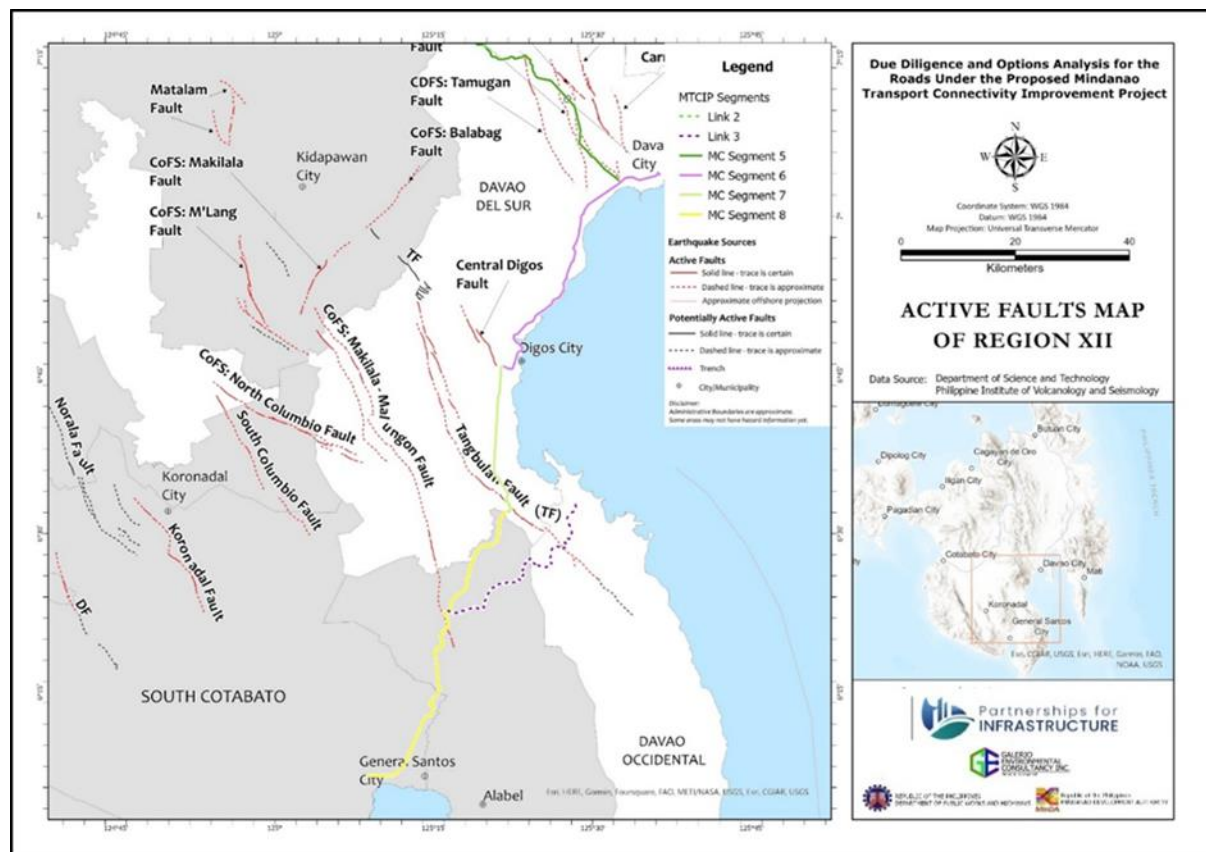


Figure 4-24. Active Faults Map of Region XII

1.1.1.1 Ground Shaking/Earthquake

Another critical risk posed by faults in infrastructure is ground shaking/earthquake. Events such as earthquakes that originate due to kinematic readjustment along these fault lines result in the massive release of seismic energy that results in extreme vibrations within rigid concrete structures and others. Should the vibrations exceed the capacity of these stiff structures, cracks and other structural failures may occur, which may eventually lead to unsafe conditions or collapse.

Based on the peak ground acceleration map published by PHIVOLCS, the MTCIP will likely experience shaking ranging from 0.3g to 0.5g where the foundations are anchored on rock sites (**Figure 4-25**). While sections of the highway and bridges founded on stiff soils will likely experience ground shaking ranging from 0.3g to 0.5g at different parts of the alignment (**Figure 4-26**). In general, the southern extension of the MTCIP experiences worse ground shaking compared to the northern part.

In addition, ground shaking scenario maps have been generated by PHIVOLCS to simulate the horizontal ground motion that will be experienced given a simulated earthquake scenario. Earthquake scenarios for the most probable generator within the central Mindanao region include the Central Mindanao Fault, Davao River Fault, Lanao Fault System, and Mindanao Fault, which were modeled with their design magnitudes of M7.6, M7.1, M6.9, and M7.3, respectively (see DDOA-MTCIP Comprehensive Data Collection Report, *Appendix 24: Earthquake Scenarios for the Most Probable Generator within Central Mindanao*). Based on these scenario maps, sections of the MTCIP within Region X will likely experience earthquake intensities of 5–6 during an event in the Lanao Fault and Mindanao Fault, while they will have

higher intensities of 6–8 if the event occurs at the Davao River Fault or the Central Mindanao Fault.

Within Region XI, the MTCIP alignment will be subjected to earthquakes of 7-8 intensity based on the PHIVOLCS Earthquake Intensity Scale (PEIS) should the modeled event occur along the Davao River Fault or the Central Mindanao Fault. If the event is in the Lanao Fault System or Mindanao Fault, the intensities to be expected range from 3 to 4. Meanwhile, the extension of the MTCIP alignment within Region XII will experience intensities ranging from 3 to 4 in the event that any of the design earthquakes occur on any of the four fault systems.

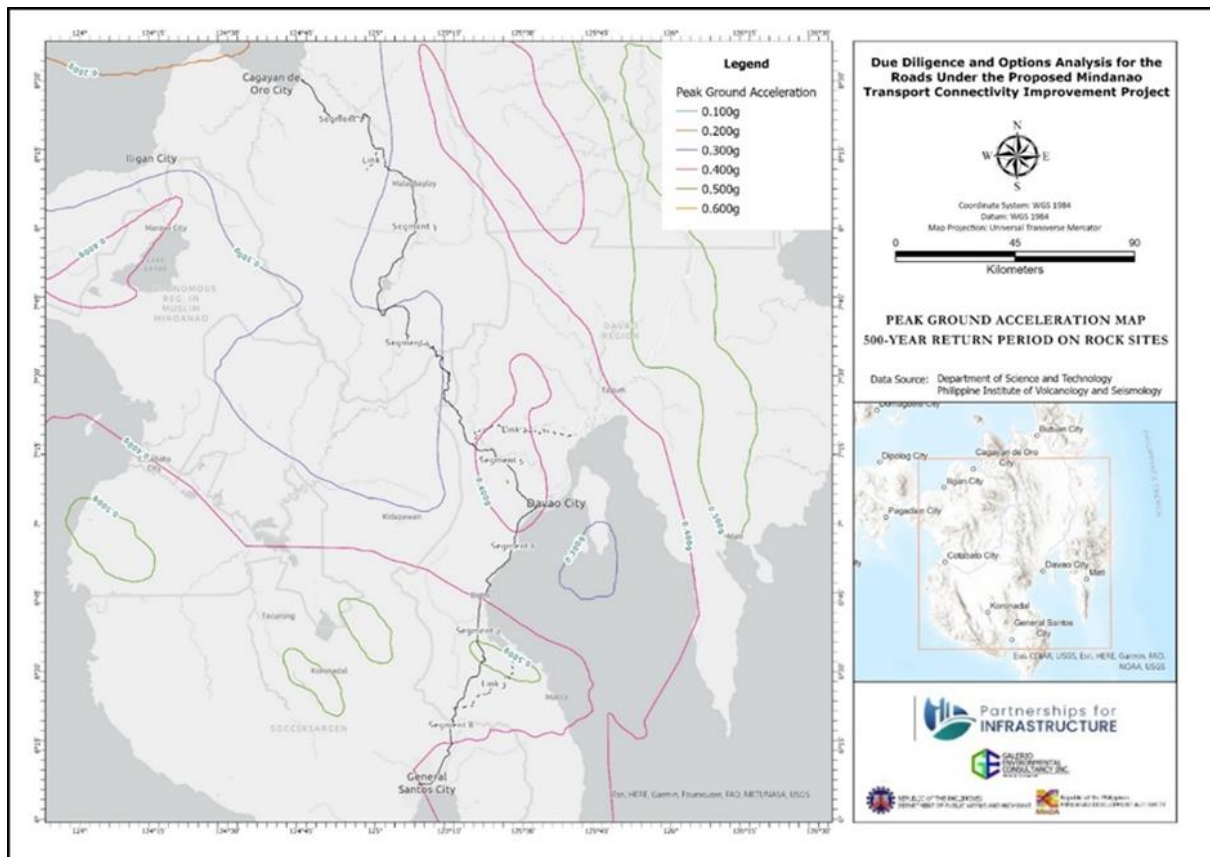


Figure 4-25. Peak Ground Acceleration Map on Rock Sites

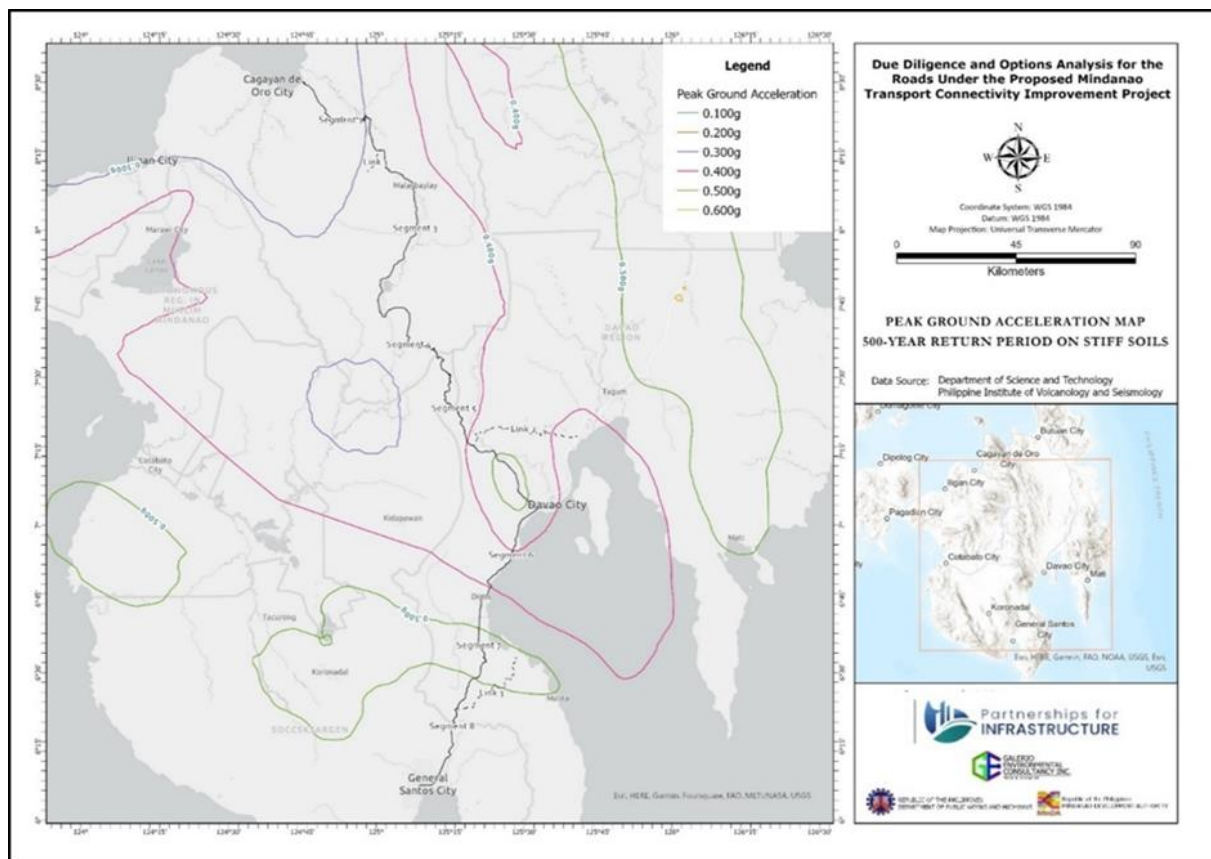


Figure 4-26. Peak Ground Acceleration Map on Stiff Soils

2.2.5.2 Sinkhole Collapse

Field inspection has identified a section of the MC in Kitaotao, Bukidnon ($7^{\circ}33'10.64''\text{N}$, $125^{\circ}13'14.44''\text{E}$) that is underlain by limestone and exhibits ground subsidence leading to cracks and uneven surface on this road segment. This may be due to the existence of sinkholes in the area as the surrounding exposures shows apparent solution cavities and minor caves. Examination of the surface runoff flow path shows that the waterflow leads into the base of the road segment. Sinkhole collapse pose significant risk in road projects which may lead to structural damage and instability under roads and bridges. Seismic events may trigger collapse of the roof of existing solution cavity resulting to sinkhole formation.

2.2.5.3 Liquefaction

The presence of numerous faults crisscrossing the MTCIP makes it prone to liquefaction in some sections of the highway. This phenomenon occurs due to the presence of significant soil moisture and pore spaces within granular soils, which results in a loss of strength and stiffness during significant shaking, such as an earthquake event.

Based on the liquefaction susceptibility map of the Philippines published by PHIVOLCS, the MTCIP runs across several areas that are prone to liquefaction. In Region X, the northernmost tip of the MTCIP is prone to liquefaction, as is the middle portion within the Municipality of Maramag, Bukidnon, at around KM 1525 and KM 1542+560 until KM 1544. In the southern part, another portion of the highway lies above liquefiable soils from KM 1616 until KM 1620. Link Road 1 does not intersect any areas that might be prone to liquefaction (**Figure 4-27**).

Within Region XI, there is a significant portion of the highway that runs through liquefaction-prone areas. This is primarily due to the geomorphological and geological characteristics of

the coastal plains that comprise most of the areas where the alignment passes through in this region. A portion of Davao-Bukidnon Road from KM 1682 +600 until KM 1694 lies on ground that is highly susceptible to liquefaction. Another long section that is within a liquefiable area is from KM 1511 to KM 1587, almost the whole of Davao-Cotabato Road. This is a relatively long section of the road that roughly follows the coastline of southern Mindanao. These conditions are similar to the eastern terminus of Link Road 2, which is also prone to liquefaction from geographic coordinates 125.6386866°E 7.2996421°N until its end. Link Road 3 does not cross any area that may have liquefaction (**Figure 4-28**).

The extension of the highway into the jurisdiction of Region XI runs through mostly liquefaction-safe areas except towards the southernmost portion of the highway, Southern Digos-Makar Road. From KM 1639 +118 until the end at KM 1655, this section of the alignment is prone to liquefaction. It can be noted that this section is near the coast and within the southern extension of the Cotabato Basin, which is mostly underlain by ash deposits (**Figure 4-29**).

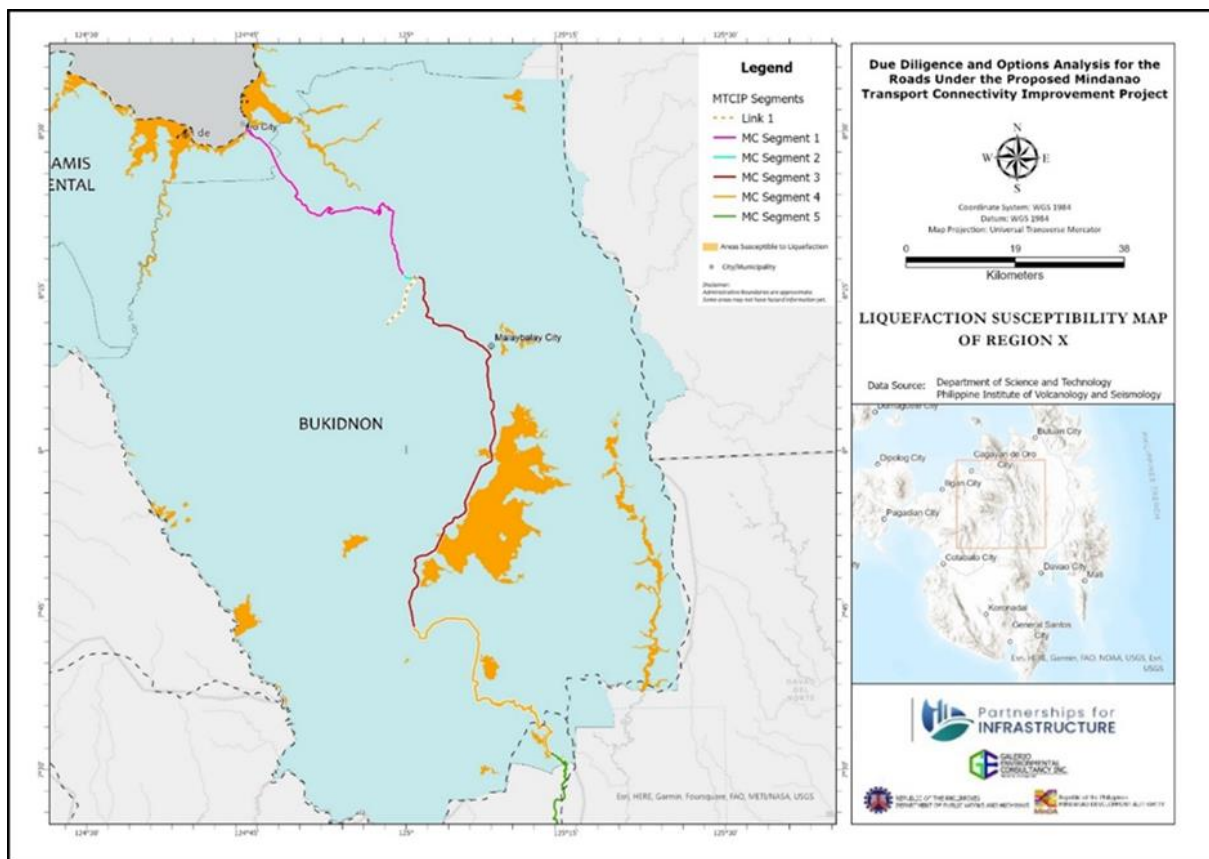
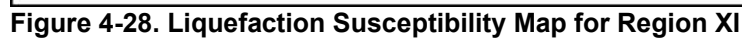


Figure 4-27. Liquefaction Susceptibility Map for Region X



2.2.5.4 Tsunami Hazard

Tsunamis are triggered by submarine earthquakes and landslides that result in a series of large waves. These waves, when reaching the shoreline, can cause devastating effects on coastal communities and infrastructure, especially along shallow coastlines.

The coastal areas of the Philippines are prone to tsunamis from various sources, and the MTCIP alignment that runs within this near-coast region will likely be affected by such events. This includes the Northern Sayre Highway, Davao-Cotabato Road, and Southern Digos-Makar Road of the Main Corridor (**Figure 4-30**, **Figure 4-31**, and **Figure 4-32**). Tsunamis generated from trench-related local events, submarine landslides, offshore faults, and distant tsunamis can affect this section.

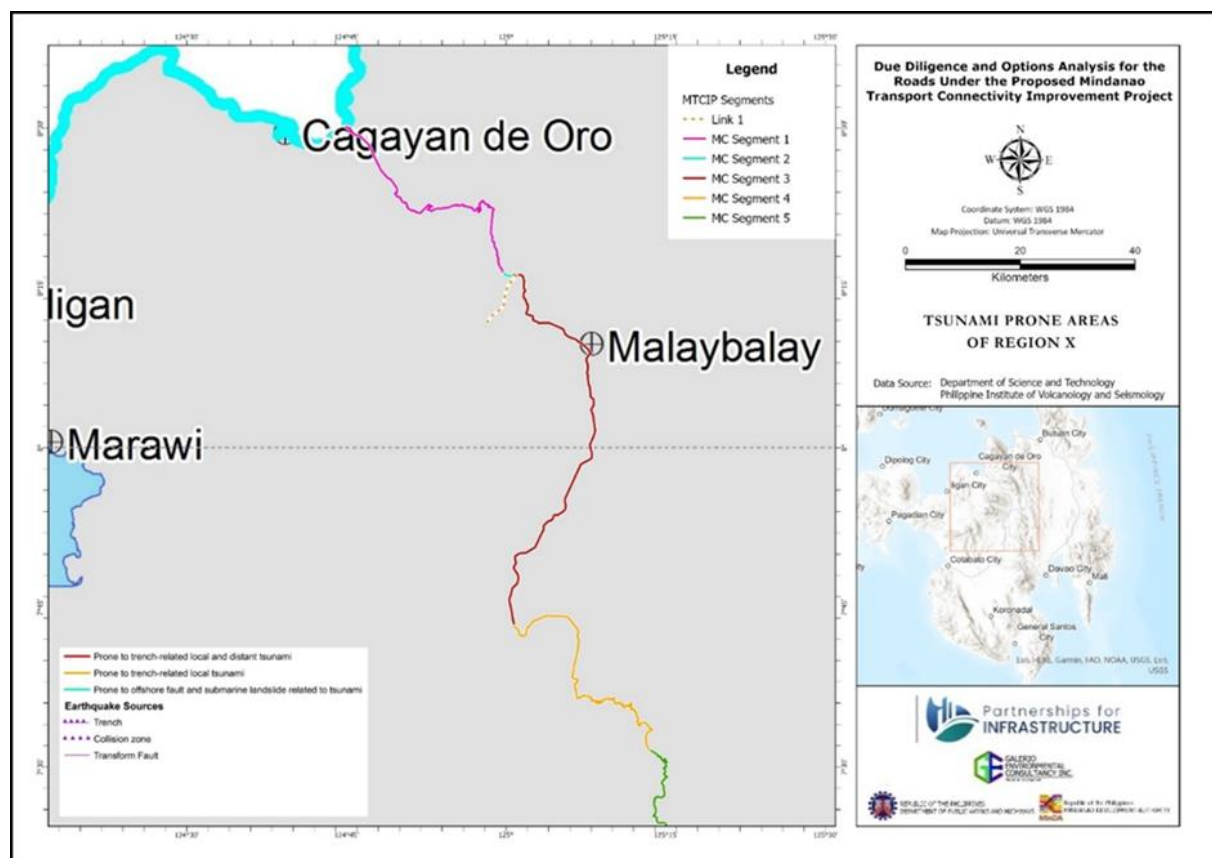


Figure 4-30. Tsunami Prone Areas in Region X

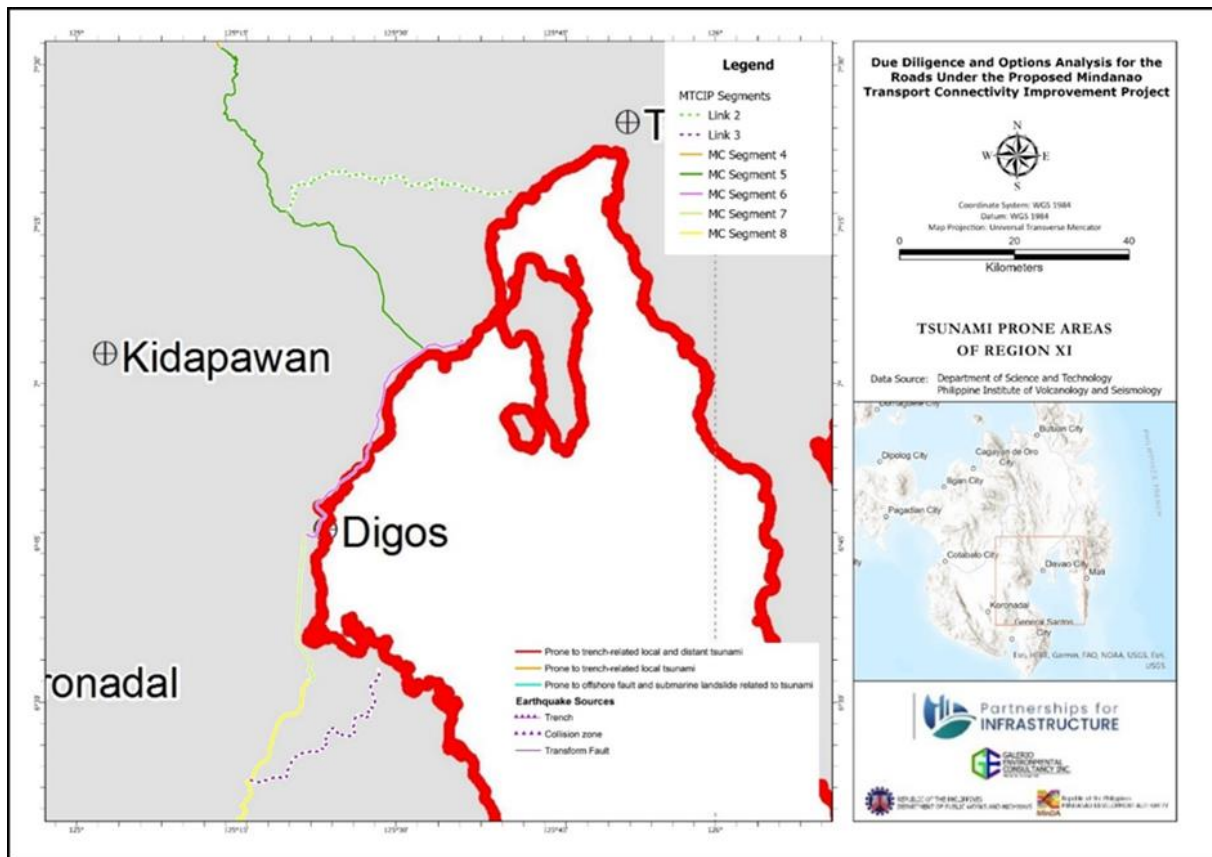


Figure 4-31. Tsunami Prone Areas in Region XI

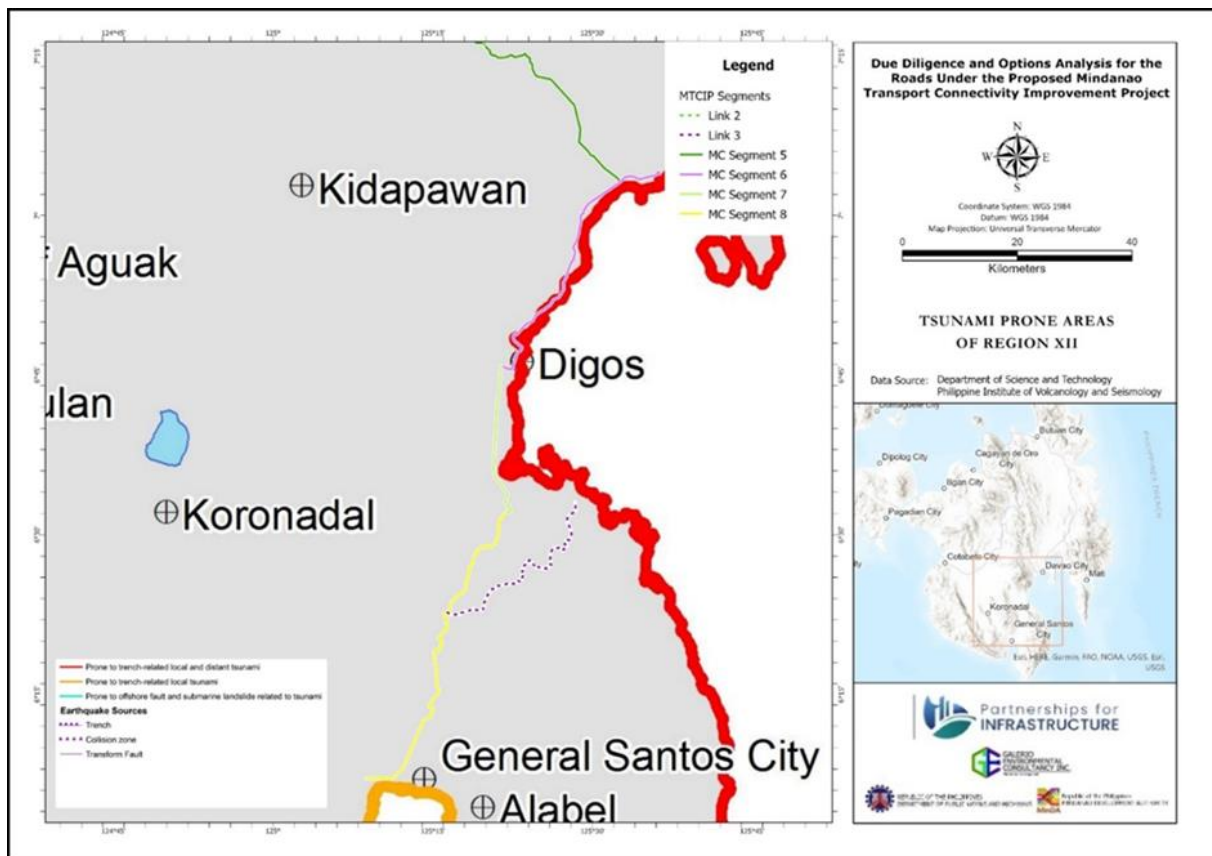


Figure 4-32. Tsunami Prone Areas in Region XII

2.2.5.5 Volcanic Hazard

There are two active volcanoes and one potentially active volcanic center proximal to the alignment of the MTCIP. These are Mt. Calayo (Musuan) in Bukidnon and Mt. Matutum in General Santos City. The potentially active center of Mt. Apo is located on the western side of Davao City. Of the three, the closest to MTCIP is Mt. Calayo, which is less than 1 km from the road along MTCIP Middle Sayre Highway (**Figure 4-33**). This volcanic center has no recorded eruption; however, anecdotal accounts report a phreatic eruption around 1886–87, and there was a recorded earthquake swarm in 1976. Mt. Apo is approximately 22.4 km from the closest segment of the MTCIP, Davao-Cotabato Road, and is believed to be potentially active, although there is no eruption on record (**Figure 4-34**). The third volcanic center is the active Mt. Matutum, which is about 22 km from the closest Southern Digos-Makar Road. The last known eruption of this volcanic center was on March 7, 1911 (**Figure 4-35**).

Based on the distance of the MTCIP from these volcanic centers in conjunction with the level of activity in the volcanoes, the primary hazard that poses risks to the project is ashfall from Mt. Matutum and Mt. Apo.

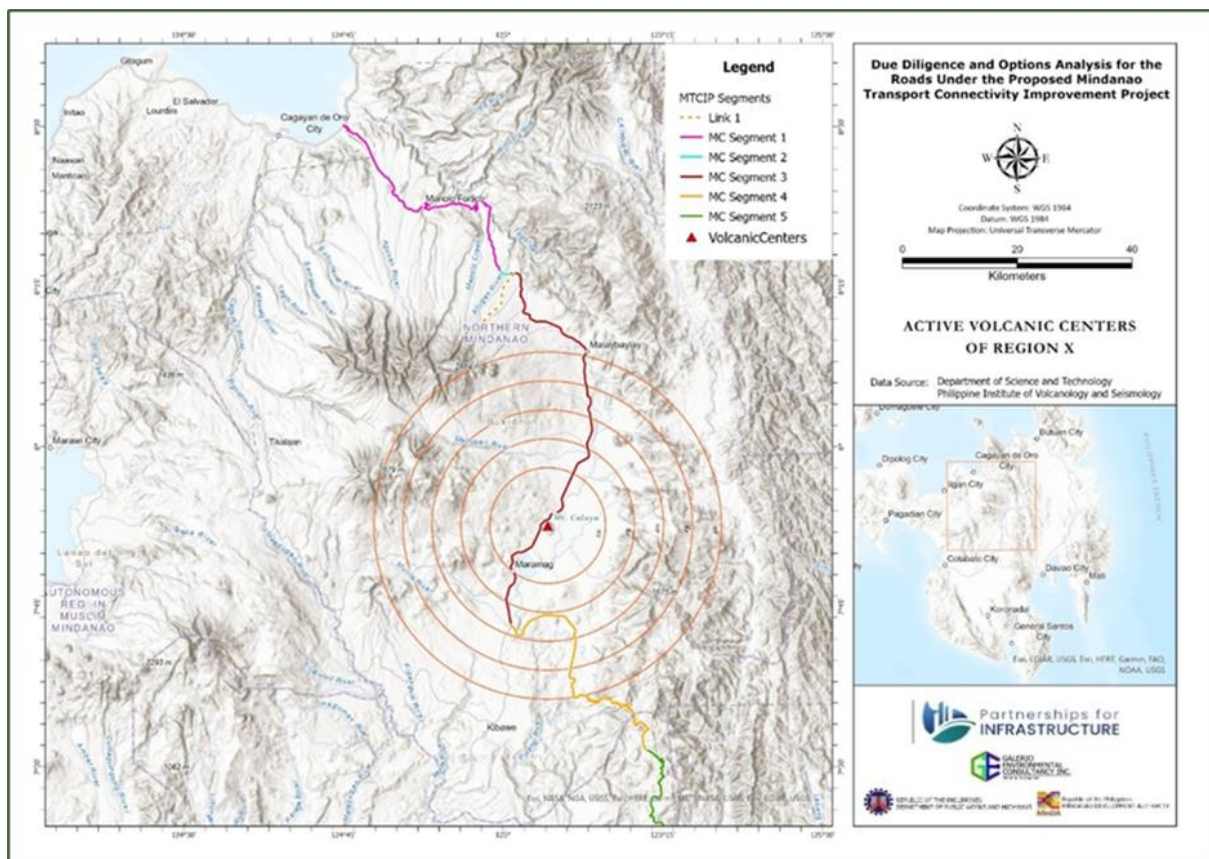


Figure 4-33. Active Volcanic Centers in Region X

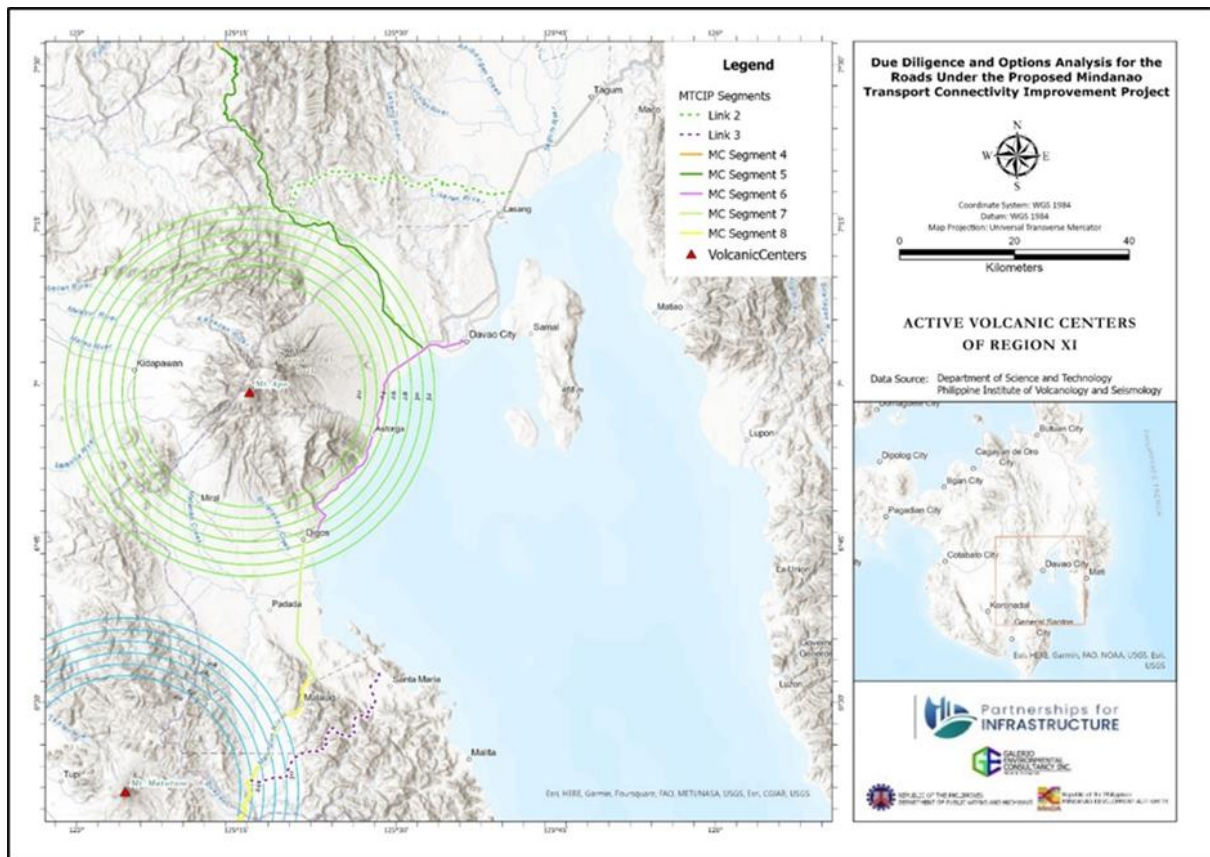


Figure 4-34. Potentially Active Volcanic Centers in Region XI

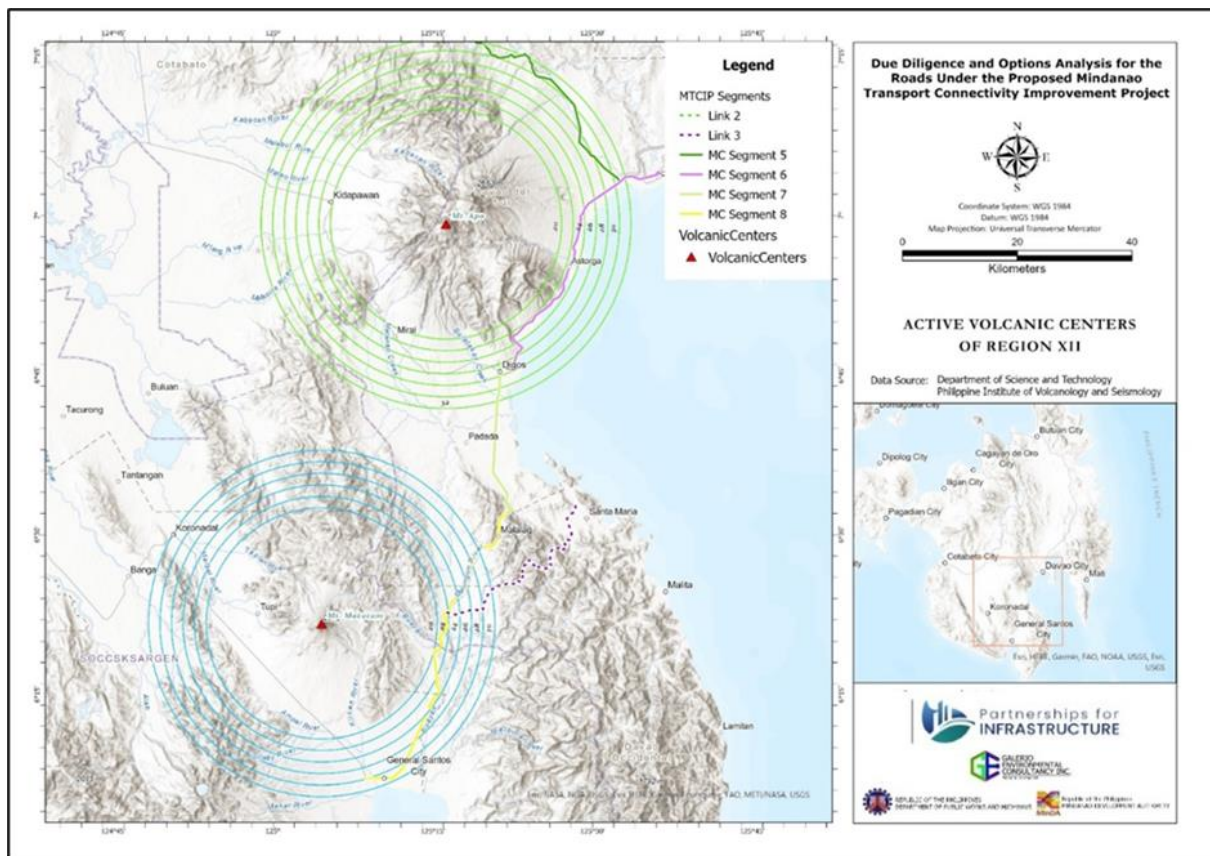


Figure 4-35. Active Volcanic Centers in Region XII

2.2.5.6 Storm Surge

Storm surges are sudden rises in sea level due to severe weather events like typhoons and very strong storms. This often poses very dangerous risks to areas along the coast, which may cause coastal and inland flooding as well as coastal erosion, infrastructure damage, and loss of life.

Storm surge-prone areas along the MTCIP alignment are found along the middle part of Davao-Cotabato Road of the Main Corridor. This section of the alignment is found very close to the coastline, starting from KM 1540 until KM 1548 within the Municipality of Sta. Cruz, Davao del Sur (Figure 4-36).

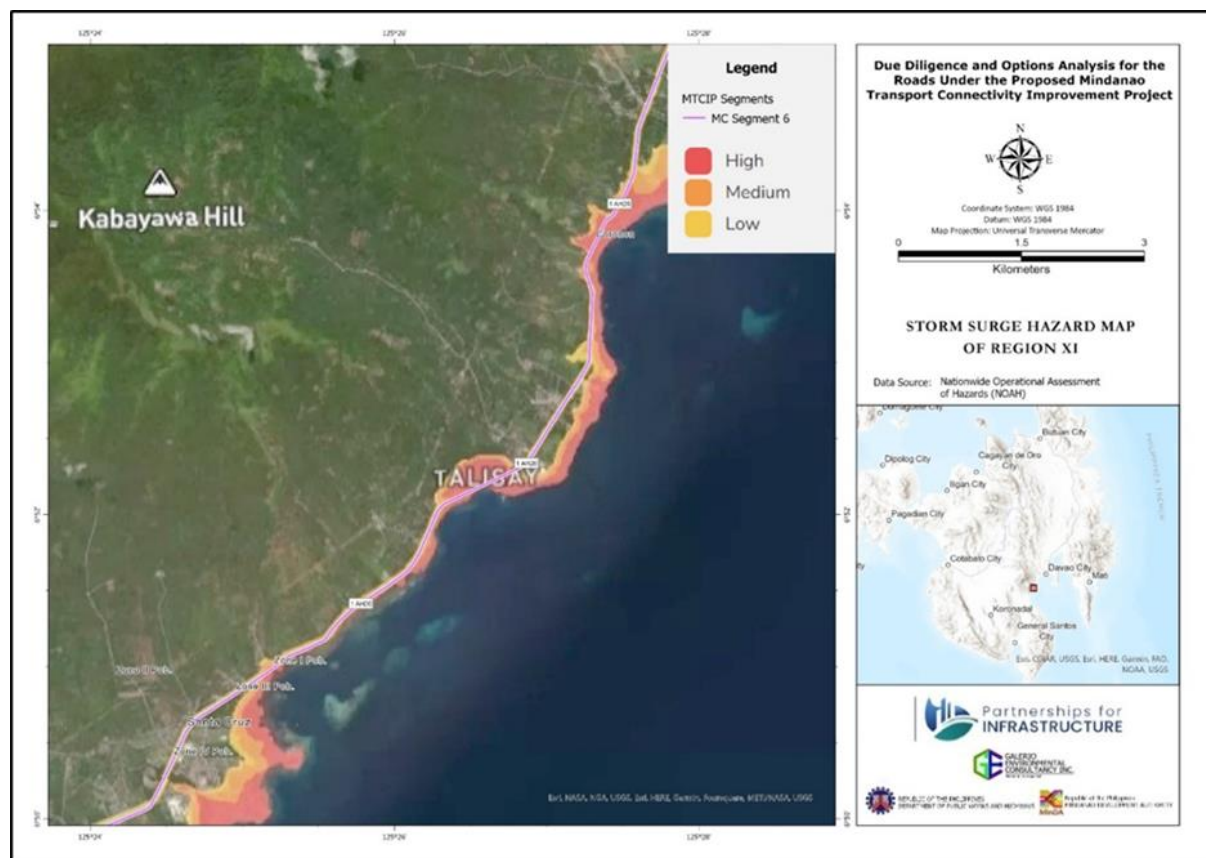


Figure 4-36. Storm Surge Prone Areas Along the MTCIP

2.2.5.7 Flooding

Flooding is a hazard that affects most of the Philippines and is one that Philippine highway are commonly subjected to. This is because of the relatively high rainfall rate within the country, the topographic configuration of the terrain, which concentrates storm runoff into highway routes, the size and characteristics of natural drainage channels like creeks and rivers that cross the highways, and other factors that are related to anthropogenic activities such as land use, infrastructure development, etc.

The MTCIP runs through the length of Mindanao Island, crossing highly variable terrain and inevitably through areas that are prone to water accumulation, ponding, and overflow. In addition, sections of the highway that are proximal to the coastline may experience inundation due to rising sea levels brought about by climate change. In this context, improving the resilience of this road network against the adverse effects of changing climate, such as shifting

precipitation patterns, more frequent and increasing intensity storms, and rising sea levels, is a priority.

Within Region X, there are a few sections of the highway that are identified as susceptible to flooding. These include the start of the Northern Sayre Highway, part of the Middle Sayre Highway, and portions of the Southern Sayre Highway (**Figure 4-37**). Floods within KM 1425 until KM 1425+900 are primarily caused by drainage overflow. This region is at the coast, and the drainage line discharges into the sea. During high tides, the outward flow of the canals and culverts is not as effective. The Middle Sayre Highway, from KM 1524 to KM 1526, is highly prone to flooding due to the overflow of the Manupali River. However, field validation shows that the grade of the highway is significantly higher than the surrounding areas and is not reached by flood waters. Along the Southern Sayre Highway, flood-prone areas are at KM 1531 and KM 1537. Stream and river crossings along the alignment are also susceptible to flooding, but floodwaters do not reach the road grade. Several areas are also flooded due to the blockage of existing drainage ditches with debris, eroded sediments, vegetation carried by runoff, and anthropogenic waste.

Flooding in Region XI along the MTCIP occurs in areas near the coastal flats of Sta. Cruz, Digos City, Padada, Hagonoy, and Sulop. These areas are along Davao-Cotabato Road and Northern Digos-Makar Road. Although some portions of Davao-Bukidnon Road fall within areas mapped as flood-prone, field confirmation reveals that the flooding does not reach the highway level. Reported flooding in Tugbok, Davao City, has been resolved after the construction of levees and dikes along the riverbanks.

Flooding along Davao-Cotabato Road of the Main Corridor is due to various conditions, including lack of or insufficient drainage, blocked or clogged drainage, naturally lower elevation road grade, overflow of surrounding rivers, and an extreme volume of unchanneled surface runoff upslope of the alignment (**Figure 4-38**). Flooding within the Cebulan River at KM 1537, which reached the road grade but did not overtop the bridge, was caused by extreme discharge together with high debris and sediment loads, which significantly reduced the efficiency of the main channel. This condition led to an overflow of water along the riverbanks. Another flooded portion was identified at KM 1544 due to the lowered road elevation and the lack of cross drains that will allow stormwater to flow across opposing lanes that are divided by a concrete island in the middle. In the central area of Sta. Cruz, from KM 1548 until KM 1552, the municipality is particularly susceptible to flooding. This is mainly due to the numerous natural surface drainages that flow downslope in a parallel linear configuration from the foot slopes of Mt. Apo. This natural flow direction is transected by the alignment at almost 90° angles, and the road grade abruptly cuts off the natural flow, resulting in higher flood heights on the upslope side of the highway. At KM 1549 +500, a box culvert regularly overflows due to insufficient size as well as the configuration of the channel leading to it. The abruptly curving channel shape does not encourage uninterrupted flow into the box culvert crossing the highway (**Plate 4-8**).

The northern part of Southern Digos-Makar Road from KM 1565 until KM 1585 also falls within the flood-prone zone. This is primarily due to the general topography of the region. However, the highway grade is significantly higher than the surrounding area and is not overtopped by floodwaters. For Link Road 2, flooding is confined within the low coastal flats of the western extension of Panabo City. This greater region of Panabo and its adjacent municipalities cover the floodplain of the Lasang River, the Likanan River, and others, which makes it highly

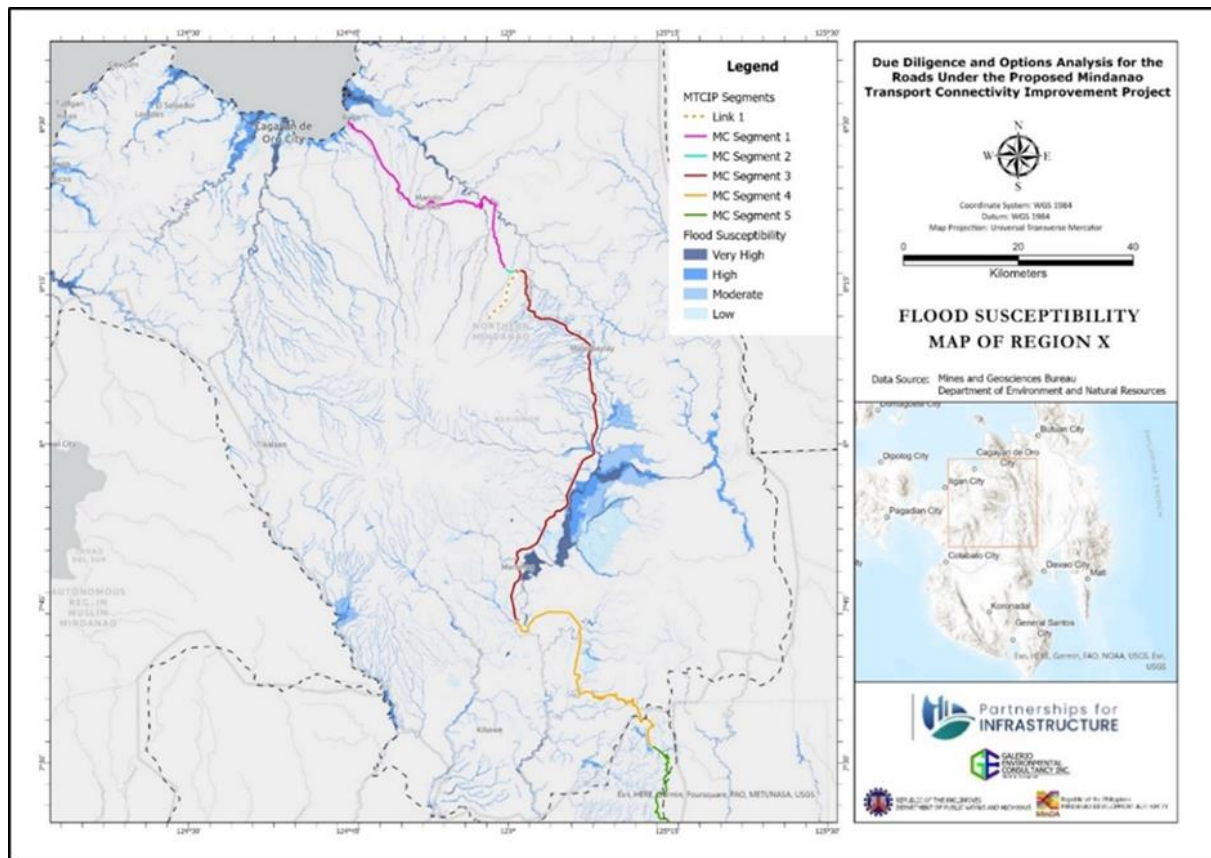
susceptible to flooding. Link Road 3, on the other hand, does not fall within a well-defined flood-prone area, but field inspection shows that the segment of the road is within the lower elevation plains of Sta. Maria closely parallels the shallow channel of surface drainage. This results in frequent diversion of surface runoff into the current road alignment (**Plate 4-9**).

In Region XII, a portion of Southern Digos-Makar Road falls within a flood susceptibility area, but based on the field inspection, flood levels do not reach the level of the road pavement (**Figure 4-39**). Flood susceptibility ratings for these sections are mostly low, which implies expected flood heights of less than 0.5 m.



Plate 4-8. Regularly Flooded Portion of Davao-Cotabato Road Main Corridor at KM 1549



Plate 4-9. Portion of Link Road 3 in Sta. Maria, Davao del Sur (surface runoff is regularly diverted into the roadway)**Figure 4-37. Flood Susceptibility Map of Region X**

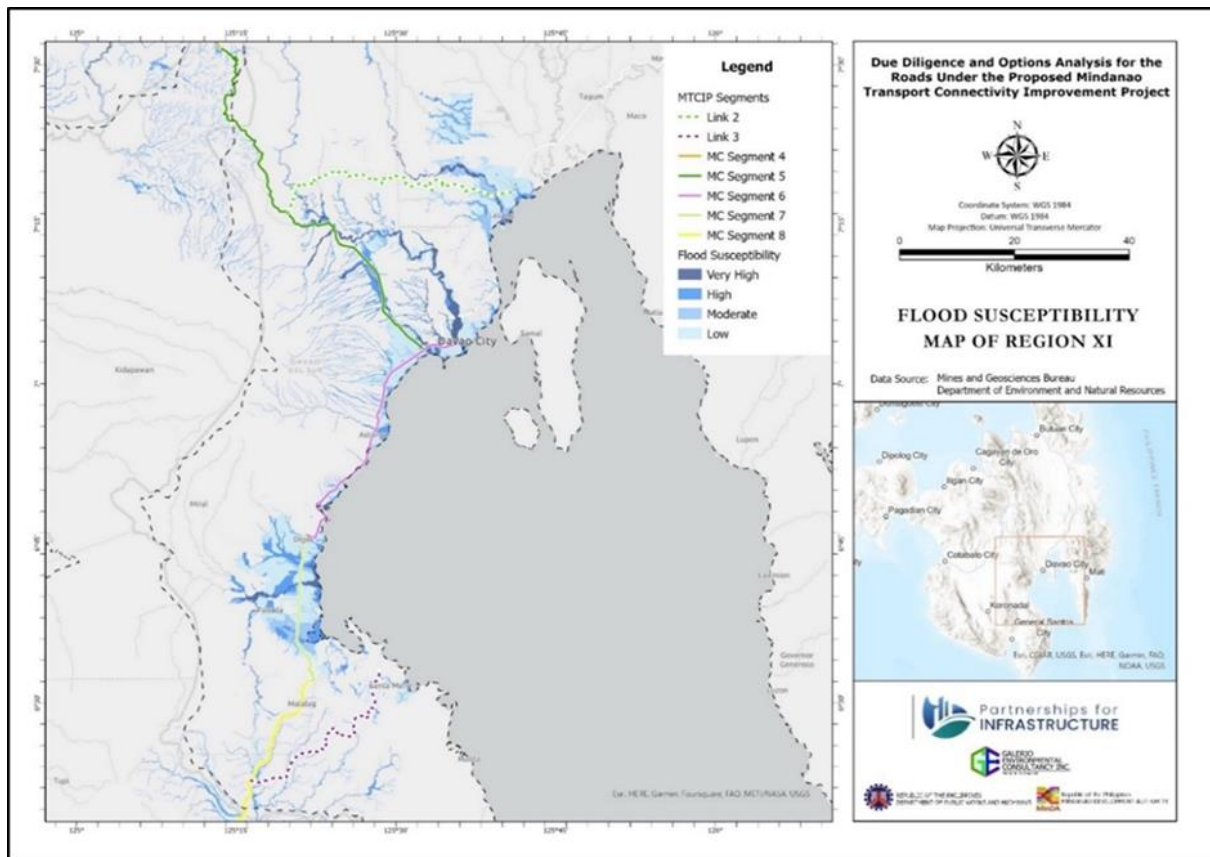


Figure 4-38. Flood Susceptibility Map of Region XI

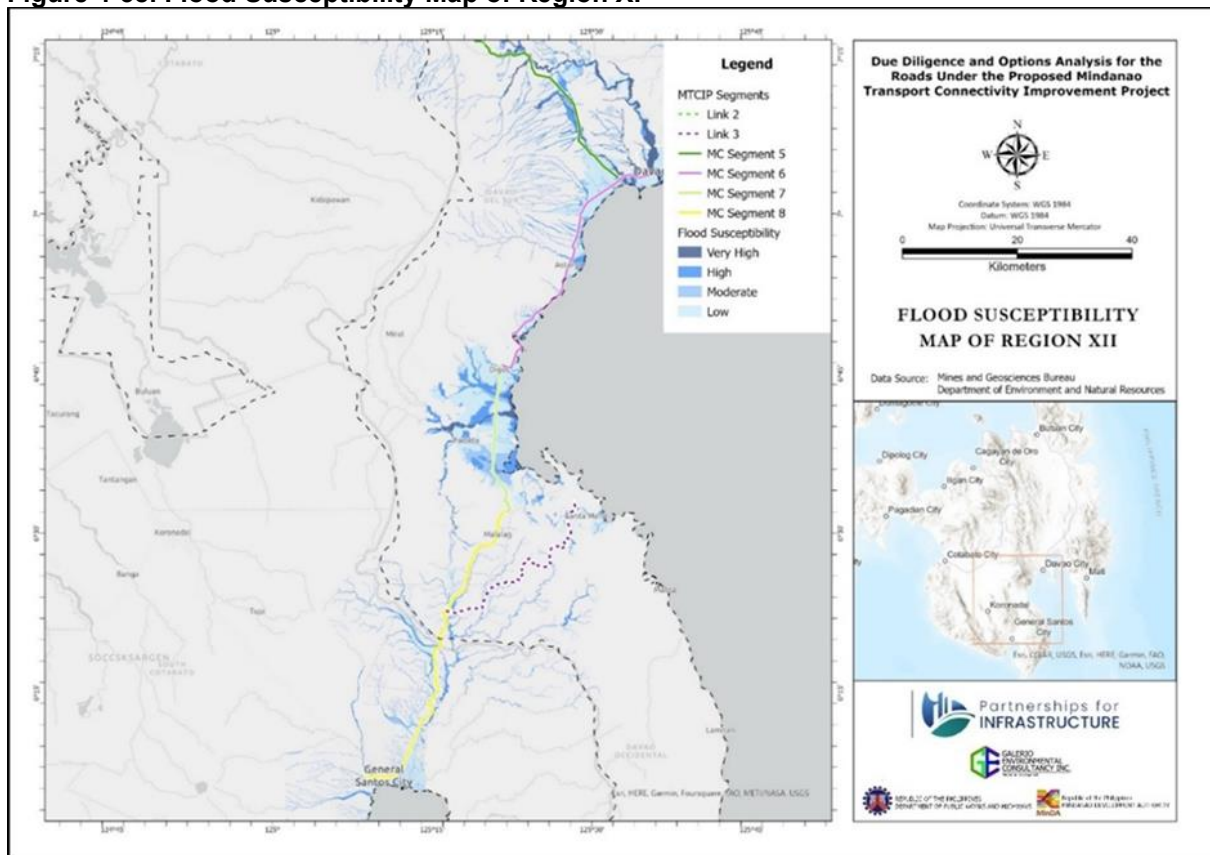


Figure 4-39. Flood Susceptibility Map of Region XII

As a summary, the following table presents the total length of the MTCIP that is likely to be affected by flooding based on the DENR-MBG data and as confirmed by field inspections. Based on this, Davao-Cotabato Road has the longest area that is susceptible to flooding, while Segment 2 will not likely be affected by severe floods (**Table 4-16**).

Table 4-16. Length of MTCIP Within Flood Prone Areas

MTCIP	Length, km
Northern Sayre Highway	2.3
Segment 2	0.0
Middle Sayre Highway	8.2
Southern Sayre Highway	3.9
Davao-Bukidnon Road	5.8
Davao-Cotabato Road	10.8
Northern Digos-Makar Road	8.8
Southern Digos-Makar Road	4.8
Link Road 2	4.8
Link Road 3	4.5

Another type of flooding that may affect the MTCIP is inundation due to sea level rise brought about by climate change. The Philippines in general, as an archipelago, is very susceptible to the dangers posed by the increasingly higher levels of the oceans around it. Sections of the MTCIP that are proximal to the coastline are especially vulnerable to these hazards (**Figure 4-40**, **Figure 4-41**, and **Figure 4-42**). These include parts of the Main Corridor like the Northern Sayre Highway, Davao-Cotabato Road, and Northern Digos-Makar Road, which can be reached by ocean waters up to 0.1m during a 0.5m sea level rise. Although this may not seem to be very critical at the moment, if this trend continues, excessive rises in sea level will eventually affect the MTCIP. Thus, it is prudent to prepare for worsening conditions within the alignment due to climate change. The affected sections of the MTCIP include KM 1425 and KM 1520 to KM 1579.

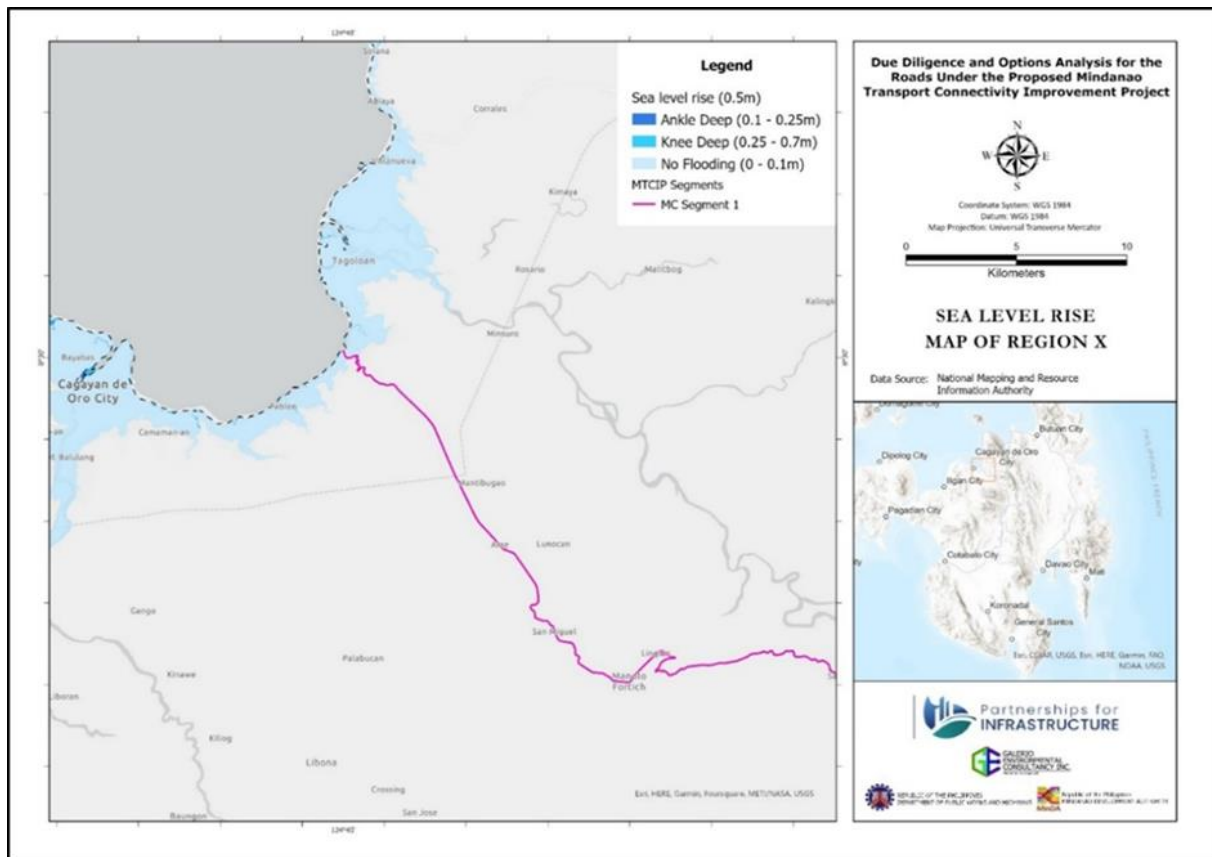


Figure 4-40. Sea Level Rise Susceptibility Map X

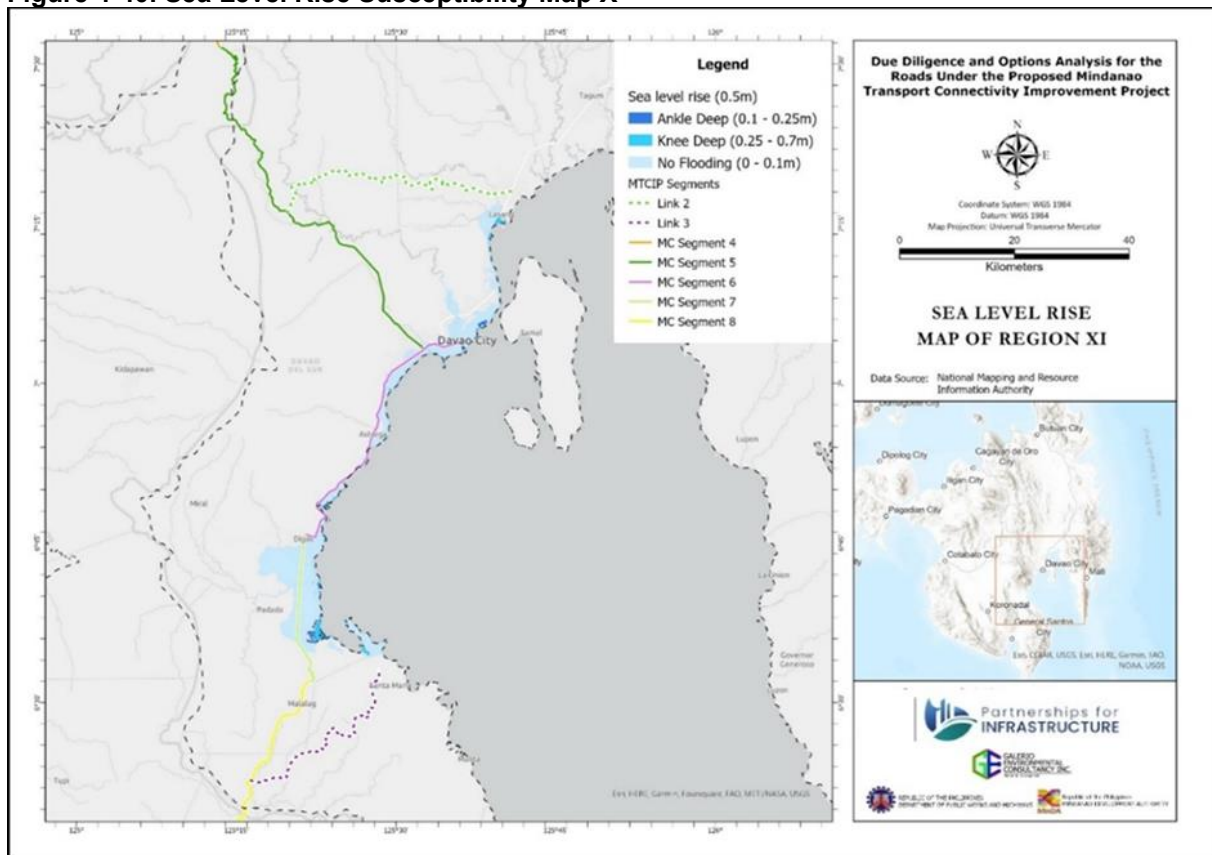


Figure 4-41. Sea Level Rise Susceptibility Map XI

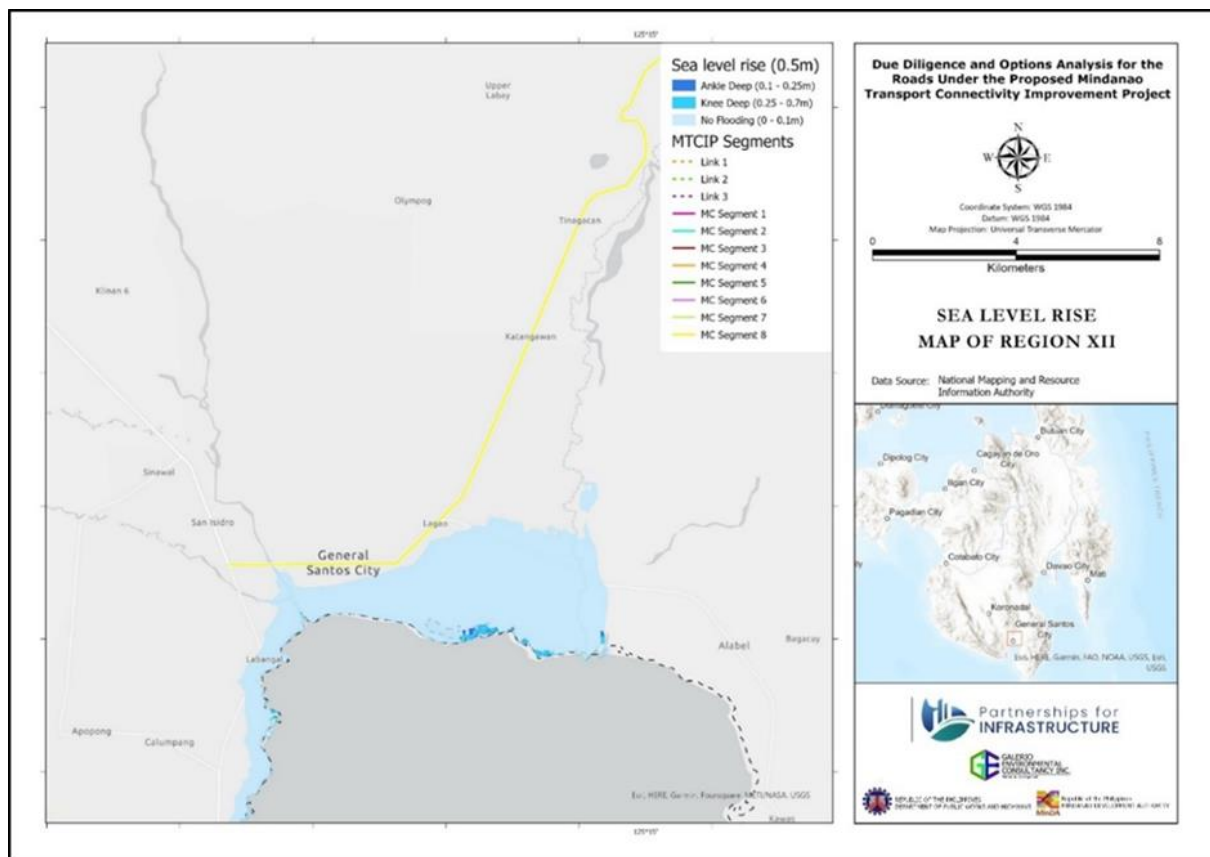


Figure 4-42. Sea Level Rise Susceptibility Map XII

2.2.5.8 Landslides

The Philippines, being an archipelagic country, is very vulnerable to the various impacts brought about by climate change. Considering the geology, topography, and climate of the country, the interaction between these three factors creates extreme conditions that will result in disastrous events. Although landslides are not directly affected by climate change, there is a growing number of studies that correlate changes brought about by the phenomenon, especially weather cycles, to the rising frequency and magnitude of landslides. This is mostly due to changes, oftentimes an increase, in rainfall linked to climate change, where the added moisture saturates slopes, leading to the rise of landslide risks and/or occurrences. Extreme weather conditions also aggravate the unstable conditions of the ground, triggering catastrophic mass movement.

The MTCIP alignment runs through areas with variable terrain, some stable and others very unstable. Based on the geohazard mapping undertaken by the Mines and Geosciences Bureau and confirmed by field inspections, several sections of the MTCIP fall within zones that are highly susceptible to landslides both for rain-induced and earthquake triggered landslide. In fact, field inspection reveals several occurrences of slope failure along the alignment as well as current activities by the DPWH to stabilize large landslide incidents.

Within Region X, the majority of the alignment falls within stable ground; however, several sections are also located within very high to highly susceptible areas to failure (**Figure 4-43**). Although some portions already have slope protections in place and others are currently under ongoing construction, there are some that are yet to be addressed. Along the Northern Sayre Highway, long stretches of road highly susceptible to landslides are found in KM 1441–1442,

KM 1450–1454, KM 1457–1462, and KM 1464–1464 +700. The steep flanks of river crossings are also very prone to landslides.

This is the case for most river or stream crossings, especially those that have deeply incised channels. The same case can be seen in Segment 2 of the Main Corridor. The Middle Sayre Highway runs through mostly level to undulating terrain that is not very susceptible to failure. The Southern Sayre Highway is very similar except towards the southern end, starting from KM 1596, where the highway transects mountainous terrain that is high to very high risk for landslides. Several large active slope failures were noted along this section of the Southern Sayre Highway. Link Road 2 traverses relatively leveled terrain that is not prone to landslides or mass wasting. The only issue identified during the field inspection is that the lack of proper drainage and outfall results in accelerated erosion within the thick soil underlying the roads.

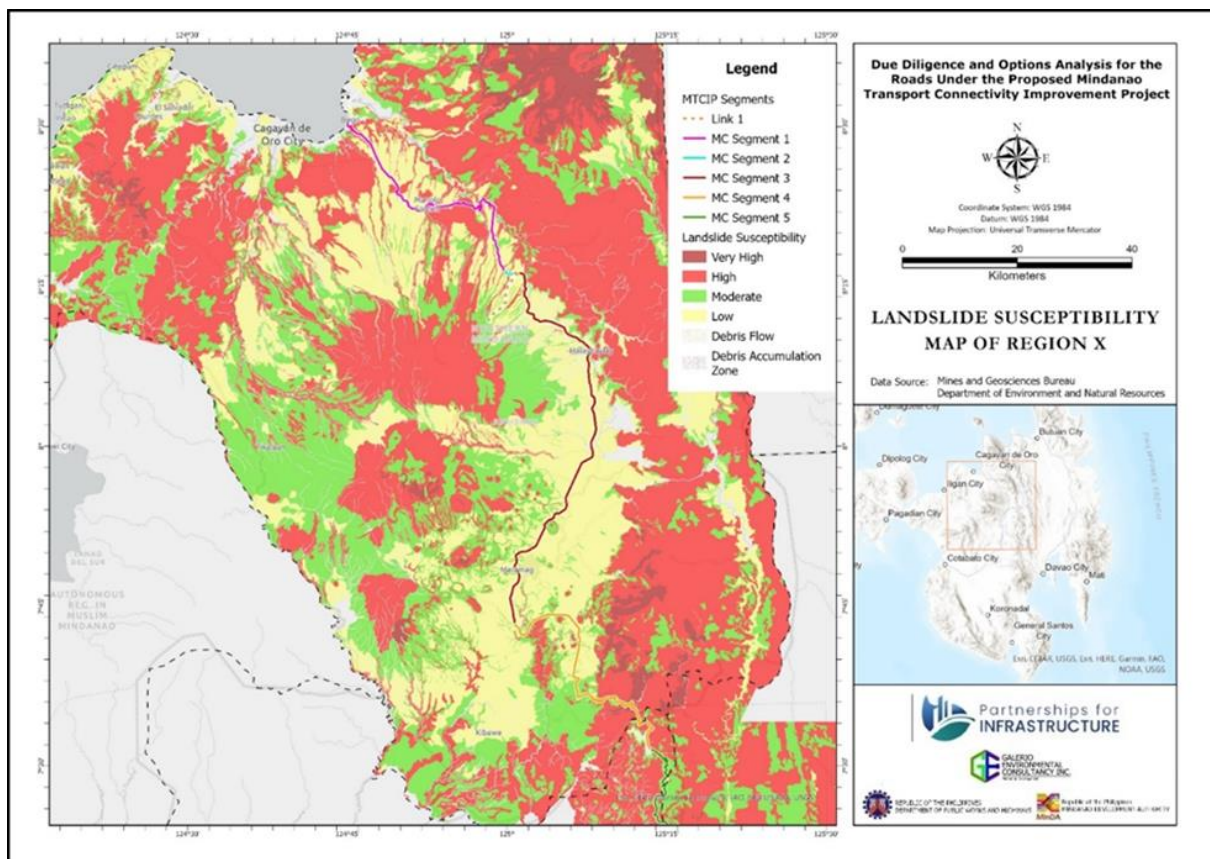


Figure 4-43. Landslide Susceptibility Map of Region X.



Plate 4-10. Drone Shot of Ongoing Works Along a Large Unstable Slope in KM 1453



Plate 4-11. Active Landslide Along a Winding Section Near KM 1598 +525



Plate 4-12. Beddings that are Daylighting with Respect to the Orientation of the Roadcut in KM 1592

In Region 11, the northern extensions of Davao-Bukidnon Road and Southern Digos-Makar Road fall within highly susceptible landslide areas, from KM 1621 to KM 1652 and from KM 1588, respectively. This is primarily due to the mountainous terrain that exhibits steep slopes as well as the sometimes fragmented and weathered nature of the underlying rocks (**Figure 4-44**). In some instances, roadcuts are oriented parallel to the bedding plane or fracture orientations of the bedrock, which pose high risks of failure from planar landslides. The southern portion of Davao-Bukidnon Road, the whole of Davao-Cotabato Road, and Northern Digos-Makar Road fall largely within areas that are relatively safe from slope failure. For Link Road 2, the western half of the alignment runs through rough terrain that is underlain by sedimentary and tuffaceous deposits that are prone to failure. Most of Link Road 3 passes through highly rugged topography, with several landslide occurrences observed during the field inspection. The northeastern end section ultimately falls within the coastal areas of Sta. Maria, which is not susceptible to mass wasting.

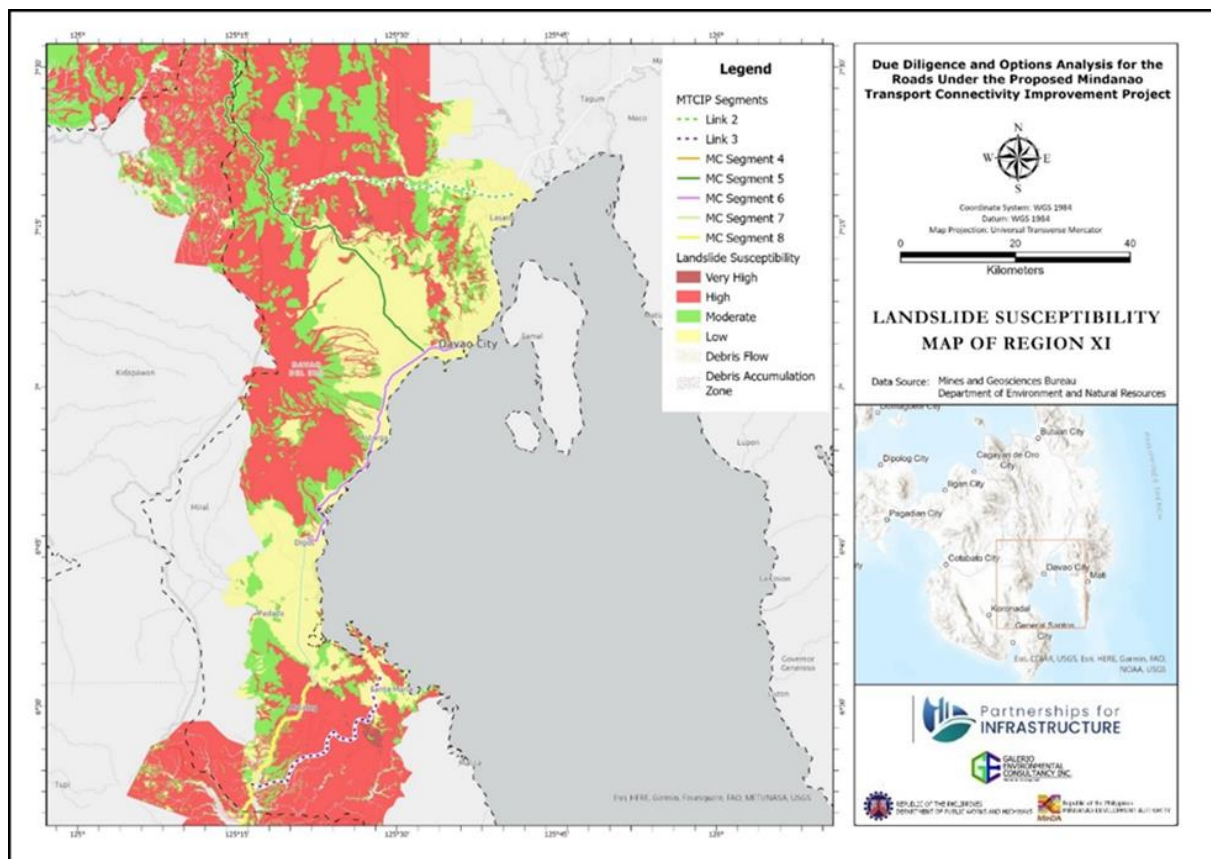


Figure 4-44. Landslide Susceptibility Map of Region XI



Plate 4-13. Landslide Affecting the Road in Link Road 2 (125.3401021°E 7.2909774°N)



Plate 4-14. Landslide in Link Road 3 which Covered the Existing Logging Road (125.3710217°E 6.4231535°N)

The extension of Southern Digos-Makar Road within the area of Region XII passes through rolling terrain that eventually grades to the valley of General Santos City. Except for isolated sections on the western side, this segment is not as susceptible to mass wasting or landslides as the others (**Figure 4-45**).

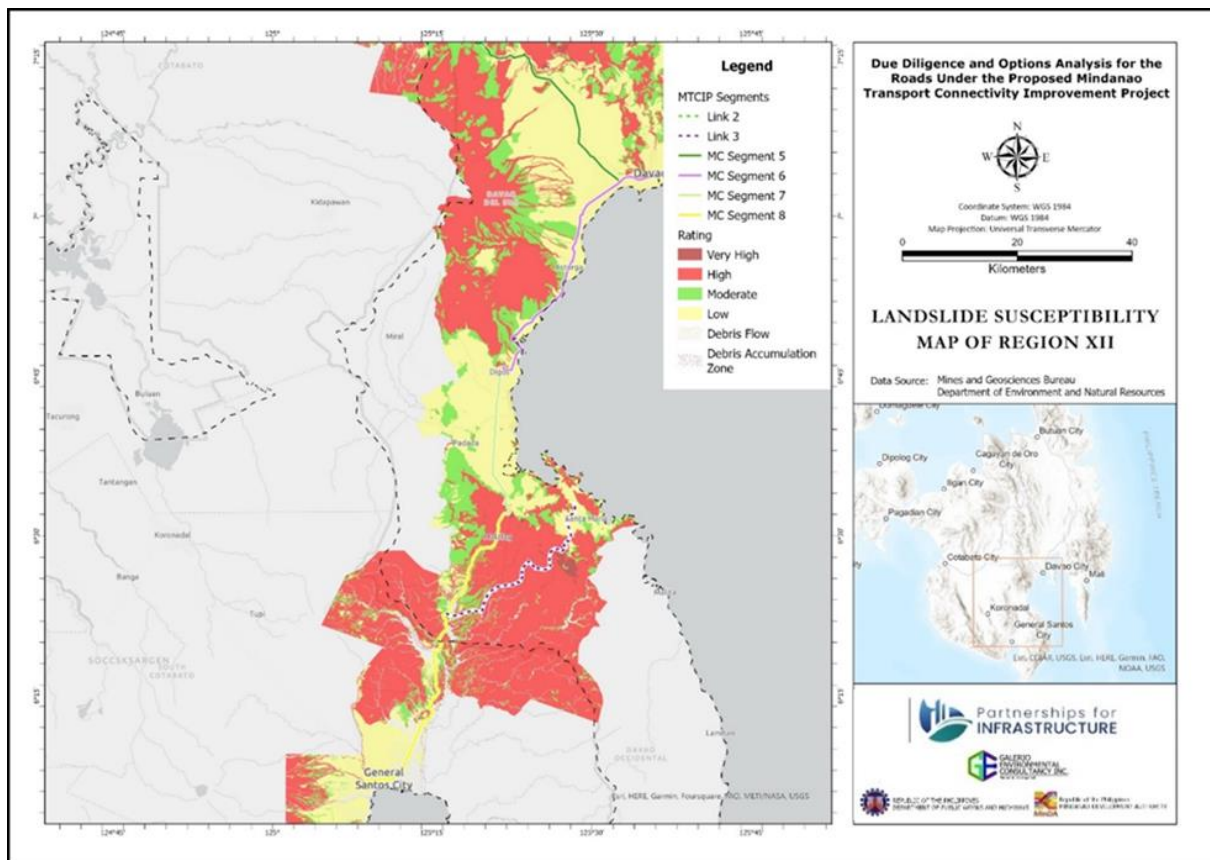


Figure 4-45. Landslide Susceptibility Map of Region XII

In summary, **Table 4-17** presents the length of road sections within the different segments of the MTCIP. Davao-Bukidnon Road runs through the most landslide-prone areas, while Segments 2 and 6 have the shortest landslide-prone alignment. Both Link Roads 2 and 3 have significant portions that are landslide-prone, while Link Road 1 does not cross areas that are high-risk for landslides.

Table 4-17. Portion of MTCIP that are Prone to Landslides

MTCIP	Length, km
Northern Sayre Highway	15.9
Segment 2	0.1
Middle Sayre Highway	1.9
Southern Sayre Highway	19.2
Davao-Bukidnon Road	27.7
Davao-Cotabato Road	0.8
Northern Digos-Makar Road	4.1
Southern Digos-Makar Road	11.6
Link Road 2	26.4
Link Road 3	35.6

2.2.6 Terrestrial Ecology

2.2.6.1 *Flora Assessment*

Floral assessment includes identification and monitoring of ecosystems and habitats and inventory, identification, assessment, and monitoring of flora species in an area. The methodology used in the flora assessment is based on the Terrestrial Ecosystems Biodiversity and Assessment Monitoring Manual (DENR-BMB, 2017). The flora assessment locations are shown from **Figure 4-46** to **Figure 4-49**. The detailed methodology of flora assessment is provided in **Annex 14**.

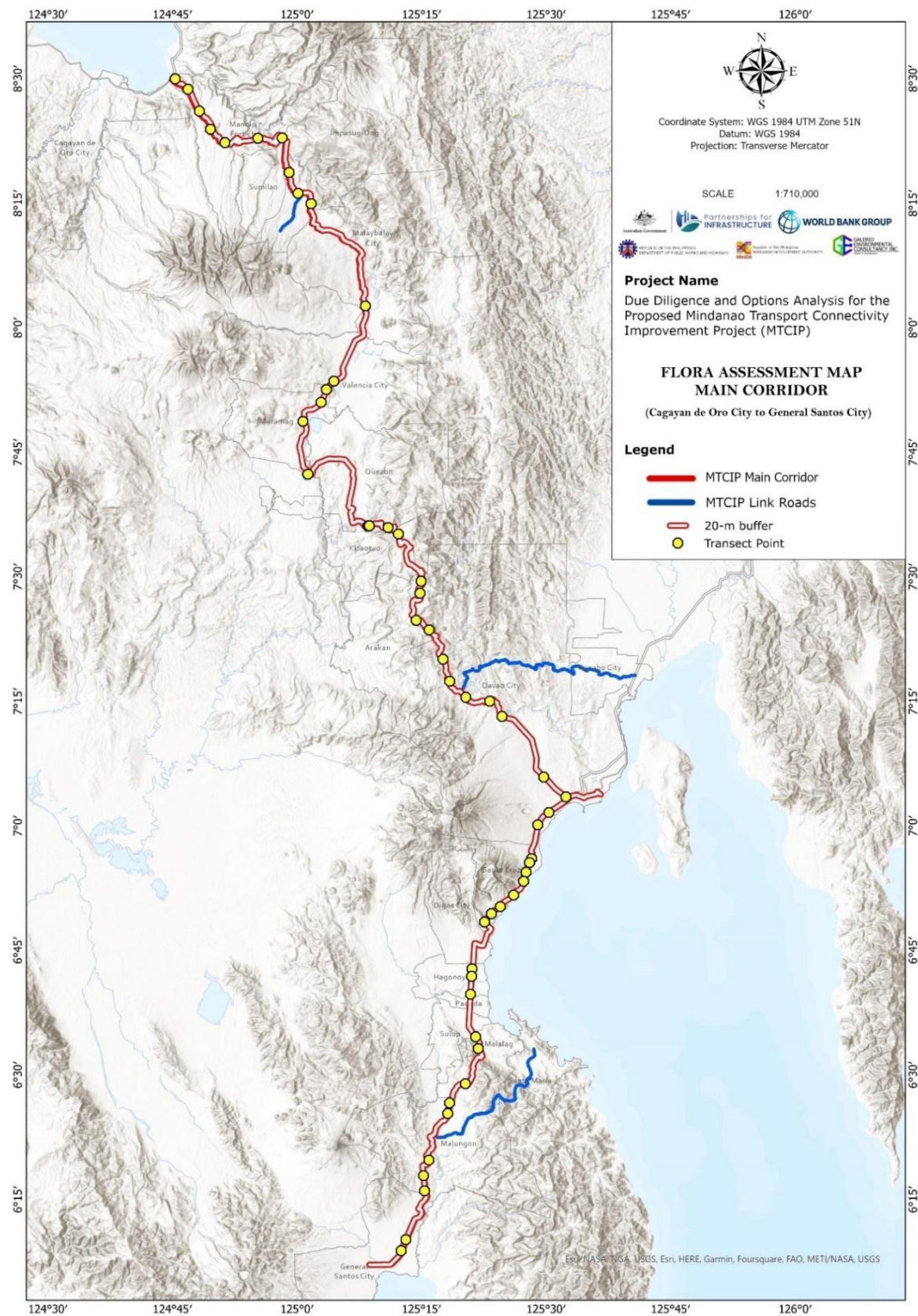


Figure 4-46. Transect Map of Flora Assessment of Main Corridor



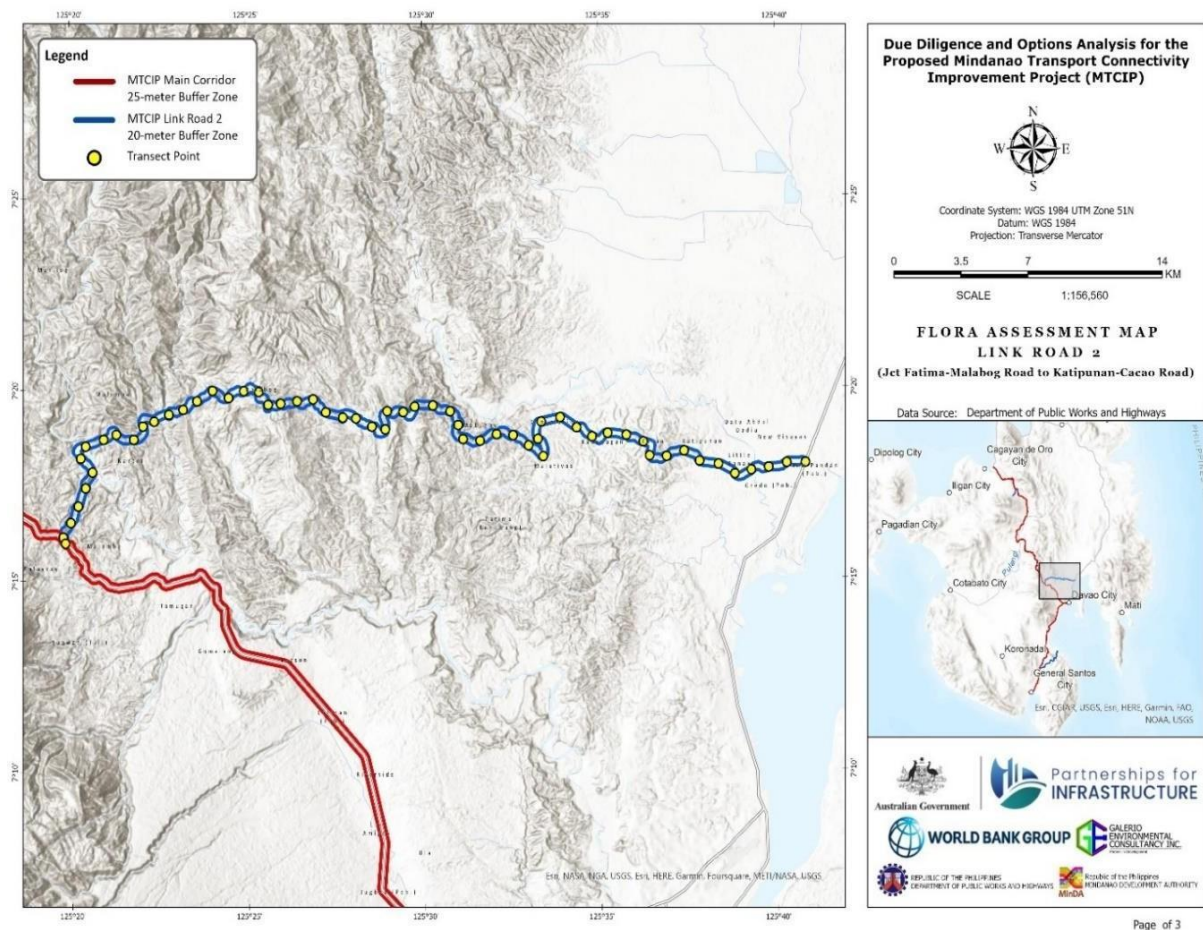


Figure 4-48. Transect map of Flora Assessment of Link Road 2

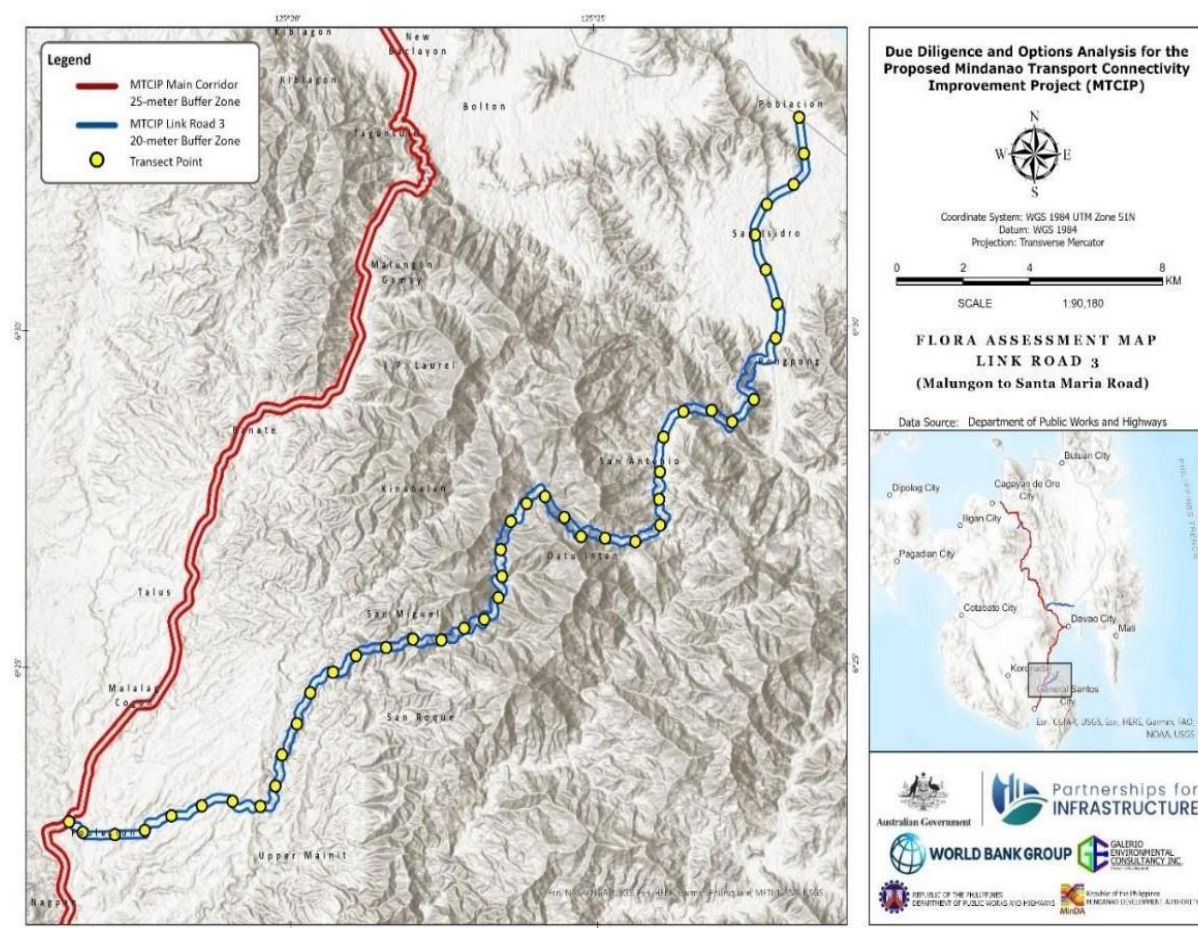


Figure 4-49. Transect map of Flora Assessment of Link Road 3

Protected Area (PA) and Key Biodiversity Area (KBA)

Based on the Key Biodiversity Areas (KBA) of the DENR-BMB (2024), there are 13 key biodiversity areas within the 50-km buffer. **Figure 4-50** shows the map of the KBAs, particularly in Mindanao. Protected areas near the Main Corridor are Mt. Kalauayan-Mt. Kalauayan Complex, which is 20 km east; Mt. Kitanglad Range, which is 3 km of Link Road 1, Mt. Kalauayan-Mt. Kinabalian Complex is 20 km east of Main Corridor, Apo Natural Park is 16.1 km west in Sta Cruz, and 17.1 km west of Main Corridor is where the Mt. Kalatungan Mountains Range Park is located. Talicud Island and Mt. Sinaka are 13.1 km southeast and 3.7 km southwest of Davao City, respectively. In Santa Maria, along Link Road 3, 3.7 km north is where the Malalag Bay is situated, and 17 km southeast is where the Mt. Latian Complex is located. Along the Main Corridor, 14 km west of Malungon is Mt. Matutum Protected Landscape, while 18 km west of General Santos City is Mt. Busa-Kiamba. **Annex 14** presents that the link roads do not fall within the boundary of the Mt. Kitanglad Range Protected Area.

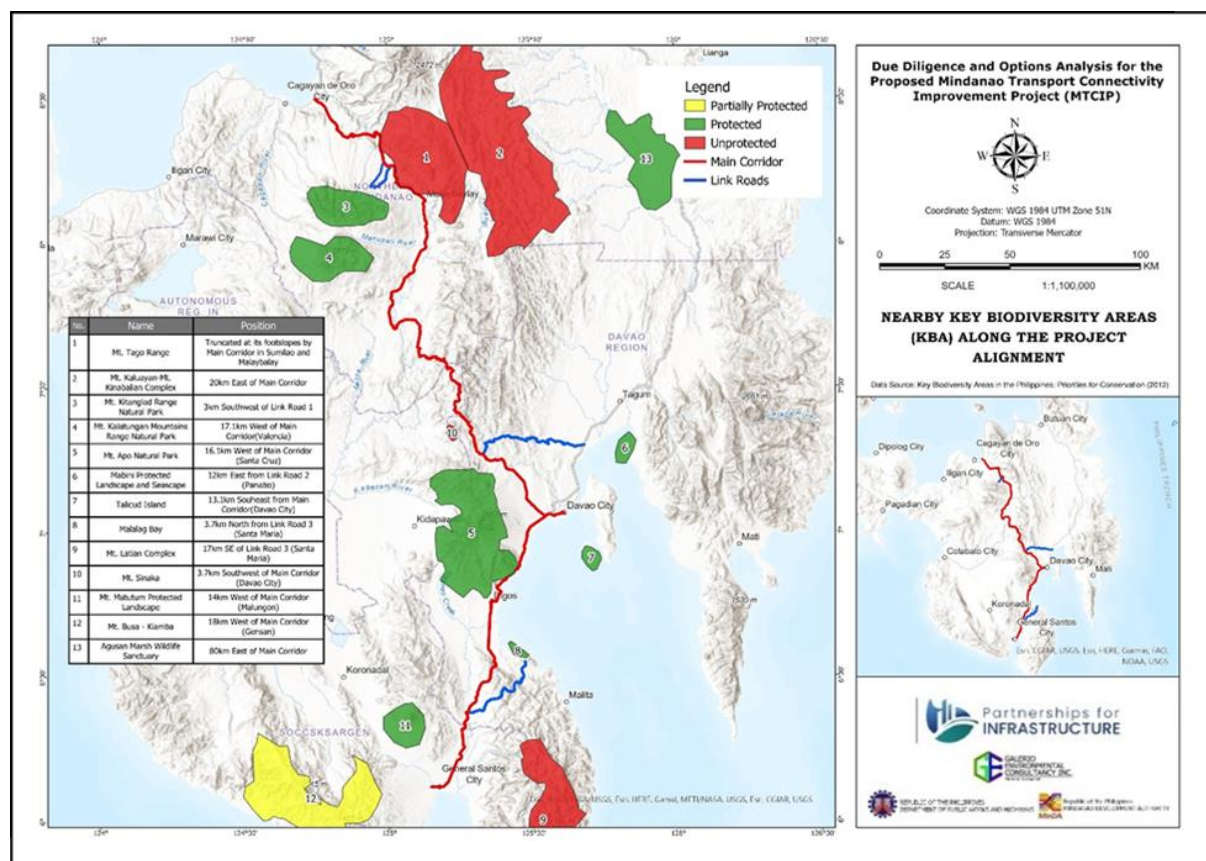


Figure 4-50. Biodiversity Area

Plant Diversity Assessment

An assessment was conducted on the project area, and a total of 273 species were identified, belonging to 116 families of flora. The data shows that Link Road 1 has 1,521 individuals, Link Road 2 has 5,522 individuals, Link Road 3 has 2,178 individuals, and Main Corridor has 1,037 individuals.

In the Main Corridor, the most abundant species found was Yemane (*Gmelina arborea*), with 201 individuals, followed by Coconut (*Cocos nucifera*), with 110 individuals. The third most abundant species was Mahogany (*Sweitenia macrophylla*), with 103 individuals.

Link Road 1 had the highest number of Lanzones (*Lansium domesticum*) with 270 individuals, followed by Yemane (*Gmelina arborea*) with 263 individuals and Kupang (*Parkia timoriana*) with 169 individuals.

Link Road 2, which connects Panabo City, has a diverse range of species, including trees, grass, shrubs, and palms. The most common species in this area were Coconut (*Cocos nucifera*) with 611 individuals and Yemane (*Gmelina arborea*) with 524 individuals. Mahogany (*Sweitenia macrophylla*) was the third most abundant species, with 524 individuals.

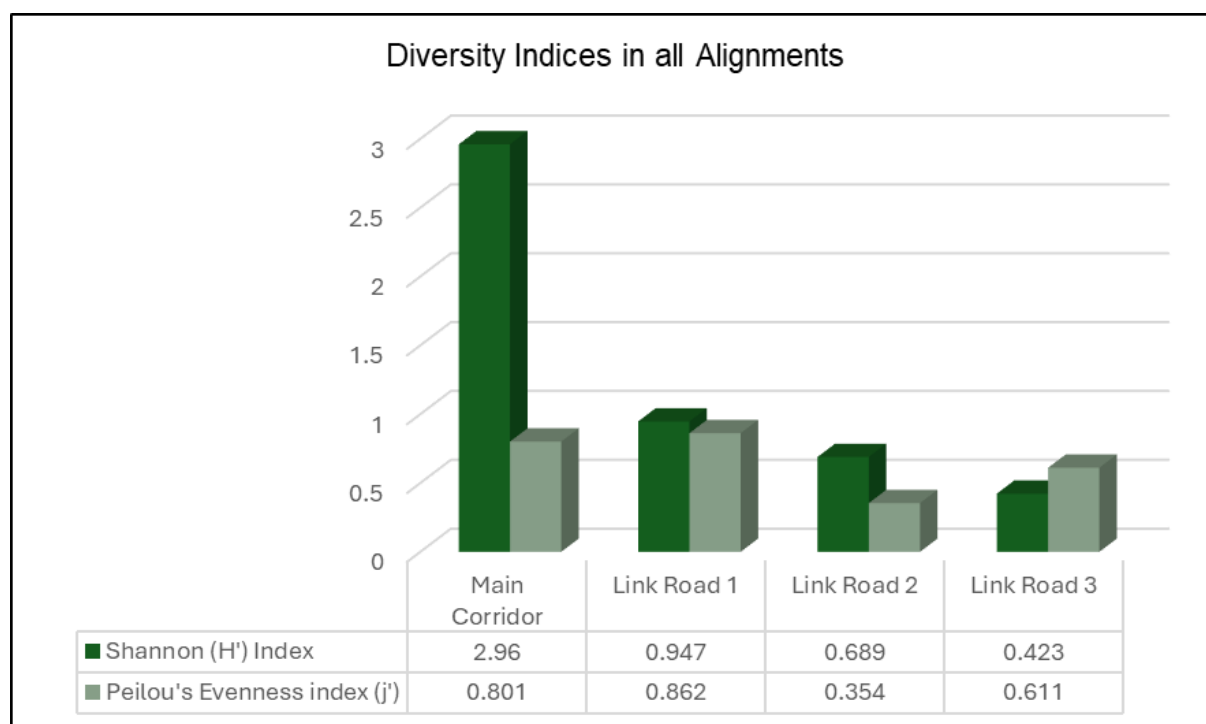
Link Road 3, located in Sta. Maria, Davao Occidental – Malungon, Sarangani Province, had a total of 2,176 individuals. Mahogany (*Sweitenia macrophylla*) was the most abundant species, followed by Coconut (*Cocos nucifera*) and Yemane (*Gmelina arborea*), with the same number of individuals. The fourth most abundant species was Ipil-ipil, which is considered a pioneer species in the area.

Table 4-18. Summary Results for Plant Diversity Assessment

Parameters	Main Corridor	Link Road 1	Link Road 2	Link Road 3
Number of Species	52	53	99	69
Species Richness	0.12	1.53	1.67	2.08
Number of Families	23	25	39	29
Diversity Index (H')	2.96	0.947	0.689	0.423
Evenness Index	0.801	0.862	0.354	0.611

Diversity and Evenness

An effective way to measure the diversity of a species is by using the Shannon Diversity Index, which considers the frequency and rarity of the species within a community. The data collected based on the classification scheme developed by Fernando et al. (1998) indicates that the alignment falls between the categories of very low and highly diverse. To determine the importance of the plant community, diversity and evenness are being utilized. Diversity measures the abundance of the number of individuals, whereas species evenness measures the intensity of the closeness of the species in the area. As per the results, the Main Corridor shows the highest diversity index with $H'=2.96$ (moderate), whereas the link roads 1, 2, and 3 have a "very low" diversity with the values of $H'= 0.947$, $H'= 0.689$, $H'= 0.423$, and $H'= 2.96$. **Figure 4-51** shows the flora diversity and species richness and evenness.

**Figure 4-51. Flora Diversity and Species Richness and Evenness**

Density and Species Richness

The term "species density" refers to the number of individuals from a specific area in a forest stand. On the other hand, "species richness" is the quantity of different species known for a particular group of organisms over a given period. Based on the data, it is evident that Link Road 2 has the highest abundance and richness of species. This is attributable to the fact that some parts of the area are still vegetated and considered secondary forests in the selected

areas. The complete exposure of the canopy to sunlight allows for the permeation of the forest floor, thereby encouraging the growth of wildlings.

Plant Form

The flora assessment of the project comprises palms, grass, shrubs, and trees, which help in identifying the structure of the whole flora community. As the table shows, the highest number of species is classified under trees with 99%, followed by palm, grass, and shrubs with a percentage of 0.13%, 0.03%, and 0.01%, respectively.

This trend often indicates that the areas assessed are commonly open and utilized, either for cultivation or roadside maintenance. It also indicates that the ecological succession of the area is at its earliest stages, viz., nudation to invasion. These stages are the points in ecological succession where aggregation and ecesis occur, leading to an increase in the number of species, given the prevailing conditions of the area. **Table 4-19** presents the plant forms in MTCIP.

Table 4-19. Plant Forms in MTCIP

Plant Form	Percentage
Trees	99.81
Shrubs	0.02
Grass	0.04
Palm	0.14

Threatened Species

Based on the survey conducted in Link Road 1 (Bukidnon Province), it was found that Narra, with 50 individuals, is considered "Endangered". Bagras (*Eucalyptus deglupta*) has 16 individuals under the category of "Vulnerable".

Link Road 2, located in Davao City, Narra (*Pterocarpus indicus*) is second on the list with 69 individuals, and Marang-banchan (*Artocarpus odoratissimus*), under the family of Moraceae and known for its edible fruit, has 46 individuals. The aforementioned species were "Endangered" and "Vulnerable," respectively. Moreover, Yakal (*Shorea astylosa*) is considered "Endangered, and Nato (*Palaquium luzoniense*) is "Vulnerable."

In Link Road 3, 113 individuals from Narra were found to be considered "Endangered" and Bakan (*Litsea philippinensis*), with 20 individuals falling under the category of "Nearly Threatened."

Along the Main Corridor, the species under the category of "Endangered" is Narra, with 20 individuals as presented in IUCN conservation status in **Table 4-20**.

Table 4-20. IUCN Conservation Status

Location	Common Name	Scientific Name	Species Abundance	IUCN Status
Link Road 1 (Bukidnon Province)	Narra	<i>Syzygium aqueum</i>	50	Endangered
	Bagras	<i>Eucalyptus deglupta</i>	17	Vulnerable
Link Road 2 (Davao City)	Bagras	<i>Eucalyptus deglupta</i>	5	Vulnerable
	Bakan	<i>Litsea philippinensis</i>	3	Near Threatened
	Marang-banguhan	<i>Artocarpus odoratissimus</i>	46	Near Threatened

	Nato	<i>Palaquium luzoniense</i>	1	Vulnerable
	Narra	<i>Pterocarpus indicus</i>	69	Endangered
	Yakal	<i>Shorea astylosa</i>	2	Endangered
Link Road 3 (Sta. Maria and Malungon)	Bakan	<i>Litsea philippinensis</i>	20	Near Threatened
	Narra	<i>Pterocarpus indicus</i>	113	Endangered
Main Corridor	Narra	<i>Pterocarpus indicus</i>	25	Endangered

Sensitivity Indices

The index was developed based on the context of the roads as the areas of research (The Energy and Biodiversity Initiative: Biodiversity Indicators for Monitoring Impacts and Conservation Actions). The sensitivity was based on the approximate nature of the natural environment and human-altered environments along the road, which may be affected at any point during the construction or rehabilitation phase.

Five categories were assigned after getting data on the actual situation of the roadsides and alignment:

- Sensitivity Index # 1 was assigned to areas with 60%–100% human settlements or man-made structures along the road that may harbor common non-endemic species. These areas include those with houses and other built structures, at least on one side of the road, and the aggregation of houses into villages.
- Sensitivity Index # 2 was assigned to areas with at least 80% used for agriculture and may have intermittent human structures. These areas may have been developed, but the degree of man-made disturbance is relatively low compared to the first index; these could be the agricultural plots that have the tendency to support a few (about 10%) endemic species.
- Sensitivity index #3 was assigned to sites that were primarily agricultural areas but with around 20% volunteer wildlings or endemic flora that may support some wildlife.
- Sensitivity Index #4 was assigned to areas that were mostly abandoned or uncultivated agricultural lands. These areas include those recovering from recent human intervention and slowly growing back their native vegetation. The crops and introduced plants were limited, approximately, to not more than 30% of the total floral structure. These may be feeding and nesting areas for birds.
- Sensitivity Index #5 was assigned to dominantly wild vegetation with less than 20% non-endemic species; these areas could be candidate habitat for wildlife. These areas could be forest or marshland with a minimum of introduced species and not be used for agriculture or grazing.

The sensitivity index was based on the context of the road. The categories were limited to the immediate roadside (approximately 20 meters) from the middle of the road, with little consideration given to the areas behind human structures, unless the ecosystem type is largely pronounced, like a wide pooling area, streams, wetlands, or patches of forests.

It should also be noted that there are portions of the road network that are wider compared with other segments, depending on their classification or type. As such, it affects the 20-meter distance from the middle of the road. Adjustments to about 25 meters were made, whenever applicable, to minimize bias in the data gathering and analysis.

Main Corridor

The Cagayan de Oro-Bukidnon-Davao Road connector is about 277.4 km long, starting from the road near TH Cagayan Mall in Cagayan de Oro City in the Province of Misamis Oriental, passing the plateau area of the Province of Bukidnon, and ending in Ulas, Davao City. It follows a south-southeast direction, connecting two bays in Mindanao: Macajalar Bay in Cagayan de Oro and Talomo Bay in Davao City.

The road is paved and widened in certain areas, zigzagging and rising from 7 masl in Cagayan de Oro to about 1230 masl in the Marilog District, Bukidnon. It is a very busy highway, being the main arterial road of Regions X (Northern Mindanao) and XI (Davao Region). Although most areas are highly developed by human activities (e.g., houses, urban centers), they also have vast arable and agricultural lands. These areas are planted with rice, maize, sugar, coffee, rubber, pineapple, banana, tomato, flowers, cassava, oil palm, fruit and timber trees, and vegetables.

The sensitivity of the road is mostly low to medium as the road traverses urban centers and a large extent of agricultural areas. There are some notable areas where sensitivity is high, like the mountainous portions in Impasug-ong to Marilog. Also, a tourist destination, the Blue Water Cave in the Pulangi River in the Municipality of Quezon is near the road system. **Figure 4-52** and **Figure 4-53** show the sensitivity of Main Corridor.

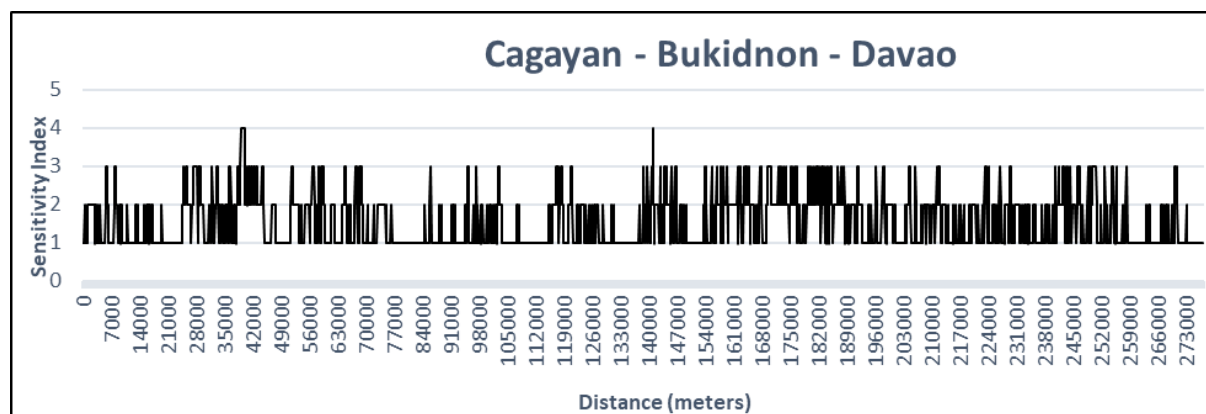


Figure 4-52. Sensitivity of Main Corridor (Cagayan de Oro-Bukidnon-Davao)

The Davao-General Santos segment is about 143.2 kilometers, starting from the Andres Bonifacio roundabout in Davao City and ending in General Santos City, marked by Hadano Park. The road is mostly situated in urban areas and has long stretches of straight sections; the most notable is the Digos-Hagonoy-Padada-Sulop stretch. It follows a south-southwesterly direction and, at one point, touches the coastline in Tagabuli Bay.

Human settlements and commercial areas lined up the roadsides, although there are large swaths of cultivated land and pioneer vegetation behind these structures in some stretches of the road. Shanties of food stalls and fruit stands are common in some portions. There are also largely vegetated areas, but they are within property fences, ridges, and gullies in the elevated portions of the road. Agriculture areas are mostly plantations of banana, timber species, palm oil, pineapple, and other cash crops.

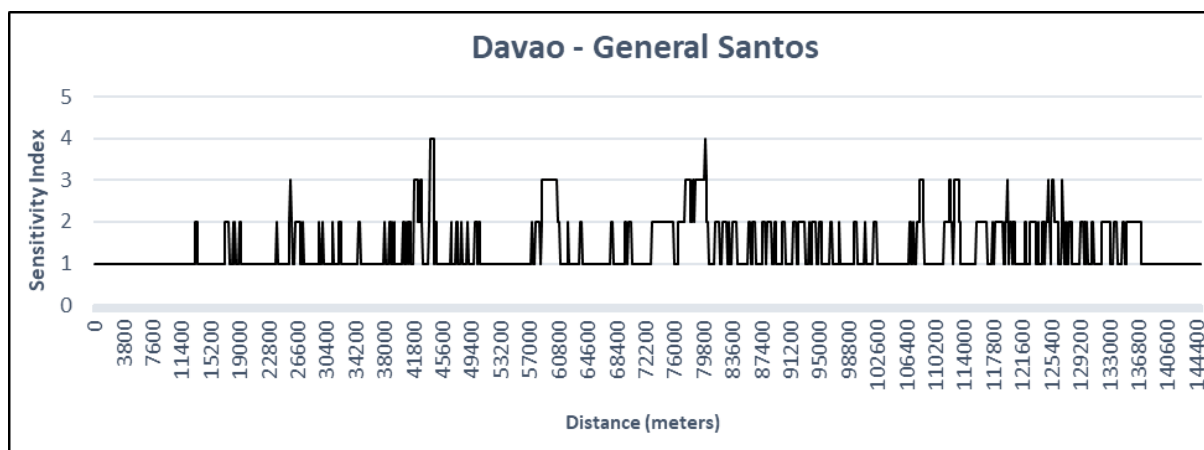


Figure 4-53. Sensitivity of Main Corridor (Davao – General Santos)

Generally, this road connection has low sensitivity as it is a wholly concrete-paved road with some segments already widened. However, one of the areas with high sensitivity is the portion in Tagabuli. It is along the coast with mangroves, behind the houses along the road. This segment also has a locally managed critical habitat for waterbirds like herons and egrets. The presence of the roosting area was also noted during the study for the Mindanao Railway Project in 2018.

Link Road 1

The road option Link Road 1 is a loop starting from the intersection of Intavas Road and Sayre Highway, going to La Fortuna towards Intavas, Kibenton, and Cawayan, and exiting again on Sayre Highway, covering about 25.43 kilometers. It is mostly an agricultural area, near the foothills of the Mt. Kitanglad Range Natural Park, a protected area under the NIPAS Act. The elevation of the road ranges from 710 masl to as high as 1273 masl in Brgy. Intavas.

Human structures can be found in clusters for the entirety of the road. The clusters are usually the sitios or barangay proper, but there are also sporadic structures lining the road. Agriculture areas are mostly plantations of cut flowers, timber species, palm oil, pineapple, and cash crops. Natural or native vegetation is mostly concentrated along creeks and rivers.

The sensitivity of the road is mostly low, attributed to the high human influence in the area. However, there are some portions with high sensitivity, especially the upland roads. Given the vastness of cultivated land and sporadic human structures, the degree of disturbance in these areas in terms of wildlife may still be low. Natural vegetation, especially along the waterways, can also act as “highways” for wildlife movement. **Figure 4-54** show the sensitivity of Link Road 1.

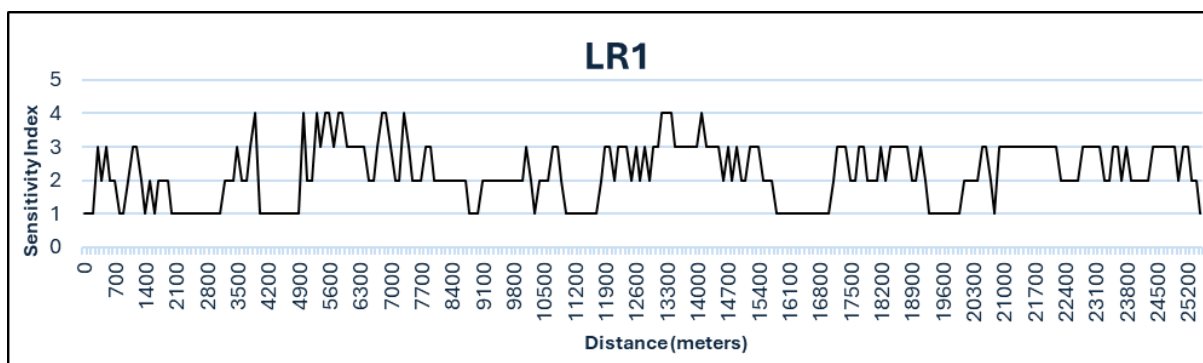


Figure 4-54. Sensitivity of Link Road 1

Link Road 2

The road option Link Road 2 is almost 59.4 kilometers, starting from Cabaluna St.-Daang Maharlika in Panabo City and exiting to the Davao-Bukidnon Highway in Malamba, Marilog District, in a westerly direction. Most of the road is around 100–400 masl, with the highest at around 720 masl. It is mostly paved, some relatively newly constructed. However, there are stretches of land that are graveled and unpaved.

Human structures are mostly clustered for the entirety of the road. These are usually the sitios or barangay proper, although there are also sporadic structures lining the road outside the clustered areas. Agriculture areas are planted with rice, corn, pineapple, mango, coconut, and banana. There are also some areas with timber species like mahogany and gmelina. Natural vegetation is usually clustered in gullies and near rivers. The vegetation in such areas may act as “highways” for any wildlife thriving there.

The sensitivity of the roadsides for Link Road 2 is fairly low since most portions have human intervention. However, the portion for construction is situated in Brgy. Bantol-Lumiad is a sensitive area, as it crosses two rivers and will be clearing a second-growth forest with a rolling to steep contour. Although fairly vegetated, there are also patches of cultivation in the vicinity of the area. Such a state may allow the area to still harbor wildlife, as there seems to be little motorized vehicular traffic in the area. **Figure 4-55** show the sensitivity of Link Road 2.

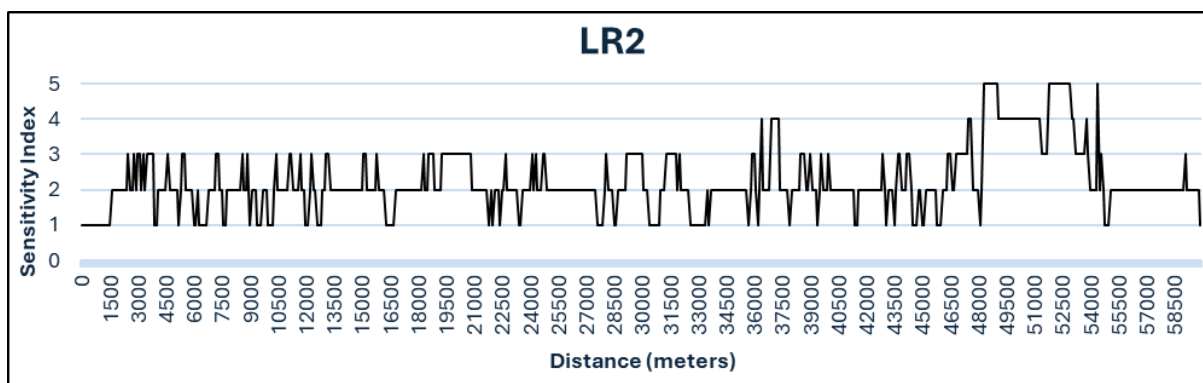


Figure 4-55. Sensitivity of Link Road 2

Link Road 3

The road option Link Road 3 is around 45.03 km, starting from Panabo City, Davao Region, to Malungon, in Sarangani Province. It ranges from around 20 masl to 750 masl and follows a

southwesterly direction, passing through mountain ranges. Most of the roads, especially in the uplands, are unpaved, and in some areas, they can be considered trails. The road alignment showed that there are portions to be rehabilitated, upgraded, or constructed.

As is common in rural and upland areas, houses are concentrated on a certain portion of the road, forming the sitios, purok, or barangay proper. Sporadic structures are in farmlands, which are usually huts and sheds, although there are bigger structures, especially in the lower elevation, near the urban areas.

Although there are patches of cultivation in the upland areas, the natural vegetation is low to fair owing to the slash-and-burn method of farming and plantation establishments. As such, a large portion of the mountainous areas where the road is aligned may still harbor wildlife, as there seems to be little to no motorized vehicular traffic in the area. **Figure 4-56** shows the sensitivity of Link Road 3.

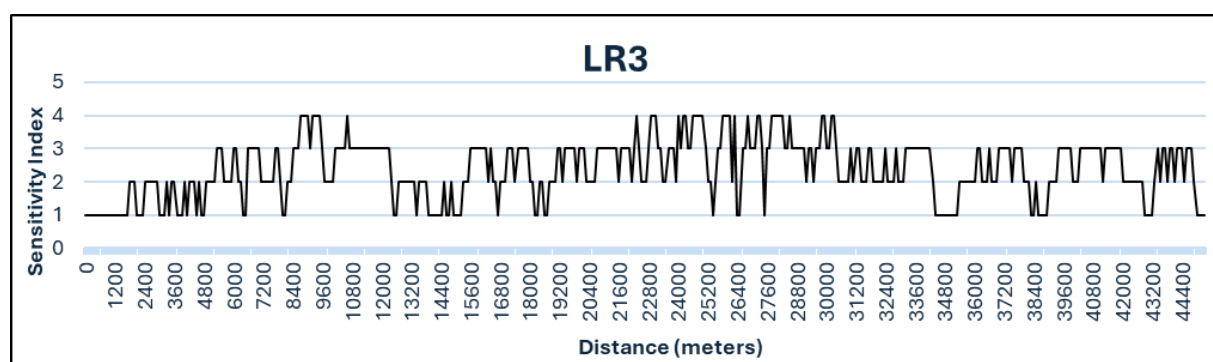
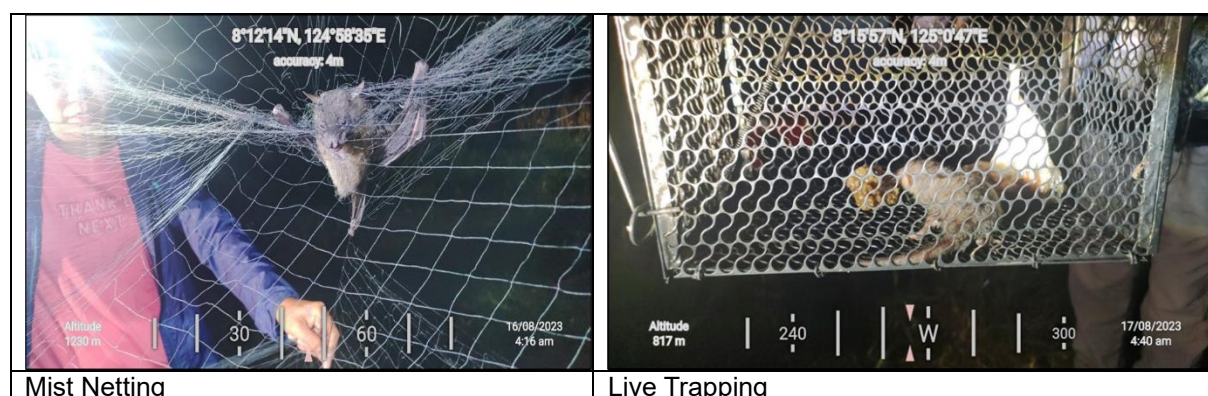


Figure 4-56. Sensitivity of Link Road 3

2.2.6.2 Fauna Assessment

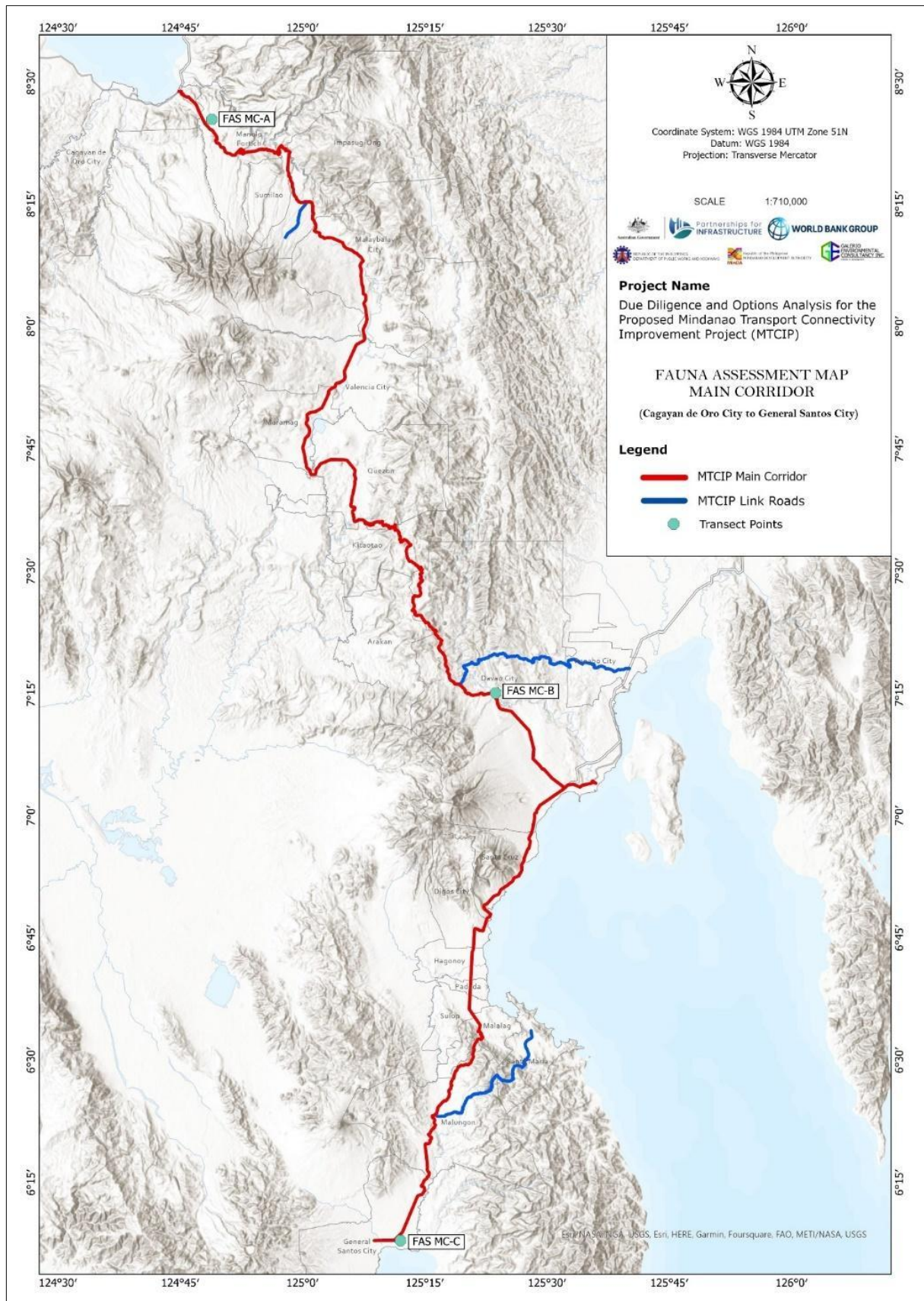
The wildlife assessment was undertaken at predefined sampling sites along the Main Corridor and Link Roads. The fauna assessment was conducted using the guidelines laid out in the Terrestrial Ecosystems Biodiversity and Assessment Monitoring Manual (DENR-BMB, 2017). All relevant secondary data for the area was thoroughly examined to identify potential species of concern. Additionally, key informant interviews were conducted to complement the survey data and enrich the assessment process. The methodology outlines limitations on the number and size of sampling plots (quadrats) and the length of transects. Consequently, biodiversity indices merely signify biodiversity levels based on species within the quadrats and along the transects. The recorded checklist of faunal species encompasses those encountered during the transects walk. The detailed methodology for fauna assessment is provided in **Annex 15**. **Plate 4-15** shows the photographs of the fauna assessment.



**Plate 4-15. Photograph of Fauna Assessment****Main Corridor**

The assessment was conducted using the described methodology, and 45 species were evaluated, with 31 and 14 species observed for avifauna and herps, respectively. During the assessment, 16 species were seen and heard for avifauna, while 8 species were observed for herps. The data indicates that avifauna has moderate diversity but high species evenness, with values of 2.59 and 0.934. On the other hand, herpetofauna has $H'=1.91$, indicating very low diversity but high species evenness, with values of $J'=0.918$.

The predominant reptile species in the area are the Philippine cobra (*Naja philippinensis*), Barred Philippine False Coral Snake (*Hemibungarus calligaster*), and King cobra (*Ophiophagus hannah*), as identified in the Key Informant Interview. **Figure 4-57** shows the transect map of fauna assessment in Main Corridor.



Avifauna

It was found that the large-billed crow is the most abundant bird species in the proposed area, with a relative frequency of 13.69 and 0.2, respectively. The majority of the species were identified through interviews with the residents in the area, who either saw or heard them. Other birds were found perched on the canopy or flying within the vicinity of the area. The Philippine Eagle (*Pithecophaga jeffryi*) is classified as "Critically Endangered," the Rufous Hornbill (*Buceros hydrocorax*) is classified as "Vulnerable," the Philippine Hawk Eagle (*Nisaetus philippensis*) is classified as "Endangered," and the Mindanao Highland scops owl (*Otus mirus*) is classified as "Near Threatened." All these species were found in the alignment along the Davao Occidental and Malungon, Sarangani province areas.

Mammals

Most species found in the area are the Great Musky Fruit Bat (*Ptenochirus jagori*), considered the least concerned species (left), and Geoffroy's Rousettes (*Rousettus amplexicaudatus*). To study these bats and their feeding behavior, researchers established mist nets in areas where the bats fly and where they can find food, such as rice field rats (*Rattus argentiventer*). These areas are also home to residential areas and plantations of banana, coconut, and fruit trees. One of the locations where rice field rats were found is in Alignment 1, Capitan Bayong, Impasug-ong, near the Adlai rice plantation.

Herpetofauna

Based on the status of the species in the area, the King Cobra (*Ophiophagus hannah*) was found to have the highest population, followed by the Philippine Cobra (*Naja philippinensis*). Both of these species are considered vulnerable and near threatened. On the other hand, the Reticulated Python (*Malayopython reticulatus*) was found to be under the least concern status. It was noted that the agricultural and residential areas in the assessed region had a significant impact on the habitat and reproductive cycle of these reptiles. The King Cobra was the most abundant species, with a population of 15, followed by the Philippine Cobra with 12 individuals, and the Reticulated Python with 7 individuals.

Link Roads

Habitat Description. The presence of fauna in an area has a significant impact on the food and habitat available in that area. There is a road project underway that includes three proposed link roads. These roads will pass through areas that are predominantly agricultural, including mixed plantations, residential areas, and secondary-growth forests. The areas along Sta. Maria, Davao Occidental (Malungon), and Bantol, Davao City (Panabo City), are primarily agricultural, with banana and pineapple plantations being prevalent in the La Fortuna, Impasug-ong area. Secondary growth forests have also been identified in Link Roads 2, 3, and the main corridor.

Link Road 1 (Impasug-ong, Bukidnon Province)

A survey has been conducted in this area, which has identified a total of 48 species of animals. Among these, 16 are birds, 9 are mammals, 13 belong to the category of herpetofauna, and 8 are aquatic species. During the establishment of the mist net and trapping device, there was an off-set of 55 meters on station C in the original alignment and 102.54 meters on the net station due to the residential area. The transect line is presented in **Figure 4-58**.

According to the findings, the Shannon diversity index for avifauna in the Shannon area is 2.52, indicating moderate diversity with a high level of evenness at 0.977. This means that a moderate number of bird species are evenly distributed throughout the region. Herpetofauna, on the other hand, has a diversity index of 1.83, which is interpreted as very low, but with a very high level of evenness at 0.958. The diversity of mammals is also very low, with a diversity index of 1.15 and a high level of evenness at 0.829. Furthermore, aquatic animals have a very low diversity index of 1.56, but high species evenness at 0.967.

The species that are most prevalent in the area are Asian Palm Civet (*Paradoxurus hermaphroditus*), Philippine Cobra (*Ophiophagus hannah*), and Paitan (*Barbodes montanoi*).

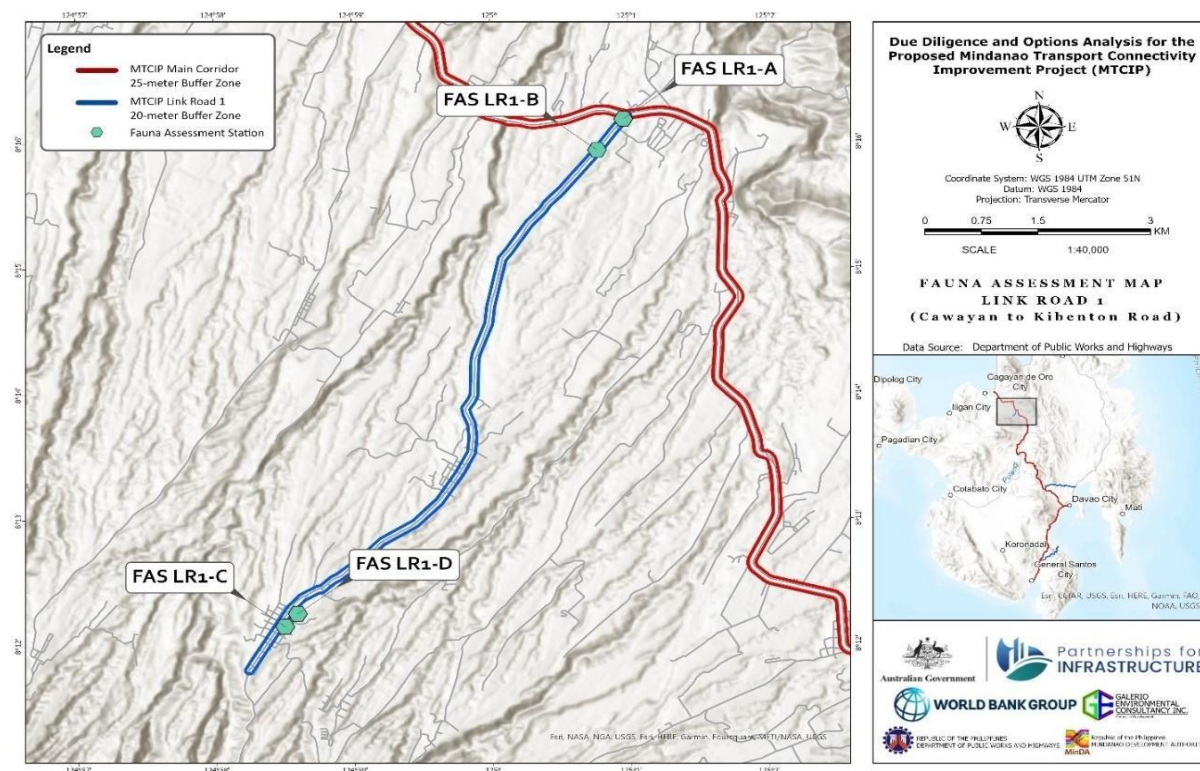


Figure 4-58. Transect Map of Fauna Assessment in Link Road 1

Link Road 2 (Davao City- Panabo City)

In the surveyed area, a total of 159 individuals were found along the transect line from Davao City to Panabo Link Road 2. **Figure 4-59** shows the transect tread during the assessment. The avifauna group had the highest abundance, while mammals had the lowest abundance. The data interpreted from the survey shows that the avifauna group has moderate diversity (2.74), with a very high evenness index (0.901). On the other hand, mammals, herpetofauna, and aquatic animals have very low diversity, with indices of 1.21, 1.82, and 1.66, respectively. However, their species evenness falls under the “very high” index. The species richness of the animal classification was 21 for birds, two for mammals, and seven and six for herpetofauna and aquatic animals, respectively. It was found out that the most rampant species in the area are Asian Palm Civet (*Paradoxurus hermaphroditus*) of Viverridae, giant mottled eel (*Anguilla marmorata*) of Anguillidae, and Paitan (*Barbodes montanoi*) of the family Cyprinidae.

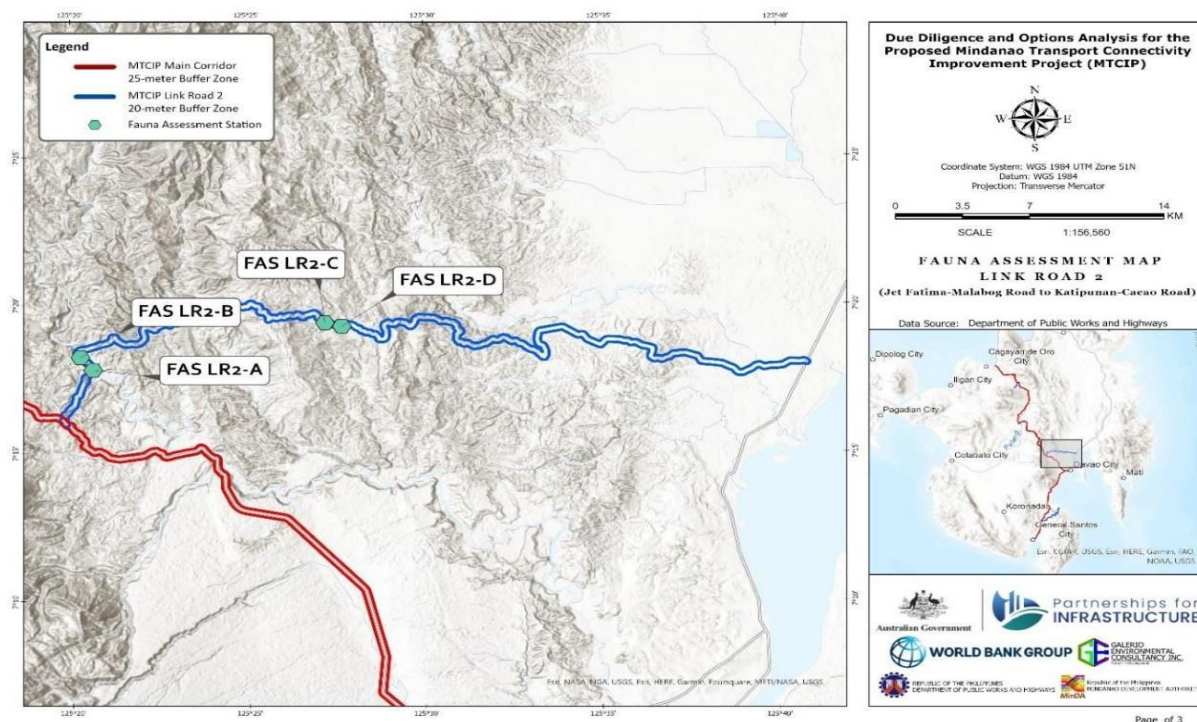


Figure 4-59. Transect Map of Fauna Assessment in Link Road 2

Link Road 3 (Malungon – Sta. Maria, Davao Occidental)

During the assessment of Link Road 3 (transect shown in **Figure 4-60**), a total of 108 animals were counted. Of these, 56 were birds, 6 were mammals, 24 were herps (reptiles and amphibians), and 22 were aquatic animals. Due to the presence of residential areas, the stations along Brgy. San Antonio and Brgy. Poblacion, Malungon, and Sarangani Province were affected.

The proposed link road has moderate diversity for avifauna, with a species evenness index of $H'=2.84$ and $J'=0.923$. As for herpetofauna, the diversity was very low, but it had a high evenness index with values of $H'=1.75$ and 0.841 . The result showed that mammals had low diversity but a high evenness index, with $H'=1.1$ and $J'=1$. For aquatic animals, the diversity is low with an $H'=1.58$, but the species evenness is high with a value of 0.88 . King cobra (*Ophiophagus hannah*), Paitan (*Barbodes montanoi*), and Giant mottled eel (*Anguilla marmorata*) have dominated the area.

During the fauna assessment, it was found that a total of 365 individuals were present in the entire project area. Avifauna were the most commonly found species, followed by herpetofauna, mammals, and aquatic animals. Unfortunately, several species were discovered to be threatened due to continuous land cultivation, which negatively affects their reproduction in the area. The Philippine Warty Pig (*Sus philippinensis*), Philippine Deer (*Rusa mariana*), Eurasian carp (*Cyprinus carpio*), King cobra (*Ophiophagus hannah*), and Chinese softshell turtle (*Pelodiscus sinensis*) were all classified as "Vulnerable". Other species, such as the Philippine cobra (*Naja philippinensis*) and Philippine long-tailed macaque (*Macaca fascicularis philippinensis*), were classified as "Near Threatened".

Table 4-21 presents the list of fauna species and IUCN conservation status.

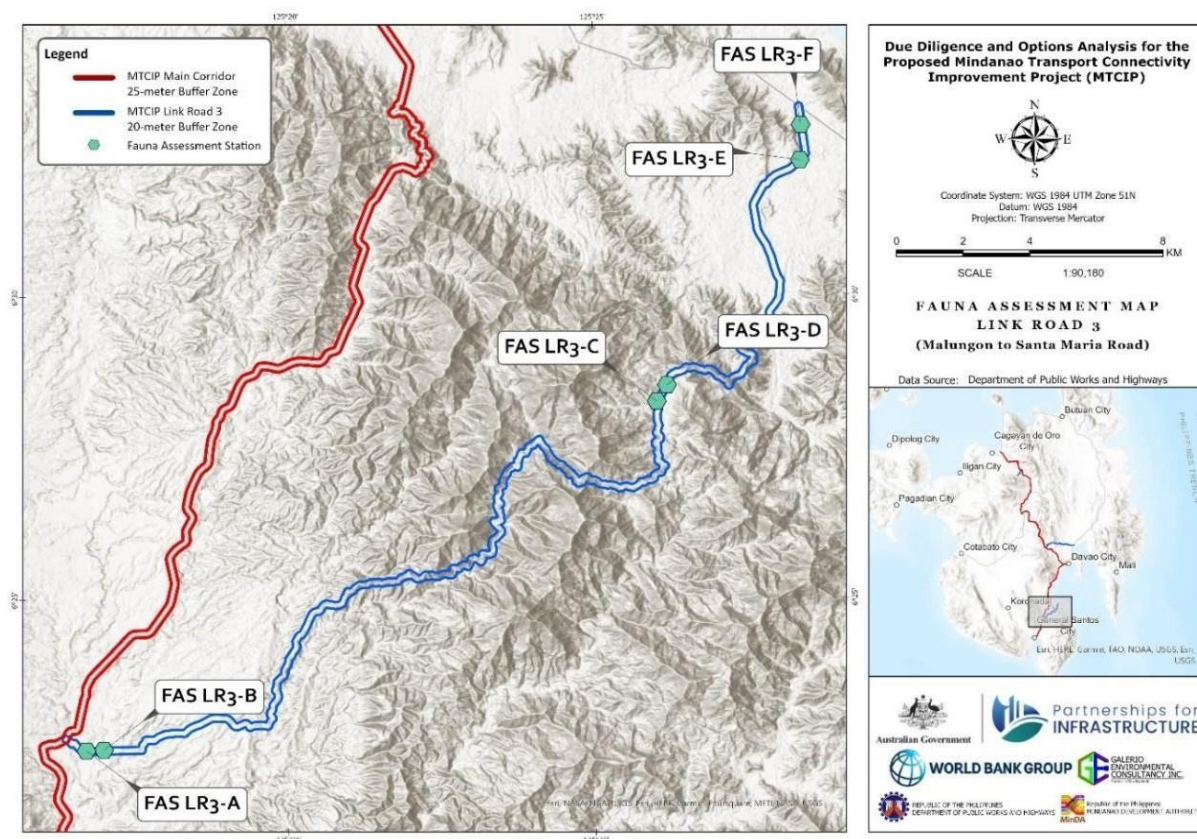


Figure 4-60. Transect Map of Fauna Assessment in Link Road 3

Table 4-21. List of Fauna Species and IUCN Conservation Status

No.		Taxonomic Class	Name of Species		IUCN Conservation Status
			Scientific Name	Common Name	
Main Corridor					
1	Avifauna		<i>Pithecophaga jefferyi</i>	Philippine Eagle	Critically Endangered
2			<i>Buceros hydrocorax</i>	Rofous Hornbill	Vulnerable
3			<i>Nisaetus philippensis</i>	Philippine Hawk Eagle	Endangered
4			<i>Otus mirus</i>	Mindanao Highland Scops Owl	Near Threatened
5	Mammals		<i>Ptenochirus jagori</i>	Great Musky Bat	Least Concerned
6			<i>Rousettus amplexicaudatus</i>	Geoffroy's Rousettes	Least Concerned
7			<i>Rattus argentiventer</i>	Rice Field Rats	
8			<i>Sus philippensis</i>	Philippine warty pig	Vulnerable
9	Herpetofauna		<i>Ophiophagus hannah</i>	Kind Cobra	Vulnerable
10			<i>Naja philippinensis</i>	Philippine Cobra	Near Threatened
11			<i>Malayopython reticulatus</i>	Reticulated Python	Lease Concerned
12			<i>Hemibungarus calligaster</i>	Barred Philippine False Coral Snake	Least Concern
13			<i>Trimeresurus flavomaculatus</i>	Philippine Pit Viper	Least Concern
14			<i>Hydrosaurus pustulatus</i>	Philippine sailfin lizard	Least Concern
15			<i>Cerberus rynchops</i>	Dog-faced water snake	Least Concern
16			<i>Philautus acutirostris</i>	Pointed-snouted Tree Frog	Least Concern
Link Road 1					
1	Avifauna		<i>Phapitreron leucotis</i>	White-eared brown dove	Least Concern
2			<i>Haliastur indus</i>	Brahminy Kite	Least Concern

No.	Taxonomic Class	Name of Species		IUCN Conservation Status	
		Scientific Name	Common Name		
3		<i>Passer montanus</i>	Eurasian tree sparrow	Least Concern	
4		<i>Columba livia</i>	Common pigeon	Least Concern	
5		<i>Agapornis</i>	Lovebirds	Least Concern	
6		<i>Loriculus philippensis</i>	Philippine hanging parrot	Least Concern	
7		<i>Rhipidura nigritorquis</i>	Philippine pied fantail	Least Concern	
8		<i>Leptocoma sperata</i>	Purple-throated sunbird	Least Concern	
9		<i>Gallirallus torquatus</i>	Barred rail	Least Concern	
10		<i>Todiramphus winchelli</i>	Collared kingfisher	Least Concern	
11		<i>Spilopelia chinensis</i>	Spotted dove	Least Concern	
12		<i>Corvus macrorhynchos</i>	Large-billed crow	Least Concern	
13		Mammals	<i>Sus philippensis</i>	Philippine warty pig	Vulnerable
14			<i>Paradoxurus hermaphroditus</i>	Asian palm civet	Least Concern
15	<i>Macaca fascicularis philippensis</i>		Philippine long-tailed macaque	Near Threatened	
16	<i>Rusa marianna</i>		Philippine Deer	Vulnerable	
17	Herpetofauna	<i>Hydrosaurus pustulatus</i>	Philippine sailfin lizard	Least Concern	
18		<i>Naja philippinensis</i>	Philippine cobra	Near Threatened	
19		<i>Naja philippinensis</i>	Philippine cobra	Near Threatened	
20		<i>Cerberus rynchops</i>	Dog-faced water snake	Least Concern	
21		<i>Anguilla marmorata</i>	Giant mottled eel	Least Concern	
22		<i>Philautus acutirostris</i>	Pointed-snouted Tree Frog	Least Concern	
23		<i>Rhinella marina</i>	Cane Toad	Least Concern	
24		<i>Varanus cumingi</i>	Yellow-headed water monitor	Least Concern	
Link Road 2					
1	Avifauna	<i>Phapitreron leucotis</i>	White-eared brown dove	Least Concern	
2		<i>Ducula poliocephala</i>	Pink-bellied imperial pigeon	Least Concern	
3		<i>Haliastur indus</i>	Brahminy Kite	Least Concern	
4		<i>Aplonis panayensis</i>	Asian glossy starling	Least Concern	
5		<i>Passer Montanus</i>	Eurasian tree sparrow	Least Concern	
6		<i>Aplonis panayensis</i>	Asian glossy starling	Least Concern	
7		<i>Columba livia</i>	Common pigeon	Least Concern	
8		<i>Buceros hydrocorax</i>	Philippine Hornbill	Least Concern	
9		<i>Todiramphus chloris</i>	Collared kingfisher	Least Concern	
10		<i>Surniculus velutinus</i>	Philippine drongo-cuckoo	Least Concern	
11		<i>Geopelia striata</i>	Zebra dove	Least Concern	
12		<i>Loriculus philippensis</i>	Philippine hanging parrot	Least Concern	
13		<i>Passer Montanus</i>	Eurasian tree sparrow	Least Concern	
14		<i>Ardea sumatrana</i>	Great-billed heron	Least Concern	
15		<i>Chalcophaps indica</i>	Common emerald dove	Least Concern	
16		<i>Lepidothrix suavisissima</i>		Least Concern	
17		<i>Passer montanus</i>	Eurasian tree sparrow	Least Concern	
18		<i>Corvus macrorhynchos</i>	Large-billed crow	Least Concern	
19		<i>Pycnonotus goiavier</i>	Yellow-vented bulbul	Least Concern	
20		<i>Treron vernans</i>	Pink-necked Green-Pigeon	Least Concern	
21		<i>Sarcops calvus</i>	Coletto	Least Concern	
22		<i>Collocalia esculenta</i>	Glossy swiftlet	Least Concern	
23		<i>Cinnyris jugularis</i>	Olive-backed sunbird	Least Concern	
24		<i>Gallirallus torquatus</i>	Barred rail	Least Concern	
25		<i>Todiramphus chloris</i>	Collared kingfisher	Least Concern	
26		<i>Spilopelia chinensis</i>	Spotted dove	Least Concern	

No.	Taxonomic Class	Name of Species		IUCN Conservation Status
		Scientific Name	Common Name	
27	Mammals	<i>Egretta garzetta</i>	Little egret	Least Concern
28		<i>Corvus macrorhynchos</i>	Large-billed crow	Least Concern
29		<i>Paradoxurus hermaphroditus</i>	Asian palm civet	Least Concern
30		<i>Sus philippensis</i>	Philippine warty pig	Vulnerable
31		<i>Rusa marianna</i>	Philippine Deer	Vulnerable
32		<i>Macaca fascicularis philippensis</i>	Philippine long-tailed macaque	Near Threatened
33	Herpetofauna	<i>Varanus cumingi</i>	Yellow-headed water monitor	Least Concern
34		<i>Ophiophagus hannah</i>	King cobra	Vulnerable
35		<i>Malayopython reticulatus</i>	Reticulated python	Least Concern
36		<i>Anguilla marmorata</i>	Giant mottled eel	Least Concern
37		<i>Naja philippinensis</i>	Philippine cobra	Near Threatened
38		<i>Hemibungarus calligaster</i>	Barred Philippine False Coral Snake	Least Concern
39		<i>Dryophiops philippina</i>	Philippine Keel-bellied Whip Snake	Data Deficient
40		<i>Gekko Gecko</i>	Tokay Gecko	Least Concern
Link Road 3				
1	Avifauna	<i>Phapitreron leucotis</i>	White-eared brown dove	Least Concern
2		<i>Oriolus steerii</i>	Philippine oriole	Least Concern
3		<i>Haliastur indus</i>	Brahminy Kite	Least Concern
4		<i>Naja philippinensis</i>	Philippine cobra	Least Concern
5		<i>Pithecophaga jefferyi</i>	Philippine eagle	Critically Endangered
6		<i>Aplonis panayensis</i>	Asian glossy starling	Least Concern
7		<i>Passer Montanus</i>	Eurasian tree sparrow	Least Concern
8		<i>Columba livia</i>	Common pigeon	Least Concern
9		<i>Buceros hydrocorax</i>	Rufous hornbill	Vulnerable
10		<i>Gracula religiosa</i>	Common hill myna	Least Concern
11		<i>Loriculus philippensis</i>	Philippine hanging parrot	Least Concern
12		<i>Geopelia striata</i>	Zebra dove	Least Concern
13		<i>Loriculus philippensis</i>	Philippine hanging parrot	Least Concern
14		<i>Nisaetus philippensis</i>	Philippine hawk-eagle	Endangered
15		<i>Chalcophaps indica</i>	Common emerald dove	Least Concern
16		<i>Passer montanus</i>	Eurasian tree sparrow	Least Concern
17		<i>Otus mirus</i>	Mindanao highland scops owl	Near Threatened
18		<i>Loriculus philippensis</i>	Philippine hanging parrot	Least Concern
19		<i>Pycnonotus goiavier</i>	Yellow-vented bulbul	Least Concern
20		<i>Pithecophaga jefferyi</i>	Philippine hawk-eagle	Critically Endangered
21		<i>Treron vernans</i>	Pink-necked Green-Pigeon	Least Concern
23		<i>Sarcops calvus</i>	Coletto	Least Concern
24		<i>Collocalia esculenta</i>	Glossy swiftlet	Least Concern
25		<i>Collocalia esculenta</i>	Glossy swiftlet	Least Concern
26		<i>Egretta garzetta</i>	Little egret	Least Concern
27		<i>Gallirallus torquatus</i>	Barred rail	Least Concern
28		<i>Spilopelia chinensis</i>	Spotted dove	Least Concern
29		<i>Oriolus steerii</i>	Philippine oriole	Least Concern
30		<i>Melanerpes carolinus</i>	Red-bellied Snake or Rat Snakes	Least Concern
31		<i>Corvus macrorhynchos</i>	Large-billed crow	Least Concern
32	Mammals	<i>Paradoxurus hermaphroditus</i>	Asian palm civet	Least Concern

No.	Taxonomic Class	Name of Species		IUCN Conservation Status
		Scientific Name	Common Name	
33	Herpetofauna	<i>Sus philippensis</i>	Philippine warty pig	Vulnerable
34		<i>Macaca fascicularis philippensis</i>	Philippine long-tailed macaque	Near Threatened
35		<i>Rousettus amplexicaudatus</i>	Geoffroy's rousette	Least Concern
36		<i>Varanus cumingi</i>	Yellow-headed water monitor	Least Concern
37		<i>Ophiophagus hannah</i>	King cobra	Vulnerable
38		<i>Malayopython reticulatus</i>	Reticulated python	Least Concern
39		<i>Anguilla marmorata</i>	Giant mottled eel	Least Concern
40		<i>Naja philippinensis</i>	Philippine cobra	Near Threatened
41		<i>Rhinella marina</i>	Cane Toad	Least Concern
42		<i>Lamprolepis smaragdina</i>	Emerald Tree Skink	Least Concern

2.3 Water

This section discusses pertinent baseline data on the hydrology, surface water, and freshwater ecology along and near the vicinities of the MTCIP. For this report, the section on marine ecology is not applicable since the alignment will not traverse marine waters and is nowhere near marine water bodies.

2.3.1 Hydrology

The MTCIP runs through a wide area in the middle of Mindanao, which is characterized by variable terrain and many different drainage basins. The whole project crosses at least seven major river basins, including the Tagoloan River, the Rio Grande de Mindanao, the Davao River, the Lasang River, the Padada-Mainit River, the Malungon River, and the Makar River.

Within Region X (**Figure 4-61**), the northern segment of the Main Corridor and Link Road 1 fall within the watershed of the Tagoloan River System. This drainage system intersects the highway at around KM 1441 and ends at KM 1494. The Tagoloan River system is considered the 13th largest in the country and has an estimated drainage area of 1,704 km² with a total length of 106 km. It discharges into the Macalajar Bay along the shores of Cagayan de Oro City.

The middle portions of Sayre Highway run through the watershed of the Rio Grande de Mindanao. This fluvial network covers a large area of Mindanao Island and is considered the second-largest river system in the country. It drains an area of 23,169 km², which stretches from the northern part of the island until the southern region, stretching a length of approximately 373 km. It discharges into Illana Bay along the Moro Gulf west of Mindanao Island. This watershed intersects the MTCIP at about KM 1494 until KM 1640.

Field assessment shows that within Region X, the Main Corridor of the MTCIP crosses at least nine rivers and 18 creeks. Link Road 1 does not traverse any natural drainage channels.

In Region XI (**Figure 4-62**) the project crosses at least four drainage basins, including the Davao River, Lasang River, Malungon River, and Padada-Mainit River. The northernmost portion of Davao-Bukidnon Road falls within the region of the Davao River Watershed. This is the 3rd largest watershed in Mindanao and covers an area of 1,700 km² with an approximate length of 170 km. The alignment enters the watershed at around KM 1640 until KM 1685. The

rest of this highway goes through the smaller watersheds of the Matina River and the Talomo River. All of these river systems discharge into the Davao Gulf, located further south along the coast of Davao City.

A portion of Davao-Cotabato Road crosses the smaller watersheds of the Lipadas River and Sibulan River, as well as minor parallel river systems that flow from the slopes of Mt. Apo down to the coast of the Davao Gulf. It also crosses the watershed of the Padada-Mainit River system, which lowers from the higher elevation into the coastal flats of the Municipality of Padada and Hagonoy. The main channel of this system is at KM 1572+68, and since the surrounding areas are relatively flat, the waterflow direction is not very distinct, and man-made drainages dictate the major direction of the waterflow. This river network has a drainage area of approximately 1,303 km².

The initial portion of Digos-Makar Road from KM 1593 until KM 1640 falls within the watershed of the Malungon River, also known as the Buayan-Malungon River system, which is a relatively small watershed with a drainage basin of approximately 1,506 km² and deposits its load into the Saranggani Bay (**Figure 4-63**). A portion of Link Road 3 also falls within this watershed.

Link Road 2 traverses two (2) watersheds, including the Davao River Watershed on the western side and the Lasang River Watershed on the eastern side. The Lasang River has a drainage area of about 467 km² and discharges into the Davao Gulf.

Field assessment results indicate that the MTCIP has at least 14 river crossings and 62 creek crossings within Region XI. Link Road 2 crosses at least 4 river crossings and 7 creeks. While Link Road 3 crosses a single river channel multiple times at different locations.

In Region XII, the alignment traverses a portion of the Malungon River Watershed as well as the Makar River Watershed. The latter drains into the Saranggani Bay and intersects the alignment at KM 1653+720. The Malungon River basin covers Digos-Makar Road until KM 1640 within this region. Field assessment determined that the MTCIP crosses two rivers in this region.

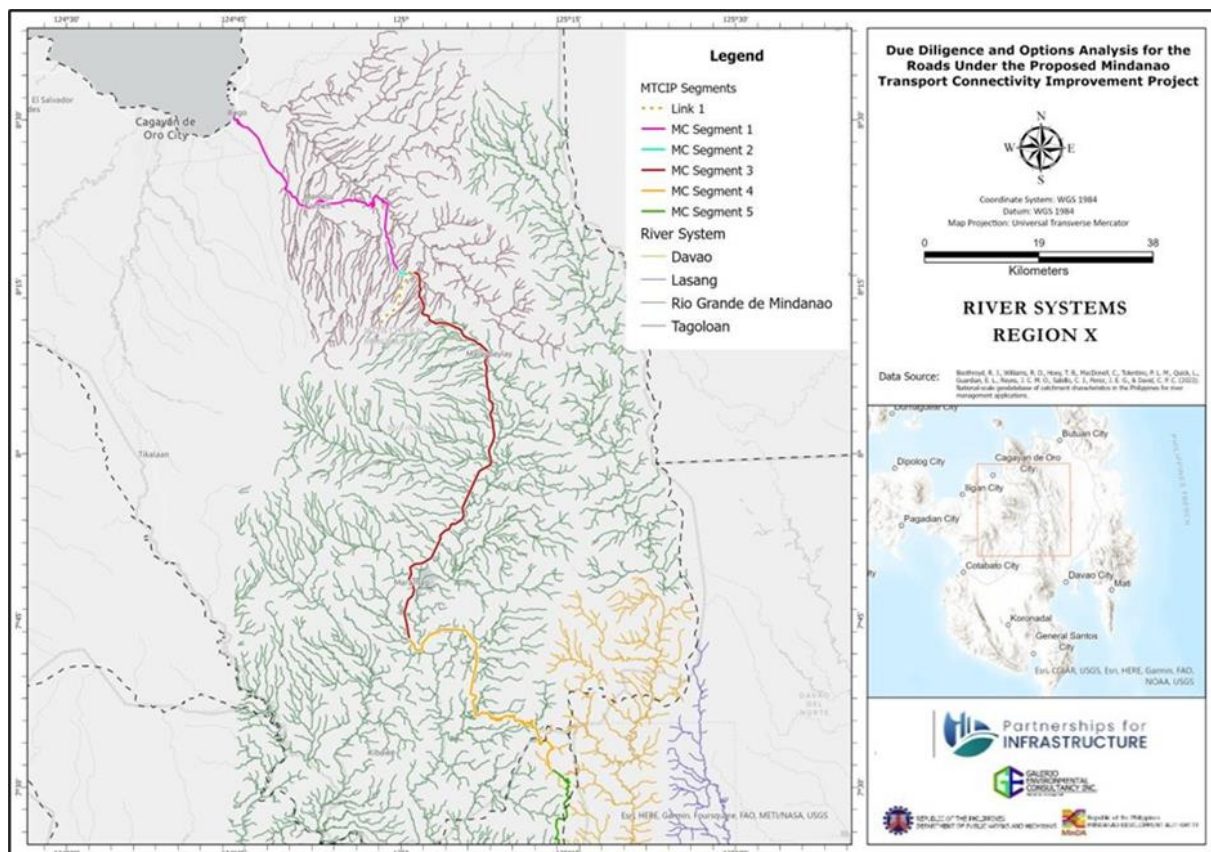


Figure 4-61. River Systems in Region X

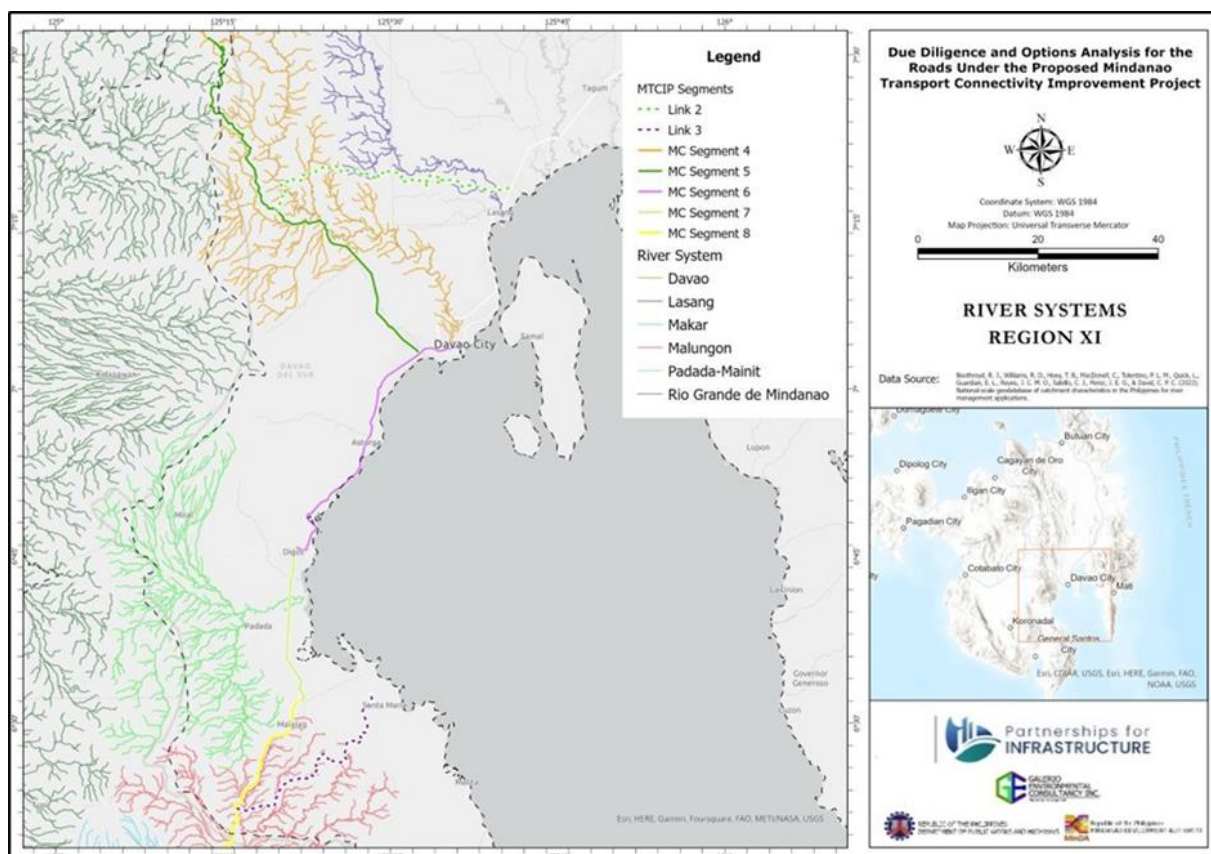


Figure 4-62. River Systems in Region XI

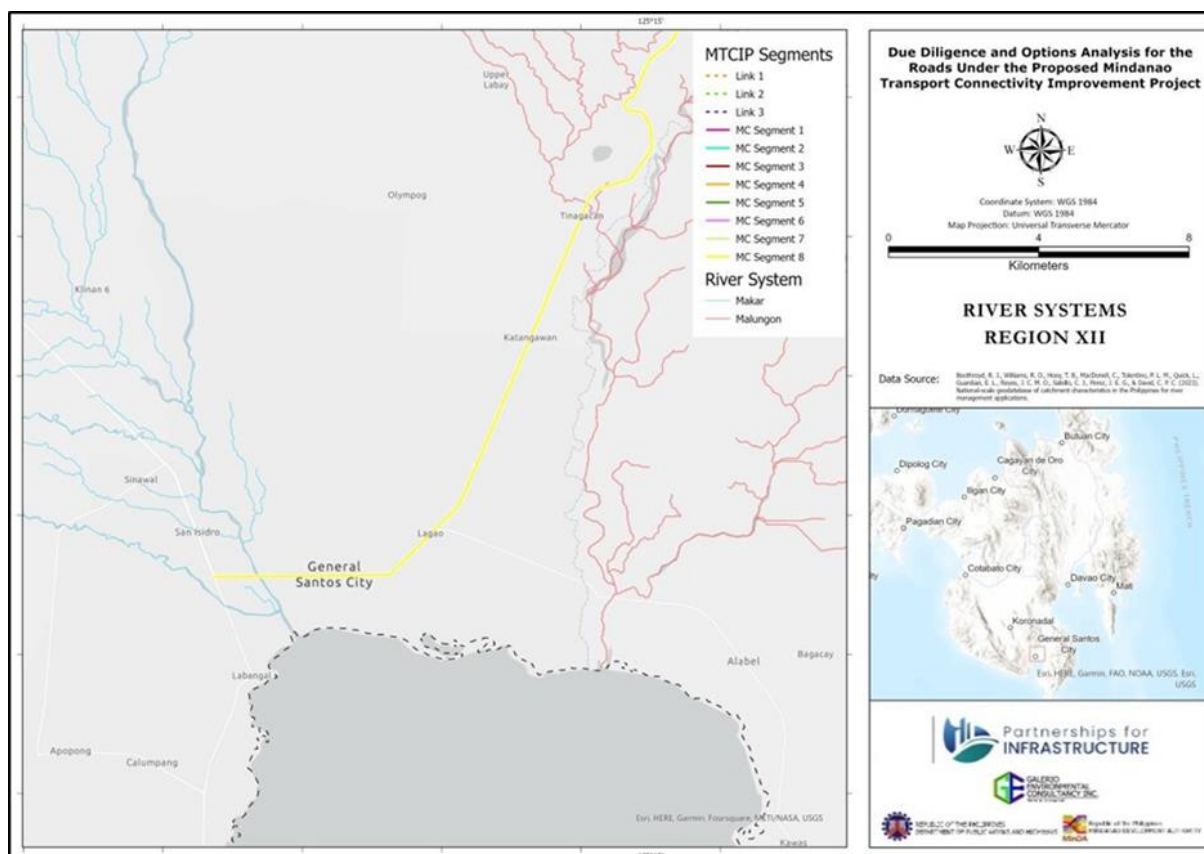


Figure 4-63. River systems in Region XII

2.3.2 Drainage System

In the Main Corridor, there are various types of drainage systems in the MTCIP, such as concrete trapezoidal or rectangular ditches and earth canals or ditches, prevalent in different areas. While most drainage ditches are clear and working properly, some portions are affected by blockage due to debris, garbage, and soil, leading to diminished hydraulic capacity, overflow, and low-level flooding within the highway. Prior to blockage, the drainage systems were effective in conveying surface runoff away from the highway.

In Link Road 1, the only concrete ditch identified was towards the end of the alignment, while most of the ditches were shallow earth ditches frequently filled with sediment and rubble carried from higher elevations.

Some areas on Link Road 2 lack proper drainage. The concrete ditches observed were those adjacent to an existing paved concrete roadway, with the majority of the ditches being shallow earth ditches prone to the accumulation of sediment and debris.

In Link Road 3, proper roadside drainage is yet to be established, with only the road leading to the barangay hall of Brgy. San Miguel exhibits an open concrete rectangular ditch. Community centers along the alignment have dug minor earth canals that serve to divert the runoff away from roads but are mostly sporadic and discontinuous.

2.3.3 Water Quality

In-situ surface water quality measurements using Horiba U53 were used. The sampling was made on October 10–13, 2023. There were 26 stations selected on Link Roads 2 and 3. There

will be no bridgework or river crossing activities along the Main Corridor and Link Road 1. **Plate 4-16** shows a photograph of water sampling activity. **Table 4-22** presents the water sampling stations and schedules. **Figure 4-64** and **Figure 4-65** show the locations of water sampling stations.



Plate 4-16. Water Sampling in New Diclum Bridge, Bukidnon Province

Table 4-22. Water Quality Sampling Stations and Schedules

Date	Time	Station Site Name
10/10/2023	11:41:49	Upper Mainit Bridge
10/10/2023	14:51:13	Kityan Bridge
10/10/2023	15:19:10	Kityan (Box culvert)
10/11/2023	12:34:04	Intan 7 Sta. Maria
10/11/2023	11:59:32	Intan 6 Sta. Maria
10/11/2023	13:27:31	Intan 5 Sta. Maria
10/11/2023	13:46:33	Intan 4 Sta. Maria
10/11/2023	14:01:21	Intan 3 Sta. Maria
10/11/2023	14:19:17	Intan 2 Sta. Maria
10/11/2023	14:32:33	Intan 1 Sta. Maria
10/11/2023	15:11:04	Sitio Lais Creek
10/12/2023	08:28:15	Sitio Libug Creek 1
10/12/2023	08:45:32	Sitio Libug Creek 2
10/12/2023	09:03:01	Paluhan Creek 1
10/12/2023	09:14:25	Paluhan Creek 2
10/12/2023	09:23:53	Lumabat Creek
10/12/2023	09:38:59	Paluhan Creek 3
10/12/2023	09:59:06	Panamin Bridge
10/12/2023	11:00:32	Mamulawan Bridge
10/12/2023	15:18:19	Bantol Bridge
10/12/2023	15:35:08	Banuayan Creek
10/13/2023	11:03:39	Siao River
10/13/2023	12:39:19	Malabog Bridge 1
10/13/2023	12:59:54	Malabog Bridge 2
10/13/2023	13:45:57	Katipunan Bridge
10/13/2023	14:19:00	Lasang Bridge

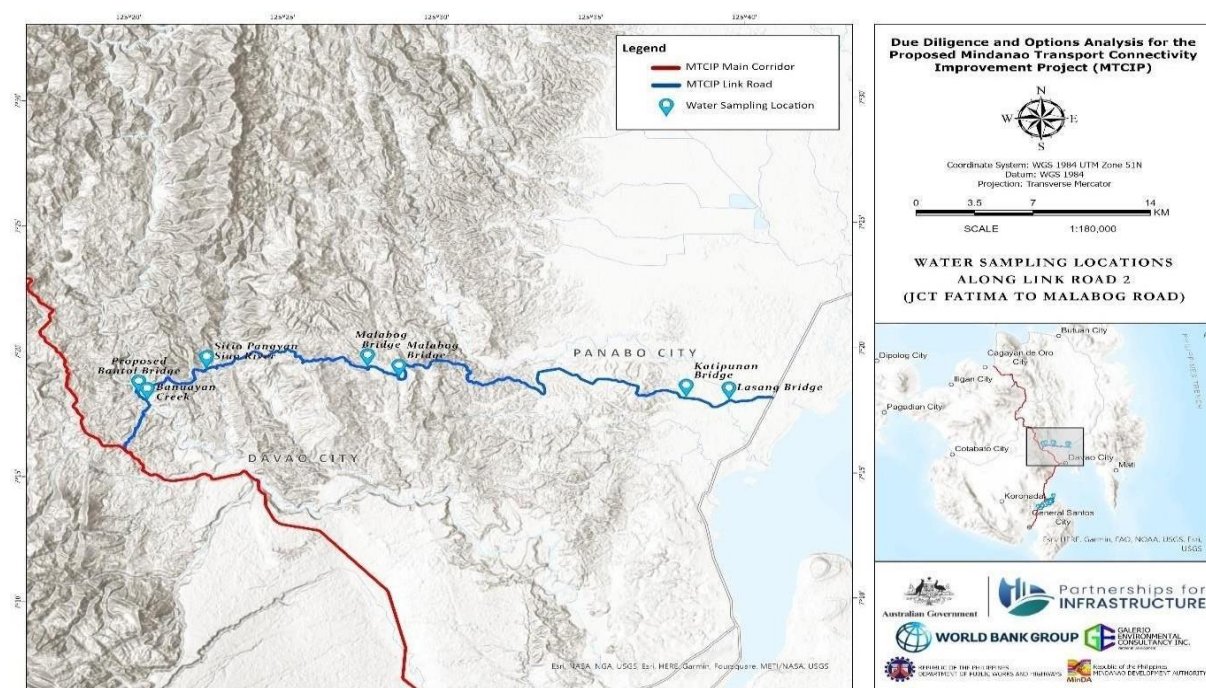


Figure 4-64. Water Sampling Stations along Link Road 2

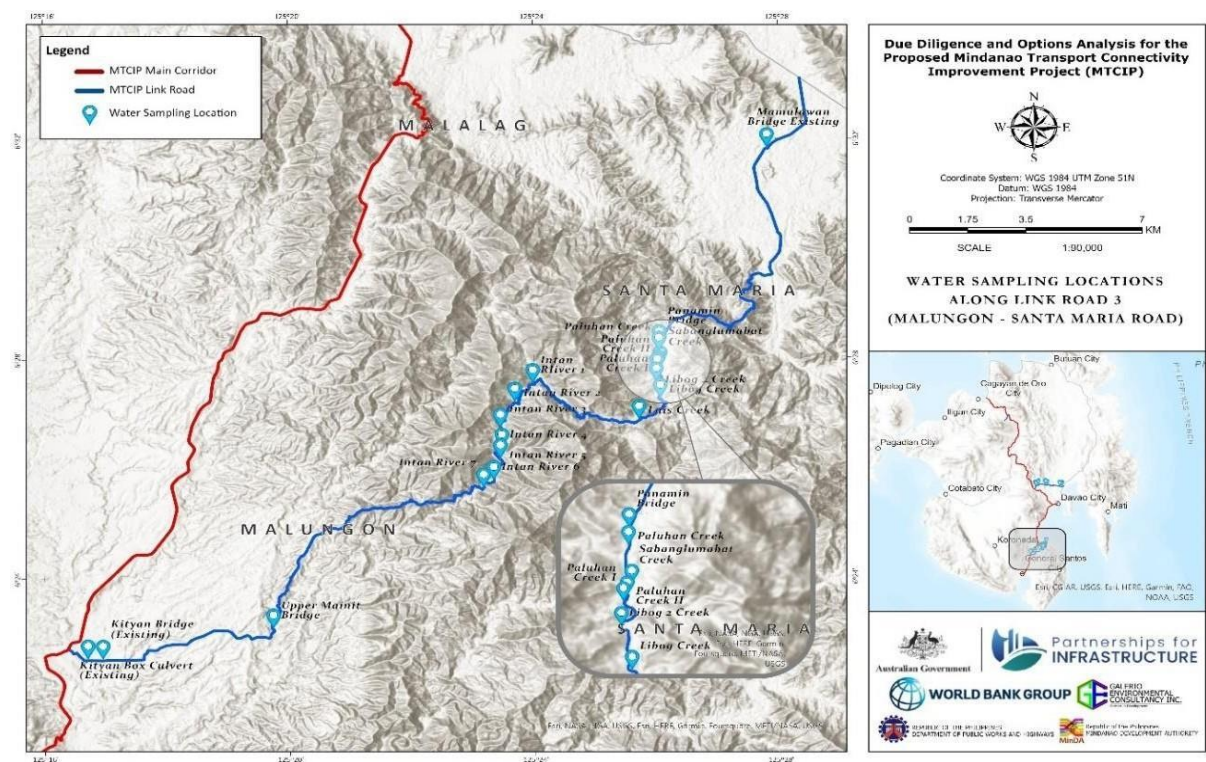


Figure 4-65. Water Sampling Stations along Link Road 3

The results of the laboratory tests for TSS, DO, BOD, COD, pH, and oil and grease were compared with WQG based on DAO 2016-08 and DAO 2021-19. The results for TDS, total, and fecal coliform were compared with the Philippine National Standard for Drinking Water (PNSDW 2017). Standards used for salinity in both freshwaters were adapted from the

Environment Protection Authority of South Australia's (EPA SA) inland waters and drinking water guidelines.

The pH, temperature, and dissolved oxygen values of the rivers and creeks in Link Roads 2 and 3 are within the water quality criteria set by the DENR. However, the Upper Mainit Bridge, Mamulawan Bridge, and Bantol Bridge station sites have exceeded the DENR's water quality criteria for total suspended solids.

The Kityan Bridge, Kityan Box Culvert, Malabog Bridge 2, Katipunan Bridge, and Lasang Bridge station sites along Link Roads 2 and 3 have water that exceeds the WHO's recommended guideline values for conductivity. Similarly, the Kityan Box Culvert, Banuayan Creek, Malabog Bridge 2, and Katipunan Bridge station sites along the Link Roads 2 and 3 also exceed the WHO's recommended guidelines for total dissolved solids in the water.

Silway Bridge and Tinagakan Bridge stations along the main corridor exceeded WHO guidelines for conductivity and total dissolved solids.

It appears that the quality of water in the bodies of water along the proposed road is being impacted by suspended solids. This is indicated by the high values in TSS, conductivity, and TDS. The suspended solids could be attributed to foreign materials such as sand, sediment, solid wastes, and/or plankton that are present in the water. **Table 4-23** presents the result of laboratory analysis for surface water quality.

Table 4-23. Result of Laboratory Analysis for Surface Water Quality

Station Site Name	pH		Temperature (°C)		DO (mg/l)		TSS (mg/l)		Conductivity (µS/cm)		TDS (mg/l)	
	Actual	Remarks	Actual	Remarks			Actual	Remarks	Actual	Remarks		
Upper Mainit Bridge	8.76	Passed	30.77	Passed	8.89	Passed	145.35	Failed	311	Passed	202	Passed
Kityan Bridge	8.38		30.56		9		43.47	Passed	451	Failed	293	
Kityan (Box Culvert)	8.33		27.53		7.47		85.5		602		385	Failed
Intan 7 - Sta. Maria	8.79		27.87		10.37		87.75		259	Passed	168	Passed
Intan 6 - Sta. Maria	8.78		28.21		9.84		8.78		255		165	
Intan 5 - Sta. Maria	8.81		27.8		10.03		41.27		260		169	
Intan 4 - Sta. Maria	8.82		27.62		9.3		35.96		253		169	
Intan 3 - Sta. Maria	8.77		27.09		9.31		24.62		259		169	
Intan 2 - Sta. Maria	8.7		26.79		9.07		10.76		261		170	
Intan 1 - Sta. Maria	8.6		26.12		9.31		9.31		253		164	
Sitio Lais Creek	8.49	Passed	25.31	Passed	9.02	Passed	9.02	Passed	225	Passed	146	Passed
Sitio Libug Creek 1	8.19		24.91		7.72		7.72		181		118	
Sitio Libug Creek 2	8.5		24.59		9.88		9.88		275		179	
Paluhan Creek 1	8.39		25.93		8.02		8.02		198		129	
Paluhan Creek 2	8.15		24.87		9.3		9.3		273		177	
Lumabat Creek	8.47		25.37		8.77		8.77		254		165	

Station Site Name	pH		Temperature (°C)		DO (mg/l)		TSS (mg/l)		Conductivity (µS/cm)		TDS (mg/l)	
	Actual	Remarks	Actual	Remarks	Actual	Remarks	Actual	Remarks	Actual	Remarks	Actual	Remarks
Paluhan Creek 3	8.15	Passed	25.61	Passed	7.93	Passed	7.93	Passed	247	Passed	16	Passed
Panamin Bridge	7.98		26.22		6.51		6.51		247		161	
Mamulawan Bridge	8.64		31.17		9.64		9.64		511		327	Passed
Bantol Bridge	8.65		28.16		8.61		8.61	Failed	281		183	
Banuayan Creek	8.88		29.21		7.7		7.7	Failed	65		416	Failed
Siao River	8.96		26.34		9.9		9.9	Passed	368		239	Passed
Malabog Bridge 1	8.77		25.66		9.74		9.74		355		231	
Malabog Bridge 2	8.42		26.61		9.2		9.2		509	Failed	326	Failed
Katipunan Bridge	8.51		28.12		6.91		6.91		847		542	
Lasang Bridge	8.79		28.81		9.38		9.38		418		271	Passed

2.4 Air and Noise

The air quality samplings and on-site noise measurements were conducted on August 1-4, 2023; on August 8–11, 2023; and on August 16–17, 2023. Ambient air particulate sampler BGI PQI 200 and gas sampler JCG Tri-gas sampler were used to collect air particulate samples for PM₁₀ and PM_{2.5} and for gas samples for SO₂ and NO₂ lab analysis. Unfortunately, samples for photochemical oxidants such as ozone and carbon monoxide were not collected due to technical problems with the sampling equipment.

2.4.1 Air Quality

MTCIP traverse Regions X, XI, and XII of Mindanao. The distance, travel time, and the presence of sensitive receptors to air quality impacts and noise were factors considered in the selection of locations for sampling stations.

The sampling stations were located at the starting and terminal points of the Main Corridor and those of the Link Roads, where there may be sensitive receptors. The 11 sampling stations are enumerated in **Table 4-24** and **Figure 4-66**.

Table 4-24. Air Quality and Noise Level Sampling Locations

Main Corridor Brgy. Puerto, Cagayan de Oro Brgy. Talomo, Ulas, Davao City Brgy. Lagao, Gen. Santos City	Link Road 1 Brgy Kibenton, Impasugong Brgy. Capitan Bayong, Impasug-ong
Link Road 2 Brgy Malabog, Davao City Brgy Bantol, Davao City Brgy. New Visayas, Panabo City	Link Road 3 Brgy. Poblacion, Sta. Maria Brgy. San Antonio, Sta. Maria Brgy. Poblacion, Malungon

Parameters monitored as part of the ESIA included particulate matter PM₁₀, PM_{2.5}, sulfur dioxide (SO₂), and nitrogen dioxide (NO₂). Each sampling station was monitored for one hour. The samples were transported and analyzed at ELARSI, Inc., Quezon Ave., Quezon City, a Department of Environment and Natural Resources (DENR)-accredited laboratory. The ambient air quality sampling methodology is provided in the **Annex 16**.

The result of laboratory analysis for air quality are summarized below and presented in **Table 4-25**.

Main Corridor: The Ambient Air Quality Sampling and Measurement results for the Main Corridor Sampling Stations were found to be within the DENR standards

Link Road 1: SO₂ and NO₂, PM₁₀ and PM_{2.5} levels in Link Road 1 Sampling Stations are all within the DENR standards

Link Road 2: SO₂ and NO₂, PM₁₀ and PM_{2.5} levels in Link Road 2 Sampling Stations are all within the DENR standards

Link Road 3: SO₂ and NO₂, PM₁₀ and PM_{2.5} levels in Link Road 3 Sampling Stations are all within the DENR standards

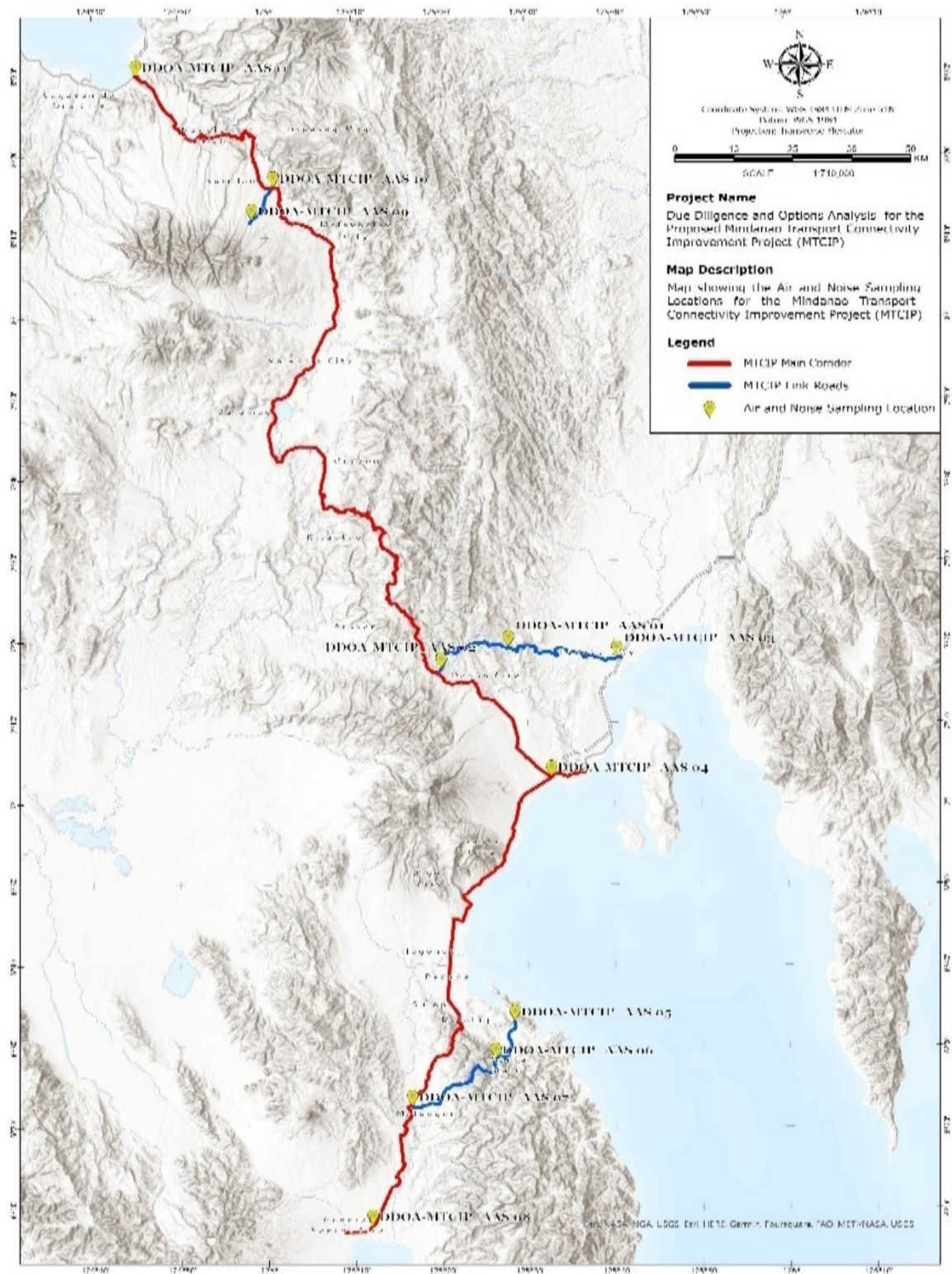


Figure 4-66. Air Quality and Noise Level Sampling Locations

Table 4-25. MTCIP Air Quality Sampling Results

Samplin g Station	Location	Geographical Coordinates (Latitude and Longitude)		PM 10 (ug/Nm3)	PM 2.5 (ug/Nm3)	SO2 (ug/Nm3)	NO2 (ug/Nm3)	Site Description
AAS 01	Brgy Malabog, Davao City (Link Road 2)	7°19'20.86" N	125°27'50.68" E	1.07	1.07	0.672	0.382	Inside San Roque Church, 10m away from Link Road 2, residential and commercial area
AAS 02	Brgy Bantol, Davao City (Link Road 2)	7°16'38.86" N	125°20'5.49" E	1.08	1.08	1.38	0.326	Beside barangay road, Passing trucks and Motorcycles make noise. Barangay clinic and daycare approx. 50 m away..
AAS 03	Brgy New Visayas, Panabo City (Link Road 2)	7°18'1.92"N	125°40'18.88 "E	1.03	1.03	0.849	0.239	Inside boundary of sand and gravel store, Beside Link Road 2, Commercial and Residential area.
AAS 04	Brgy Talomo, Ulas, Davao City (Main Corridor)	7° 3'18.76"N	125°32'42.08 "E	2.06	1.03	0.778	0.377	Beside National Road (Bukidnon Road), under construction road, A lot of vehicles passing by, Commercial Area.
AAS 05	Brgy Poblacion, Sta. Maria (Link Road 3)	6°33'4.54"N	125°28'22.28 "E	1.05	1.05	0.955	0.217	Beside national road going to Malita, Commercial area, vehicles like SUV's, Trucks, and Motorcylcle passing by the road.
AAS 06	Brgy San Antonio, Sta. Maria (Link Road 3)	6°28'22.53" N	125°16'32.05 "E	10.89	1.09	0.849	0.289	Motorcycle and Cars passing, nearby house under construction, Crowd talking. Residential houses, Barangay clinic, and gym just beside the barangay hall.
AAS 07	Brgy Poblacion, Malungon (Link Road 3)	6°22'35.69" N	125°16'32.05 "E	1.01	1.04	1.1	0.468	Inside Barangay Poblacion, Malungon Boundary, Vehicle pass ingby, On going SK chairman program (Sports Fest). Residential Area
AAS 08	Brgy Lagao, Gen. Santos City (Main Corridor)	6° 7'51.11"N	125°11'56.07" E	2.07	1.02	1.1	0.264	Beside main corridor at General Santos. City. Open Space, Nearby Commercial lots Public Market, and Coco Lumbers store). a lot of vehicles are

Sampling Station	Location	Geographical Coordinates (Latitude and Longitude)		PM ₁₀ (ug/Nm ³)	PM _{2.5} (ug/Nm ³)	SO ₂ (ug/Nm ³)	NO ₂ (ug/Nm ³)	Site Description
								passing by (SUV's, Motorcycle, and Trucks)
AAS 09	Brgy Kibenton, Impasug-ong (Link Road 1)	8°12'9.81"N	124°58'28.67"E	4.55	1.14	1.38	0.201	Inside Barangay Hall Boundary, Residential Area, Minimal Vehicle passing by. School about 100-150 m away.
AAS 10	Brgy Capitan Bayong, Impasug-ong (Link Road 1)	8°16'11.43"N	125°0'58.71"E	1.09	1.1	1.1	0.121	Near national road going Cagayan de oro, near DOLE office a lot vehicle pass by the national road and minimal to the barangay road. rough road going barangay Kibenton and barangay Cawayan.
AAS 11	Brgy Puerto, Cagayan De Oro (Main Corridor)	8°29'57.98"N	124°45'8.23"E	17.51	10.31	1.38	0.239	At least 10m away from the corridor, commercial area, All types of land vehicle pass the area (trucks, SUV's and motorcycle)
DENR Standard (Table 1 of DAO No. 2000-81 (IRR for RA 8749) and DAO No. 2013-13 (Guideline Values for PM _{2.5}))				150	50	180	150	

2.4.2 Noise Level

Table 4-26 indicates the noise permissible limits in workplaces, as regulated by the DOLE. The noise limits are set at various averaging times, from 0.25 to 8 hours. Exposures to impulsive or impact noise shall not exceed 140 dB.

Table 4-26. Permissible Noise Exposure

Duration per Day, hours	Sound Levels, dBA, Slow Response
8.00	90
6.00	92
4.00	95
3.00	97
2.00	100
1.50	102
1.00	105
0.50	110
0.25	115
Source: DOLE 1990	

Field surveys were undertaken and noise measurements were conducted on the same dates (August 1-4, 8-11, and 16-17, 2023) and locations of the Air Quality Monitoring stations identified in Figure 4-70. The selection of the noise measurement stations considered the area of influence that could be affected by noise emissions during the construction and operational phases of MTCIP. Noise-sensitive receptors such as daycare centers, clinics, schools, churches, and residential areas were noted in proximity to the noise measurement locations.

Table 4-27 presents the noise sampling locations and site descriptions.

Table 4-28 presents the results of noise measurements. The noise measurements were made in the morning (5 AM to 9 AM), during the day (9 AM to 6 PM), and in the evening (6 PM to 10 PM). Measurements were not undertaken at night (10 PM to 5 AM) due to the distance and remoteness of the noise measurement locations from the lodging place of the environmental survey team.

Maximum allowable noise levels for categories A and B were used to assess the results. Except for the site at Brgy. Bantol, Davao City, which is quite rural and an interior part of the city, and all other sites hardly passed and even exceeded the maximum allowable noise levels for Category A areas in most of the time periods of the day. However, if the sites are to be considered Category B areas, then it is only the site at Brgy. Puerto in Cagayan de Oro City exceeded the maximum allowable noise levels during the daytime. This is because the area is highly urbanized and also a traffic-congested area. It is anticipated that during construction and eventually during the operational phase, noise levels at the locations of the noise measurement sites will increase.

Table 4-27. Noise Sampling Locations and Site Descriptions

Station	Location	Geographical Coordinates		Date of Sampling	Site Classification
		Latitude	Longitude		
AAS 01	Brgy. Malabog, Davao City (Link Road 2)	7°19'20.86"N	125°27'50.68"E	Aug. 01, 2023	B

Station	Location	Geographical Coordinates		Date of Sampling	Site Classification
		Latitude	Longitude		
AAS 02	Brgy. Bantol, Davao City (Link Road 2)	7°16'38.86"N	125°20'5.49"E	Aug. 02, 2023	A
AAS 03	Brgy. New Visayas, Panabo City (Link Road 2)	7°18'1.92"N	125°40'18.88"E	Aug. 03, 2023	B
AAS 04	Brgy. Talomo, Ulas, Davao City (Main Corridor)	7° 3'18.76"N	125°32'42.08"E	Aug. 04, 2023	B
AAS 05	Brgy Poblacion, Sta. Maria (Link Road 3)	6°33'4.54"N	125°28'22.28"E	Aug. 08, 2023	B
AAS 06	Brgy San Antonio, Sta. Maria (Link Road 3)	6°28'22.53"N	125°26'8.69"E	Aug. 09, 2023	A
AAS 07	Brgy Poblacion, Malungon (Link Road 3)	6°22'35.69"N	125°16'32.05"E	Aug. 10, 2023	B
AAS 08	Brgy Lagao, General Santos City (Main Corridor)	6° 7'51.11"N	125°11'56.07"E	Aug. 11, 2023	B
AAS 09	Brgy Kibenton, Impasug-ong (Link Road 1)	8°12'9.81"N	124°58'28.67"E	Aug. 16, 2023	A
AAS 10	Brgy Capt. Bayong, Impasug-ong (Link Road 1)	8°16'11.43"N	125° 0'58.71"E	Aug.16, 2023	B
AAS 11	Brgy Puerto, Cagayan De Oro (Main Corridor)	8°29'57.98"N	124°45'8.23"E	Aug. 17, 2023	B

Table 4-28. Noise Measurement Results

Station	Location	Site Classification	Time		
			Morning 5AM – 9AM (dB(A))	Daytime 9AM – 6PM (dB(A))	Evening 6PM – 9PM (dB(A))
AAS 01	Brgy Malabog, Davao City (Link Road 2)	B	44.3	56	55.4
AAS 02	Brgy Bantol, Davao City (Link Road 2)	A	41.5	42.4	43.2
AAS 03	Brgy New Visayas, Panabo City (Link Road 2,)	B	58.7	60.5	59.1
AAS 04	Brgy Talomo, Ulas, Davao City (Main Corridor))	B	57	54.2	-
AAS 05	Brgy Poblacion, Sta. Maria (Link Road 3)	B	49.1	55.1	59.1
AAS 06	Brgy San Antonio, Sta. Maria (Link Road 3)	A	51.1	51.1	52.2
AAS 07	Brgy Poblacion, Malungon (Link Road 3)	B	52.3	53.7	53.2
AAS 08	Brgy Lagao, General Santos City	B	-	60.1	-

Station	Location	Site Classification	Time		
			Morning 5AM – 9AM (dB(A))	Daytime 9AM – 6PM (dB(A))	Evening 6PM – 9PM (dB(A))
	(Main Corridor)				
AAS 09	Brgy Kibenton, Impasug-ong (Link Road 1)	A	56.9	57.4	48.3
AAS 10	Brgy Capt. Bayong, Impasug-ong (Link Road 1)	B	49.8	59.1	48
AAS 11	Brgy Puerto, Cagayan De Oro (Main Corridor)	B	-	67.2	-
NPCC Category A Max. Allowable Noise Level (dBA)			50	55	50
NPCC Category B Max. Allowable Noise Level (dBA)			60	65	60
Notes: 1. Values in red font exceeded the Cat. A or B Maximum Allowable Noise Level. 2. “-” not measured due to constraints in travel time.					

Main Corridor: In the three (3) sampling sites at the Main Corridor, the site at Brgy. Puerto exceeded the noise limit for the Category B area. Noise generated in the area is due to traffic convergence and the presence of nearby malls.

Link Road 1: Between the two sampling sites in Link Road 1, the sampling site at Brgy. Kibenton exceeded the noise limit for Category A. The noise is due to the ongoing sports activity during the noise measurement, which also coincided with the passing of vehicles along Link Road 2.

Link Road 2: The noise levels at the three (3) sampling sites along Link Road 2, two as Category B areas and the other as Category A areas, were all within the noise limits of both categories.

Link Road 3: The noise level at the Category A sampling site in Link Road 3 exceeded the noise limit for the assessed category, while the noise levels at the two other sites were assessed as Category B. are within the noise limits for that category. The exceedance in noise for the category A area is attributed to the ongoing house construction and passing vehicles during the noise measurement activity.

In summary, noise levels in most sampling sites are within the noise standards for their respective area categories; however, some sampling sites already exceed the noise standards, and it is expected that noise levels are bound to increase during construction and even continue during the operations phase of MTCIP, so measures have to mitigate noise so as not to impact community health.

2.5 Historical Climate and Projected Climate Change

2.5.1 Historical Climate

Figure 4-67 shows that the climate in Mindanao's Regions X, XI, and XII is Type 4 based on the Modified Corona's Climate Classification, i.e., rain is evenly distributed throughout the year. It has no dry season. Due to its proximity to the area covered by a Type II climate, Cagayan de Oro City has experienced rainfall during the months of November to January.

Climate Map of the Philippines

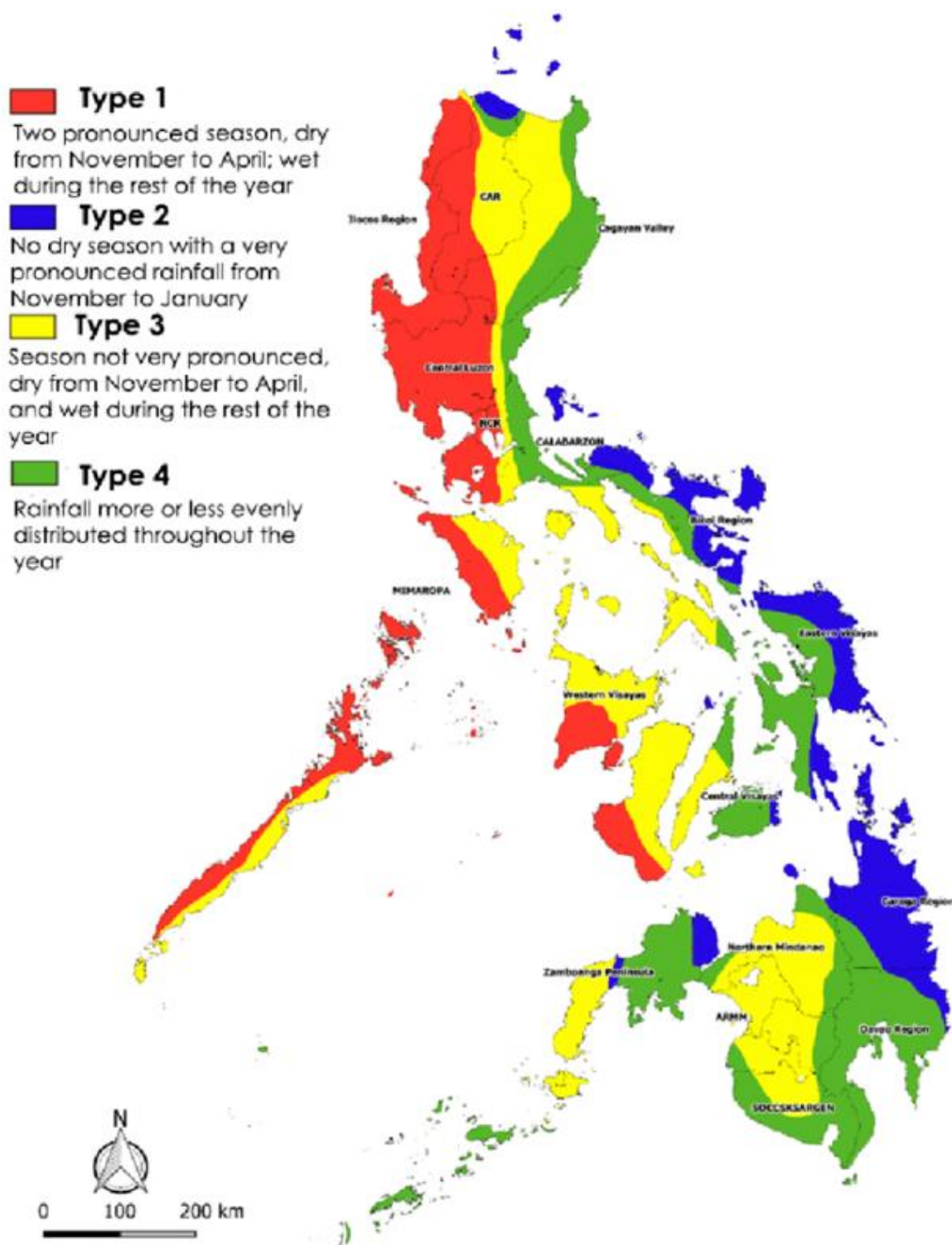


Figure 4-67. Climate Map of the Philippines, PAGASA 2007

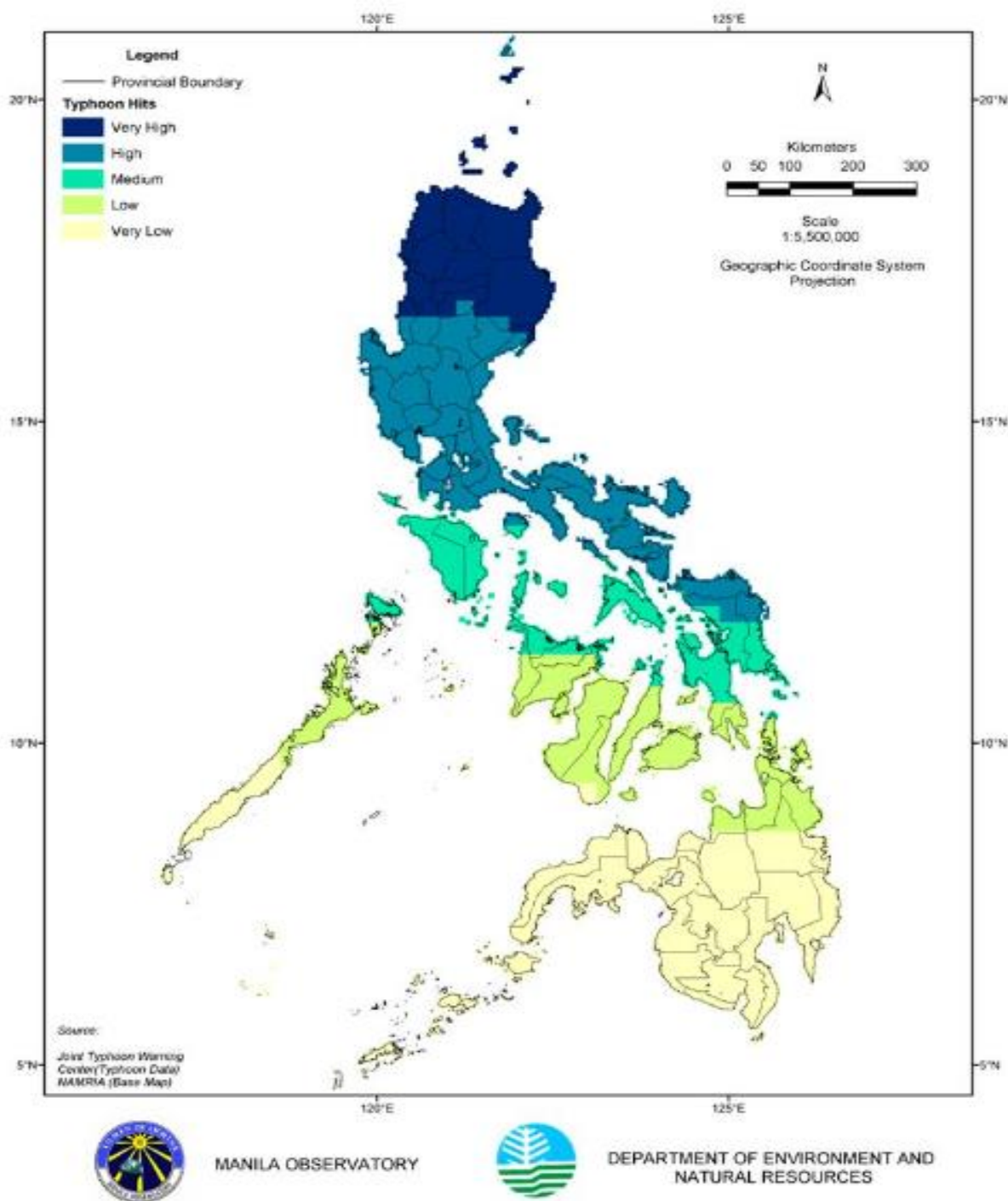


Figure 4-68. Tropical Cyclones Incidence, Map of the Philippines

In terms of tropical cyclones, the Philippines is a typhoon-prone country, with approximately 20 typhoons entering its area of responsibility each year. Locally known generally as *bagyo*, typhoons regularly form in the Philippine Sea and less regularly in the South China Sea, with the months of June to September being the most active and August being the month with the most activity. As shown in **Figure 4-68**, Region X has a low incidence of typhoon hits, and Regions XI and XII even have a very low incidence of annual typhoon hits.

Rainfall and Temperature

The tabulations on the climatological normals and extremes of PAGASA are provided in the **Annex 17**. It presents the 30-year record (1991–2020) of the climatological normals and extremes of PAGASA synoptic stations at Lumbia Airport in Cagayan de Oro City, Malaybalay City, Davao City, and Gen. Santos City. The tabulations on climatological normals contain, among others, information on wind direction, wind speed, minimum sea level pressure (MSLP), and the number of days with thunderstorms and lightning. The tabulations on climatological extremes contain information such as the dates of occurrences of the extreme temperature, greatest daily rainfall, strongest winds, and sea level pressures. The wettest time of the year averages from June to September, with an average maximum rainfall of 247.3 mm recorded at Lumbia Airport, 319.5 mm from June to August at Malaybalay, 194.8 mm from May to October at Davao City, and 101.9 mm in June, which then diminishes to 99.6 mm in October in Gen. Santos City. The number of rainy days per year in the respective area covered by each synoptic station ranges from 120 to 50 days. **Figure 4-69** and **Figure 4-70** show the average rainfall and maximum and minimum temperature along MTCIP.

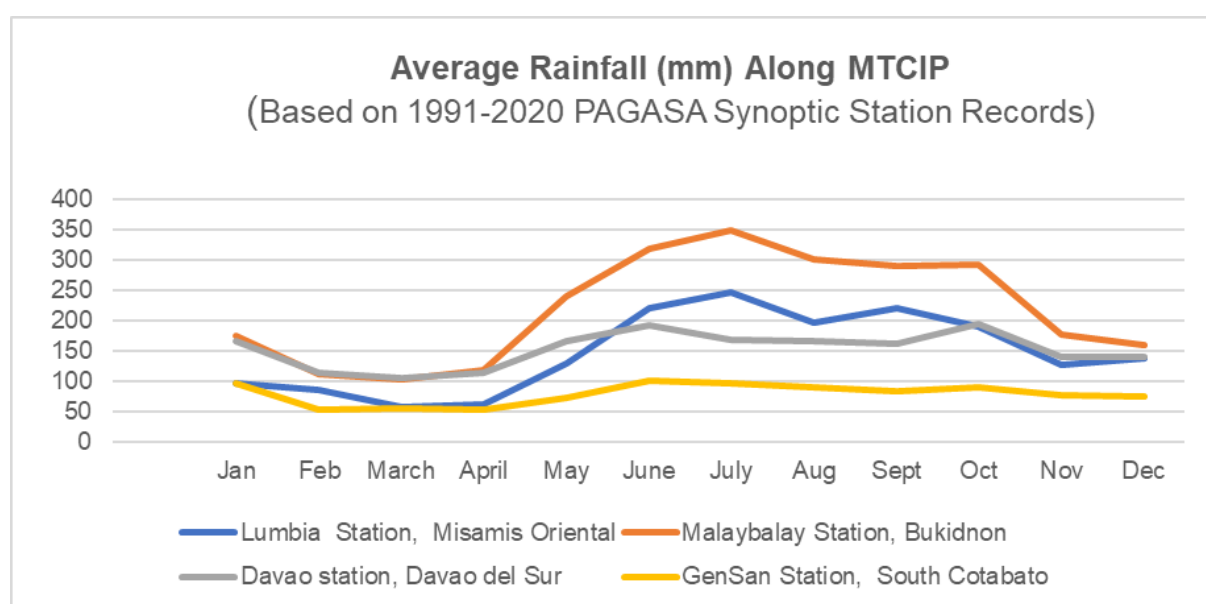


Figure 4-69. Average Rainfall along MTCIP

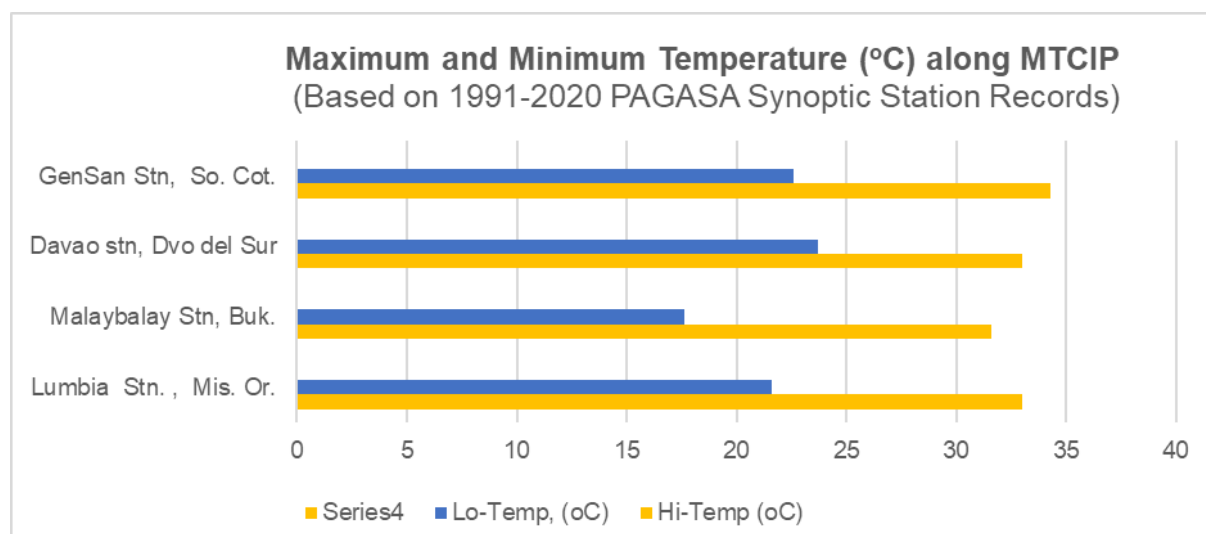


Figure 4-70. Maximum and Minimum Temperature along MTCIP

Main Corridor: For the Main Corridor Sections from Sayre Highway to Atugan Bridge, months of June–September are wettest with a maximum rainfall of 220.8 mm, the hottest months are April–May at 33 °C, and the coolest time of the year falls in January at 29.8 °C. An extreme temperature of 36.4 °C was recorded on April 15, 2016.

From Atugan Bridge to the junction of Sayre Highway and Bukidnon-Davao Highway, average rainfall is high during the months of June to August, with maximum rainfall at 319.5mm, while high temperatures (30.7–31.6 °C) prevail during the months of March to May.

For the MC Sections in Region XI, the average rainfall amount from May to October ranges from 166.2 mm to 194.8 mm. The highest temperature during the month of April is 33.1 °C, and the coolest month, which is December, has a temperature of 23.7 °C.

Meanwhile, for MC Sections in Region XII, average rainfall is at a maximum of 101.9 in June and diminishes to 99.6 in October, while the high temperature in April is at 34.3 °C and the lowest temperature in January is at 22.8 °C. The greatest rainfall event recorded was on September 8, 1977, at 189.5 mm, and the hottest temperature recorded was 39.4 °C on April 16, 2016.

Link Road 1: Rainfall at Link Road 1, as per the PAGASA Malaybalay Station records, is high during the months of June to August, with maximum rainfall at 319.5mm, while high temperatures (30.7–31.6 °C) prevail during the months of March to May.

Link Road 2: Based on PAGASA Davao Synoptic Station records from 1991–2020, the average rainfall amount from May to October covering the area of Link Road 2 ranges from 166.2 mm to 194.8 mm. Extreme rainfall at 242.6 mm was recorded on August 2, 1902. Meanwhile, the highest temperature during the month of April is 33.1 °C, and the coolest month of the year, December, has a temperature of 23.7 °C.

Link Road 3: PAGASA Gen. Santos City Synoptic Station Climatological records reflect that for the area of influence covered by Link Road 3, average rainfall is at a maximum of 101.9 mm in June and diminishes to 99.6 mm in October, while the high temperature in April is at 34.3 °C and the lowest temperature in January is at 22.8 °C. The greatest rainfall event recorded was 189.5 mm on September 8, 1977.

2.5.2 Projected Climate Change

A 2023 PAGASA Technical Bulletin on Climate Change states that climate change is already being experienced in the Philippines and that heavy daily rainfall will continue to become more frequent. Extreme rainfall is projected to increase in Luzon and the Visayas only, but the number of dry days is expected to increase in all parts of the country in 2020 and 2050.

2.5.2.1 Temperature Increase

Observed changes in temperature by DOST-PAGASA indicate an increase of 0.68 °C in the historical (1951–2015) annual mean temperature. Projected changes in temperature indicate continuous warming and an increase by as much as 0.9 °C to 1.9 °C in the country-averaged mean temperature for the moderate emission scenario (RCP4.5) and from 1.2 °C to 2.3 °C for the high emission scenario (RCP 8.5) in the mid-21st century (2036-2065). By the end of the 21st century (2070–2099), temperature change is projected to increase from 1.3 °C to 2.5 °C (RCP 4.5) to as much as 2.5 °C to 4.1 °C (RCP 8.5) in mean temperature relative to the baseline climate.

Figure 4-71 shows the seasonal temperature increase in 2020 and 2050 under medium-range emission scenario in Regions 10, 11 and 12.

Table a: Seasonal temperature increases (in °C) in 2020 and 2050 under medium-range emission scenario in provinces in Region 10

	OBSERVED BASELINE (1971-2000)				CHANGE in 2020 (2006-2035)				CHANGE in 2050 (2036-2065)			
	DJF	MAM	JJA	SON	DJF	MAM	JJA	SON	DJF	MAM	JJA	SON
Region 10												
BUKIDNON	25.1	26.5	25.8	25.7	1.0	1.2	1.2	1.0	1.9	2.3	2.4	2.1
LANAO DEL NORTE	24.4	25.5	25.4	25.2	1.0	1.1	1.0	1.0	1.9	2.2	2.1	1.9
MISAMIS OCCIDENTAL	25.6	26.7	26.6	26.4	1.0	1.1	1.1	1.0	1.9	2.2	2.2	1.9
MISAMIS ORIENTAL	25.4	26.8	26.9	26.5	1.0	1.2	1.2	1.0	1.9	2.3	2.4	2.0

Table a: Seasonal temperature increases (in °C) in 2020 and 2050 under medium-range emission scenario in provinces in Region 11

PROVINCES	OBSERVED BASELINE (1971-2000)				CHANGE in 2020 (2006-2035)				CHANGE in 2050 (2036-2065)			
	DJF	MAM	JJA	SON	DJF	MAM	JJA	SON	DJF	MAM	JJA	SON
Region 11												
COMPOSTELA VALLEY	26.7	27.8	27.6	27.6	0.9	1.1	1.2	1.1	1.9	2.3	2.4	2.1
DAVAO DEL NORTE	26.7	27.8	27.4	27.4	0.9	1.1	1.2	1.1	1.9	2.3	2.5	2.1
DAVAO DEL SUR	26.9	27.8	26.9	27.1	0.9	1.1	1.1	1.0	1.9	2.2	2.3	2.0
DAVAO ORIENTAL	26.8	27.8	27.5	27.6	0.9	1.0	1.1	1.0	1.8	2.0	2.4	2.0

Table a: Seasonal temperature increases (in °C) in 2020 and 2050 under medium-range emission scenario in provinces in Region 12

	OBSERVED BASELINE (1971-2000)				CHANGE in 2020 (2006-2035)				CHANGE in 2050 (2036-2065)			
	DJF	MAM	JJA	SON	DJF	MAM	JJA	SON	DJF	MAM	JJA	SON
Region 12												
NORTH COTABATO	26.8	27.9	27.0	27.1	1.0	1.3	1.2	1.1	2.1	2.5	2.4	2.1
SARANGANI	27.7	28.4	27.3	27.6	0.9	1.2	1.1	1.0	1.9	2.4	2.2	2.0
SOUTH COTABATO	27.7	28.5	27.4	27.7	1.0	1.2	1.1	1.1	2.0	2.3	2.2	2.1
SULTAN KUDARAT	27.8	28.6	27.6	27.8	1.0	1.2	1.1	1.0	2.0	2.2	2.2	2.0

Figure 4-71. Seasonal Temperature Increase in 2020 and 2050 under Medium Range Emission Scenario in Regions 10, 11 and 12.

2.5.2.2 Rainfall Change

There is an increase in the observed annual and seasonal rainfall associated with extreme rainfall events in many parts of the country. The annual total rainfall (1951–2010) over Central and Western Mindanao has declined, while increasing trends have been observed in other areas, notably the northeastern and southwestern sections of Mindanao, at a rate ranging from 10 mm per decade to as much as 40 mm per decade. Such trends in annual total rainfall are associated with extreme rainfall events.

DOST-PAGASA (2018) projections of changes in rainfall suggest a wide range of future changes. For the RCP 8.5 (high emission) scenario, the driest possible rainfall change could reach beyond 40% reduction in many areas, particularly Mindanao, by the mid-21st century. The wettest possible change could exceed 40% in rainfall, particularly over Luzon, western sections of Visayas, and some parts of Mindanao.

Figure 4-72 and **Figure 4-73** show the projected increase in the number of dry days (with dry days defined as those with rainfall less than or equal to 2.5 mm) and the increase in the number of days with extreme rainfall(defined as daily rainfall exceeding 300mm) compared with the observed (baseline) values, respectively.

The MTCIP project sites will be mostly spared from extreme rainfall events, but the surrounding areas near Cagayan de Oro, Davao City, and Gen. Santos City will most likely have an increase in dry spells in the coming years.

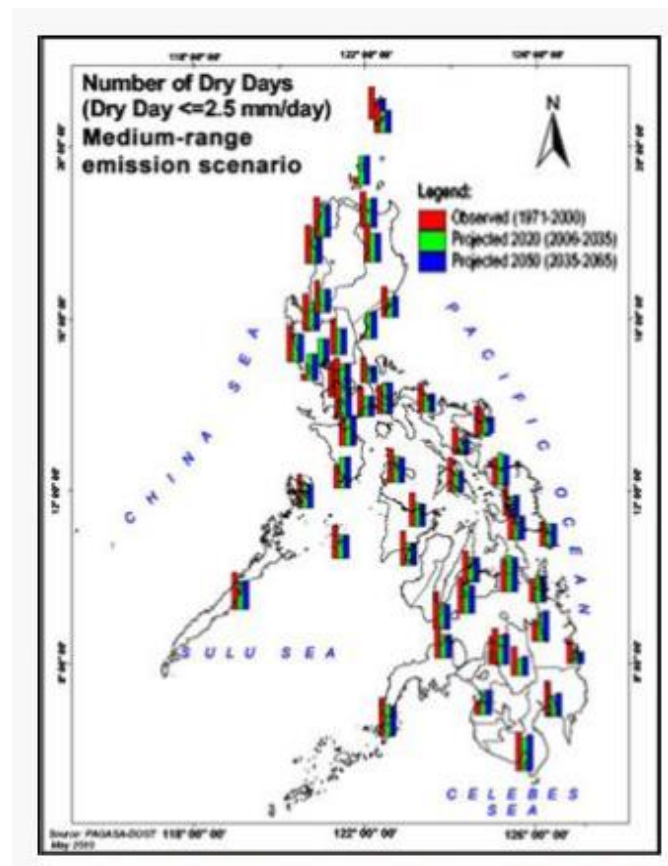


Figure 4-72. Current and Projected Number of Dry Days in the Philippines in 2020 and 2050

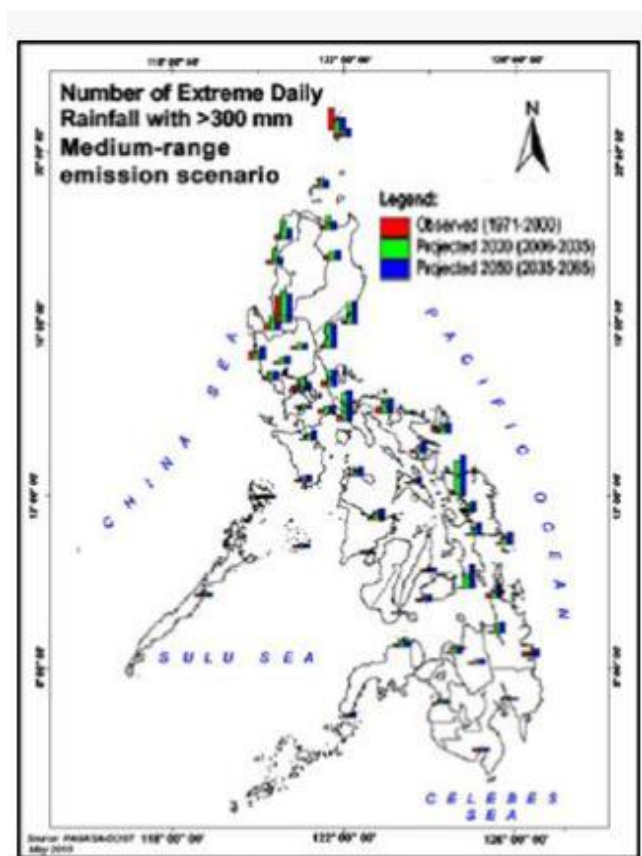


Figure 4-73. Current and Projected Extreme Rainfall in the Philippines in 2020 and 2050

Figure 4-74 shows the seasonal rainfall change in 2020 and 2050 under medium-range emission scenario in Regions 10, 11 and 12.

Table b: Seasonal rainfall change (in %) in 2020 and 2050 under medium-range emission scenario in provinces in Region 10

	OBSERVED BASELINE (1971-2000)				CHANGE in 2020 (2006-2035)				CHANGE in 2050 (2036-2065)			
	DJF	MAM	JJA	SON	DJF	MAM	JJA	SON	DJF	MAM	JJA	SON
Region 10												
BUKIDNON	329.7	335.6	653.8	559.5	2.9	-10.3	-4.4	-0.3	-5.1	-13.0	-9.7	-5.8
LANAO DEL NORTE	337.5	350.3	662.5	621.1	9.6	-0.6	-2.2	6.9	2.5	-1.9	1.4	7.1
MISAMIS OCCIDENTAL	392.1	323.4	633.1	728.3	9.1	1.4	-6.1	6.1	5.2	0.3	-5.1	4.6
MISAMIS ORIENTAL	442.5	296.0	615.7	581.1	4.6	-10.4	-3.7	2.9	1.8	-17.8	-5.2	-0.1

Table b: Seasonal rainfall change (in %) in 2020 and 2050 under medium-range emission scenario in provinces in Region 11

PROVINCES	OBSERVED BASELINE (1971-2000)				CHANGE in 2020 (2006-2035)				CHANGE in 2050 (2036-2065)			
	DJF	MAM	JJA	SON	DJF	MAM	JJA	SON	DJF	MAM	JJA	SON
Region 11												
COMPOSTELA VALLEY	748.1	559.0	546.7	586.6	10.2	-11.3	-2.7	0.3	6.6	-21.9	-6.5	0.0
DAVAO DEL NORTE	637.0	496.5	535.6	556.2	9.2	-12.5	-3.6	-1.5	1.1	-22.2	-7.9	-2.2
DAVAO DEL SUR	288.1	347.1	494.1	442.3	18.1	-9.8	-7.8	-2.4	15.2	-12.0	-12.6	-4.5
DAVAO ORIENTAL	827.3	611.8	540.4	599.2	12.3	-5.7	-4.7	1.2	15.9	-16.1	-9.9	4.9

Table b: Seasonal rainfall change (in %) in 2020 and 2050 under medium-range emission scenario in provinces in Region 12

	OBSERVED BASELINE (1971-2000)				CHANGE in 2020 (2006-2035)				CHANGE in 2050 (2036-2065)			
	DJF	MAM	JJA	SON	DJF	MAM	JJA	SON	DJF	MAM	JJA	SON
Region 12												
NORTH COTABATO	235.4	353.2	572.5	486.0	14.8	-5.9	-6.1	1.6	8.1	-4.5	-8.7	-4.2
SARANGANI	212.3	212.6	333.6	302.5	10.1	-12.1	-9.3	-1.7	15.6	-17.6	-10.4	-5.3
SOUTH COTABATO	183.3	234.1	402.8	351.7	10.1	-8.7	-12.1	-6.8	8.6	-10.8	-18.0	-14.4
SULTAN KUDARAT	189.3	311.0	513.1	448.7	6.1	-2.3	-9.2	2.9	7.5	-4.2	-13.6	1.3

Figure 4-74. Seasonal Rainfall Change in 2020 and 2050 under Medium Range Emission Scenario in Regions 10, 11 and 12.

Figure 4-75 shows the frequency of extreme events in 2020 and 2050 under medium-range emission scenario in Regions 10, 11 and 12.

Table c: Frequency of extreme events in 2020 and 2050 under medium-range emission scenario in provinces in Region 10

Provinces	Stations	No. of Days w/ Tmax >35 °C			No. of Dry Days			No. of Days w/ Rainfall >300mm		
		OBS	2020	2050	OBS	2020	2050	OBS	2020	2050
BUKIDNON	Malaybalay	26	477	1441	6537	3977	4461	0	1	1
LANAO DEL NORTE	Dipolog	217	2155	4004	7481	5384	5470	0	5	2
MISAMIS ORIENTAL	Cagayan De Oro	383	4539	6180	8251	6413	7060	0	2	0
	Lumbia	106	2012	3759	6495	6290	6580	0	4	1

Table c: Frequency of extreme events in 2020 and 2050 under medium-range emission scenario in provinces in Region 11

Provinces	Stations	No. of Days w/ Tmax >35 °C			No. of Dry Days			No. of Days w/ Rainfall >300mm		
		OBS	2020	2050	OBS	2020	2050	OBS	2020	2050
DAVAO DEL SUR	Davao	109	2981	5373	7930	4789	5368	0	0	0

Table c: Frequency of extreme events in 2020 and 2050 under medium-range emission scenario in provinces in Region 12

Provinces	Stations	No. of Days w/ Tmax >35 °C			No. of Dry Days			No. of Days w/ Rainfall >300mm		
		OBS	2020	2050	OBS	2020	2050	OBS	2020	2050
SOUTH COTABATO	General Santos	1397	3748	6430	8704	7526	8052	0	0	1

Figure 4-75. Frequency of Extreme Events in 2020 and 2050 under Medium Range Emission Scenario in Regions 10, 11 and 12.

2.5.2.3 Sea Level Rise

The sea level has risen by as much as 5.7-7.0 mm/yr over the Philippine Sea based on the satellite observations, double the highest global average rate of 2.8-3.6 mm/yr observed between 1993-2010 (DOST-PAGASA, 2018). Projected changes in sea level indicate it will continue to be slightly larger than the global average. The Philippine coast is naturally exposed to tropical cyclones and storm surges and Cotabato City is one of the four cities most likely to be impacted by intensified storm surges based on percent of area exposed (Dasgupta, Laplante, Murray, & Wheeler, 2009). Strong winds are mostly associated with tropical cyclones, with destructive impacts.

2.5.3 Estimated GHG Emission

The primary greenhouse gases (GHG) encompass carbon dioxide (CO₂), methane (CH₄), and nitrous oxide (N₂O). These gases trap solar heat to sustain a temperature conducive to life. Nevertheless, human activities, such as the combustion of fossil fuels and deforestation, have intensified the greenhouse effect. The heightened concentration of these gases in the atmosphere contributes to global warming, or climate change.

Human-generated sources of GHG include, but are not limited to, the following:

- Energy
- Deforestation
- Transportation
- Industry
- Wastes
- Agriculture

Among these, transportation, particularly through the combustion of fossil fuels, stands out as a significant contributor to GHG emissions. Consequently, understanding the GHG emission contributions from all types of vehicles traversing national roads, highways, and local roads becomes crucial. Recognizing the impact of vehicle emissions on various road networks is vital for local and international initiatives aimed at addressing climate change, enhancing air quality, and establishing sustainable transportation systems. Accordingly, concerted actions will be taken in key areas, including:

- Climate change mitigation
- Regulatory compliance; and
- Compliance with international commitments

Ambient air monitoring was conducted in various identified sections of the Main Corridors, including the Link Roads of the Project. The analysis considered parameters aligned with the standards outlined in the Philippine Clean Air Act of 1999, or RA 8749, specifically:

- Hydrocarbon
- Carbon Monoxide
- Nitrous Oxide
- Particulate Matters
- Carbon Dioxide
- Sulphur Dioxide
- Lead

Table 4-29 presents a comprehensive overview of the findings. Among the listed gaseous pollutants from vehicle emissions, hydrocarbons, carbon monoxide, nitrous oxide, and carbon dioxide are considered GHGs.

Table 4-29. Estimated Gaseous Emissions of the Project

Vehicle	Hydrocarbon	Carbon Monoxide	Nitrous Oxide	Particulates	Carbon Dioxide	Sulfur Dioxide	Lead
Link Road 1							
Car	116.40	970.01	393.37	0.97	28,957.70	9.70	3.91
Jeepneys	2.28	17.24	41.25	0.37	8,892.92	2.80	1.13
Pick-up/Van	294.19	2,451.58	1,097.71	2.45	73,186.74	24.52	9.87
Mini Bus	0	0	0	0	0	0	0
Big Bus	0	0	0	0	0	0	0
Truck 1	0	0	0	0	0	0	0
Truck 2	91.26	182.52	61.60	7.30	6,536.47	22.82	0
3-Axle Heavy Truck	0	0	0	0	0	0	0
4-Axle Heavy Truck	0	0	0	0	0	0	0
Motorcycle	3,658.41	12,194.69	1,219.47	6.09	162,548.50	60.97	24.56

Vehicle	Hydrocarbon	Carbon Monoxide	Nitrous Oxide	Particulates	Carbon Dioxide	Sulfur Dioxide	Lead
Link Road 2							
Car	127.04	1,058.64	318.04	1.06	31,603.30	10.59	4.26
Jeepneys	3.51	26.39	84.58	0.86	20,452.67	6.44	2.59
Pick-up/Van	285.55	2,379.56	916.52	2.38	71,036.57	23.80	9.58
Mini Bus	0	0	0	0	0	0	0
Big Bus	0	0	0	0	0	0	0
Truck 1	1,266.95	2,533.91	855.19	101.36	90,743.58	316.74	0
Truck 2	116.68	233.36	78.76	9.33	8,356.98	29.17	0
3-Axle Heavy Truck	14,335.14	28,670.28	9,676.22	1,146.81	1,026,732.55	3,583.78	0
4-Axle Heavy Truck	0	0	0	0	0	0	0
Motorcycle	913.83	499.97	168.74	20	17,904.95	62.50	0

Vehicle	Hydrocarbon	Carbon Monoxide	Nitrous Oxide	Particulates	Carbon Dioxide	Sulfur Dioxide	Lead
Link Road 3							
Car	60.6	500.49	219.61	0.50	14,940.94	5	2.02
Jeepneys	0	0	0	0	0	0	0
Pick-up/Van	23.45	195.39	91.79	0.20	5,832.89	1.95	0.79
Mini Bus	0	0	0	0	0	0	0
Big Bus	314.44	628.88	212.25	25.16	22,521.24	78.61	0
Truck 1	224.65	449.390	151.64	17.97	16,090.11	56.16	0
Truck 2	0	0	0	0	0	0	0
3-Axle Heavy Truck	0	0	0	0	0	0	0
4-Axle Heavy Truck	0	0	0	0	0	0	0
Motorcycle	73.24	244.15	24.41	0.12	3,254.34	1.22	0.49

Vehicle	Hydrocarbon	Carbon Monoxide	Nitrous Oxide	Particulates	Carbon Dioxide	Sulfur Dioxide	Lead
Main Corridor Section 1							
Car	30,691.58	255,763.32	106,922.14	255.79	7,635,270.56	2,557.63	1,030.06
Jeepneys	1,150.04	8,659.33	14,879.98	128.73	3,049,547.53	963.60	388.10
Pick-up/Van	16,860.39	140,503.42	63,931.45	140.51	4,194,431.17	1,405.03	565.87
Mini Bus	0	0	0	0	0	0	0
Big Bus	15,265.20	1,545.90	521.74	61.84	55,361.43	193.24	0
Truck 1	1,461.45	30,530.41	10,304.01	1,221.22	1,093,346.89	3,816.30	0
Truck 2	20,526.52	2,922.90	986.48	116.92	104,674.13	365.36	0

Vehicle	Hydrocarbon	Carbon Monoxide	Nitrous Oxide	Particulates	Carbon Dioxide	Sulfur Dioxide	Lead
3-Axle Heavy Truck	68,162.52	41,053.03	13,855.40	1,642.12	1,470,180.19	5,131.63	0
4-Axle Heavy Truck	0	136,325.03	46,009.70	5,453	4,882,036.37	17,040.63	0
Motorcycle	80,228.80	0	0	0	0	0	0

Vehicle	Hydrocarbon	Carbon Monoxide	Nitrous Oxide	Particulates	Carbon Dioxide	Sulfur Dioxide	Lead
Main Corridor Section 2							
Car	33,261.92	277,182.64	82,401.22	277.16	8,274,699.80	2,771.85	1,116.35
Jeepneys	598.03	4,499.46	14,457.65	147.19	3,497,147.62	1,101.60	443.68
Pick-up/Van	19,749.77	164,581.59	62,921.28	164.59	4,913,234.17	1,645.83	662.84
Mini Bus	0	0	0	0	0	0	0
Big Bus	87,949.25	175,898.50	59,365.75	7,035.95	6,299,230.89	21,987.33	0
Truck 1	1,364.80	2,729.60	921.24	109.18	97,751.64	341.20	0
Truck 2	19,718.11	39,436.21	13,309.72	1,577.44	1,412,279.14	4,929.53	0
3-Axle Heavy Truck	88,596.77	177,193.54	59,802.82	7,087.74	6,345,608.28	22,149.19	0
4-Axle Heavy Truck	0	0	0	0	0	0	0
Motorcycle	50,282.49	167,608.10	16,760.85	83.81	2,234,123.66	838.06	337.52

2.6 People

The baseline social profile was generated using a review of existing secondary information on the communities covered by the MTCIP as well as an actual count of the structures that are projected to be affected by the construction and operation of the MTCIP. A description of the pre-project social conditions is made, taking into consideration sensitive receptors (such as ancestral domains, schools, and livelihood sources) within the impact zone of the project.

2.6.1 Land Ownership

For the Main Corridor, 32 percent of the area is classified as public roads, easements, water bodies, and floodways. Hence, this proportion of the Main Corridor is owned by the state. The rest is classified as alienable and disposable, or lands that are privately owned either by individuals or by corporations. However, a portion of the Municipalities of Quezon and Kitaotao in Bukidnon, as well as Arakan in Cotabato, are within the CADT of the Matigsalug-Manobo Tribe. Within the northern part of Davao City, the CADT area of the Obu-Manuvu Tribe is traversed by the Main Corridor alignment.

On Link Road 1, the alignment traverses Barangays Capitan Bayong, Cawayan, and Kibenton in the Municipality of Impasug-ong. The lands are covered by the Comprehensive Agrarian Reform Program (CARP), which awarded a Certificate of Land Ownership Agreement (CLOA) to members of farmer's cooperatives. Hence, land ownership in Link Road 1 is mainly held by agrarian reform beneficiaries.

While on Link Road 2, Barangays Salay, Malamba, Bantol, Paquibato, Malabog, and Mabuhay on the Davao City side of Link Road 2 are recognized as ancestral lands of the Matigsalog cultural communities. The indigenous people's group is the recognized claimant of the ancestral lands. It is legally equivalent to "ownership" of the lands, as provided for by the Indigenous Peoples Rights Act (IPRA).

About 90% of the Link Road 2 barangays (Datu Abdul, Katipunan, Cacao, Kauswagan, Consolacion, Malativas, Little Panay, New Visayas, Gredu/Poblacion, and New Pandan) on the Panabo City side are classified as alienable and disposable lands (privately owned), and 10% are classified as public roads and easements.

On Link Road 3, Barangay Poblacion, Upper Mainit, San Miguel, San Roque, and Kinabalan in the Municipality of Malungon, Sarangani Province, and Barangays Sta. Maria Poblacion, San Isidro, Pongpong, San Antonio, and Datu Intan in Sta. Maria Municipality, Davao Occidental Province, are recognized ancestral domain of the Tagakaulo cultural communities by virtue of the Certificate of Ancestral Domain Title (CADT) in the name of the community.

2.6.2 LGUs Covered by the MTCIP

MTCIP will traverse 189 barangays, 13 municipalities, and the highly urbanized cities of Cagayan de Oro, Davao, and General Santos, along with seven cities, seven provinces (Misamis Oriental, Bukidnon, Davao del Norte, Davao del Sur, Davao Occidental, Sarangani, and South Cotabato), and three regions (Region X Northern Mindanao, Region XI Davao Region, and Region XII SOCCSKSARGEN). **Table 4-30** presents the summary of LGUs covered by the MTCIP. The full list is provided in **Annex 18**. **Table 4-31** presents the population, gender, and household data in the study area.

Table 4-30. LGUs covered by MTCIP

Region	Province/Highly Urbanized City	Land Area (sq km)	Number of Municipalities	Number of Cities	Number of Barangays
Region X	Cagayan de Oro City, Misamis Oriental	412.8	-	1	1
	Bukidnon	10,498.59	6	2	66
Region XI	Davao del Norte	3,422.61	0	1	15
	Davao del Sur	2,163.98	5	1	38
	Davao City, Davao del Sur	943.48	-	1	41
	Davao Occidental	2,163.45	1	0	5
Region XII	Sarangani	3,642.16	1	0	13
	General Santos City, South Cotabato	492.86	-	-	10
Total	7		13	7	189

Source: PSA 2022 RSET Regions X, XI, XII

Table 4-31. Regional and Provincial Population, Gender, No. of Households, Average Family Size in MTCIP Area along MTCIP area

Administrative Unit	Total Population	Gender		Number of households	Average household size
		Male	Female		
REGION X NORTHERN MINDANAO	5,022,768	2,554,944	2,452,854	1,197,736	4.2
Misamis Oriental (excluding Cagayan de Oro)	956,900	489,483	465,470	230,233	4.1
Cagayan de Oro City	728,402	364,706	358,965	190,225	3.8
Bukidnon	1,541,308	798,063	738,973	308,777	4.3
Impasug-ong	53,863	28,257	25,015	11,843	4.5
Malaybalay City	190,712	97,324	91,724	43,839	4.3
Maramag City	108,293	55,782	52,364	25,571	4.2
Kitaotao	53,796	28,074	25,719	12,835	4.2
Quezon	109,624	56,809	52,731	25,067	4.4
Valencia City	216,546	111,656	104,742	52,184	4.1
REGION XI DAVAO REGION	5,243,536	2,370,078	2,873,458	1,337,781	3.9
Davao del Norte	1,125,057			271,655	4.0
City of Panabo	209,230			51,097	4.1
Davao del Sur	680,481			182,681	3.7
Santa Cruz	101,125			26,424	3.8
Digos City	188,376			47,948	3.9
Padada	29,878			7,925	3.8
Hagonoy	56,919			14,634	3.9
Sulop	35,151			9,623	3.7
Malalag	40,158			11,519	3.5
Davao City	1,776,949			476,278	3.7
Davao Occidental	317,159			78,185	4.1
Sta. Maria	57,526			14,706	3.9
REGION XII SOCCSKSARGEN	4,360,974	2,093,268	2,267,706	1,065,453	4.1
Sarangani	558,946			133,865	4.2
General Santos City	697,315			175,345	4.0
Malungon	105,465			25,809	4.1

Source: Philippine Statistics Authority, 2020 Census of Population

2.6.3 Ethnicity

Within these communities, the presence of Indigenous Cultural Communities (ICCs) is observed, especially within the area traversed by the link roads. The ICCs account for 30% Higa-onon on Link Road 1, 98% composed of Matigsalog and Islamized Ethnic Group (Kagan/Kalagan) on Link Road 2, and 98% Tagakaulo on Link Road 3.

Link Road 1 is predominantly inhabited by the Higa-onon tribal community, which represents 30% of the total population in the three barangays traversed by Link Road 1. Notably, this road lies outside the recognized ancestral domain of the Higa-onon community, with houses situated within municipal or barangay-zoned built-up areas.

Link Road 2 passes through the ancestral domain of the Matigsalog communities in the Marilog and Paquibato districts of Davao City. Additionally, Kagan and Kalagan communities have opted to settle in vacant land spaces alongside this road, categorizing them as informal settlers' families (ISF), with over 200 families constructing structures along this link road.

Link Road 3 cuts through barangays within the recognized ancestral lands of the Tagakaolo cultural communities, covering a distance exceeding 50 kilometers and traversing residential and agricultural areas of the Tagakaolo indigenous people. Maguindanaons also constitute informal settlers' families along this road. The barangay government in Link Road 3 permits Kagan/Kalagan to occupy public lands used as built-up areas, while some act as tenants on agricultural lands owned by medium- to commercial-scale agricultural producers. **Table 4-32**, **Table 4-33**, and **Table 4-34** presents the ethnic household population in the study area.



Plate 4-17. Typical Tagakaolo housing unit (Link Road 3) in Sitio Upper Lilan, Brgy. San Miguel, Malungon, Sarangani Province



Plate 4-18. Higa-onon Community Learns about MTCIP (Link Road 1) in Impasug-ong, Bukidnon Province

Table 4-32. Ethnic Household Population (Main Corridor and Link Roads) of Region X

Ethnic group	Population
--------------	------------

	Region X	Bukidnon	Misamis Oriental	Cagayan de Oro City
Bukidnon	62,815	61,475	427	428
Higaonon	409,357	241,691	143,494	66,466
Maguindanao	11,510	10,709	75	174
Manobo	41,632	39,291	1,132	815
Manobo-Pulangiuhon	9,504	9,497	2	1
Maranao	397,810	7,640	6,920	15,791
Matigsalog	29,299	29,256	13	14
Talaandig	100,455	99,700	345	364
Tigwahanon	14,595	14,564	13	14
Umayamnon	7,238	7,140	18	10
Source: Ethnicity Statistical Table PSA 2020, Region X				

Table 4-33. Ethnic Household Population (Main Corridor and Link Roads) of Region XI

Ethnic group	Population				
	Region XI	Davao City	Davao del Sur	Davao del Norte	Davao Occidental
Ata	25,875	17,285	65	8,176	7
Ata-Manobo	31,200	1,430	16	29,502	1
Blaan	113,167	7,606	33,675	2,068	68,451
Bagobo	51,160	21,064	20,069	5,813	218
Bagobo-Klata	17,932	17,693	104	77	7
Bagobo-Tagabawa	32,162	12,417	19,421	231	28
Kagan/Kalagan	84,488	16,799	9,928	14,481	1,955
Mandaya	412,150	37,021	2,854	51,066	317
Mansaka	75,879	1,774	307	10,415	13
Manobo	137,723	13,668	3,941	15,084	78,806
Obu-Manuvu	16,416	16,355	22	28	None
Maranao	33,818	18,545	4,288	5,910	672
Matigsalog	11,557	10,889	38	296	13
Sama/Samal	36,122	4,474	2,251	28,299	167
Tagakaulo	108,532	5,784	13,695	1,575	86,318
Tausug	40,410	18,906	5,382	4,660	4,487
Source: Ethnicity Statistical Table PSA 2020, Region XI					

Table 4-34. Ethnic Household Population (Main Corridor and Link Roads) of Region XII

Ethnic Group	Population		
	Region XII	Sarangani	General Santos City
B'laan	257,971	138,087	35,874
Maguindanaoan	580,770	41,516	40,073
Manobo	91,189	6,788	6,144
Maranao	25,959	996	10,065
Sangir/Sangil	10,898	7,073	3,558
Tagakaulo	42,462	31,149	4,321
Tausug	17,871	3,427	6,877
Tboli	176,555	37,254	3,195
Source: Ethnicity Statistical Table PSA 2020, Region XII.			

Figure 4-76 shows the CADT areas traversed by Main Corridor and Link Roads of MTCIP.

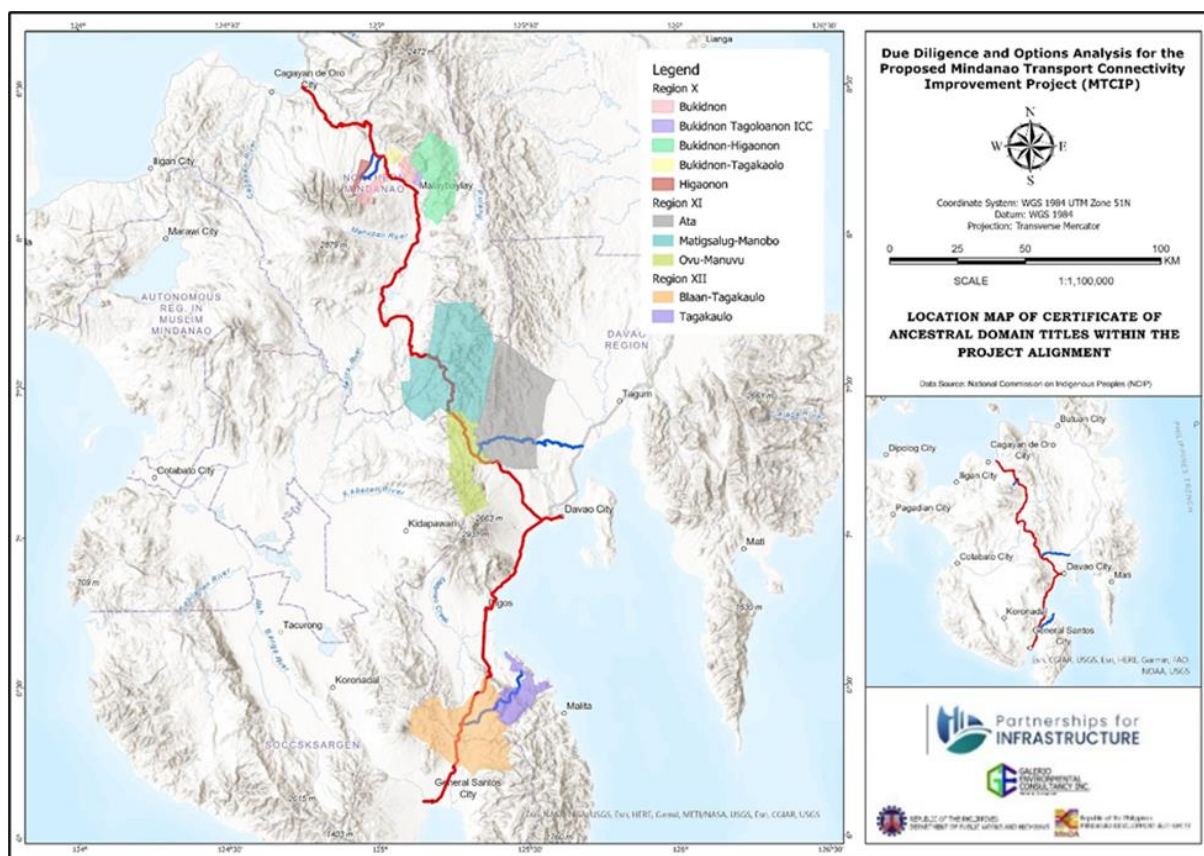


Figure 4-76. Certificate of Ancestral Domain Titles

2.6.4 Poverty Incidence

Poverty incidence among the MTCIP provinces is highest in Davao Occidental, at 43.4% and in Sarangani Province, at 41.1%. Even with the higher annual per capita poverty threshold, the poverty incidence is least in the highly urbanized cities of Davao City (7.7%), Cagayan de Oro (9.1%), and General Santos (14.1%). **Table 4-35** presents the poverty threshold and incidence.

Table 4-35. Poverty Threshold and Incidence, by Province and Highly Urbanized City, 2021

Region Province	Annual per Capita Poverty Threshold (pesos)	Poverty Incidence Among Population (%)
REGION X Northern Mindanao	28,836	26.1
Cagayan de Oro City	24,414	9.1
Misamis Oriental	24,018	21.1
Bukidnon	24,835	23.1
REGION XI Davao Region	28,102	16.8
Davao City	30,138	7.7
Davao del Norte	27,354	10.6
Davao Occidental	28,511	43.4
Davao del Sur	29,749	10.4
REGION XII SOCCSKSARGEN	26,443	28.1
General Santos City	24,930	14.1
Sarangani	24,070	41.1

Source: PSA 2022 RSET Regions X, XI, XII; Family Income and Expenditure Survey 2021

2.6.5 Dependency Ratio

The age dependency ratio is highest in Davao Occidental (69.0%), where every 100 persons of working age has to support 63 young dependents and six old dependents. In contrast, the dependency ratio is lowest in Cagayan de Oro City, at 50.2%. The dependency ratio is 66, the second highest in the MTCIP area, after Davao Occidental. **Table 4-36** presents the age dependency ratio.

Table 4-36. Age Dependency Ratio of the Household Population, by Province/City, 2015

Region Province	Dependency ratio	Child/Youth Dependency	Old-Age Dependency
REGION X Northern Mindanao	62.9	55.8	7.1
Cagayan de Oro City	50.2	44.4	5.8
Misamis Oriental	63.8	55.9	7.8
Bukidnon	67.2	56.0	5.8
REGION XI Davao Region	58.0	51.0	7.0
Davao City	52	46.0	6.0
Davao del Norte	57.0	50.0	7.0
Davao Occidental	69.0	63.0	6.0
Davao del Sur	54.0	47.0	7.0
REGION XII SOCCSKSARGEN	61.0	55.0	6.0
General Santos City	54.0	48.0	5.0
Sarangani	66.0	60.0	6.0

Source: PSA RSET 2020; <https://www.philAtlas.com>, October 2023



Plate 4-19. Children in Sitio Bantalaan, Brgy. San Miguel, Malungon, Sarangani Province

2.6.6 Public Health

The leading causes of morbidity in the MTCIP area are pneumonia, acute upper respiratory infections, hypertensive diseases, bronchitis, and diseases of the urinary system. The leading causes of mortality are pneumonia, cancer, cardiovascular diseases, cerebrovascular

diseases, hypertensive diseases, and diabetes mellitus. **Table 4-37** presents the leading causes of morbidity and mortality by region.

Table 4-37. Leading Causes of Morbidity and Mortality by Region

Region	Causes of Morbidity	Causes of Mortality	Number of Deaths (Per 100,000 Population)
REGION X Northern Mindanao	Pneumonia Bronchitis/Bronchiolitis Diarrhea Influenza Hypertension	Pneumonia Cancer, All Forms Cardiovascular Diseases Hypertensive Cardiovascular Disease Hypertension	1,315 1,337 377 611 555
REGION XI Davao Region	Acute Upper Respiratory Infection Pneumonia Hypertensive Diseases Other Disease of Urinary System Diarrhea & Gastroenteritis	Diseases of the Heart Cerebrovascular Diseases Hypertensive Diseases Diabetes Mellitus Pneumonia	2,370 1,784 1,158 1,070 948
REGION XII SOCCSKSARGEN	Pneumonia Hypertensive Diseases Other Disease of Urinary System Diarrhea & Gastroenteritis	Hypertensive Diseases Diabetes Mellitus Pneumonia	2,012 1,100 1,009

Source: Department of Health

2.6.7 Educational Attainment

About 37% of the population in the three project regions completed some elementary education, while 35% had some or completed secondary education. Only 19% had some or completed tertiary education. About 4% of the population had no grade completed. **Table 4-38** presents the population by highest educational attainment by region.

The number of public and private elementary and secondary schools in Northern Mindanao, Davao Region, and SOCCSKSARGEN, as shown in **Table 4-39** suggests that there are enough to serve the school-going population. The public consultations and focus group discussions conducted for MTCIP, however, reveal stories of schoolchildren in remote areas struggling to reach the schools, often going by foot because public transport is either unavailable or costly.

Table 4-38. Population by Highest Educational Attainment by Region, 2015

Highest grade completed	Total population 5 years old and over		
	Northern Mindanao	Davao Region	SOCCSKSARGEN
No grade completed	159,007	137,909	243,095
Pre-school	125,209	133,978	125,443
Special education	1,467	1,557	616
Elementary	1,572,019	1,620,132	1,530,691
1 st to 4 th grade	840,910	836,535	832,668
5 th to 6 th grade	274,476	278,661	290,032
Graduate	456,633	504,936	407,991
Secondary	1,446,286	1,569,919	1,369,431

Highest grade completed	Total population 5 years old and over		
	Northern Mindanao	Davao Region	SOCCSKSARGEN
Undergraduate	667,577	708,274	618,665
Graduate	778,709	861,645	750,766
Tertiary	829,047	878,654	730,768
Undergraduate	397,052	436,722	351,637
Graduate	431,995	441,932	379,131
Post-graduate	6,211	6,038	5,158
Source: Census of Population 2015			

Table 4-39. Number of Public and Private Schools, by Region and Level of Education, SY 2020-2021

Level of education	Northern Mindanao	Davao Region	SOCCSKSARGEN
Elementary	2,612	2,180	2,148
Public	2,161	1,736	1,827
Private	451	444	321
Junior high school	860	817	823
Public	583	576	628
Private	277	241	195
Senior high school	606	595	582
Public	360	368	404
Private	246	227	178
Source: Department of Education			



Plate 4-20. Pongpong Elementary School, in Brgy. Pongpong, Santa Maria, Davao Occidental (Link Road 3)

2.6.8 Income and Employment

Among the three project regions, the labor force participation rate (LFPR) is lowest in SOCCSKSARGEN (57.4%) and highest in Northern Mindanao (69.8%). Among the provinces, Bukidnon has the highest LFPR, at 78.3%, and Davao Occidental has the lowest, at 56.6%.

In terms of the employment rate, the three regions vary considerably: the employment rate is 78.8% in SOCCSKSARGEN, 88.9% in Northern Mindanao, and 95.2% in Davao Region.

The services sector remains the biggest employer in the three project regions, followed by agriculture, and then industry, including manufacturing. When disaggregated by major industry group, the number of employed persons is highest in agriculture, hunting and forestry (2,183,000). The second biggest employer is wholesale and retail trade, including repair of motor vehicles and motorcycles, which employs 1,394,000 persons. **Table 4-40**, **Table 4-41**, and **Table 4-42** present the labor force participation by Region. **Table 4-43** and **Table 4-44** present the employment and employed persons by region.

Table 4-40. Labor Force Participation, Region X Northern Mindanao, by Province

Employment status	Region X	Bukidno n	Misamis Oriental	Cagayan de Oro City
Population in the labor force	2,410,000	808,000	477,000	326,000
Labor force participation rate	69.8%	78.3%	71.3%	62.8%
Employed	2,007,000	779,000	456,000	295,000
Employment rate	88.9%	96.5%	95.5%	90.7%
<i>Source: PSA CY 2021 RSET X, Labor Force Survey 2021</i>				

Table 4-41. Labor Force Participation, Region XI Davao Region, by Province

Employment status	Region XI	Davao City	Davao del Sur	Davao del Norte	Davao Occidenta l
Population in the labor force	2,219,000	809,000	288,000	460,000	130,000
Labor force participation rate	60.9%	63.5%	59.3%	63.2%	56.6%
Employed	2,113,000	758,000	279,000	442,000	125,000
Employment rate	95.2%	93.7%	96.8%	96.0%	96.0%
<i>Source: PSA CY 2021 RSET XI, Labor Force Survey 2021</i>					

Table 4-42. Labor force participation, Region XII SOCCSKSARGEN, by Province

Employment status	Region XII	Sarangani	General Santos City
Population in the labor force	1,855,000	266,000	292,000
Labor force participation rate	57.4%	68.9%	66.4%
Employed	2,547,000	256,000	263,000
Employment rate	78.8%	95.9%	90.0%
<i>Source: PSA CY 2021 RSET XII, Labor Force Survey 2021</i>			

Table 4-43. Employment by sector, by region

Sector	Employment level		
	Region X	Region XI	Region XII
Agriculture	811,000 (42.26%)	523,000 (27.7%)	108,000 (22.6%)
Industry /Manufacturing	102,000 (5.5%)	306,000 (16.24%)	84,000 (16.24%)
Services	1,006,000 (52.42%)	1,055,000 (55.99%)	287,000 (55.99%)
<i>Source: PSA 2021 RSET, Labor Force Survey 2021</i>			

Table 4-44. Employed persons by major industry group, by region, 2021

Industry group	Northern Mindanao	Davao Region	SOCCKSARGEN
Agriculture, hunting, forestry	796,000	586,000	801,000
Fishing and aquaculture	50,000	45,000	84,000
Mining and quarrying	6,000	21,000	4,000
Manufacturing	115,000	112,000	125,000
Electricity, gas, steam and air conditioning supply	4,000	3,000	1,000
Water supply, sewerage, waste management	3,000	4,000	1,000
Construction	202,000	178,000	119,000
Wholesale and retail trade; repair of motor vehicles and motorcycles	475,000	479,000	440,000
Transportation and storage	135,000	148,000	127,000
Accommodation and food service activities	51,000	57,000	40,000
Information and communication	19,000	12,000	8,000
Financial and insurance activities	26,000	25,000	20,000
Real estate activities	4,000	11,000	2,000
Professional, scientific and technical activities	8,000	11,000	10,000
Administrative and support service activities	45,000	85,000	37,000
Public administration and defense	140,000	131,000	111,000
Education	72,000	70,000	65,000
Human health and social work activities	23,000	26,000	28,000
Arts, entertainment, recreation	7,000	13,000	7,000
Other service activities	110,000	97,000	85,000
<i>Source: Philippine Statistical Yearbook 2022</i>			

2.6.9 Agricultural Production

Bukidnon Province is the leading producer of palay, corn, and pineapple, which are delivered to local and international markets. Davao del Norte Province is the biggest producer of banana, which is also consumed locally and internationally. **Table 4-45** presents the agricultural production by major crop by region.

Table 4-45. Agricultural Production by Major Crop, by Region and Province

Region Province	Palay		Corn		Banana		Pineapple	
	Volume (tons)	Market	Volume (tons)	Market	Volume (tons)	Market	Volume (tons)	Market
REGION X Northern Mindanao	781,825	Local Intl	1338,165	Local Intl	1,977,157	Local Intl	1,541,643	Local Intl
Cagayan de Oro City								
Misamis Oriental	24,224	Local Intl	114,164	Local Intl	216,755	Local Intl	68,879	Local Intl
Bukidnon	484,698	Local Intl	855,672	Local Intl	1,397,155	Local Intl	1,471,925	Local Intl
REGION XI Davao Region	446,764	Local Intl	261,923	Local Intl	3,349,576	Local Intl	27,618	Local Intl
Davao City	No Data	NA	No Data	Local Intl	299,932	Local Intl	3,126	Local Intl
Davao del Norte	124,933	Local Intl	69,930	Local Intl	1,476,464	Local Intl	180	Local Intl
Davao Occidental	2,365	Local Intl	45,764	Local Intl	165,261	Local Intl	1,752	Local Intl
Davao del Sur	29,071	Local Intl	40,956	Local Intl	443,248	Local Intl	3,260	Local Intl
REGION XII SOCCSKSARGEN		Local Intl		Local Intl		Local Intl		Local Intl
General Santos City								
Sarangani		Local Intl		Local Intl		Local Intl		Local Intl



Plate 4-21. Large Scale Banana Plantation (Sumifru firm) in Link Road 1 of Brgy. Capitan Bayong, Impasug-ong, Bukidnon Province



Plate 4-22. Pineapple Plantation in Brgy. Cawayan, Impasug-ong, Bukidnon Province (Link Road 1)



Plate 4-23. Cassava and Banana Farms in Link Road 2 in Brgy. Bantol, Davao

2.6.10 Transportation

The primary mode of transportation for the residents of Sta. Maria along Link Road 3 was habal-habal, or skylab, allowing them to traverse both paved and unpaved roads. These modes were primarily used for transporting goods and passengers.



Plate 4-24. Habal-Habal Users in Santa Maria, Davao Occidental

2.6.11 Traffic

Traffic surveys were conducted in order to characterize the vehicle traffic characteristics within the MTCIP. The categorized traffic volume count and speed survey provide insights on the peak hours and number of users on the different roads of the project, and the speed survey gives an indication of the efficiency of travel along these roads. These were conducted based on these activities. The manual classification of vehicle counts for intersections (IC) was undertaken for three consecutive days over a period of 14 continuous hours. The recording of data during the survey was every 15 minutes. The summary and consolidation of data are

done every 15 minutes for intersection counts. This method was used for the Main Corridor, Link Road 2, and Link Road 3. Survey locations are presented in **Table 4-46** and **Figure 4-77**.

For LR1, a moving observer count (MOC) was undertaken to get an indicative composition of the vehicle fleet and corresponding volumes for Link Road 1. The MOC method is a traffic survey tool that is conducted along a project road that lasts at least one hour, utilizing a moving vehicle. The different types of vehicles to be counted are put into three different categories: (a) vehicles traveling in the opposite direction (x); (b) vehicles overtaking the observer (y); and (c) vehicles overtaken by the observer (z).

Table 4-46. Location of Traffic Surveys

No.	Station	Location
1	A	Barangay Puerto, Cagayan De Oro City, Misamis Oriental
2	B	Barangay Ala-e, Manolo Fortich, Bukidnon
3	C	Barangay Tankulan, Manolo Fortich, Bukidnon
4	D	Barangay Dalwangan, Malaybalay City, Bukidnon
5	E	Barangay San Jose, Malaybalay City, Bukidnon
6	E-1	Barangay Aglayan, Malaybalay City, Bukidnon
7	F	Barangay Mailag, Valencia City, Bukidnon
8	G	Barangay Dologon, Maramag, Bukidnon
9	H	Barangay Dologon, Maramag, Bukidnon
10	H-1	Barangay Poblacion 2, Camp One, Maramag, Bukidnon
11	I	Barangay Butong, Quezon, Bukidnon
12	J	Barangay Talomo Proper, Davao City, Davao del Sur
13	K	Barangay Toril, Davao City, Davao del Sur
14	L	Barangay Cogon, Digos City, Davao del Sur
15	LR-1	Barangay New Visayas, Panabo, Davao del Norte
16	LR-2	Barangay Malabog, Davao City, Davao Del Sur
17	LR-3	Barangay Poblacion, Sta. Maria, Davao Del Sur
18	LR-4	Barangay Poblacion, Malungon, Sarangani
19	M	Barangay San Jose, Digos City, Davao del Sur
20	N	Barangay Katangawan, General Santos City, South Cotabato
21	O	Barangay Labangal, General Santos City, South Cotabato



2.6.11.1 *Classified Traffic Volume Count*

Main Corridor: The results of the classified volume count in the Main Corridor reveal that for the northbound (to Cagayan de Oro City), peak hours of traffic occur at 7:00–8:00 and 17:00–18:00; the same were observed for the southbound (to General Santos City). The overwhelming majority of traffic was from passenger cars and motorcycles, accounting for 41.2% and 35.2%, respectively, on the northbound, while on the southbound, it was 38.3% and 37.7%, respectively.

Link Road 1: The peak time for traffic is in the morning for this Link Road. With the dominant vehicle is motorcycle at 69.01% and pick-up for goods at 13.38% from Sayre Highway-Cawayan-Kibenton-Sayre Highway direction. In the opposite direction, motorcycles account for 68.81% of the traffic while pick-up for goods comprise 13.76%.

Link Road 2: The peak hour for this alignment is at 7:00–8:00 and 17:00–18:00 for both north and south-bound directions. The predominant vehicles are motorcycles and tricycles, accounting for 56.2% and 21%, respectively, in the northbound direction, while in the southbound it comprises 56.9% and 21.2% of the traffic, respectively.

Link Road 3: The peak hour for this link road is also at 7:00–8:00 and 17:00–18:00, like the other roads in the MTCIP. Its vehicular traffic is mostly composed of motorcycles and tricycles in both north and southbound directions. These two types of vehicles account for 71.11% and 20.4%, respectively, of the traffic on the northbound, and on the southbound, it is 37.2% for motorcycles and 22.7% for tricycles.

2.6.11.2 *Speed Survey*

Main Corridor: From point to point of the surveyed stations within the Main Corridor, the average speeds range from 59.58 kph to 20.79 kph and 60.65 kph to 21.92 kph for peak hours during the weekdays and weekends, respectively. On non-peak hours of the same days, the average speeds of vehicles are 68.33 kph–24.12 kph and 70.03 kph–28.55 kph, respectively.

Link Road 2: The average speeds of vehicles during peak hours between the two station points along this link road range from 37.9 kph to 36.29 kph and 38.71 kph to 29.03 kph during weekdays and weekends, respectively. During non-peak hours, this rises to 39.81–41.05 kph and 39.49–34.81 kph on the same days of the week.

Link Road 3: In Link Road 3, the road connecting the two survey stations has not yet been completely established; there is a section with an existing alignment, but the road is inaccessible on the ground.

3. ENVIRONMENTAL AND SOCIAL IMPACTS AND MITIGATING MEASURES

1.2 Introduction

As mentioned in the Introduction section, this ESIA aims to systematically identify, analyze, and evaluate all anticipated environmental and social impacts of the proposed MTCIP. The results of the assessment will be used as a basis for improving the project design and identifying measures that can be implemented to minimize, if not totally prevent, the potential adverse social and environmental impacts of the Project.

1.3 Assessment of Risks/Impacts

The risk/impact assessment methodology adopted for MTCIP includes the following:

- Defining the nature of the impact, whether positive or negative, change to the baseline; and

- Assessing the risk or significance of the impact as a function of the consequence or magnitude of the impact and the likelihood of its occurrence. It is widely accepted that impact magnitude (or severity) is a function of the extent, duration, and intensity of the impact.

- Those identified as having significant impacts based on their magnitude and likelihood will be formulated with the corresponding mitigation measures in accordance with the World Bank mitigation hierarchy (avoid a possible mitigation, mitigate, reduce, minimize, compensate, and/or offset).

Table 5-1 presents the summary of the impact assessment for the pre-construction, construction, demobilization, and operational phases of the proposed MTCIP. The environmental risk assessment is provided in **Annex 19**.

Table 5-1. Summary of Impact Assessment for the MTCIP

Project Phase / Activities	Environmental Component(s)	Potential Impact(s) before Mitigation
PRE-CONSTRUCTION AND CONSTRUCTION PHASE		
Acquisition of Applicable Permits and Licenses	People	(+) Disclosure of project information to stakeholders and concerned government authorities
Land Acquisition for the RROW	People	(-) Displacement/disturbance of settlers, properties, and livelihood
	People	(-) Involuntary resettlement of IP households
Hiring of Workers	People	(+) Generation of employment opportunities
	People	(-) Possible SEA/SH
Site Preparation / Vegetation Clearing / Utilities Relocation	Land	(-) Loss of vegetation leading to fragmentation of habitats which may result to disruption of migration patterns and pollination/seed dispersal
	Water	(-) Possible siltation of nearby water bodies
	People	(-) Threat to delivery of basic services
Construction of Temporary Facilities and Influx of Construction Workers	Land, Water, People	(-) Generation of domestic solid wastes
	Land, Water, People	(-) Generation of domestic wastewater
	People	(-) Community health and safety risks, including peace and order
Civil Works for the Main Corridor and Link Roads Main Corridor (i.e., Road Widening, Repair of Damaged Road Sections, Implementation of Slope Protection Measures, Drainage Works, Installation of Road Safety Infrastructures) Link Roads (i.e., Upgrading from Unpaved Roads to Concrete, Repair of Damaged Road Sections, Construction and Rehabilitation of Bridges, Implementation of Slope Protection Measures, Drainage Works, Installation of Road Safety Infrastructure)	Land	(-) Ground vibration from heavy equipment and vehicles
	Land, Water	(-) Increased proliferation of invasive alien species
	Land, Water	(-) Increased pressure on biodiversity (e.g. poaching, hunting)
	Land, Water, People	(-) Generation of construction spoils/debris and other solid wastes
	Land, Water, People	(-) Generation of hazardous wastes
	Water	(-) Possible siltation of nearby water bodies
	Land, Water	(-) Potential contamination of soil/water from accidental oil spills/leaks from heavy equipment and vehicles
	Air, People	(-) Generation of dust
	Air, People	(-) Generation of air emissions and noise
	People	(-) Occupational health and safety risks
	People	(-) Community health and safety risks, including road safety
	People	(-) Threat to delivery of basic services/resource competition
	People	(-) Traffic congestion
DEMOBILIZATION AND OPERATIONAL PHASE		
Dismantling of Temporary Facilities and Clearance/Clearing of Construction Debris and Waste	Land, Water	(-) Generation of debris and other solid wastes
	Air, People	(-) Generation of dust, air emissions, and noise
	People	(-) Occupational health and safety risks
	Land	(-) Increased light and noise generation affecting wildlife behavior

Project Phase / Activities	Environmental Component(s)	Potential Impact(s) before Mitigation
Road Operations and Long-Term Performance Based Maintenance (LTPBM)	Land, Water	(-) Increased pressure on biodiversity (e.g. poaching, hunting)
	Land, Water	(-) Increased proliferation of invasive alien species
	Water	(-) Increased rate of surface water runoff
	Water	(-) Altered hydrology will affect biodiversity especially of aquatic ecosystems
	People	(+) Enhancement of employment and livelihood opportunities
	People	(-) Generation of road traffic noise
	People	(-) Occupational health and safety risks
	People	(-) Traffic safety risks

1.4 Potential Impacts and Mitigating Measures during Pre-Construction and Construction Phases

1.4.1 Land

1.4.1.1 Land Use and Classification

Impact Assessment

Impact on existing land uses. The project's impact on the existing land uses in the Main Corridor and Link Roads 1, 2, and 3. The dominant land uses along the 40-m RROW of the Main Corridor are road and easement (29%), agricultural (27%), power, water, communication utilities (11%), residential (9%), and commercial (8%). The dominant land use along the 20-meter RROW of Link Road 1 is road and easement (95%), mainly local roads, and about three percent is used for agro-industrial activities. In Link Road 2, the dominant land uses along the 20-meter RROW are agricultural (55%), commercial (16%), road and easement (10%), residential (9%), and forest (6%). In Link Road 3, the dominant land uses along the 20-meter RROW are forest (45%), agricultural (43%), and agro-forestry (5%).

The MTCIP has a significant influence on land use and its classification. It is expected that the road project will traverse various zones and land uses for both the Main Corridor and Link Roads. Along the Main Corridor, the direct impact areas encompass land classified for residential, commercial, institutional, and agricultural purposes. Similarly, the direct impact areas of Link Roads 1, 2, and 3 mainly consist of residential, agricultural, and institutional lands. However, it's notable that the tenure of most lands traversed by the 40-meter Road Right-of-Way (RROW) in the Main Corridor is categorized as public, while Link Road 1 crosses a combination of public, agrarian, and privately-owned lands. Moreover, Link Roads 2 and 3 will pass through recognized ancestral lands, which are privately owned but communally managed.

The influence of MTCIP on land use and classification is further manifested by the alignment choices. In the Main Corridor, the road follows the existing national road, heavily utilized since the 1970s. Most of the Road Right-of-Way (RROW) acquisitions have been completed by the Government of the Philippines (GOP). Additionally, road widening and improvements in some segments of the Main Corridor occur within vacant spaces already acquired by the GOP. On the other hand, the three Link Roads utilize existing municipal, barangay, and village roads, with some sections passing through dense vegetation and abandoned logging roads.

In addition to this, constructions of new roads and road widening/rehabilitation activities will have impacts on both terrestrial and aquatic ecosystems. Anecdotal evidence can prove that roads can negatively affect biodiversity thru increased extraction (mostly illegal), fragmentation and alteration of habitats, introduction of invasive alien species and modifications of their physiological and behavioral patterns.

Restricted land use. The project restricted land use due to the conversion of lands from non-road uses (agricultural, utilities, residential, and commercial) to road and easement uses. MTCIP is expected to restrict the use of land by farmers for agricultural production, agricultural workers for their source of livelihood, and the IP groups for their forest and natural resources. The restriction on land use emanates from new road openings that reduce land areas for agricultural production. It also re-routed road users from their areas of production, cultural monuments, and places of work.

Mitigating Measures

The project's alignment along existing roads helps avoid significant disruptions to existing properties. Existing structures are taken into account to minimize impact. Nevertheless, a significant number of structures are expected to be affected. Where involuntary resettlement impacts occur, Resettlement Action Plans will be prepared in accordance with the Resettlement Policy Framework. Consultations and relocation efforts are conducted in coordination with barangay and municipal government units. Informal settlers along the easement and public domain in the Main Corridor will be consulted and relocated to designated areas either beside the road, in LGU relocation sites, or in nearby owned lots. Similarly, households affected along Link Road 1 will be informed and relocated in coordination with barangays. For Link Roads 2 and 3, Free, Prior, and Informed Consent (FPIC) will be obtained from Indigenous Peoples and Indigenous Cultural Communities (IPs and ICCs) to determine consensus regarding RROW. Consultations with informal settlers from other ethnic groups or sectors will also be coordinated with barangay LGUs and relevant government agencies.

Link Roads primarily traverse agricultural lands, impacting various crops in the process. To mitigate these impacts, a strategic approach is necessary. For areas utilized by banana, pineapple, and high-value crop contract growers, construction should be scheduled after harvest seasons to minimize disruption to cultivation. Access to these plantations must be maintained throughout the process. Affected individuals should receive fair compensation for any remaining crops and trees on their property, calculated according to their market value, to account for crop losses incurred. Close collaboration with the National Irrigation Administration (NIA) is crucial for areas involving irrigated and irrigable lands, especially those dedicated to rice cultivation. This collaboration ensures that project construction and implementation do not disrupt the continuous flow of water to affected parcels. Additionally, involving the Department of Agriculture is essential. These agencies can help maintain rice production levels in unaffected areas, supporting income restoration and rehabilitation for affected rice farmers. This comprehensive approach aims to mitigate adverse effects on agricultural livelihoods while facilitating the smooth execution of the project.

The local government unit concerned will also be one of the primary partners to mitigate effects of the roads on biodiversity loss. LGUs can establish baseline information and monitor biodiversity, in coordination with the DENR in order to prevent introduction and proliferation of invasive alien species and the decrease of flora and fauna populations. In addition to this, “re-greening” of roadsides will be considered and in a certain extent, facilitate nature-based solutions to decrease likelihood of landslides, rockfalls and flashfloods.

1.4.1.2 Geology and Geomorphology

Impact Assessment

Change in sub-surface geology. Given that the Main Corridor currently exists as a paved concrete road, it is anticipated that any alterations to the surface landform, geomorphology, topography, terrain, or slope will be negligible to nonexistent. Similarly, the Link Roads, though already paved but not concreted, are likely to undergo minimal changes during road upgrading activity, predominantly in the mountainous terrain, particularly in sloping areas, where adjustments may be necessary to accommodate the construction of a two-lane road.

Inducement of subsidence, liquefaction, flooding, landslides etc. Potential hazards that may occur in the area are mostly focused on landslides, flooding, ground subsidence due to sinkhole, and earthquake-induced hazards, such as ground shaking and liquefaction.

There is a potential occurrence or triggering of geological phenomena such as subsidence (the sinking or settling of the ground surface), liquefaction (the process where soil temporarily loses strength and behaves like a liquid during an earthquake), flooding (the inundation of land areas by an excess of water due to heavy rainfall or the overflow of bodies of water such as rivers), ground subsidence due to sinkhole collapse and landslides (the movement of a mass of rock, debris, or earth down a slope) within the scope of the MTCIP. This implies that the construction activities or changes introduced by the project could lead to or exacerbate these geological hazards, posing risks to the infrastructure, surrounding environment, and potentially human safety.

For instance, a subsurface assessment such as a resistivity survey was conducted at KM 1617 and aimed to identify the underlying causes of frequent road subsidence. The results of this investigation provided clear details on subsurface features that are not manifested on the ground surface. The survey revealed the presence of highly saturated ground supported by limey marine clastic and fine-grained sedimentary materials beneath the paved concrete of the national highway. Field observations further highlighted that subsidence was exacerbated by the accumulation of water due to poorly maintained underground drainage flowing through the opposite side of the highway. The persistent occurrence of subsidence in this area has resulted in significant expenses from the DPWH District Office and inconvenience for travelers.

This kind of hazard often stems from changes in the overlying load or soil washing into voids in the underlying rock. Uneven settling poses risks for ground-level sections. Mitigation measures may include the improvement of drainage infrastructure to prevent water accumulation underground. Properly designed and maintained drainage systems can help divert water away from the road surface, reducing the risk of saturation and soil instability. Additionally, implementing ground stabilization techniques such as soil reinforcement, grouting, or soil cementation can enhance the strength and stability of the underlying soil layers. Regular monitoring of ground conditions and subsidence indicators can also aid in early detection and intervention to mitigate potential hazards.

Mitigating Measures

The following presents options for mitigating identified geohazards in MTCIP.

Ground shaking. As the MTCIP crosses several traces of active and potentially active faults along its alignment, it is necessary to anticipate and minimize the potential impact of the risks associated with ground movement, rupture, and ground shaking. PHIVOLCS recommends setting up a buffer distance of about 5m on either side of a fault trace. However, considering the present alignment and the extension of these fault traces, completely avoiding the geologic structures may not be feasible. Thus, it is essential that the design of the highway take into consideration the possibility of ground rupture along the fault line crossings of the alignment. Bridges and larger structures should be located away from these traces. In addition, regular monitoring for signs of movement in these areas should be conducted, and detailed studies should be undertaken to ensure a sound foundation for the road network. Expected seismic intensities provided by DOST-PHIVOLCS should be taken into consideration in road design and ancillary infrastructure.

The MTCIP is also prone to ground shaking and will be subjected to extreme ground acceleration during major earthquakes. Flexible pavement designs may be considered to prevent deformation and cracking or settling due to ground shaking. Proper compaction should also be followed to reduce the risk of embankment failure. Bridge design and other facilities should accommodate horizontal and earthquake movements of up to the modeled intensities. Seismic retrofitting may also be undertaken for existing structures and roadways. A real-time monitoring network, especially along fault traces, should be established to detect deformations and signs of imminent fault movements. Expected seismic intensities provided by DOST-PHIVOLCS should be taken into consideration in road design and ancillary infrastructure.

Liquefaction. Taking into account the possibility of liquefaction in some portions of the MTCIP, it is highly recommended that this be considered in designing future construction along the alignment, including bridges and highways. Foundations and retaining structures should be able to accommodate potential liquefaction-related ground settlement as well as lateral spreading. Bridges and culverts should have deep foundations and flexible abutments to accommodate possible movement. Soil stabilization measures such as vibro-compaction, stone columns to densify loose soils, injection of binders, and others should be implemented to increase seismic resilience. Retrofitting of existing structures should also be carried out, such as adding dampeners and strengthening bridge columns and foundations. Regular monitoring must be undertaken along these areas that are prone to liquefaction for early detection of possible ground settlement and movement.

Tsunami hazard. Early warning systems, including sirens, mobile apps, social media, and traditional media, should be established related to the sections of the highway that are susceptible to tsunamis to ensure that the riding public and other road users have enough time to evacuate the area. Moreover, signage and warning signs should be installed in the sections of the road affected with proper information about evacuation areas and routes. Drainage networks should also be designed to remove water efficiently and prevent accumulation along these sections. Construction of coastal defense structures such as seawalls, breakwaters, and other wave dissipating devices to help reduce the impact of the oncoming waves. Natural coastal defense systems, such as mangroves and other coastal vegetation, should also be conserved and encouraged to proliferate.

Volcanic hazard. As some portions of the MTCIP might be affected by volcanic activity, proper traffic management must be developed and clearly communicated to the concerned agencies, institutions, and communities. The system should include protocols for highway closures and rerouting when there is an imminent eruption or ashfall event. Monitoring systems, such as ashfall sensors and the use of satellite imagery, must also be in place to provide ample warning time and allow affected commuters to prepare.

The establishment of routine cleaning schedules during an event should also be provided to prevent ashfall buildup, and hierarchical prioritization of routes should be determined in order to ensure that essential transport routes remain accessible.

Storm surge. As this section of the highway is situated in a very narrow coastal plain and is bounded by steep to very steep slopes on the other side, realignment away from the coast may not be feasible for some areas. Whenever possible, moving the highway alignment further inland will significantly reduce its susceptibility to storm surges. In addition, proper monitoring and warning systems should be established to provide enough lead time for motorists and other road users to get to safety. Evacuation sites and routes should also be clearly indicated

to assist road users during a storm surge. Detailed studies and modeling of the indicated storm surge heights in this area should also be carried out to assist in designing future storm surge barriers and mitigations.

Flooding. To ensure the resilience of core civil infrastructure such as road networks or highways, it takes a multifold approach, especially in areas with high-risk locations, difficult conditions, and limited resources. Concerted efforts must be made by the concerned agencies and the community. Within the MTCIP, to increase resilience to climate change-related circumstances, it is important to consider the following:

- Detailed hydrologic and hydraulic studies were conducted within the critically flooded areas to guide the design of an effective drainage network, taking into consideration the off-site runoff contribution as well as the final conditions of the surrounding areas.
- Increase the number of cross-drains in sections that are identified to be natural water flow directions, despite the lack of well-defined channels such as creeks or streams.
- Assessment of the effects of raising the road grade with respect to the hydrology of the whole region to minimize disruptions of the natural systems that may lead to disastrous conditions for the road and its surrounding areas.
- Establishment of flood control structures such as levees, dikes, proper ditches, and culverts.
- Establishment of a monitoring network, early warning systems, and flood emergency management framework to ensure that road network accessibility will not be hindered, limited, or stopped during these events, which may have indirect effects on the operability of critical facilities such as hospitals, fire stations, evacuation centers, etc.
- Comprehensive hydraulic and hydrologic study on the northeastern side of Link Road 3 to ensure that plans will be able to consider the nature and magnitude of the surface runoff frequently diverted into the road alignment.
- To prevent critical blockages within drainages, a regular maintenance and inspection schedule of culverts, ditches, and stormwater inlets should be established in order to prevent conditions from worsening that may lead to flooding of the highways.
- Construction of sediment controls in adjacent slopes may likely contribute significant debris into roadside ditches, culverts, and stormwater inlets, which may include erosion-control blankets and anchoring devices.
- For segments exposed to the potential impacts of sea level rise, upgrading the roadbed and retrofitting bridges and culverts may be considered with due consideration of the projected water level rise based on climate change projections.
- The construction of seawalls, revetments, and bulkheads may also be considered in sections that are very close to the waterline to serve as barriers against extreme erosion and rises in water levels.

Landslides. In view of the present landslide risks to the MTCIP and the looming impacts of climate change that may aggravate these conditions, it is imperative that measures be instituted to improve the resilience of this critical infrastructure. Appropriate slope protection must be implemented to reinforce existing slopes and stabilize potentially unstable areas. However, these designs must be coupled with detailed site-specific studies on the geology, geotechnical properties, and slope stability analysis of the road sections, as the determination of the type, extent, and nature of the landslide will be fundamental in designing appropriate stabilization structures. Accurate determination of the failure plane will guide mitigation design and minimize the probability of the landslide reactivating in the future. Drainage along the road

alignment as well as within the surrounding slopes is also critical for stabilization, as high moisture conditions increase the likelihood of failure. Installation of sufficient drainage within the landslide-prone areas, such as ditches, drainpipes, interceptor drains, and others, may be considered. Retrofitting of existing highways that are within landslide-prone areas, such as reinforcing slopes and enhancing drainage systems, may also be considered. For new alignments, route planning and site selection should consider landslide risks. In addition, the installation of monitoring systems, warning signs, and early warning systems works in concert to prevent injury, loss, and damage to road users when landslide risks are high.

Moreover, nature-based solutions to landslide mitigation can involve measures such as reforestation and vegetation, slope stabilization through the use of vegetation with deep root systems that bind the soil, the construction of gabions and retaining walls using natural materials or covered with vegetated surfaces (hybrid green-gray infrastructure), terracing techniques, and contour plowing.

In addition to the options discussed above, nature-based solutions can be included to mitigate the main natural hazards and risks in the project. Nature-based solutions as defined by the International Union for Conservation of Nature (IUCN) refer to actions to protect, sustainably manage, and restore natural or modified ecosystems that address societal challenges effectively and adaptively, simultaneously providing human well-being and biodiversity benefits. For example, NbS for landslide mitigation can involve measures such as reforestation/revegetation, slope stabilization through the use of vegetation with deep root systems that bind the soil, the construction of gabions and retaining walls using natural materials or covered with vegetated surfaces (hybrid green-gray infrastructure), terracing techniques and contour plowing.

Coastal vegetation and mangrove restoration can help mitigate the impacts of tsunamis and storm surges. Coastal vegetation acts as a natural buffer, reducing the force of waves and protecting coastal communities, stabilize shorelines and reduce coastal erosion, and provide habitats and nurseries for various species.

Restoration of wetlands, creation of retention ponds, constructing vegetated swales and permeable pavements (for urban areas) can help mitigate flooding. These natural features act as sponges, slowing down, filtering, and retaining stormwater runoff, reducing the risk of overflow and downstream flooding. They also provide additional benefits such as improving water quality, enhancing biodiversity, and providing recreational spaces.

Below is an overview of different NbS or hybrid solutions that could be considered as may be relevant in the project area:

Tropical cyclones and sea level rise

- Restoration and preservation of mangroves, coral reefs, and seagrasses to act as natural buffers
- Coastal Vegetation and Dune Restoration, beach nourishment

Landslides, erosion

- Reforestation, Soil Conservation
- Agroforestry, Terracing, Contour Planting
- Vegetative Cover along slopes to stabilize soil and Riparian Buffer Strips along watercourses to stabilize banks and filter runoff
- Rock Terracing – Constructing terraces with a combination of rocks and

- vegetation to reduce erosion
- Gabion Walls filled with rocks combined with planted vegetation for slope stabilization

Flooding (inland)

- Reforestation and Afforestation
- Vegetative Check Dams, rain garden, and vegetated swales to slow down water flow and reduce erosion
- Wetland Restoration

1.4.1.3 Terrestrial Ecology

Impact Assessment

Vegetation removal and loss of habitat. The whole alignment of the proposed MTCIP can be categorized mostly by residential area, major commercial areas, urban land use, public road easement, and forest. As the whole area is concerned, it does not cross any environmentally critical areas or critical habitats.

Loss of vegetation due to clearing will be one of the impacts on the biological environment. However, it will have a moderate effect in terms of species habitat since most of the area vegetation consists mostly of grasses and shrubs, with occasional trees.

Most of the floral species in the area are considered pioneer, invasive, and introduced species in the area. Nevertheless, the project requires the land preparation and construction of roads and facilities, which greatly affect the community and the existing fauna in the area.

Compared to the flora species, which cannot be relocated easily, especially premium species, fauna wildlife has the capacity to relocate or displace from their habitat to another as pre-construction activities commence (e.g., delineation of area and land preparation). This will cause a significant change to the faunal community.

Hindrance to wildlife access. During the construction phase, most of the heavy activities will commence with the use of heavy equipment and intensive human activities, which cause land and noise disturbances. These disturbances cause pollution, like noise pollution and high-intensity vibration of the equipment, which may disturb them and make them stay away from the area. The use of lubricants and fuels in construction machinery and hazardous chemicals like solvents and paints will pollute the soil, and species will be affected.

Mitigating Measures

The impacts on the flora and fauna can be mitigated with a proper management plan, preventive measures, and hazardous waste management. This activity will not pose a negative threat or adversity to the species.

Taking into consideration the rehabilitation of the area by planting native species that will serve as habitat, sources of food, and can function in their corresponding niches, which may persist in the area as the project is implemented. The projects must exercise proper assessment to ensure the minimal causes of climate change from greenhouse gas emissions through energy conservation and establish effective conservation strategies to sustain ecosystem services, biodiversity, species conservation, and diversity of genetics.

Republic Act No. 9147, also known as the Wildlife Resources Conservation and Protection Act of 2001, and its Implementing Rules and Regulations state that it is illegal for any person to exploit wildlife resources on purpose and their habitats. As stated in Chapter VI of the said Republic Act, among the illegal acts are the following:

- Dumping of waste products that are detrimental to wildlife
- Squatting or otherwise occupying any portion of the critical habitat
- Collecting, hunting, or possessing wildlife, their by-products, and derivatives:
- Gathering and destroying active nests, nest trees, host plants, and the like;

Opening and clearing areas to build roads will clearly disturb the ecosystem of the said locale. Flora species will be cut and cleared, but those feasibly available for earth-balling may be considered for relocation. In the case of faunal species, they will naturally relocate to other parts of the locale where disturbance will be minimal. Also, in the long run, most fauna species will get accustomed to the presence of vehicular traffic, provided there is ample vegetation and no visible regular threats (e.g., illegal trapping, hunting). Once roadsides and easements were rehabilitated and re-vegetated using native species, fauna species (especially birds) may be expected to return and continue to thrive where the road alignment is established. In addition to this, wildlife crossings or corridors may be considered to provide fauna species (e.g., snakes, rodents, etc.) with a safe passage from one side of the road to the other. Such can also be considered for aquatic flora and fauna species, provided that the water quality and quantity of nearby rivers and creeks are maintained, and none are filled with overburden materials.

Overall, the effects of the project on biodiversity, especially on those existing roads, will be minimal to almost none. This is because of the established “disturbance” in the area, for which faunal species have adapted. Although the presence of easy access to sources of flora and fauna resources increases their susceptibility to exploitation (e.g., poaching), establishing linkages for increased ENR awareness and enforcement measures can mitigate this threat.

Alignments located near the vicinities of protected areas, or KBAs, are not exactly intruding on the means and bounds of the said areas. Moreover, the management zonings near where the alignments can be found are usually designated as multiple-use zones (MUZs), wherein harmonious co-existence of human activities and the natural ecosystem is being practiced, as indicated in the provisions of RA 7586, as amended. In this context, the presence of roads will give an added boost to ecotourism activities within the protected areas, as accessibility to such areas will be easier and will attract more visitors. An increase in the number of visitors usually equates to a higher generation of user’s fees, which are deposited in the IPAF and then utilized for the management and development of protected areas. Furthermore, there are guidelines set forth should MUZs be needed for development. If the alignment falls within a PA under the NIPAS, clearance shall be obtained from the concerned management board, and the proponent will need to secure the issuance of a special use agreement in protected areas (SAPA), among other permits like a tree cutting permit, a discharge permit, etc.

Although the Philippine Eagle was noted as one of the observed fauna species, historical records show that most of the nesting sites and confirmed sightings are on the Davao Oriental side, from Monkayo towards Gov. Generoso (Phil. Eagle Foundation report). As such, the sightings along the proposed alignment may only indicate that these areas form only part of their hunting range and do not necessarily indicate the presence of nesting areas.

1.4.2 Water

Impact Assessment

Preconstruction activities, including the clearing of timber, the extraction of earthen materials, and the construction of staging areas, can impact the water quality due to the damage they can cause, such as erosion and siltation. The loss of vegetation can impact the habitats of aquatic life, thereby affecting their population and their biodiversity.

During the construction stage, multiple activities can cause harm to the water quality. The use of construction materials may release hazardous waste such as oil, grease, and other chemicals that can leak or accidentally be spilled into rivers and creeks, which are toxic to aquatic life by affecting their respiratory system and photosynthesis. Oil and grease harm the aquatic environment as they kill microorganisms such as plankton and larva, which are the basic sources of food for fish. The juvenile fish consume these oil-contaminated microorganisms, which are fatal to them. Intensified construction activity may also cause disturbances in the soil, which can cause erosion and siltation that damage the water bodies. The construction can also cut their paths towards other habitats, especially where construction is done on river systems.

Improper disposal of solid waste such as plastics and toxic chemicals can also contribute to the degradation of the environment.

The construction of the roads on its proposed alignment is not foreseen to have a long-term adverse impact on the aquatic biota found in the rivers and creeks within or along the proposed alignment. While the road project might result in the relocation of some fish habitat, this is not seen as overly significant.

Mitigating Measures

To address drainage issues, it's important to regularly clean out debris and trash from ditches and improve the design of drainage structures to handle runoff better. Educating the community about responsible waste disposal can also prevent blockages. Installing screens or traps along the drainage system can catch debris before it clogs ditches. Having an emergency plan ready to deal with blockages or overflows is crucial for highway safety.

The impacts can be prevented by proper road alignment planning and implementing good construction practices. The project can also replace the loss of these flora by planting new seedlings. The project proponent must comply with environmental standards and the latest guidelines on sustainable construction practices. Erosion control measures can be implemented, such as sediment basins, silt barriers, and slope protection.

A well-designed solid waste management plan can alleviate these concerns through the implementation of regular disposal of solid waste and the construction of sanitary facilities. Regular monitoring should be done to swiftly respond to accidents in the project area.

Water use conservation during the construction phase, with the possible recycling of used water for dust spraying and vegetation watering, can also be considered.

1.4.3 Air and Noise

1.4.3.1 Air Quality

Impact Assessment

There is a potential air quality impact within the MTCIP during the pre-construction, construction, and abandonment phases. During pre-construction, activities like tree cutting and demolition released carbon dioxide and other gases, negatively impacting air quality. In the construction phase, increased construction vehicle activity, especially during excavation, generates dust, raising particulate matter (PM) levels. However, these effects are typically short-term and diminish post-construction.

Mitigating Measures

Effective planning, along with on-site control measures, is key to reducing the impacts of pre-construction and construction activities. This means scheduling work smartly to avoid dusty conditions and training workers on dust control and pollution prevention. It's important to raise awareness about the health and environmental effects of dust to ensure everyone follows the necessary protocols and lessens disturbance to the community.

During the pre-construction phase, it's essential to initiate tree-planting programs to absorb carbon dioxide and mitigate its concentration in the atmosphere. Dust pollution control measures for demolition include water spraying, dust suppressants, and windbreaks to minimize airborne dust emissions, with additional methods like enclosures and dust control equipment. Proper maintenance of vehicles and strategic scheduling of construction activities are crucial for reducing dust generation.

Throughout the construction phase, effective dust control management and adherence to standard construction practices are imperative. This involves the use of dust covers on transport trucks, strategic scheduling of heavy dust-generating activities to minimize community exposure, and ensuring workers have proper personal protective equipment (PPE) like dust masks. In order to reduce dust generated by construction, hauling, and grading activities, as well as any others that might raise dust, specifications for dust control should include standard emission controls on construction vehicles and sufficient watering of the area to accompany such activities. This watering will be included in the contract provisions for this project. This would effectively mitigate the most particulate air quality impacts. Moreover, regular water spraying of the access road and properly maintained and well-conditioned equipment shall be utilized to further control the impacts on air quality.

1.4.3.2 Noise Level

Noise disturbance is raised as a significant issue by local communities concerned about infrastructure developments such as roadways and highways, and therefore it is important to assess the baseline conditions in order to assess the potential impacts during construction and operation. Due to a lack of measuring instruments, baseline information on vibration is excluded in this ESIA Report.

Impact Assessment

The potential impact of noise from the MTCIP is expected mostly during the construction phase. During this phase, segments where construction is ongoing may experience higher noise due to noise generated by machinery and construction activities, which may cause community disturbances in nearby residential, school, hospital, and workplace areas. Wildlife may also be disrupted, especially for certain avian and faunal species, which can affect their communication and mating rituals and may result in habitat avoidance and altered foraging

patterns. However, these impacts are expected to be temporary and are limited in extent to the sections that are undergoing construction work.

Mitigating Measures

Noise impacts, mostly during construction, can be effectively minimized by employing strategies to manage the primary noise-generating activities. Scheduling and restrictions on operational hours for heavy machinery and high-noise activities to hours that reduce community disturbance and avoid nighttime construction. Vibration dampening techniques could also be used, as well as equipment that may reduce vibrations. Community engagement is also critical to promote understanding within affected communities and reduce concerns.

1.4.4 People

Impact Assessment

1.4.4.1 Physical and Economic Displacement due to Involuntary Resettlement, Loss of Land, Structures, Trees, and Livelihood

Impacts on land. The MTCIP is estimated to have a direct and indirect impact on lands, structures, trees, and livelihoods. The estimated replacement cost for the loss of assets will have a possible short-term or permanent impact. Based on the engineering study of road alignment, right-of-way acquisition for the road upgrading and improvement component required a total land area of 1,383,273 m², broken down (**Table 5-2**) as follows:

Table 5-2. Summary of Project-Affected Land, per Road

Road	Length (m ²)
Main corridor	45,225 m ²
Link Road 1	237,990 m ²
Link Road 2	357,920 m ²
Link Road 3	740,138 m ²
TOTAL	1,383,273 m ²

Source: MTCIP Options Analysis Report, January 2024

Impacts on structures. The initial census along the proposed alignment listed a total of 8,341 affected structures. The types of structures are either residential, residential-commercial, commercial, or secondary. **Table 5-3** presents a summary of the project-affected structures, per proposed option, along the Main Corridor and Link Roads 1, 2, and 3.

Table 5-3. Summary of Project-Affected Structures, by Road, by Option

MTCIP Road	Option 1	Option 2	Option 3
Main Corridor	5,013*	5,015	5,422
Link Road 1	361	517	814*
Link Road 2	1,478	1,478	1,708*
Link Road 3	847	806	806*

Source: Structure count - Environment and Social Team; Google Earth approximation - Engineering Team, Galerio Environmental Consultancy Inc.

**Preferred Option per Road*

Impacts on households, including informal settlers families (ISFs). Some 3,683 households will be affected by the project due to involuntary resettlement. **Table 5-4** shows a summary of the project-affected households on the Main Corridor, Link Roads 1, 2, and 3.

Table 5-4. Summary of project-affected households, by road, by option

MTCIP Road	Option 1	Option 2	Option 3
------------	----------	----------	----------

Main Corridor	1,002*	1,003	1,035
Link Road 1	312	448	707*
Link Road 2	1,082	1,082	1,217*
Link Road 3	790	757	757*
Source: Structure count - Environment and Social Team; Google Earth approximation - Engineering Team, Galerio Environmental Consultancy Inc.			
*Preferred Option per Road			

Of the total project-affected households, an estimated 305 households can be considered informal settler families. These ISFs reside within the 20-meter width of Link Road 2 and Link Road 3 (92 ISFs in Link Road 2 and 213 ISFs in Link Road 3). No ISFs occupy the 20-meter space within Link Road 1 and along the Main Corridor. This preliminary information on the housing tenure of the PAPs needs to be validated during the FS and DED stages of the MTCIP.

Impact on trees and crops. The road upgrading activities and land acquisition result in a lesser productive capacity among owners affected by the loss of trees and crops. With less productivity, the owners will have a decline in income.

Conflict in land ownership. Issues of ownership may cause disputes in land acquisition for RROW. A certificate of land ownership may not always be present to attest to ownership. Living in the public domain will not be compensated, and those on private land may not be willing to relocate. A risk during project operations is related to the compensation for affected assets and involuntary resettlement. There might be delays in project implementation, especially in the release of compensation for lands acquired and for the loss of assets used for livelihood. This issue was raised in public consultations conducted for MTCIP (*public consultation, Sept. 27, 2023, Provincial Capitol Conference Hall, Tagum City; public consultation, Sept. 27, 2023, DPWH Regional Office Conference Hall, Davao City; public consultation, Sept. 28, 2023, City Hall, General Santos City*).

Impact on public access. The regulations on access to the Main Corridor and the link roads when they are upgraded to national roads might limit road user access (e.g., users of modes of transport such as *habal-habal*). Public access on the Main Corridor will be affected by the temporary closure of the road segment. If not integrated in local road infrastructure development plans and in the LGU Comprehensive Land Use Plan, the project might worsen road congestion or affect logistics systems, especially in the city or municipal central business district or in areas leading to the ports.

Displacement of indigenous peoples/indigenous cultural communities (IPs/ICCs). MTCIP will cut across recognized ancestral lands and have an impact on indigenous cultural communities (ICCs) in the area. The ICCs account for 30% Higa-onon on Link Road 1, 98% composed of Matigsalog and Islamized Ethnic Group (Kagan/Kalagan) on Link Road 2, and 98% Tagakaulo on Link Road 3. The project poses a risk of physical and economic displacement of IPs affected by the land acquisition for road widening.

IPs/ICCs

Link Road 1 is predominantly inhabited by the Higa-onon tribal community, which represents 30% of the total population in the three barangays traversed by Link Road 1. It should be noted that Link Road 1 lies outside the recognized ancestral domain of the Higa-onon community, with houses situated within municipal or barangay-zoned built-up areas.

Link Road 2 passes through the ancestral domain of the Matigsalog communities in the Marilog and Paquibato districts of Davao City. Additionally, Kagan and Kalagan communities have opted to settle in vacant land spaces alongside this road, categorizing them as informal settlers' families (ISF), with over 200 families constructing structures along this link road.

Link Road 3 cuts through barangays within the recognized ancestral lands of the Tagakaolo cultural communities, covering a distance exceeding 50 kilometers and traversing residential and agricultural areas of the Tagakaolo indigenous people. Maguindanaons also constitute informal settlers' families along this road. The barangay government in Link Road 3 permits Kagan/Kalagan to occupy public lands used as built-up areas, while some act as tenants on agricultural lands owned by medium- to commercial-scale agricultural producers.

Impacts on public health and safety. The project will entail hiring workers who may originate outside the project sites and LGUs. This will lead to a labor influx in the local community, presenting risks of sexual exploitation and abuse/sexual harassment (SEA/SH), an increase in gender and child-related violence, cultural insensitivity, and competition for access to health services and food resources.

1.4.4.2 Cultural/Lifestyle Change

Impact on cultural heritage. The project may cause a loss of cultural practices due to the non-preservation of intangible cultural resources and a change in the traditional practices of indigenous cultural communities.

1.4.4.3 Impacts on Physical Cultural Resources

Possible disturbance to ancient grounds (Main Corridor). The sourcing of volume of river mix aggregates and boulders/cobbles from the two river sources in Misamis Oriental, 10 river sources located in Bukidnon, and the Davao River in Marilog District could unearth tangible relics valuable to local communities and indigenous peoples in the mountain areas. All Bukidnon rivers and the Davao River are revered and ritual grounds of the indigenous cultural communities. The loss of cultural grounds that sustain indigenous knowledge, systems, and practices will be a risk.

Possible disturbance to ancient grounds (Link Roads). The proposed scope of works (i.e. road widening, re-blocking, asphalt overlay, side ditching, new bridge construction, bridge widening, slope protection, road shoulder and turn-outs) will possibly disturb ancient grounds linked to the cultural values of the local and indigenous people communities. The possibility is high in Link Roads 2 and 3, as the proposed roads will cut across ancestral lands of indigenous cultural communities. Some archeological finds might be immovable, which must remain intact or preserved in its place.

1.4.4.4 Threat to Public Health and Safety

Labor influx. The project will entail hiring workers, which may originate outside the project sites and LGUs. This will lead to a labor influx in the local community, presenting risks of sexual exploitation and abuse/sexual harassment (SEA/SH), an increase in gender and child-related violence, and cultural insensitivity. With the entry of MTCIP, agricultural and forestry workers will likely apply for construction-related jobs. This poses labor risks, such as the hiring of workers younger than 15 years and coercing people to work beyond the assigned tasks. The project workers themselves face the risk to their own health and safety brought about by living in makeshift tents and temporary shelters with no basic utilities. Over time, migrants will be attracted to urban areas connected by MTCIP. This might strain LGU resources to manage

rapid in-migration and compromise the quality of public services provided to residents and migrants alike.

The services sector remains the biggest employer in the project regions of Northern Mindanao, Davao, and SOCCSKSARGEN, followed by agriculture, and then industry, including manufacturing. When disaggregated by major industry groups, the number of employed persons is highest in agriculture, hunting, and forestry (2,183,000).

Threat to human security from the escalation of personal, communal, and tribal violence or conflict. The entry of project workers from outside the area increases conflict and security risks in the host community. In the long term, the opening of roads will result in a decrease in insurgency but will likely increase organized crime because of the influx of people, goods, and services, especially along the Main Corridor. This issue was raised in a focus group discussion with the 4th Infantry Division officers on October 16, 2023.

Mitigating Measures

The following mitigating measures are recommended to address potential impacts on people during the construction phase:

- Coordinate with the concerned utility service providers and residents on the schedule of utilities relocation.
 - Coordinate with the host city/municipal and barangay LGUs and local PNP for maintaining peace and order for the duration of the construction activities.
 - Provide training on construction safety for workers.
 - Ensure wearing of proper and complete PPE by construction workers.
 - Ensure supervision of construction activities by trained professionals.
 - Implement occupational health and safety policy.
 - Install safety barriers to prevent unauthorized access to construction areas.
 - Install and maintain signs, signals, markings, and other devices that regulate traffic.
 - Implement traffic management plan in coordination with the local authorities.
 - Implement Labor Management Procedures including Code of Conduct, GRM for workers, etc.
- A code of conduct will be developed in which workers will be trained on SEA/SH. The LMP details the SEA/SH sensitive grievance mechanism and the availability of SEA/SH services to which survivors can be referred if they choose so.

1.5 Potential Impacts during Operation Phase

1.5.1 Land

Impact Assessment

In the operational phase, the projects are expected to cause significant vehicle traffic.

Mitigating Measures

To lessen the impacts of the road project, the following recommendations are made:

There must be rehabilitation in the area closely identical to its former state so that the

existing wildlife will continue its niche and live harmoniously with the other organisms. Premium species existing in the affected alignment will stay in their place for the fauna to live as their habitat, nesting ground, and hiding places, especially those animals that depend on the trees for their lives.

The clearing of vegetation must be done in a gradual manner so that the fauna will have enough time to adapt to the changes and migrate to another suitable area.

Create a monitoring scheme on environmental biodiversity once the project is fully operational in accordance with the conditions under the ECC permit.

Require a waste management plan system from pre-construction to post-construction phases of the project to minimize the particular hazards that may arise, especially those hazardous wastes that may be used in the project.

Proponents will enhance native plants and trees in open spaces and along the roads.

1.5.2 Water

Impact Assessment

After completion, the impacts on water quality are minimized. Yet, weathering can damage the roadwork, which can cause erosion and pollute nearby water bodies. Also, though rare, oil and grease spills from road accidents can happen, which can leak into nearby water bodies.

Mitigating Measures

The following mitigating measures are recommended to address potential impacts on water during operation:

Spill response training: Equipping personnel with proper training and resources allows for swift and effective response to spills when accidents happen, minimizing environmental damage.

Regular inspections: Regularly identifying and addressing minor road damage, such as cracks and potholes, prevents major deterioration that could lead to increased erosion.

1.5.3 Air

Impact Assessment

During the operation phase, increased vehicle usage may elevate emissions levels.

Mitigating Measure

Regular monitoring of air quality is vital for identifying and addressing potential issues, allowing for the implementation of optimal solutions in the future.

1.5.4 People

Impact Assessment

The projected positive impacts of MTCIP include the following:

Greater value for agricultural commodities and an increase in farmer income. Farmers will get more value for their products because the commodities remain in good condition when they reach the market. On a regular basis, transporting agricultural goods from the hinterlands to the poblacion creates more economic losses because farmers end up paying more for transportation than their potential income. The Link Roads will reduce travel time, which will translate to savings for farmers and a lower cost of transporting goods. Local business

entrepreneurs will be enticed to operate food and tourism-related establishments along the upgraded Main Corridor and Link Roads.

Road safety and road user convenience. Road safety will be enhanced on the Main Corridor and the link roads, resulting in fewer road crashes. Consultations among the road users indicate that they use the Main Corridor and the three Link Roads on a regular basis for work or livelihood, going to school, a health center, or a hospital, accessing government services, getting water, and transporting farm products such as coconut, banana, and vegetables to the urban market. The increased connectivity will enable road users to arrive at their destinations in a shorter time, for a lesser cost, and in a more convenient manner. The project addresses the Link Road users' difficulty in using the road when it rains or when it is flooded, especially roads with poor drainage. Local discussions raised the challenge of navigating the slippery, unpaved, uneven link roads, steep and narrow roads, as well as roads blocked by boulders. The poor conditions lead to road crashes, families being stranded when the roads are flooded, students being late for school, and teachers having to commute for hours to reach the school. With rehabilitated roads, users, especially older persons, children, and persons with disabilities, will be safer using the road. The local users report that some segments of the linked roads lack lighting and road safety signage. The senior citizens lament the lack of signs or crosswalks that could help them cross the street safely. With MTCIP road safety measures such as lighting and signage, users, especially women and older people, will feel safer using the road.

Enhanced access to and delivery of basic services. MTCIP communities will have easier access to basic services, including health, education, social welfare, and protective services. Road users will be able to reach offices, places of work, schools, health centers, and hospitals faster and at a lesser cost. State organizations will be able to provide basic services to geographically isolated and depressed areas, and the families will be able to use these services.

Employment opportunities. Project hiring for MTCIP provides local employment opportunities for skilled and unskilled workers.

Mitigating Measures

The following mitigating measures are recommended to address potential impacts on people during the operation phase:

- Installation of safety signage, guard rails, etc.

- Coordination with the LGU on traffic management.

- Setting of speed limits and installation of pedestrian lanes in sensitive receptor areas such as schools, commercial areas, health facilities, churches and offices, and residential areas.

1.6 Cumulative Impact Assessment

Cumulative impacts are defined as impacts “that result from the successive, incremental, and/or combined effects of an action, project, or activity (collectively referred to as “developments”) when added to other existing, planned, and/or reasonably anticipated future ones.”² Assessment of cumulative impacts is done when there is concern that a proposed

² IFC (2013). Good Practice Handbook (GPH) on Cumulative Impact Assessment and Management: Guidance for the Private Sector in Emerging Markets.

development under review may contribute to cumulative impacts on one or more valued environmental components (VECs).

In the case of the MTCIP, there were no concerns on cumulative impacts raised during the stakeholders' consultation activities conducted. There were no other existing or proposed national, regional, provincial, or local projects identified that will be implemented within the same period and/or area as the MTCIP.

Increased vehicular traffic, which can be considered a cumulative effect of the project since the proposed roads follow existing road alignments, will be addressed by the same mitigating measures for road safety and road convenience during the operational phase.

2. ANALYSIS OF ALTERNATIVES

2.1 Alternative for Project Categorization

As per the Revised Procedural Manual for DENR Administrative Order, Series of 2003, and EMB MC 2014-005 (Revised Guidelines for Coverage Screening and Standardized Requirements under Philippine EIS System), **infrastructure projects**, such as roads for widening and rehabilitation and/or improvement, are designated as non-environmentally critical projects (ECP) and are categorized as Category B (*Link Roads*) and D (*Main Corridor*) projects (**Table 6-1**).

Table 6-1. Project Threshold for Coverage Screening and Categorization (yellow for Link Roads and orange for Main Corridor)

Projects/Description	Covered (Required to secure ECC)			Not covered (may secure CNC)
	Category A: ECP	Category B: Non-ECP		Category D
	EIS	EIS	IEE Checklist	PD (Part I only)
3.4 Roads and Bridges				
3.4.2 Roads, widening, rehabilitation and/or improvement	None	>50% increase in capacity (or in terms of length/width) AND ≥ 20.0 km (length with no critical slope) OR ≥ 10.0 km (length with critical slope)	>50% increase in capacity (or in terms of length/width) AND >2 km but <20.0 km (length with no critical slope) OR >2 km but <10.0 km (length with critical slope)	≤ 50% increase in capacity (or in terms of length/width) but ≤ 2 km increase in length
<i>Source: Revised Guidelines for Coverage Screening and Standardized Requirement under the Philippine EIS System (EMB Memorandum Circular 005 July 2014)</i>				

The Main Corridor project encompasses a pre-existing paved concrete 2- to 6-lane highway previously recognized by the UPMO. Spanning a total length of 421.12 km, only 20 sections,

totaling 8.23 km, are subject to improvement. These sections are distributed across Regions X, XI, and XII, with each segment measuring less than 2.0 km. Consequently, in accordance with PD 1586 and EMB MC 2014-005, the aforementioned 20 sections of the Main Corridor fall outside the scope of PD 1586. It's essential to highlight that the enhancement of major roads pertains solely to these 20 sections, each less than 2 km in length, scattered across the three regions. Consequently, for the purpose of PD 1586, these sections are classified as Category D projects as per EMB MC 2014-005, Section 3.4.2, and may be eligible for a Certificate of Non-Coverage (CNC).

Meanwhile, the Link Roads (existing roads) are considered non-ECP projects under Category B, in accordance with the Philippine EIS system (EMB Memorandum Circular 05 July 2014), Section 3.4.2 Roads, widening, rehabilitation, and/or improvement.

2.2 Alternative for Alignment Options

Three alignment options were considered for the roads included in the MTCIP: Main Corridor and Link Roads 1-3. The selection of the final option is detailed within Workstream 3: Options Analysis Report and considers different technical, social, environmental, economic, and financial factors. A brief description of the options will be presented in **Table 6-2**.

Table 6-2. Summary of Alignment Options

Alignment Option	Key Points
Main Corridor	
<u>Option 1</u>	The best option 421.12 km following the present Main Corridor alignment Includes road widening to a minimum of four lanes. Construction of roadside elements (slope protection, drainage, paved shoulders) Reconstruction of PCCP and ACP, including road safety mitigation works
Option 2	Includes scope of works in Option 1, plus retrofitting of existing Atugan Bridge and construction of a new bridge parallel to Atugan Bridge. Implementation will be in stages, with major works staggered through a few years.
Option 3	Includes all scope of work in Option 2 plus additional rehabilitation of other bridges along the Main Corridor. It will also include road widening within downtown Digos City to mitigate traffic congestion.
Link Road 1	
Option 1	Paving of the 9.0 km gravel road until Kibenton Construction of paved shoulders, concrete-lined ditches, cross drains, outfalls, and covered-line ditches in urban areas
Option 2	Includes the scope of work in Option 1 plus the paving of an existing gravel road (2.3 km) diverting towards the Atugan River and the construction of a new bridge crossing this river. The alignment will connect to an existing paved road in Brgy. La Fortuna, which is also connected to the Main Corridor further east, provides increased access to farmlands.
<u>Option 3</u>	The best option Similar scope of work to Option 1 (9.0 km) plus connects this to the existing route between Kibenton and Intavas, resulting in greater access to Mt. Kitangland Range Natural Park and more public-owned farms. Includes the upgrading of the existing spillway across the Atugan River to a bridge.
Link Road 2	
Option 1	Present alignment of 58.34 km with existing 35 km PCCP Construction and paving of unpaved sections (23 km), improvement and widening of existing PCCP, concrete paved shoulders, slope protection works, and lined ditches. Construction of 3 bridges and one box culvert

Alignment Option	Key Points
Option 2	Follows the existing route (Option 1); however, no widening or improvement will be undertaken; only maintenance will be undertaken along the existing PCCP. Construction and paving of unpaved sections, paved shoulders, ditches, and slope protection Construction of 3 bridges and box culverts
<u>Option 3</u>	The best option Follow the present alignment with a diversion to the existing Malabog-Gumitan Road towards Pangi-Agsam Road, then connect back to the existing alignment. Construction of PCCP in a paved section (11.94 km), paved shoulders, lined ditches, and slope protection works Construction of 3 bridges and 1 box culvert
Link Road 3	
Option 1	44.5 km DPWH DEO suggested alignment with a diversion into Brgy. Kidandan Construction of 14 new bridges, 3 bridge reconstructions, asphalt overlay, lined ditches, paved shoulders, footpaths, and slope protection Provisions for revetments for sections running beside the river
Option 2	45.03 km following the alignment recommended by the DPWH-XII FS, which involves several river crossings across the length of the Mainit River. Includes 10 new bridges and 3 bridge reconstructions. Construction of roads, lined ditches, paved shoulders, footpaths, and slope protection.
<u>Option 3</u>	The best option Similar to Option 2, except only 2 bridges will be reconstructed and 1 bridge (Mamulawan Bridge) will be retained and rehabilitated.

The following **Figure 6-1**, **Figure 6-2**, **Figure 6-3**, and **Figure 6-4** present the maps of the different options that were considered for the four road components of the MTCIP.

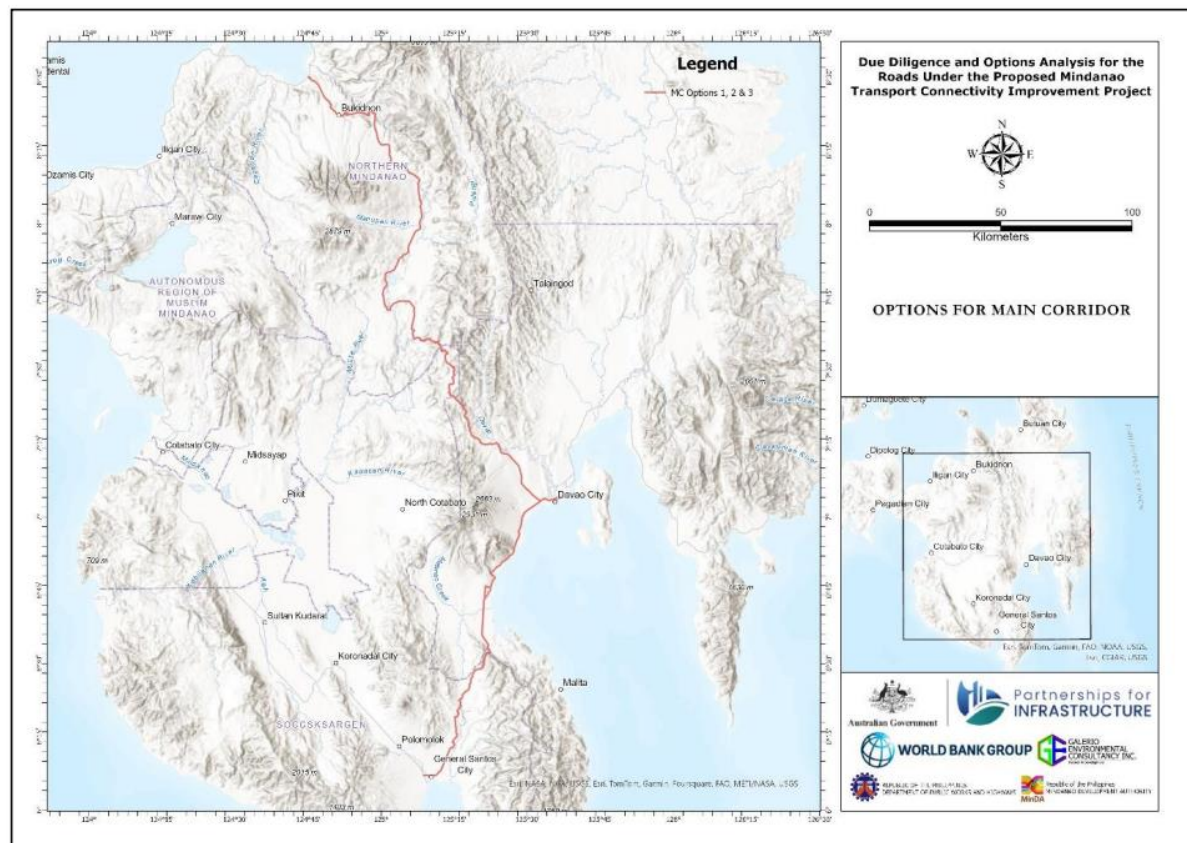


Figure 6-1. Options for the Main Corridor

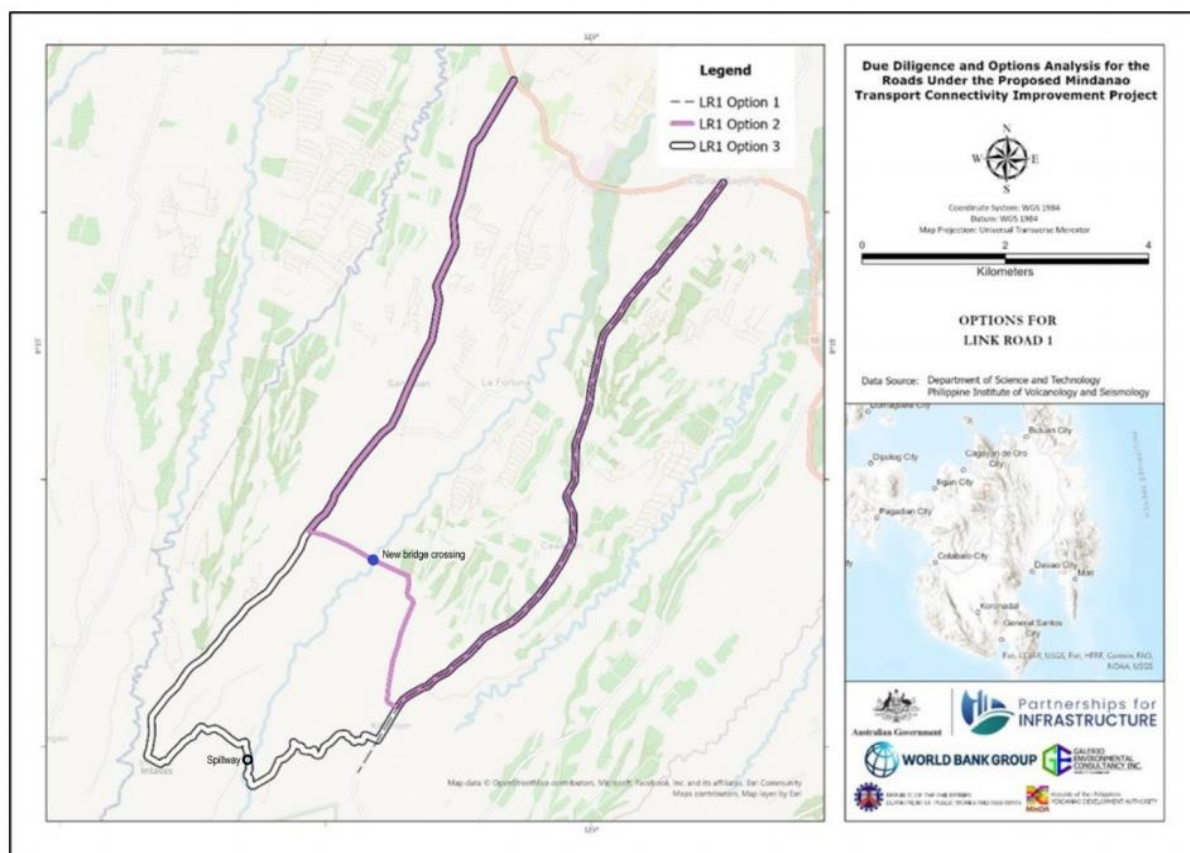
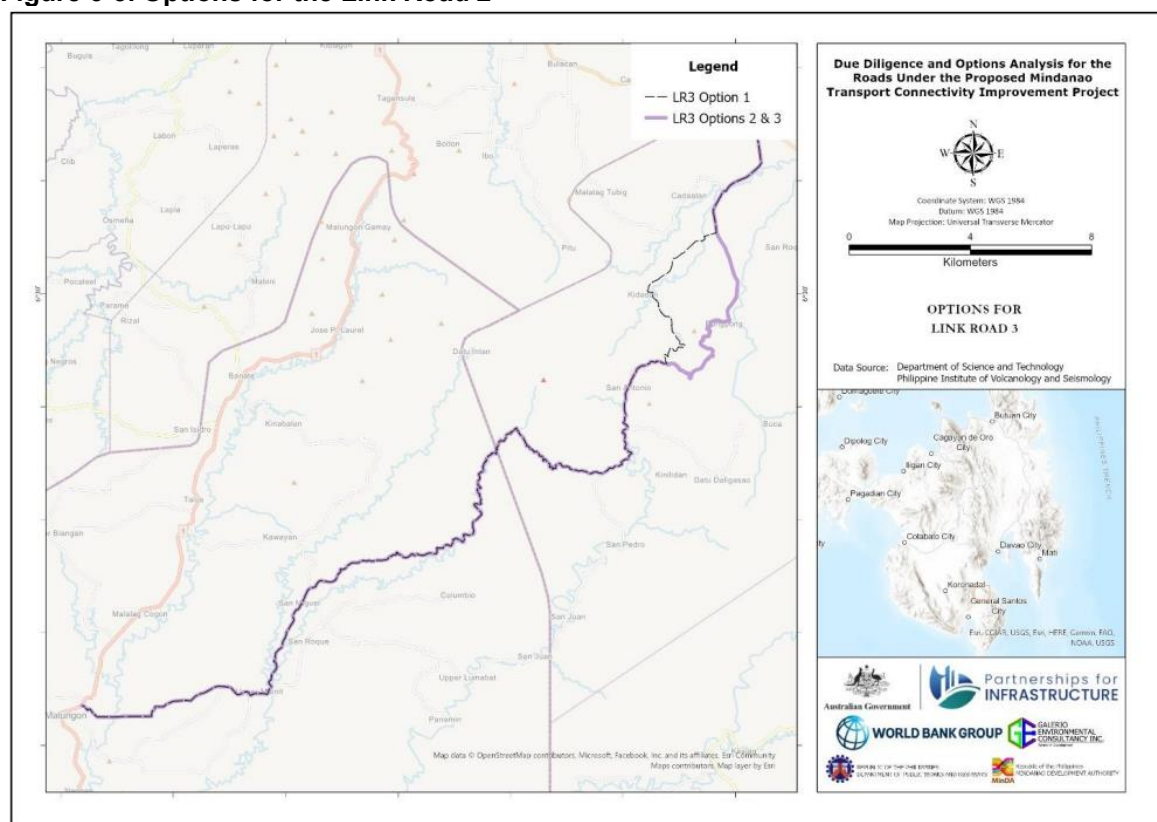
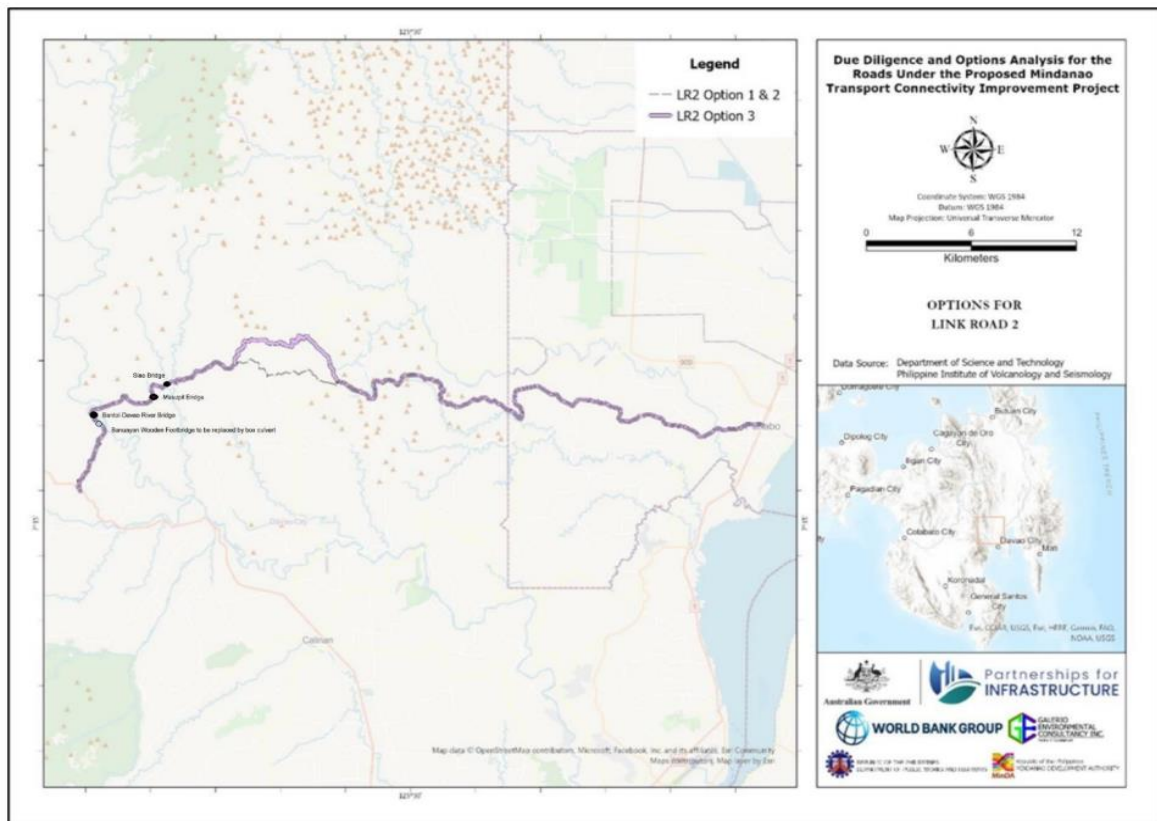


Figure 6-2. Options for the Link Road 1



2.2.1 Comparison of Alternatives

The option selection process takes into consideration key criteria categorized into technical, environmental, social, financial, and economic. The options were carefully rated using numerical scaling and weighing, with the highest-scoring option being selected as the best option. Considerations under the technical category include the lengths of new road and bridge construction and rehabilitation, the overall road alignment characteristics, the extent of climate resilience works such as the construction of slope protection, and the ease of construction activities. For the environmental aspects, parameters that were considered include the extent of the impact on water quality, trees that may need to be cut down, existing geologic hazards that the alignment will traverse, and the change in land use precipitated by the project. For the social parameters, these include the number of structures that will be affected by road and bridge construction activities, project-affected people that may need to be relocated, the impact of the project on vulnerable groups, and the impact of the project on the population. The last category, financial and economic, considers the total cost of construction as well as the acquisition of the road right of way, as well as the impacts of the project on travel time savings, VOC savings, value added to tourism, and gross value added to the agricultural production of the area.

From the options analyses undertaken, as detailed in Workstream 3, for the Main Corridor, the best option is Option 1, which includes the widening of the Main Corridor to a minimum of 4 lanes and re-blocking of distressed sections. This option does not include major bridgeworks, such as the construction of a new Atugan Bridge, in consideration of the budgetary constraints of the project.

For Link Road 1, the best option is Option 3, which provides connectivity between Kibenton and Intavas, eventually forming a loop back into the Main Corridor. This enhances the accessibility of farmlands in the agricultural barangays as well as improving climate and disaster resilience by offering redundant access to the Main Corridor should problems arise at Atugan Brige, the only Atugan River crossing along the Main Corridor. This alignment also adds tourism value to the area as it connects to the entry point of Mt. Kitanglad Nature Park without encroaching on the park buffer zone. Works planned for this Link Road 1 include the paving of the existing 9-kilometer gravel road, the upgrading of the existing spillway across the Atugan River to a bridge structure, and the construction of paved shoulders and lined ditches.

For Link Road 2, the third option is also the best option. This Link Road provides more efficient connectivity between Panabo City and the northern areas of Davao City and the Province of Bukidnon. And Option 3 alignment entails the least cost by connecting to existing paved Malabog-Gumitan Road and Pangi-Agsam Road. The use of this road section also reduces the number of affected structures and the projected number of affected people that may need relocation.

Link Road 3 connects the Main Corridor, around Malungon in the Davao del Sur area, to the center of Sta. Maria, Davao Oriental. Option 3 is the best option for this link road, which significantly improves access to farmlands and connectivity to markets in this region. It is relatively cheaper than other options, with 35.25 km of new road construction and 10 new bridges, with another 2 for reconstruction and 1 for rehabilitation.

2.2.2 Environmental Impacts of Alternatives

The environmental impacts of the project alternatives and options were evaluated and compared based on several criteria. These criteria were given “weighting proportions” based on the consensus of experts as to their level of importance or impact on the environment in reference to the proposed development. The proportions then represent the fraction of each criterion in the total environmental score of each option.

The criteria considered for the environmental impact of the project are the following:

Water quality: the effect on local water bodies, including measures for water pollution control, sediment runoff, and protection of aquatic ecosystems.

Number of trees affected: loss of trees along the proposed rehabilitation areas.

Geologic hazards: length of the alignment that runs through areas that are identified as landslide-prone and flood-prone.

Land use: affected land use change of forestland and agricultural lands along the project alignment.

The social impact of the project was assessed using a similar methodology as the environmental impact. The social criteria considered for the evaluation of options are the following:

Number of affected structures: loss of residential, residential-commercial, commercial, and community structures along the proposed rehabilitation areas.

Number of PAPs for relocation: physical and economic displacement of project-affected people (PAPS) due to land acquisition for the proposed road rehabilitation.

Impact on the population: the potential for the project to stimulate economic growth, create job opportunities, increase property values, and enhance the local economy.

Impact on vulnerable groups: road safety and security of PAPs are considered vulnerable groups.

The best option, the selected option, for the MTCIP was taken from the highest scorer in the options analysis for all road types. This ensures that the adverse impacts and negative factors are kept to a minimum and the positive effects of the projects are maximized. The alignment options considered are relatively similar, as most of the routes are well established and in use, with minor modifications to optimize the benefits of the project and reduce the environmental and social footprint.

For the Main Corridor, the chosen option (Option 1) allows for better and more resilient connectivity and improves on the current status of roads that connect major commercial and industrial cities within Mindanao while staying within the projected budget ceiling of the project, optimizing the economic and financial benefits. In Link Road 1, the final option selected (Option 3) provides increased access to farms and improves the climate resilience of the transport network in the area without increasing environmental impact by connecting to existing road networks and minimizing ground activity that will affect natural elements through minimal road widening and no new river crossings at the Atugan River.

The Link Road 2 selected option (Option 3) also provides the necessary connectivity and access to farmlands and communities with the smallest environmental impact by connecting to the existing paved road in Malabog-Gumitan, thereby reducing the need for new road openings that will affect the surrounding forest and natural habitats. This option will also

increase the number of people who can directly benefit from the road network as it passes through more established community centers.

Finally, the Link Road 3 selected option (Option 3) affords an efficient transport route between Saranggani, Davao del Sur, and Davao Occidental that was not possible prior to this project because of the lack of connected paved roads in this alignment. This Link Road will significantly boost the economic opportunities in the area and provide efficient passage for farm products and services. The selected option optimizes the economic and financial benefits of the project by minimizing the cost by reducing bridge construction costs and retaining one bridge that is still serviceable.

2.3 Alternative for Project Management

Traditional management by administration has been commonly implemented by the DPWH on its road development projects. Other alternative types of project management may be implemented based on the prevailing goals and constraints of the agency. For the MTCIP, the following alternative management may be implemented based on the different procurement methods used by each type:

Design and Build (D&B), also known as turnkey project management, involves a single entity to handle both the design phase and the construction phase.

Earned Value Management (EVM): This is an efficient method to monitor the progress of the project by comparing planned work with actual work being accomplished. It is good for assessment of project progress, scope integration, scheduling, and cost management.

Output and Performance-Based Road Contracts (OPRC): This is an approach to road infrastructure development that utilizes the rewards system based on performance and output achieved.

Waterfall Project Management: This is a traditional method where projects are divided into sequential phases and require detailed documentation to record the project's progress, decisions, and design.

Systems Approach: This method manages road projects akin to the developmental process of a system with various components and involves interdisciplinary collaboration, stakeholder engagement, lifecycle management, sustainability and environmental considerations, adaptability and flexibility, and risk management.

Critical Chain and Critical Path Approach: This is a dynamic and resource-sensitive method of project management that focuses on the schedule and resources of the project.

Public-Private Partnership (PPP): This is a collaborative framework between the government and private sector to finance, build, operate, and maintain road projects.

2.4 Alternative for Resources

The inventory of resources within the areas traversed by the MTCIP shows that there are available sources of building materials and aggregates that can be locally sourced for project implementation. Along the Main Corridor, several cement manufacturing plants such as Holcim and La Farge (now Republic) Cement and Apo Cement are proximal to the alignment. There are also nine accredited asphalt plants within Regions X, XI, and XII. Batching plants within Region X include nine accredited companies and another ten in Regions XI and XII. Aggregates can be sourced from several river quarries along the alignment, with a total of 121 quarry material suppliers in the three regions.

Along the Link Roads, Link Road 1 can utilize material sources that are found along the Main Corridor. While Link Road 2 traverses areas where several local quarry suppliers operate, for Link Road 3, material sources in the Davao-GenSan segment of the Main Corridor may be potential suppliers for the construction.

2.5 No Project Option

Mindanao is the second-largest island in the country and hosts rich natural resources that produce significant agricultural products that support national food security and economic growth. The island has historically faced many development challenges as well as conflicting conditions that have further hindered its growth. Road networks are crucial factors that promote the transport of resources, goods, and services that will enable Mindanao to catch up and boost its agricultural productivity, as well as attract investment, increase tourism, improve access to services, facilitate peace efforts, reduce poverty, and enhance disaster response and resilience.

Without the MTCIP project, it is expected that the Main Corridor will experience continued declining levels of service, resulting in higher congestion rates, slower travel speeds, and significantly longer delays. An increase in congestion may also lead to an increase in road accidents. The bridges would also further degrade, which may pose safety concerns to road users and critically endanger the connectivity of the whole island.

Within Link Road 1, should no project ensue, residents of Kibenton and Cawayan will continue to have long travel times and be subjected to muddy and flooded roads, which may be impassable during inclement weather. This condition will significantly hinder economic growth in the region because of the lack of linkage to industry, tourism, trade, and commerce.

Should there be no project along Link Road 2, connectivity between Panabo City and the northern portions of Davao City and Bukidnon (BuDA) will be nonexistent as vehicular traffic will be unable to make the several river crossings. This will stifle economic growth in the region because of the lack of efficient transport of goods to the market and access to services, as well as employment opportunities.

The Link Road 3 will provide connections between the provinces of Saranggani and Davao Occidental, without such connections, communities in the inland areas will travel longer distances to reach other provinces. Transport of goods and services is also extremely limited with the lack of connected roads, and access to employment and trade opportunities will be very scarce.

3. STAKEHOLDERS' ENGAGEMENT

The conceptualization, planning, and design of MTCIP include consultation with direct road users, government agencies and offices, local government units, businesses, and other sectoral groups that will be directly affected by the project. Stakeholders' engagement was planned at the start of the project. The strategies to consult and inform them were laid out in a stakeholder's engagement plan (SEP). The SEP aims to identify the main stakeholders, and given the conflict situation in the area, it describes the best approach to engaging them. The SEP will also provide the opportunity to involve key stakeholders in the discussions so that the project can be used as an instrument for peacebuilding and/or conflict resolution. The SEP also contains a GRM for stakeholders, which applies to the project.

The steps and processes for stakeholders' engagement with MTCIP are described below.

3.1 Stakeholder Identification

The Due Diligence and Options Analysis (DDOA), the Consultant identified affected stakeholders, other interested stakeholders, and vulnerable groups. The major and direct stakeholders, engagement activities, and information needed for DDOA are indicated in **Table 7-1**. These stakeholders and focal persons will be consulted and engaged in all phases of the study, but especially in the following:

- a. Establishment of the environmental and socio-economic profile of the Project areas, including the direct and indirect impact zones for the project components considered.
- b. ES assessment to identify the E&S risks considering the WB's Environmental and Social Standards (ESS) and recommendation of potential mitigating or enhancement measures through site-specific environmental and social management plan (ESMPs)
- c. Conflict analysis and identification of vulnerable groups, particularly the IPs along the Main Corridor and in the five Link Roads.
- d. Conduct of capacity development of DPWH in managing ES risks by increasing their knowledge on the WB Environmental and Social Framework (ESF), including the conduct of an environmental and social assessment (ESA) and enabling them to develop instruments under relevant ESS.

Table 7-1. Summary of DDOA Activity and Stakeholder Engagement Methodology

Stakeholder/Focal Person	Stakeholder Type	Data and Information Requests	DDOA Activity	Stakeholder Engagement Technique/Methodology
DPWH Department of Public Works and Highways	Implementing Agency	Project information List of project cities, municipalities, and barangays Environmental permits secured and records of compliance monitoring	Environment and socio-economic profile E&S assessment Identification of E&S risks Capacity development	Coordinate with and request endorsement of data and information requests from other government agencies, regional line agencies, and project LGUs. Collaborate on the conduct of five stakeholder consultations among project affected provinces or provincial clusters. Collaborate on 'learning by doing' activities. Conduct interviews with key resource persons.
DENR Department of Environment and Natural Resources	Interested party	Data on endangered flora/fauna and sensitive/critical natural habitats/protected areas in the project areas	E&S assessment Identification of E&S risks	Request and review EIS and other environment data. Invite to stakeholder consultations
NCIP National Commission on Indigenous Peoples NCMF National Commission on Muslim Filipinos	Interested parties	Data on hydrology/hydrogeology, water quality and air quality	Conflict analysis and identification of vulnerable groups identification of E&S risks	Invite to stakeholder consultations
NEDA National Economic and Development Agency	Interested party	Maps showing geologically hazard areas (erosion, landslide and flood prone areas, active faults, volcanic activity) Maps showing Land Cover/Use	Identification of vulnerable groups E&S assessment Identification of E&S risks	Request and review poverty information and RDPs for the socio-economic profile, E&S assessment, and identification of E&S risks
PSA Philippine Statistics Authority	Interested party	(Same with data request from DENR) EIS of any section of the MTCIP corridor or link roads	Socio-economic profile Identification of vulnerable groups	Review planned development projects in the region that might affect the MTCIP. Invite to stakeholder consultations.

Stakeholder/Focal Person	Stakeholder Type	Data and Information Requests	DDOA Activity	Stakeholder Engagement Technique/Methodology
				Request and review data
DHSUD Department of Human Settlements and Urban Development	Interested party	Poverty incidence and magnitude of poor population and families, by province, all MTCIP provinces Regional Development Plan, Regions 10, 11, 12	Socio-economic profile Identification of vulnerable groups Identification of direct and indirect impact zones	Request and review spatial information Invite to stakeholder consultations
MinDA Mindanao Development Authority	Interested party Coordinating agency	Total barangay population by sex, all MTCIP barangays Total number of households, all MTCIP barangays Men and Women in SOCKSARGEN Region, Davao Region, Northern Mindanao Region Land use map, by province or region, all project provinces, Regions 10, 11, 12 List of major resettlement projects in MTCIP area Number of informal settler families in MTCIP area Population by housing tenure, MTCIP area	Identification of vulnerable groups Conflict analysis	Request updated information and collaborate in ground-truthing of analysis. Coordinate in all field activities
Project Affected Households (PAHs) Directly and indirectly affected: displacement, livelihood disruption, access to resources and services	<i>Project affected, vulnerable groups</i>		E&S assessment Identification of E&S risks and mitigating measures	Invite to stakeholder consultations Interviews with randomly selected household heads Conduct of survey questionnaire
IP groups Bukidnon – Talaandig, Manobo, Higa-onon Davao – Mansaka, B'laan, Mandaya, Tagakaulo Maguindanao ethnic group <i>Islamized ethnic groups</i>	<i>Project affected, vulnerable groups</i>		E&S assessment Identification of E&S risks and mitigating measures Conflict analysis	Invite to stakeholder consultations Courtesy call/ dialogue with Council of Elders, together with NCIP, NCMF and LGU Comply with FPIC guidelines

Stakeholder/Focal Person	Stakeholder Type	Data and Information Requests	DDOA Activity	Stakeholder Engagement Technique/Methodology
Barangay and city/municipal/provincial government units	<i>Interested parties</i>	LGU Ecological Profile Comprehensive Development Plan Comprehensive Land Use Plan Local Ordinances /declarations that may apply to the Project Conflict-related information, e.g., land disputes, ideological disputes, political dissidents, etc.	Environment and socio-economic profile Identification of vulnerable groups Identification of direct and indirect impact zones	Request (thru letter, email or stakeholder visits) and review LGU information, including ongoing and planned projects that will affect the MTCIP or be affected by it Invite to stakeholder consultations\

3.2 Information Disclosure, Consultation and Participation

Based on the DPWH Social and Environmental Management Systems (SEMS) Manual of 2021, initial public project announcements through courtesy calls, IEC, and consultation with the regulatory agencies and LGUs, as well as with affected residents, civil society, and NGOs, shall be done as early as the project identification phase. This is to gather, as early as possible, feedback and/or support for the project from the stakeholders and other interested parties.

Through consultation with the local communities and LGU officials, the environment and social safeguards specialist also identifies any community issues related to the project, such as incidences of flooding, flood-prone areas, availability of road access and materials stockpile areas, proximity to sensitive receptors such as residential communities and religious places, the presence of cultural and historical sites, trees and crops, and economic enterprises (e.g., farm product loading areas, copra dryers, etc.) that may be affected. By the project. Considering and integrating the aforementioned community issues in the formulation of mitigation measures shall pacify opposition parties to the project, if there are any.

Continuing stakeholder engagement and information disclosure continue during project implementation and operation, particularly during emergency response after the occurrence of a natural disaster such as an earthquake or typhoon, and rehabilitation works may have to be urgently undertaken.

MTCIP will engage with affected communities, including host communities, through the process of stakeholder engagement described in WB ESS10. Decision-making processes related to resettlement and livelihood restoration will include options and alternatives from which affected persons may choose. All PAPs and stakeholders will be meaningfully consulted in all phases of the resettlement planning and implementation processes.

Disclosure of relevant MTCIP information and meaningful participation of affected communities and persons will take place during the consideration of alternative project designs and thereafter throughout the planning, implementation, monitoring, and evaluation of the compensation process, livelihood restoration activities, and relocation process.

Project information disclosure will be carried out through community meetings and the distribution of brochures and other information materials. Materials will be prepared in the local dialect. The material shall contain MTCIP details and other relevant information and shall be distributed by DPWH UPMO to all PAPs. Aside from community meetings, the UPMO shall mount posters with the same information contained in the brochure in conspicuous locations such as the provincial, municipal, city, and barangay halls where the project will be located.

Community meetings will be organized in accessible locations and at convenient times to allow the participation of all PAPs. Separate discussions with vulnerable groups will be held to ensure that their specific needs and views are obtained and acted upon through the RPF. If necessary, DPWH will provide the PAPs with a transportation allowance.

Additional provisions apply to consultations with Indigenous Peoples, in accordance with WB ESS7. In accordance with the Indigenous Peoples Policy Framework (IPPF), Indigenous Peoples Plan (IPP) will be formulated and shall be part of the Memorandum of Agreement (MOA) between the IPs/ICCs, NCIP, and DPWH-UPMO-RMC II. It shall be disclosed to WB for clearance and shall be considered part of any investment. Engagement with Indigenous Peoples will follow requirements for free, prior, and informed consent (FPIC) where relevant.

Annex 20-22 presents the summary of information disclosure, consultation, and participation activities conducted by DPWH-UPMO-RMC, MinDA, and GECl. It shows the dates, venue, number, and gender of people attending the meetings, including their comments, concerns, and corresponding responses.

Consultations among the road users of the Main Corridor and Link Roads indicate that they use the Main Corridor and the three Link Roads on a regular basis for work or livelihood, going to school, a health center, or a hospital, accessing government services, getting water, and transporting farm products such as coconut, banana, and vegetables to the urban market.

Their experience, however, includes difficulty using the road when it rains or when it is flooded, especially roads with poor drainage. It is a common challenge to navigate slippery, unpaved, uneven-link roads, steep and narrow roads, as well as roads blocked by boulders. The poor conditions lead to road crashes, families being stranded when the roads are flooded, students being late for school, and teachers having to commute for hours to reach the school. The local users report that some segments of the link roads lack lighting and road safety signage.

On a regular basis, transporting agricultural goods from the hinterlands to the Poblacion creates more economic losses because farmers end up paying more for transportation than their potential income.

During medical emergencies, residents say it is difficult to get timely help when they have to navigate the poor road conditions. The senior citizens wish that there were signs or crosswalks that could help them cross the street safely. The portions of the Main Corridor that pass through the town center are observed to have traffic congestion. Finally, road users are frustrated by the endless road repairs that often delay traffic.

3.3 Grievances Redress Mechanism (GRM)

Grievance Redress Mechanism (GRM) is designed for MTCIP to solicit feedback from and to project stakeholders and address issues, concerns, complaints, and recommendations related to project activities and the environmental and social operation of the project.

The GRM for MTCIP will adhere to the principles and steps stipulated in Republic Act 10752 and the DPWH Right-of-Way Acquisition Manual (DRAM). The GRM levels, procedures, and expected resolution are illustrated in detail in **Figure 7-1**.

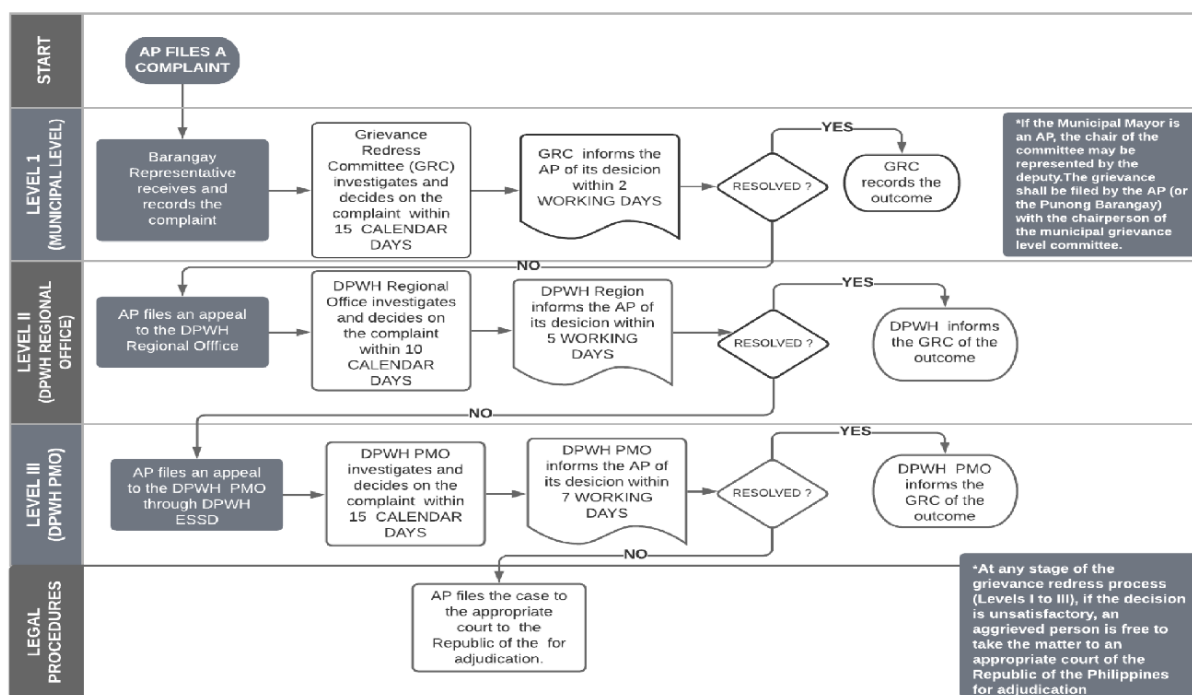


Figure 7-1. Detailed GRM Flowchart for MTCIP

3.3.1 GRM for RROW, Involuntary Resettlement

Right-of-way acquisition and resettlement for MTCIP must be fully compliant with RA 10752 and its IRR, as well as with the World Bank safeguards requirement on a grievance redress mechanism.

Low-to-medium grievances about the environmental and social performance of the project during the construction phase will be handled by the Grievance Officer (GO), while highly sensitive grievances will be handled by the Grievance Redress Committee (GRC). The GRC shall be chaired by DPWH, with members from multi-sectoral organizations. Both the GO and GRC are expected to provide expeditious resolutions to complaints.

Complaints during the operations phase will be brought to the attention of the DPWH UPMO. DPWH UPMO shall promptly address, at no cost to the complainant and without retribution, any complaints, and concerns.

The creation of the GRM and its operationalization shall be included in appropriate sections of the civil works contract of MTCIP.

A Grievance Desk shall also be established at the project site to ensure timely conveyance of any grievance filed by the complainant(s) to the GO/GRC.

PAPs will be exempt from all administrative and legal fees incurred pursuant to the grievance redress procedures. All complaints received in writing (or written when received verbally) from PAPs will be documented and acted upon immediately according to the above-outlined procedures.

DPWH UPMO shall disclose the proposed GRM during public consultations.

During stakeholder engagement activities such as public consultation meetings and small or focused group discussions with affected stakeholders, grievance redress shall be discussed and presented. Leaflets and brochures will also contain information regarding grievance redress. When available, the project website will also contain links to grievance redress information and complaint forms. Names and contact numbers of responsible persons in this grievance mechanism shall be included in the RAP report.

Aggrieved parties or complainants may also submit their complaints to DENR-EMB. The EMB is mandated by PD 1586 to act on complaints about the environmental and social performance of projects issued by an ECC.

3.3.2 GRM for Indigenous Peoples

The WB ESF and ESS7 require the establishment of mechanisms for grievance resolution to guarantee that IPs' recommendations and development plans are incorporated into the implementation of IPPF. It also provides IPs with a legal platform to monitor and evaluate the implementation of IPPF. The grievance mechanism allows the affected ICCs and persons to obtain rightful compensation, replacement, and resolution on any RROW acquisition, involuntary resettlement, natural resource use restriction, or other issues in the project operation.

Joint DPWH and NCIP grievance procedures for IP will be followed in the steps enumerated below:

Conflicts within the affected IP community will be addressed within the community itself in the context of its customary law and customary dispute resolution process and mechanisms, in the presence of the relevant staff of the NCIP office with jurisdiction over the area, and if so invited, project-related staff and other stakeholders, e.g., formal local leadership in the barangay.

Intercommunity conflicts will be addressed between the communities themselves, according to their customary or agreed-upon dispute resolution processes and mechanisms. If an outside facilitator, mediator, or arbiter is required or requested, DPWH-PMO and LGU, together with their monitoring units in the field, will seek the intervention of the NCIP to act as facilitator, mediator, or arbiter. This guideline applies to conflicts or disputes between the IP community and any of the project units and implementers.

The social safeguards focal person at the Regional Interim Monitoring Committee (RIMC) and sub-committee levels shall document the proceedings of the discussion or negotiations. This is in addition to the documentation done by the IP community themselves and by the NCIP. If there is no satisfactory result or impasse, the IP communities shall be allowed to elevate their complaints and grievances to the Local HPBS Grievance Team. The grievance procedure established herein in no way substitutes for or replaces the grievance procedure set forth in the FPIC Guidelines of 2012. At their choosing, the IPs may avail of the grievance procedure and mechanisms spelled out in the FPIC Guidelines of 2012.

Further, NCIP/IP/Ethnic Group membership in all Grievance Teams and Levels shall be ensured by the DPWH/LGU.

DPWH's Grievance Mechanism Process Flow will be the general reference for the hearing and resolution of any issues in RROW within ancestral domains and IPs/ICCs. All costs

incurred in meetings, consultations, communication, and reporting/information dissemination will be borne by DPWH. There are no costs for the complainant at any stage of the GRM. Cost estimates for grievance redress are included in the resettlement cost estimates under administration costs. The complainant will not have to pay any fee for his or her case (official or unofficial).

3.3.3 Subproject-Specific GRM

A subproject-specific grievance redress mechanism (GRM) will be established at the DPWH District Engineering Office (DEO) before the start of construction to receive, evaluate, and facilitate the complaints and grievances of affected persons on the sub-project's environmental performance. This mechanism will be disclosed to the host communities prior to the commencement of site work. Contact information on how to access the GRM will be included in project information billboards.

The District Engineer will appoint an Environment Officer and establish the Grievance Redress Committee (GRC), to be chaired by the DPWH District Engineer. Members will include the following:

- a. the contractor's highest official at the site, such as the construction manager or the construction superintendent;
- b. Barangay Chairperson; and
- c. Environment Specialist of the Construction Supervision Consultant.

3.3.4 Filing of Grievance

For the quick filing of complaints, the GRC will use the grievance intake form. The DEO's Environment Officer will be responsible for the registration of grievances and communication with the aggrieved party. To facilitate addressing complaints, the contractor will be required to provide contact details of its representative(s) on site in its campsite offices and on project billboards that will be erected at the starting point of the project. The billboard shall likewise include the contact details of DPWH representatives in the event that complaints are not readily addressed by the contractor on-site.

The steps to be followed in filing complaints and the procedures for redress are the following:

- a. The complainant will provide the background and file the complaint directly, either verbally or in writing, with the on-site contractor representative(s) and the barangay through its officials for immediate corrective action.
- b. The contractor(s) representative is then required to act immediately on valid complaints and record such complaints in a complaints registry that must be maintained on the project office.
- c. Complaints that cannot be immediately attended to by the contractor shall be filed either verbally or in writing with the DEO or with the DEO's Environment Officer, who will assist the complainant in filling- out the grievance intake form.
- d. Within 2 working days, the Environment Officer, contractor's representative, and complainant will discuss if the complaint can be resolved without calling for a GRC meeting.
- e. Within 3 days of lodging the complaint, the DEO's Environment Officer will provide the complainant with written feedback on the process, steps, and timeframe for resolving the complaint.

- f. If the complaint cannot be resolved, a GRC meeting with the complainant will be called within 5 working days.
- g. The GRC will have 15 days to resolve the complaint.
- h. The complainant will receive feedback from the DEO's Environment Officer within 5 working days after the various steps of the GRM are done.
- i. If the complainant is unsatisfied with the decision, the existence of the GRC will not impede the complainant's access to the government's judicial and administrative remedies or through concerned government agencies (e.g., the Community Environment and Natural Resources Office, the Provincial Environment and Natural Resources Office of DENR, and the Regional Offices of Environmental Management).

The GRC will receive, follow up on, and prepare monthly reports regarding all complaints, disputes, or questions received about the project and the corresponding actions taken to resolve the issues. These reports will be included in the semi-annual environmental monitoring reports to be submitted by DPWH to WB.

4. ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN (ESMP)

4.1 Environmental and Social Management Plan

The Environmental and Social Management Plan (ESMP) is formulated to minimize or mitigate the potential adverse impacts and enhance the potential positive impacts of the proposed project. **Table 8-1** presents the proposed ESMP for every phase of the MTCIP. Indicated in the matrix are the mitigating and enhancement measures, the entities responsible, and the estimated cost of implementing the measures for each identified potential project impact. The environmental and social management measures implementation costs per package is provided in the **Annex 23**.

4.1.1 Construction Environmental Program

A Construction Environmental Program shall be implemented to avoid, minimize, and/or mitigate the anticipated environmental impacts of the proposed project construction activities. The program shall be implemented by the designated contractor(s) under the supervision of the DPWH-UPMO-RMC II and shall be consistent with the conditions stipulated in the ECC granted for the project. Among the management measures to be included in the program are:

- a. Avoidance or minimization of unnecessary earth movement and vegetation clearing;
- b. Implementation of a solid waste management plan in accordance with RA 9003
- c. Implementation of a hazardous waste management plan in accordance with RA 6969;
- d. Implementation of an oil spill management plan;
- e. Elimination or minimization of pollution sources through the application or installation of pollution control measures such as dust suppression techniques, noise control devices, and non-vibration or vibration-avoiding techniques during construction;
- f. Elimination or minimization of occupational health and safety risks through strict implementation of occupational safety and health plans and procedures during construction; and
- g. Implementation of a traffic management plan in coordination with the local authorities.

4.1.2 Solid Waste Management

In accordance with RA 9003, a Solid Waste Management Plan (SWMP) shall be formulated and implemented by the DPWH and its Contractors to properly manage the solid waste that will be generated during the pre-construction, construction, and demobilization phases of the Project. The plan shall include measures on the following:

- a. Waste minimization, reduction, and recycling measures;
- b. Waste segregation consistent with the local scheme;
- c. Provision of solid waste handling and interim storage facilities (i.e., dumpsters, trash bins) at strategic areas within the workers' camps and construction sites; and
- d. Coordination with the local authorities and/or DENR-registered haulers for the timely collection and disposal of municipal solid waste and construction debris.

4.1.3 Hazardous Waste Management

In accordance with RA 6969, a Hazardous Waste Management Plan (HWMP) shall also be formulated and implemented by the DPWH and its Contractors to properly manage the

hazardous waste that will be generated from the Project activities. The plan shall include measures on the following:

- a. Hazardous waste identification, labeling, and segregation scheme;
- b. Onsite handling and interim storage procedures;
- c. Coordination with DENR-registered haulers and treatment, storage, and disposal (TSD) facilities.

4.1.4 Occupational Safety and Health

The DPWH occupational health and safety policy shall be implemented throughout the Project phases in order to prevent or reduce the likelihood of damage to life and property. The following are basic occupational health and safety guidelines that may be applicable to the Project:

- a. All construction personnel shall undergo a construction safety and health awareness seminar conducted by DOLE-accredited safety professionals, organizations, or institutions prior to deployment.
- b. A Construction Safety and Health Committee shall be formed with the following personnel as described in DOLE Department Order No. 13, Series of 1998:
 - (i) Project manager or his representative as the chairperson ex officio;
 - (ii) General Construction Safety and Health Officer;
 - (iii) Construction Safety and Health Officers;
 - (iv) Safety representatives from each subcontractor,
 - (v) Doctors, nurses, and other health personnel, pursuant to the requirements stated in Rule 1042 of the OSHS, who shall be members ex officio;
 - (vi) Workers' representatives (minimum of three union members if organized, not necessarily from one employer).
- c. Workers must be provided with and be required to wear the necessary personal protective equipment (PPE) within the project construction sites at all times.
- d. The required minimum inventory of medicines, supplies, and equipment shall be provided on the construction site.
- e. All heavy equipment shall be operated only by their duly certified operators.
- f. Construction safety signage, in a language understandable to most of the workers employed, shall be posted at strategic locations to warn the workers and the public of hazards in the workplace.

4.1.5 Vehicular Traffic Management

A Traffic Management Plan (TMP) shall be formulated and implemented in coordination with the concerned local government authorities. The plan may include measures on the following:

- Provision of traffic safety barriers, warning signs, and markings in the vicinity of construction sites;
- Imposition of appropriate speed limits;
- Provision of traffic personnel with appropriate PPE (e.g., reflectorized vest) and devices to direct the flow of vehicles at affected road sections; and
- Provision of adequate parking spaces for heavy equipment and service vehicles to prevent obstruction of traffic flow.

Table 8-1. Environmental and Social Management Plan for the MTCIP

Project Phase / Activities	Environmental Component(s)	Potential Impact(s) before Mitigation	Mitigating/Enhancement Measures	Responsible Entities	Estimated Cost	Guarantee/ Arrangements
PRE-CONSTRUCTION AND CONSTRUCTION PHASE						
Acquisition of Applicable Permits and Licenses	People	(+) Disclosure of project information to stakeholders and concerned government authorities	<ul style="list-style-type: none"> • Submit complete requirements for processing of permit application. 	<ul style="list-style-type: none"> • DPWH-UPMO-RMC II • DPWH-ESSD • DEDC Consultant 	19.46 Million	Pre-Construction Expenses
Land Acquisition for the RROW	People	(-) Displacement/ disturbance of settlers, properties, and livelihood	<ul style="list-style-type: none"> • Prepare and implement Resettlement Action Plan in accordance with the Resettlement Policy Framework • Coordinate with the concerned city/municipal and barangay LGUs. • Conduct audit and prepare Remedial/Corrective Action Plan as needed for prior incomplete land acquisition and compensation 	<ul style="list-style-type: none"> • DPWH-UPMO-RMC II 	48.64 Million	Pre-Construction Expenses
	People	(-) Involuntary resettlement of IP households	<ul style="list-style-type: none"> • Prepare and implement of Indigenous Peoples Plan (IPP) 	<ul style="list-style-type: none"> • DPWH-UPMO-RMC II • CSC • Contractor 	48.64 Million	Pre-Construction Expenses
Hiring of Workers	People	(+) Generation of employment opportunities	<ul style="list-style-type: none"> • Prioritize hiring of qualified workers within the host barangays. • Coordinate with the PESO of concerned city/municipal LGUs and 	<ul style="list-style-type: none"> • DPWH-UPMO-RMC II • CSC 	29.18 Million	Pre-Construction Expenses

Project Phase / Activities	Environmental Component(s)	Potential Impact(s) before Mitigation	Mitigating/Enhancement Measures	Responsible Entities	Estimated Cost	Guarantee/ Arrangements
			the barangays for posting of labor requirements.			
		(-) Possible SEA/SH	<ul style="list-style-type: none"> • Orientation of contractors/workers on this issue. • Formation of GRM to address SEA/SH concerns • Implementation of the MTCIP Labor Management Procedures 	<ul style="list-style-type: none"> • Contractor 	c/o DPWH	Pre-Construction/ Construction Expenses
Site Preparation / Vegetation Clearing / Utilities Relocation	Land	(-) Loss of vegetation	<ul style="list-style-type: none"> • Limit vegetation clearing to the approved project development area. • Apply for tree cutting permit, as necessary. • Comply with the tree replacement guidelines as provided in JMC 2014-01 (i.e., 100 seedlings/ saplings/ propagules replacement for every tree cut). 	<ul style="list-style-type: none"> • DPWH-UPMO-RMC II • CSC 	9.73 Million	Pre-Construction Expenses
	Water	(-) Possible siltation of nearby water bodies	<ul style="list-style-type: none"> • Establish sediment traps, erosion barriers, and/or silt curtains as applicable. • Ensure regular removal of silt and sediments. 	<ul style="list-style-type: none"> • DPWH-UPMO-RMC II • CSC 	19.46 Million	Pre-Construction Expenses
	People	(-) Threat to delivery of basic services	<ul style="list-style-type: none"> • Coordinate with the concerned utility service providers and residents on the schedule of utilities relocation. 	<ul style="list-style-type: none"> • DPWH-UPMO-RMC II • CSC 	29.18 Million	Pre-Construction Expenses
Construction of Temporary Facilities and	Land, Water, People	(-) Generation of domestic solid wastes	<ul style="list-style-type: none"> • Implement solid waste management plan in accordance with RA 9003. 	<ul style="list-style-type: none"> • DPWH-UPMO-RMC II 	32.89 Million	Contractor's EMP, Site

Project Phase / Activities	Environmental Component(s)	Potential Impact(s) before Mitigation	Mitigating/Enhancement Measures	Responsible Entities	Estimated Cost	Guarantee/ Arrangements
Influx of Construction Workers				<ul style="list-style-type: none"> • CSC • Contractor 		Inspection Report
	Land, Water, People	(-) Generation of domestic wastewater	<ul style="list-style-type: none"> • Ensure provision of adequate sanitation facilities for the workers. 	<ul style="list-style-type: none"> • DPWH-UPMO-RMC II • CSC • Contractor 	24.67 Million	Contractor's EMP, Site Inspection Report
	People	(-) Community health and safety risks, including peace and order	<ul style="list-style-type: none"> • Coordinate with the host city/municipal and barangay LGUs and local PNP for maintaining peace and order for the duration of the construction activities. • Ensure strict implementation of drug- and alcohol-free work environment. 	<ul style="list-style-type: none"> • DPWH-UPMO-RMC II • CSC • Contractor 	41.11 Million	Contractor's EMP, Site Inspection Report
Civil Works for the Main Corridor and Link Roads Main Corridor (i.e., Road Widening, Repair of Damaged Road Sections, Implementation of Slope Protection Measures, Drainage Works, Installation of Road Safety Infrastructures)	Land	(-) Ground vibration from heavy equipment and vehicles	<ul style="list-style-type: none"> • Notify nearby residents in advance about the use of heavy equipment that may generate ground vibration. • Apply non-vibration and/or vibration-avoiding techniques during construction, whenever possible. • Ensure compliance of hauling trucks with road weight limits. 	<ul style="list-style-type: none"> • DPWH-UPMO-RMC II • CSC • Contractor 	8.22 Million	Contractor's EMP, Site Inspection Report
	Land, Water, People	(-) Generation of construction spoils/debris and other solid wastes	<ul style="list-style-type: none"> • Implement solid waste management plan in accordance with RA 9003. 	<ul style="list-style-type: none"> • DPWH-UPMO-RMC II • CSC • Contractor 	8.22 Million	Contractor's EMP, Site Inspection Report

Project Phase / Activities	Environmental Component(s)	Potential Impact(s) before Mitigation	Mitigating/Enhancement Measures	Responsible Entities	Estimated Cost	Guarantee/ Arrangements
Rehabilitation of Bridges, Implementation of Slope Protection Measures, Drainage Works, Installation of Road Safety Infrastructure)	Land, Water, People	(-) Generation of hazardous wastes	<ul style="list-style-type: none"> Ensure proper onsite handling of hazardous waste in accordance with RA 6969. Ensure proper transport, treatment, storage, and disposal of hazardous waste by DENR-registered transporters and facilities. 	<ul style="list-style-type: none"> DPWH-UPMO-RMC II CSC Contractor 	16.44 Million	Contractor's EMP, Site Inspection Report
	Water	(-) Possible siltation of nearby water bodies	<ul style="list-style-type: none"> Apply erosion and sediment control measures to minimize runoff to nearby canals/waterways. Implement proper staging techniques to minimize spillage of paving materials to nearby canals/waterways. 	<ul style="list-style-type: none"> DPWH-UPMO-RMC II CSC Contractor 	32.89 Million	Contractor's EMP, Site Inspection Report
	Land, Water	(-) Potential contamination of soil/water from accidental oil spills/leaks from heavy equipment and vehicles	<ul style="list-style-type: none"> Implement oil spill management plan. 	<ul style="list-style-type: none"> DPWH-UPMO-RMC II CSC Contractor 	24.67 Million	Contractor's EMP, Site Inspection Report
	Air, People	(-) Generation of dust	<ul style="list-style-type: none"> Avoid dust-generating activities during windy days, if possible. Minimize unnecessary earth movement. Apply dust control measures, such as water spraying and use of canvas cover for soil piles. 	<ul style="list-style-type: none"> DPWH-UPMO-RMC II CSC Contractor 	8.22 Million	Contractor's EMP, Site Inspection Report

Project Phase / Activities	Environmental Component(s)	Potential Impact(s) before Mitigation	Mitigating/Enhancement Measures	Responsible Entities	Estimated Cost	Guarantee/ Arrangements
			<ul style="list-style-type: none"> Ensure wearing of PPE by workers to protect from airborne dust. 			
	Air, People	(-) Generation of air emissions and noise	<ul style="list-style-type: none"> Ensure regular maintenance of heavy equipment and vehicles. Avoid performing noisy activities at nighttime. Locate noise-generating sources away from sensitive receptors (e.g., schools, hospitals, worship areas). Use noise control devices (e.g., temporary noise barriers/deflectors, mufflers), as necessary. Ensure wearing of PPE by workers to protect from excessive noise. 	<ul style="list-style-type: none"> DPWH-UPMO-RMC II CSC Contractor 	8.22 Million	Contractor's EMP, Site Inspection Report
	People	(-) Occupational health and safety risks	<ul style="list-style-type: none"> Provide training on construction safety for workers. Ensure wearing or proper and complete PPE by construction workers. Ensure supervision of construction activities by trained professionals. Implement occupational health and safety policy. 	<ul style="list-style-type: none"> DPWH-UPMO-RMC II CSC Contractor 	205.54 Million	Contractor's EMP, Site Inspection Report
	People	(-) Community health and safety risks, including road safety	<ul style="list-style-type: none"> Install safety barriers to prevent unauthorized access to construction areas. 	<ul style="list-style-type: none"> DPWH-UPMO-RMC II CSC Contractor 	41.11 Million	Contractor's EMP, Site Inspection Report

Project Phase / Activities	Environmental Component(s)	Potential Impact(s) before Mitigation	Mitigating/Enhancement Measures	Responsible Entities	Estimated Cost	Guarantee/ Arrangements
			<ul style="list-style-type: none"> Provide early warning devices and/or road safety signs. 			
	People	(-) Threat to delivery of basic services/resource competition	<ul style="list-style-type: none"> Coordinate with the concerned utility service providers and residents on the schedule of utilities relocation. 	<ul style="list-style-type: none"> DPWH-UPMO-RMC II CSC Contractor 	41.11 Million	Contractor's EMP, Site Inspection Report
	People	(-) Traffic congestion	<ul style="list-style-type: none"> Implement traffic management plan in coordination with the local authorities. 	<ul style="list-style-type: none"> DPWH-UPMO-RMC II CSC Contractor 	82.22 Million	Contractor's EMP, Site Inspection Report
DEMOBILIZATION AND OPERATIONAL PHASE						
Dismantling of Temporary Facilities and Clearance/Clearing of Construction Debris and Waste	Land, Water	(-) Generation of debris and other solid wastes	<ul style="list-style-type: none"> Implement solid waste management plan in accordance with RA 9003. 	<ul style="list-style-type: none"> DPWH-UPMO-RMC II CSC Contractor 	67.28 Million	Contractor's EMP
	Air, People	(-) Generation of dust, air emissions, and noise	<ul style="list-style-type: none"> Apply dust control measures, such as water spraying and use of canvas cover for soil piles. Ensure wearing of PPE by workers to protect from airborne dust and excessive noise. Ensure regular maintenance of heavy equipment and vehicles. Avoid performing noisy activities at nighttime. Use noise control devices (e.g., temporary noise barriers/deflectors, mufflers), as necessary. 	<ul style="list-style-type: none"> DPWH-UPMO-RMC II CSC Contractor 	336.40 Million	Contractor's EMP

Project Phase / Activities	Environmental Component(s)	Potential Impact(s) before Mitigation	Mitigating/Enhancement Measures	Responsible Entities	Estimated Cost	Guarantee/ Arrangements
	People	(-) Occupational health and safety risks	<ul style="list-style-type: none"> • Provide training on construction safety for workers. • Ensure wearing or proper and complete PPE by workers. • Ensure supervision of construction activities by trained professionals. • Implement occupational health and safety policy. 	<ul style="list-style-type: none"> • DPWH-UPMO-RMC II • CSC • Contractor 	26.56 Million	Contractor's EMP
Road Operations and Long-Term Performance Based Maintenance (LTPBM)	Water	(-) Increased rate of surface water runoff	<ul style="list-style-type: none"> • Implement stormwater management practices. 	<ul style="list-style-type: none"> • DPWH-UPMO-RMC II 	134.56 Million	
	People	(+) Enhancement of employment and livelihood opportunities	<ul style="list-style-type: none"> • Prioritize hiring of qualified workers within the host barangays. • Coordinate with the PESO of concerned city/municipal LGUs and the barangays for posting of labor requirements. 	<ul style="list-style-type: none"> • DPWH-UPMO-RMC II 	17.71 Million	SDP
	People	(-) Generation of road traffic noise	<ul style="list-style-type: none"> • Install “No Blowing of Horn” signage at road sections adjacent to noise sensitive areas such as schools, hospitals, and worship places. 	<ul style="list-style-type: none"> • DPWH-UPMO-RMC II 	8.85 Million	
	People	(-) Occupational health and safety risks	<ul style="list-style-type: none"> • Provide training on construction safety for workers. • Ensure wearing or proper and complete PPE by maintenance workers. 	<ul style="list-style-type: none"> • DPWH-UPMO-RMC II 	26.56 Million	

Project Phase / Activities	Environmental Component(s)	Potential Impact(s) before Mitigation	Mitigating/Enhancement Measures	Responsible Entities	Estimated Cost	Guarantee/ Arrangements
			<ul style="list-style-type: none"> • Ensure supervision of maintenance activities by trained professionals. • Implement occupational health and safety policy. 			
	People	(-) Traffic safety risks	<ul style="list-style-type: none"> • Install and maintain signs, signals, markings, and other devices that regulate traffic. • Impose appropriate speed limits. 	<ul style="list-style-type: none"> • DPWH-UPMO-RMC II • Host LGUs 	8.85 Million	

4.2 Chance Finds Procedure

In conformance with WB ESS 8 ‘Cultural Heritage’ and in compliance with RA 10066 (Philippine Cultural Heritage Act), procedures for dealing with situations in which buried Physical Cultural Resources (PCR) are unexpectedly encountered shall be incorporated in Contracts for civil works involving excavations.

Republic Act No. 10066 provides for the Protection and Conservation of the National Cultural Heritage, Strengthening the NCCA and its Affiliated Cultural Agencies, and for Other Purposes. The following procedure is based on the provisions stated in this Act.

4.2.1 PCR Definition

Movable or immovable objects, sites, structures or groups of structures having archeological, paleontological, historical, architectural, religious, aesthetic, or other cultural significance.

The following are also specifically defined under the new Act

“Built Heritage” shall refer to architectural and engineering structures, such as but not limited to bridges, government buildings, houses of ancestry, traditional dwellings, quarters, train stations, lighthouses, small ports, educational technological and industrial complexes, and their settings, and landscapes with notable historical and cultural significance;

“Cultural Heritage” shall refer to the totality of cultural property preserved and developed through time and passed on to posterity;

“Cultural Property” shall refer to all products of human creativity by which a people and a nation reveal their identity, including churches, mosques and other places of religious worship, schools and natural history specimens and sites, whether public or privately-owned, movable or immovable, and tangible or intangible;

“Important Cultural Property (ICP)” shall refer to a cultural property having exceptional cultural, artistic, and historical significance to the Philippines, as shall be determined by the National Museum and/or National Historical Institute.

“Tangible cultural property” shall refer to a cultural property with historical, archival, anthropological, archaeological, artistic and architectural value, and with exceptional or traditional production, whether of Philippine origin or not, including antiques and natural history specimens with significant value.

“Indigenous properties” - The appropriate cultural agency in consultation with the National Commission on Indigenous Peoples shall establish a program and promulgate regulations to assist indigenous people in preserving their particular cultural and historical properties.

4.2.2 Ownership

All cultural property found in terrestrial and / or underwater archaeological sites belong to the State. The Commission, upon the recommendation of the appropriate cultural agency, shall provide incentives for persons who discover and report heretofore unknown archaeological sites, in accordance with its rules and regulations implementing the provisions of this Act.

4.2.3 Recognition

This is the most difficult aspect to cover. As noted above, in PCR-sensitive areas, the procedure may require the contractor to be accompanied by a specialist. In other cases, the procedures may not specify how the contractor will recognize a PCR, and a clause may be required by the contractor disclaiming liability.

4.2.4 Procedure upon Discovery

4.2.4.1 *Suspension of Work*

When the presence of any cultural or historical property is discovered, the contractor must immediately report the discovery to the Resident Engineer or Supervisor. The National Museum or the National Historical Institute shall immediately be contacted and informed of the chance find. The contractor will suspend all activities that will affect the site and shall immediately notify the National Museum (see contact details provided below). The local government unit having jurisdiction where the discovery was made shall promptly adopt measures to protect and safeguard the integrity of the cultural property so discovered and within five (5) days from the discovery shall report the same to the appropriate agency. The suspension of these activities shall be lifted only upon the written authority of the National Museum or the National Historical Institute and only after the systematic recovery of the archaeological materials.

4.2.4.2 *After work stoppage*

The contractor may not be entitled to claim compensation for work suspension during this period. The Resident Engineer may be entitled to suspend work and request from the contractor some excavations at the contractor's expense if he thinks that a discovery was made and not reported.

4.2.4.3 *Demarcation of the Discovery Site:*

With the approval of the Resident Engineer, the contractor is then required to temporarily demarcate, and limit access, to the site.

4.2.4.4 *Non-Suspension of Work:*

The procedure may empower the Resident Engineer to decide whether the PCR can be removed and for the work to continue, for example in cases where the find is one coin.

4.2.4.5 *Chance Find Report*

The contractor should then, at the request of the Resident Engineer, and within a specified time period, make a Chance Find Report, recording the following:

- Date and time of Discovery;
- Location of the Discovery;
- Description of the PCR, with photos if possible;
- Estimated weight and dimensions of the PCR;
- Temporary protection implemented.

The Chance Find Report should be submitted to the Resident Engineer, and other concerned parties as agreed with the cultural authority, and in accordance with national legislation.

The Resident Engineer, or other party as agreed, is required to inform the cultural authority accordingly.

Responsible Authority in the Philippines:

Mr. Angel Bautista (or the authorized/designated representative)
Cultural Properties Division
National Museum of the Philippines
P. Burgos St. Manila
Tel. No.: +632 5271216; Fax: +632 527121

4.3 Environmental and Social Monitoring Plan

The Environmental and Social Monitoring Plan (ESMoP) is formulated to monitor the implementation and evaluate the effectiveness of the proposed mitigating measures as provided in the ESMP. **Table 8-2** presents the proposed ESMoP for every phase of the MTCIP. Indicated in the matrix are the indicators to be monitored, the location, frequency, type, and duration of monitoring and sampling activities to be conducted, as well as the entities who will be responsible for monitoring and supervising the activities.

Table 8-2. Environmental and Social Monitoring Plan for the MTCIP

Project Phase / Activities	Environmental Component(s)	Potential Impact(s) before Mitigation	Parameter(s) to be Monitored	Sampling & Measurement Plan			Lead Person	Annual Estimated Cost (PHP)	EQPL Management Scheme					
				Method	Frequency	Location			EQPL Range			Management Measure		
									Alert	Action	Limit	Alert	Action	Limit
PRE-CONSTRUCTION AND CONSTRUCTION PHASE														
Land Acquisition for the RROW	People	(-) Displacement/disturbance of settlers, properties, and livelihood, including IPs	Compensation for affected land and structures, including IPs	Consultation meeting; Parcel survey	Monthly until the ROW is fully acquired	Per affected barangay including relocation sites, if any	DPWH - UPMO -RMC II	Included in RAP cost; PHP 50,000 per activity	N/A	N/A	N/A	Address grievances based on GRM.	Address grievances based on GRM.	100% compensation prior to displacement
Hiring of Workers	People	(+) Generation of employment opportunities	No. of locally employed workers	Logbook/ database registration	Daily	Project site	DPWH - UPMO -RMC II	Minimal	N/A	N/A	N/A	N/A	N/A	N/A
Site Preparation / Vegetation Clearing / Utilities Relocation	Land	(-) Loss of vegetation	Survival rate of replacement trees	Visual inspection; Tree count	Semi-annually	Replanting sites	Contractors in coordination with DPWH - UPMO -RMC	Included in the construction cost PHP 1,500 per	60% survival rate	50% survival rate	40% survival rate	Replace non-surviving tree(s).	Replace non-surviving tree(s). Assess soil quality of	Assess the need to change species planted to increase survival rate.

Project Phase / Activities	Environmental Component(s)	Potential Impact(s) before Mitigation	Parameter(s) to be Monitored	Sampling & Measurement Plan			Lead Person	Annual Estimated Cost (PHP)	EQPL Management Scheme					
				Method	Frequency	Location			EQPL Range			Management Measure		
									Alert	Action	Limit	Alert	Action	Limit
							II and concerned DENR Office(s)	person/hour PHP 100 per sapling					area(s) where low survival rate is observed.	
	Water	(-) Possible siltation of nearby water bodies	Total suspended solids (TSS)	Visual inspection; Water sampling as per DAO 2016-08	Daily inspection; Quarterly sampling	Established surface water quality sampling stations	Contractors and 3 rd -party laboratory in coordination with DPWH - UPMO -RMC II	Included in the EMF PHP 1,500 per person-hour PHP 500 per sample	60 mg/L	70 mg/L	80 mg/L	Check condition of erosion controls.	Remove silt/sediment build-up as necessary to maintain good working conditions of erosion controls.	Assess need to replace or apply additional erosion control(s).
Construction of Temporary Facilities and Influx of Constructi	Land, Water, People	(-) Generation of domestic solid wastes	Weight or volume of wastes generated	Weighing/log-book recording	Daily	Temporary facilities	Contractors in coordination with DPWH -	Included in the construction cost PHP 1,500	N/A	N/A	N/A	N/A	N/A	N/A

Project Phase / Activities	Environmental Component(s)	Potential Impact(s) before Mitigation	Parameter(s) to be Monitored	Sampling & Measurement Plan			Lead Person	Annual Estimated Cost (PHP)	EQPL Management Scheme					
				Method	Frequency	Location			EQPL Range			Management Measure		
									Alert	Action	Limit	Alert	Action	Limit
on Workers							UPMO -RMC II	per person-hour						
	People	(-) Community health and safety risks, including peace and order	No. of valid complaints	Survey/ interview with affected communities; Review of barangay records	Daily / Immediately, in case of accidents	Affected barangays	Contractors in coordination with DPWH - UPMO -RMC II	Included in the construction cost PHP 1,500 per person-hour	1 valid complaint annually	1 valid complaint semi-annually	1 valid complaint per quarter	Addresses grievances based on GRM.	Addresses grievances based on GRM.	Address grievances based on GRM.
Civil Works for the Main Corridor and Link Roads Main Corridor (i.e., Road Widening, Repair of Damaged Road Sections, Implementation of Slope	Land	(-) Ground vibration from heavy equipment and vehicles	No. of project construction vibration-related complaints	Survey/ interview with affected communities; Review of barangay records	Daily / Immediately, in case of accidents	Affected barangays	Contractors in coordination with DPWH - UPMO -RMC II	Included in the construction cost	N/A	N/A	N/A	Addresses grievances based on GRM.	Addresses grievances based on GRM.	Address grievances based on GRM.
	Land, Water, People	(-) Generation of construction spoils/debris	Weight or volume of wastes generated	Weighing/log-book recording	Daily	Construction areas	Contractors in coordination with DPWH	Included in the construction cost	N/A	N/A	N/A	N/A	N/A	N/A

Project Phase / Activities	Environmental Component(s)	Potential Impact(s) before Mitigation	Parameter(s) to be Monitored	Sampling & Measurement Plan			Lead Person	Annual Estimated Cost (PHP)	EQPL Management Scheme					
				Method	Frequency	Location			EQPL Range			Management Measure		
									Alert	Action	Limit	Alert	Action	Limit
Protection Measures, Drainage Works, Installation of Road Safety Infrastructures)		and other solid wastes	ed by type				- UPMO -RMC II							
Link Roads (i.e., Upgrading from Unpaved Roads to Concrete, Repair of Damaged Road Sections, Construction and Rehabilitation of Bridges, Implementation of Slope Protection Measures, Drainage	Land, Water, People	(-) Generation of hazardous wastes	Weight or volume of wastes generated by type	Weighing/log-book recording	Monthly	Project Site	Contractors in coordination with DPWH - UPMO -RMC II	Included in the construction cost	N/A	N/A	N/A	N/A	N/A	N/A
	Water	(-) Possible siltation of nearby water bodies	Total suspended solids (TSS)	Visual inspection; Water sampling as per DAO 2016-08	Daily inspection; Quarterly sampling	Established surface water quality sampling stations	Contractors and 3 rd -party laboratory in coordination with DPWH - UPMO -RMC II	Included in the EMF PHP 1,500 per person-hour PHP 500 per sample	60 mg/L	70 mg/L	80 mg/L	Check condition of erosion controls.	Remove silt/sediment build-up as necessary to maintain good working conditions of erosion controls.	Assess need to replace or apply additional erosion control(s).

Project Phase / Activities	Environmental Component(s)	Potential Impact(s) before Mitigation	Parameter(s) to be Monitored	Sampling & Measurement Plan			Lead Person	Annual Estimated Cost (PHP)	EQPL Management Scheme					
				Method	Frequency	Location			EQPL Range			Management Measure		
									Alert	Action	Limit	Alert	Action	Limit
Works, Installation of Road Safety Infrastructure)	Land, Water	(-) Potential contamination of soil/water from accidental oil spills/leaks from heavy equipment and vehicles	Oil spill	Visual inspection	Weekly inspection; Immediately in case of spill	Construction areas; Maintenance yards for heavy equipment and vehicles	Contractors in coordination with DPWH - UPMO -RMC II	Included in the EMF	Incidence of oil spill	Oil-spill related complaint persists	Oil-spill related complaint persists	Initiate spill clean-up.	Address grievances based on GRM.	Address grievances based on GRM.
	Air, People	(-) Generation of dust	Total Suspended Particulates (TSP)	High Volume / Gravimetric Method	Annually or as required by DENR-EMB	Established ambient air quality monitoring stations	Contractors and 3 rd -party laboratory in coordination with DPWH - UPMO	Included in the EMF PHP 1,500 per person-hour PHP 30,000 to 80,000	172.5 µg/NCM	195.5 µg/NCM	230 µg/NCM	Check efficiency of pollution control device(s).	Restore good working condition of pollution control device(s).	Restore good working condition of pollution control device(s).
			Particulate Matter 10 (PM10)	High Volume / Gravimetric Method					112 µg/NCM	127.5 µg/NCM	150 µg/NCM			
			No. of project	Survey/interview	Daily	Affected		1 valid compl	1 valid compl	1 valid compl	Address	Address	Address grievance	

Project Phase / Activities	Environmental Component(s)	Potential Impact(s) before Mitigation	Parameter(s) to be Monitored	Sampling & Measurement Plan			Lead Person	Annual Estimated Cost (PHP)	EQPL Management Scheme					
				Method	Frequency	Location			EQPL Range			Management Measure		
									Alert	Action	Limit	Alert	Action	Limit
			dust-related complaints	w with affected communities; Review of barangay records		barangays	-RMC II	per sampling station depending on parameters	aint annually	aint semi-annually	aint per quarter	grievances based on GRM.	grievances based on GRM.	s based on GRM.
	Air, People	(-) Generation of air emissions and noise	Sulfur Dioxide (SO ₂)	Gas Bubbler / Pararos aniline	Annually or as required by DENR-EMB	Established ambient air quality monitoring stations	Contractors and 3 rd -party laboratory in coordination with DPWH - UPMO -RMC II	Included in the EMF PHP 1,500 per person-hour	135 µg/NCM	153 µg/NCM	180 µg/NCM	Check efficiency of pollution control device(s).	Restore good working condition of pollution control device(s).	Restore good working condition of pollution control device(s).
Nitrogen Dioxide (NO ₂)			Gas Bubbler / Griess-Saltzman	112 µg/NCM					127.5 µg/NCM	150 µg/NCM				
					Noise level	Direct reading using sound level meter (daytime and nighttime)		Semi-annually; Immediately in case of complaints	Established noise level monitoring stations near identified sensitive		PHP 30,000 to 80,000 per sampling station depending on parameters	Detected sound level near the NPCC noise standards.	Detected sound level exceeds the NPCC noise standards annually.	Detected sound level exceeds the NPCC noise standards semi-

Project Phase / Activities	Environmental Component(s)	Potential Impact(s) before Mitigation	Parameter(s) to be Monitored	Sampling & Measurement Plan			Lead Person	Annual Estimated Cost (PHP)	EQPL Management Scheme					
				Method	Frequency	Location			EQPL Range			Management Measure		
									Alert	Action	Limit	Alert	Action	Limit
						receptors					annually.			
			No. of project air emissions and noise-related complaints	Survey/ interview with affected communities; Review of barangay records	Daily	Affected barangays			1 valid complaint annually	1 valid complaint semi-annually	1 valid complaint per quarter	Addresses grievances based on GRM.	Addresses grievances based on GRM.	Address grievances based on GRM.
	People	(-) Occupational health and safety risks	No. of work-related illnesses/ injuries	Logbook	Daily	Project site	Contractors in coordination with DPWH - UPMO -RMC II	Included in the construction cost	1 near-miss incident semi-annually	1 near-miss incident per quarter	1 accident per quarter	Conduct OSH re-orientation for involved worker(s).	Conduct departmental re-training of workers on OSH. Inspect the area where the near-miss incident	Conduct external safety audit and implement recommendations.

Project Phase / Activities	Environmental Component(s)	Potential Impact(s) before Mitigation	Parameter(s) to be Monitored	Sampling & Measurement Plan			Lead Person	Annual Estimated Cost (PHP)	EQPL Management Scheme					
				Method	Frequency	Location			EQPL Range			Management Measure		
									Alert	Action	Limit	Alert	Action	Limit
													ts happen.	
	People	(-) Community health and safety risks, including road safety	No. of project construction-related accidents involving residents at nearby communities	Survey/ interview with affected communities; Review of barangay records	Daily / Immediately, in case of accidents	Affected barangays	Contractors in coordination with DPWH - UPMO -RMC II	Include d in the construction cost	1 valid complaint annually	1 valid complaint semi-annually	1 valid complaint per quarter	Addres s grievan ces based on GRM.	Addres s grievan ces based on GRM.	Address grievance s based on GRM.
	People	(-) Traffic congestion	Traffic volume	Traffic count / actual traffic observation and documentation	Daily	Affected road sections	Contractors in coordination with DPWH - UPMO -RMC II	Include d in the construction cost	N/A	N/A	N/A	Addres s grievan ces based on GRM.	Addres s grievan ces based on GRM.	Address grievance s based on GRM.
DEMOBILIZATION AND OPERATIONAL PHASE														

Project Phase / Activities	Environmental Component(s)	Potential Impact(s) before Mitigation	Parameter(s) to be Monitored	Sampling & Measurement Plan			Lead Person	Annual Estimated Cost (PHP)	EQPL Management Scheme					
				Method	Frequency	Location			EQPL Range			Management Measure		
									Alert	Action	Limit	Alert	Action	Limit
Dismantling of Temporary Facilities and Clearance/ Clearing of Construction Debris and Waste	Land, Water	(-) Generation of debris and other solid wastes	Weight or volume of wastes generated per type	Weighing/log-book recording	Monthly	Project site	Contractors in coordination with DPWH - UPMO -RMC II	Included in the demobilization cost	N/A	N/A	N/A	N/A	N/A	N/A
	People	(-) Occupational health and safety risks	No. of work-related illnesses/ injuries	Logbook	Daily	Project site	Contractors in coordination with DPWH - UPMO -RMC II	Included in the demobilization cost	1 near-miss incident semi-annually	1 near-miss incident per quarter	1 accident per quarter	Conduct OSH re-orientation for involved worker(s).	Conduct departmental re-training of workers on OSH. Inspect the area where the near-miss incidents	Conduct external safety audit and implement recommendations.

Project Phase / Activities	Environmental Component(s)	Potential Impact(s) before Mitigation	Parameter(s) to be Monitored	Sampling & Measurement Plan			Lead Person	Annual Estimated Cost (PHP)	EQPL Management Scheme					
				Method	Frequency	Location			EQPL Range			Management Measure		
									Alert	Action	Limit	Alert	Action	Limit
													happen.	
Road Operations and Long-Term Performance Based Maintenance (LTPBM)	People	(-) Occupational health and safety risks	Working Environment Measurement (WEM)	DOLE BWC-OSHC Method	Quarterly	Project site	DPWH - UPMO -RMC II	Included in the maintenance cost	Parameters for good working conditions are near the DOLE OSH limits	Parameters for good working conditions are equal to or exceeded DOLE OSH limits	Parameters for good working conditions exceeded the DOLE OSH limits for 2 consecutive quarters	Review maintenance and housekeeping activities and revise as needed.	Apply corrective action(s).	Conduct external audit of working environments.

4.4 Capacity Strengthening on Environmental and Social (ES) Aspects

DPWH shall formulate and conduct environmental and social orientation and training programs on E and S aspects for contractors, including workers and pertinent LGU staff, to be involved in monitoring environmental and social mitigation implementation. This program would include the following:

Orientation of prospective contractors on ESMP

Orientation of concerned LGU officers and personnel on ECC compliance and multi-partite environmental monitoring

4.5 Implementation Arrangements

MTCIP will be implemented over seven years, following project effectiveness. DPWH will act as the Implementing Agency (IA) for Components 1 to 4, with the Department of Finance acting as the IA for Component 5. **Figure 8-1** shows the organizational chart for the Project.

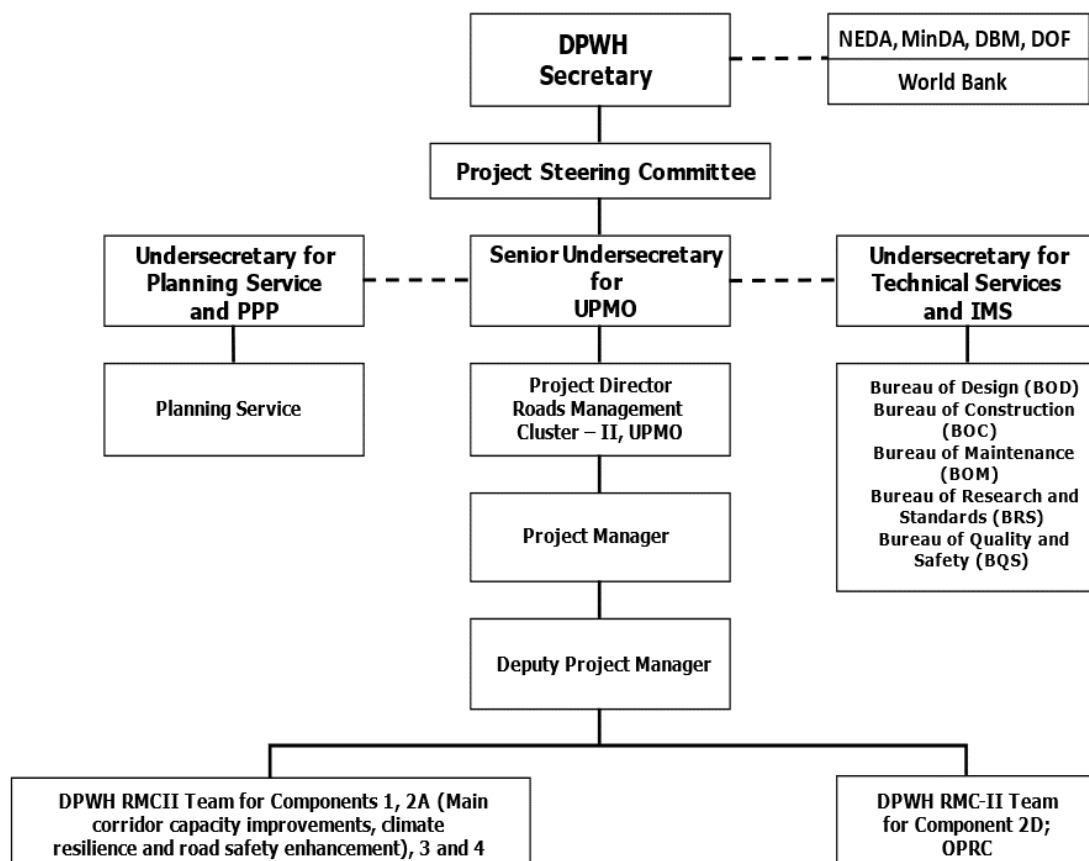


Figure 8-1. Project Organizational Chart

DPWH is the main Implementing Agency (IA) for this Project. The DPWH is the executive department of the Philippine government, solely vested with the mandate to “be the state’s engineering and construction arm.” It is tasked with policy related to the engineering and construction fields, including continuous technology development, and responsible for ensuring the safety of all infrastructure facilities, together with efficacy and quality in construction. DPWH is responsible for the planning, design, construction, and maintenance of infrastructure, especially the national highways, flood control and water resources development system, and other public works in accordance with national development. The

institution is divided into six main bureaus (Bureau of Design; Bureau of Construction; Bureau of Maintenance; Bureau of Equipment; Bureau of Research & Standards; Bureau of Quality & Safety) and has divisions responsible for Public-Private Partnerships (PPPs), the operations of foreign-assisted projects (i.e., UPMO), and key technical services (planning, finance, legal, and special concerns, among others). DPWH also has regional field offices across the country.

A Project Steering Committee (PSC) will be set up. The PSC will provide overall strategic direction and policy guidance and support interagency coordination for the Project. The PSC, headed by the DPWH Secretary, will provide overall strategic guidance and direction for the Project. Its oversight functions will include defining the Project's roadmap, approving its work and financial plan, and other strategic initiatives; initiating and developing special activities and Projects, reviewing and assessing implementation progress; and evaluating the performance of the Project Implementation Unit (PIU). The PSC will meet quarterly to review project progress towards the development objectives and help resolve any interagency issues that may arise. The terms of reference (TOR) governing the PSC will be detailed in the Project Operations Manual (POM).

Under the Project Steering Committee are the Undersecretary of Planning Service and PPP, which controls the Planning Service. The Planning Service provides technical services for planning, programming, and project development. It prepares the Department's medium-term development plan and medium-term public investment program, including the formulation of the annual infrastructure program (AIP), for presentation and approval by Congress.

Under the Undersecretary for Technical Services and IMS are the Bureaus, namely: (i) Bureau of Design (BOD), (ii) Bureau of Construction (BOC), (iii) Bureau of Maintenance (BOM), (iv) Bureau of Research and Standards (BRS), and (v) Bureau of Quality and Safety (BQS). These Bureaus will review and assess the design plans, road safety, material quality assurance and control, cost estimates, and maintenance procedures.

DPWH's UPMO RMC-II cluster will be the Project Implementation Unit (PIU). The UPMO RMC-II will be responsible for the daily management of the project. The fiduciary function will be carried out by the respective procurement and financial management-related units in DPWH, while the RMC-II will be responsible for contract management, including preparing all the needed procurement documents. Additional fiduciary support will be provided under the project, e.g., the hiring and designation of FM and procurement specialists as needed. RMC II shall also provide support in terms of the initial processing and review of billings from contractors and the preparation and submission of Statement of Expenditures and Withdrawal Applications to the World Bank. The Mindanao Development Authority (MinDA), as the lead agency for Mindanao's development, is the key government office that the DPWH will be coordinating in the approval of the proposed MTCIP. The LGUs in the project area will be supporting the RMC-II of project implementation.

PIU Staffing. The PIU within DPWH's UPMO RMC-II is set up with the following roles:

- i. **Project Manager:** Oversees the day-to-day implementation of the Project, coordinates the implementation of the Project, and acts as the focal point for communication with WB and other agencies;
- ii. **Deputy Project Manager:** assist the project manager in day-to-day Project implementation, oversee technical and safeguard aspects of the project, and also communicate on behalf of the project manager to the WB and other agencies.

- iii. **Technical support staff** will consist of technical specialists who will be responsible for the respective aspects of the project. These technical support staff include those for environmental, social/resettlement, gender, road safety, financial planning, procurement, etc.

Annex 24 presents the Office Order of DPWH officials and personnel assigned to the Due Diligence and Options Analysis (DDOA), Feasibility Studies (FS), and Detailed Engineering Design (DED) for MTCIP.

Third-Party Monitoring. DPWH will engage an External Monitoring Agent (EMA), who will perform semi-annual integrated performance audits covering, among others, engineering designs, management of social and environmental issues, including the implementation of the SEA/SH action plan, and quality assurance. Construction Supervision Consultants (CSC) will provide regular supervision of the work contracts. Consultants and non-governmental organizations will aid DPWH in the implementation of resettlement, GBV, VAC, and HIV/AIDS action plans. A Road User Satisfaction Survey consultant will carry out baseline, mid-term, and end-stage user satisfaction surveys. Results Monitoring Consultants will develop methodologies, collect data, carry out required surveys, and measure the values of outcome and intermediate indicators. Consultants procured under the Project will carry out the studies and/or training under Components 3 and 4. The World Bank, through meetings with PIU, DPWH, and the implementation support missions, will regularly monitor the progress of all the activities supported under the Project and the Project's compliance with environmental, social, technical, health, and safety requirements. The World Bank will also work closely with the DPWH to continually monitor the protection environment throughout project implementation.

A Project Operations Manual (POM) will be prepared. It will contain detailed arrangements and procedures for implementation of the Project including, inter alia: (i) implementation arrangements, including the delineation of roles and responsibilities of various entities, institutions, and agencies involved in Project implementation and their coordination; (ii) procurement procedures and standard procurement documentation; (iii) disbursement arrangements, reporting requirements, financial management procedures, and audit procedures; (iv) procedures for preparing and reviewing a consolidated annual work plan and budget for each fiscal year; (v) the Project performance indicators and monitoring and evaluation arrangements; (vi) arrangements and procedures for mitigating environmental and social risks and impacts; (vii) a grievance redress mechanism; (viii) information, education, and communication of Project activities; and (ix) such other administrative, financial, technical, and organizational arrangements and procedures as shall be required for the Project. **Table 8-3** presents the responsibilities for the ESMP implementation.

Table 8-3. Responsibilities for the ESMP Implementation

Agency	Responsibility
Department of Public Works and Highways (DPWH)	<ul style="list-style-type: none"> Implementing Agency (IA) with overall responsibility for project construction and operation Ensure that sufficient funds are available to properly implement the ESMP. Ensure that project implementation complies with government environmental policies and regulations; Ensure that the project, regardless of its financing source, complies with the provisions of the ESMP, WB ESS, and GOP statutory requirements;

Agency	Responsibility
	<ul style="list-style-type: none"> • Obtain necessary environmental approval(s)/clearances/permits from the DENR-EMB and/or other concerned government agencies prior to the commencement of civil works; • Ensure that tender and contract documents for design, supervision, and civil works include the relevant ESMP requirements. • Establish information on an environmental grievance redress mechanism to receive and facilitate resolution of affected people's concerns; and • Submit semi-annual monitoring reports on ESMP implementation to the WB.
DPWH-Unified Project Management Office (UPMO), Roads Management Cluster II (RMC-II)	<ul style="list-style-type: none"> • Project Implementing Office (PIO) with direct responsibility for the implementation of civil works, engineering designs, and project coordination, including the incorporation of ESMP design measures in the detailed design; • Shall conduct an environmental assessment, prepare the necessary environmental document, and secure the corresponding environmental clearance, whether ECC or CNC, prior to project implementation. (DO 057 s. 2016). • Ensure that the cost of implementing these ESMP conditions and mitigating measures in the ECCs and EMPs/EMoPs is included in the project budget (DO 245 s. 2003). • Ensure that the costs of implementing the environmental compliance and monitoring activities, as indicated in the SEMS Operations Manual, are included in the project budget. (DO 245 s. 2003). • Ensure that ESMP provisions are strictly implemented and monitored during various project phases (design/preconstruction, construction, and operation) to mitigate environmental impacts to acceptable levels; • Ensure compliance with environmental permits; and • Include relevant provisions of the ESMP in the bid and contract documents for design, civil works, and supervision. • Coordinate with DENR-EMB, LGUs, and other concerned agencies related to environmental aspects to maintain the project's compliance with environmental permits.
Environmental and Social Safeguards Division (ESSD) of DPWH	<ul style="list-style-type: none"> • Assist the UPMO-RMC II and CSC in undertaking their environment-related tasks, such as the review of EIA documents, the review of ESMP and Construction ESMP (CESMP), and monitoring and reporting on CESMP implementation and contractor compliance with GOP regulations applicable to MTCIP.
Detailed Engineering Design (DED) Consultant	<ul style="list-style-type: none"> • Incorporate into the project design the environmental protection and mitigation measures identified in the ESMP for the design/pre-construction stage; and • Assist UPMO to ensure that all relevant mitigation and monitoring measures from the ESMP are incorporated in the bidding and contract documents for project supervision and civil works.
Construction Supervision Consultant (CSC)	<ul style="list-style-type: none"> • Prior to the establishment of the contractor's facilities and the commencement of civil works, undertake a review of specific environmental management plans (e.g., borrow pits and quarries, develop spoil disposal facilities, etc.) to be prepared by contractors to ensure that such plans are consistent with the provisions of the ESMP. • Engage, as necessary, environment specialists who will undertake supervision and monitoring of ESMP implementation and the contractor's environmental performance; • Conduct periodic site visits to assess the status of ESMP implementation and the overall environmental performance of the project. • Review environmental monitoring reports submitted by the contractor to ensure that adverse impacts and risks are properly addressed; and

Agency	Responsibility
	<ul style="list-style-type: none"> • As part of day-to-day project supervision, closely supervise the contractor's implementation of mitigation measures specified in the CESMP and ESMP, including monthly monitoring of the contractor's environmental performance and the overall implementation of the ESMP; • Prepare semi-annual environmental monitoring reports on the status of ESMP implementation for submission to DPWH; • Based on the results of ESMP monitoring, identify environmental corrective actions and prepare a corrective action plan, as necessary, for submission to WB.
Contractor	<ul style="list-style-type: none"> • Recruit a qualified environmental and safety officer (EHSO) to ensure compliance with environmental statutory requirements, contractual obligations, and CESMP/ESMP provisions; • Provide sufficient funding and human and physical resources for the proper and timely implementation of the required mitigation and monitoring measures in the ESMP; and • Implement additional environmental mitigation measures, as necessary, to avoid, minimize, and/or compensate for adverse impacts due to construction works and related activities performed by the contractor.
DENR-EMB	<ul style="list-style-type: none"> • Review and approve environmental assessment reports required by the government; and • Undertake monitoring of the project's environmental performance based on their mandate.
World Bank	<ul style="list-style-type: none"> • Conduct periodic site visits to assess the status of ESMP implementation and the overall environmental performance of the project. • Review environmental monitoring reports submitted by the Implementing Agency to ensure that adverse impacts and risks are properly addressed; and • Publicly disclose, through posting on the WBs website, environmental monitoring reports and corrective action plans prepared by the Implementing Agency during project implementation.

5. CONCLUSION AND RECOMMENDATIONS

The proposed MTCIP is projected to improve transport infrastructure and accessibility across Mindanao, further boosting economic and social development needs. It will also enhance road users' safety along the Main Corridor and Link Roads.

This Draft ESIA looked into development activities in terms of managing environmental and social issues. The issues considered were based on the potential impacts of the project on land, water, air, and people. The environmental and social impacts that will arise during the construction and operation will be managed through the implementation of the mitigating measures mentioned in the ESMP and the monitoring requirements in the ESMOP.

The specific recommendations of this Draft ESIA study are:

- All activities during the construction, demobilization, and operation phases will be implemented along with the implementation of the ESMP.
- ESMoP will be implemented during the construction, demobilization, and operation phases to determine the effectiveness of measures to mitigate the identified potential impacts.
- The baseline environmental sampling conducted during the preparation of the draft ESIA of the MTCIP may not be sufficient to provide an accurate picture of the condition of the study area. It is recommended that more comprehensive monitoring be implemented during the DED stage to properly assess the potential impacts during construction and operation.
- Establishment of the institutional arrangements, including training on environment, health, and safety during the construction and operation phases of the project.

Table 9-1 presents the summary of costs for the implementation of environmental and social management measures.

Table 9-1. Summary of Environmental and Social Management Measures Implementation Costs

Table 9-1. Summary of Environmental and Social Management Measures Implementation Costs.					
Project Activities	Environmental Components	Type of Cost	Cost	%	Final Cost (in millions)
PRE-CONSTRUCTION PHASE					
Acquisition and Applicable Permits processing	People	Development Cost	194.57	10.00%	19.46
Land Acquisition RROW	People (Disturbance/Displacement of Settlers)		194.57	25.00%	48.64
	People (households' involuntary resettlements)		194.57	25.00%	48.64
Hiring of Workers (Local)	People (barangay host		194.57	15.00%	29.19
Site Preparation	Land		194.57	5.00%	9.73
Vegetation Clearing	Water		194.57	10.00%	19.46
Utilities Relocation	People		194.57	15.00%	29.19
CONSTRUCTION PHASE					

Project Activities	Environmental Components	Type of Cost	Cost	%	Final Cost (in millions)
Construction of Temp Facilities for Workers	Land, Water, People (Solid Waste Management Plan)	Civil Works Cost	164.43	20.00%	32.89
	Land, Water, People (Adequate Sanitation Facilities)		164.43	15.00%	24.66
	People (Safety, Risks, Peace and Order) Coordinators		411.09	10.00%	41.11
Civil Works for the Main Corridor and Link Roads	Land (ground vibration control)		164.43	5.00%	8.22
	Land, Water, People (Proper disposal of debris/spoils and other solid wastes)		164.43	5.00%	8.22
	Land, Water, People (Proper onsite handling, transport and disposal of hazardous materials)		164.43	10.00%	16.44
	Water (implementing measures for water spillage)		164.43	20.00%	32.89
	Land, Water (oil spill management implementation)		164.43	15.00%	24.66
	Air, People (dust control measures)		164.43	5.00%	8.22
	Air, People (Air emission and noise control measures)		164.43	5.00%	8.22
	People (Occupational Safety and Health)		411.09	50.00%	205.55
	People (safety risks: Barriers, early warning devices)		411.09	10.00%	41.11
	People (coordinator for basic resources/providers, residents for any threats and concerns)		411.09	10.00%	41.11
	People (traffic control measures implementation)		411.09	20.00%	82.22
DEMOBILIZATION AND OPERATIONAL PHASE					
Dismantling of Temporary Facilities for Workers	Land, Water (solid waste management plan)		67.28	40.00%	26.912
	Air, People (Air emission and noise control measures)		336.40	20.00%	67.28
	People (Occupational Safety and Health)		88.53	30.00%	26.559
Road Operations	Water (storm water management implementation)		336.40	40.00%	134.56
	People (enhancement employment livelihood)		88.53	20.00%	17.706
	People (Road traffic noise control)		88.53	10.00%	8.853
	People (Occupational Safety and Health)		88.53	30.00%	26.559
	People (traffic control measures implementation)		88.53	10.00%	8.853

ANNEXES

Annex 1. Detailed Road Works for Main Corridor Rehabilitation

No.	ROAD WORKS	LENGTH	UNIT
	Road Widening from 2/3- to 4-lanes		
1	Road Widening	8.23	kilometers
	Rehabilitation		
2	Re-blocking of concrete	9.66	kilometers
3	Road Shoulder	46.71	kilometers
4	Side Ditch / Lined Ditch	72.148	kilometers
5	Side Walks	0.495	kilometers
6	Turnouts	0.495	kilometers
7	Slope Protection	4.495	kilometers
	Road Safety		
1	Refuge Island	252	count (<i>4 directions</i>)
2	Road Side Barrier / Crash Barrier / Guardrail	57.29	kilometers
4	Improve Curve Delineation	81.61	kilometers
6	Road Lighting	9,978	count
7	Maintenance Marker Post	992	count
8	Traffic Light	1	count
9	Traffic Sign	16,503	count
10	Pavement Marking	421.12	kilometers
11	Chevron Sign	10,202	count
12	Pedestrian Overpass	90	count
13	Rumble Strips	14,100	meters
14	Median barrier	240	meters

Annex 2. Inventory of Road Works in the Main Corridor

ROAD WIDENING								
No.	Chainage		No. of Lanes	Length (km)	No. of Lanes to be Widened	Area (sq. m)	Engineering Work Details	Structures Affected
Existing 3-lane; Mountainous								
1	1426+550	1427+721	3	1.21	1	4053.5	Scope of Work -Remove concrete paved shoulder -Remove side ditch -Concrete widening on right side Condition -Mountainous	22
	1643+115	1643+203	3	0.088	1	294.8	Scope of Work -Concrete widening of left sides -Resurfacing (Type 1) Condition -Rolling	11
	1643+398	1643+504	3	0.106	1	355.1	Scope of Work -Concrete widening of right sides -Resurfacing (Type 1) Condition -Rolling	6
Sub-Total						4703.4		
Existing 3-lane; Flat								
2	1443+709	1443+853	3	0.144	1	482.4	Scope of Work -Concrete widening of 1-lane -Reconstruction of 2-lanes PCCP -Resurfacing (Type 2) Condition -Flat	10
	1554+272	1554+853	3	0.581	1	1946.35	Scope of Work -Concrete widening of left side -Resurfacing (Type 1) Condition -Flat	4
	1613+130	1613+180	3	0.05	1	167.5	Scope of Work -Concrete widening on right side -Resurfacing (Type 1) Condition Flat	0
	1634+960	1635+646	3	0.681	1	2281.35	Scope of Work -Concrete widening on right side -Resurfacing (Type 1) Condition Flat	6
	1612+808	1612+858	3	0.05	1	167.5	Scope of Work -Concrete widening on right side -Resurfacing (Type 1) Condition Flat	
Sub-Total						4877.6		
Existing 2-lane; Mountainous								
3	1588+532	1591+000	2	1.699	2	11383.3	Scope of Work -Concrete widening of both sides -Resurfacing (Type 1) -Ongoing road widening	25

ROAD WIDENING								
No.	Chainage		No. of Lanes	Length (km)	No. of Lanes to be Widened	Area (sq. m)	Engineering Work Details	Structures Affected
							project at right side of Sta. 1589 - 1590 (1 km) Condition -Mountainous	
	1591+000	1591+589	2	0.589	2	3946.3	Scope of Work -Concrete widening of both sides -Resurfacing (Type 1) Condition -Mountainous	20
	1481+783	1482+050	2	0.27	2	1809	Scope of Work -Concrete widening of both sides -Resurfacing (Type 2) Condition Rolling	15
	1482+216	1482+443	2	0.227	2	1520.9	Scope of Work -Concrete widening of both sides -Resurfacing (Type 1) Condition Rolling	0
	1482+443	1482+786	2	0.343	2	2298.1	Scope of Work -Concrete widening of both sides -Resurfacing (Type 1) Condition Mountainous	11
	1638+588	1639+000	2	0.408	2	2733.6	Scope of Work -Remove concrete paved shoulder -Concrete widening of both sides -Resurfacing (Type 1) Condition -Rolling	16
	Sub-Total					23,691.20		
Existing 2-lane; Flat								
4	1451+562	1451+806	2	0.244	2	1634.8	Scope of Work -Remove concrete paved shoulder on both sides -Concrete widening of both sides -Resurfacing (Type 1) Condition -Flat	20
	1458+568	1458+608	2	0.04	2	268	Scope of Work -Concrete widening of both sides -Resurfacing (Type 1) Condition -Flat	4
	1482+786	1483+623	2	0.836	2	5601.2	Scope of Work -Concrete widening of both sides -Resurfacing (Type 2) Condition Flat	18
	1601+394	1601+545	2	0.151	2	1011.7	Scope of Work -Concrete widening of both	2

ROAD WIDENING								
No.	Chainage		No. of Lanes	Length (km)	No. of Lanes to be Widened	Area (sq. m)	Engineering Work Details	Structures Affected
							sides -Resurfacing (Type 1) Condition -Flat	
	1601+566	1601+694	2	0.128	2	857.6	Scope of Work -Concrete widening of both sides -Resurfacing (Type 1) Condition -Flat	6
	1673+220	1673+605	2	0.385	2	2579.5	Lacking SLD	10
Sub-Total						11952.8		
Total				8.23		45,225		

REBLOCKING							
No.	Chainage		length (km)	No. of Defective Lane/s	Area (sq. m)	Eng work details (which lanes)	Remarks
1	1425+200	1425+600	0.4	2	2,686.4	Reconstruction Type 1: inner lanes LR	Based on visual inspection
2	1425+350	1425+400	0.05	1.00	167.5	Reconstruction Type 1: inner lane R	
3	Sta.1425+600	Sta.1425+700	0.1	1	335.0	Reconstruction Type 1: inner lane L	
4	Sta.1429+400	Sta.1429+700	0.3	2	2,010.0	Reconstruction Type 2: inner lanes LR	
5	Sta.1435+200	Sta.1435+300	0.1	1	335.0	Reconstruction Type 2: inner lane L	
6	Sta.1435+500	Sta.1435+600	0.1	2	670.0	Reconstruction Type 2: inner lanes LR	
7	Sta.1435+340	Sta.1435+990	0.65	2	4,355.0	Reconstruction Type 2: inner lanes LR	
8	Sta.1437+420	Sta.1437+480	0.06	2	402.0	Reconstruction Type 2: inner lanes LR	
9	Sta.1443+100	Sta.1443+220	0.12	2	804.0	Reconstruction Type 2: inner lanes LR	
10	Sta.1443+450	Sta.1443+500	0.05	2	335.0	Reconstruction Type 2: inner lanes LR	
11	Sta.1443+750	Sta.1444+50	0.3	2	2,010.0	Reconstruction Type 2: inner lanes LR	
12	Sta.1452+500	Sta.1452+750	0.25	2	1,675.0	Reconstruction Type 2: inner lanes LR	
13	Sta.1453+700	Sta.1453+800	0.1	2	670.0	Reconstruction Type 2: inner lanes LR	
14	Sta.1490+100	Sta.1490+200	0.1	2	670.0	Reconstruction Type 2: inner lanes LR	
15	Sta.1491+500	Sta.1491+560	0.06	2	402.0	Reconstruction Type 2: inner lanes LR	
16	Sta.1518+100	Sta.1518+200	0.1	1	335.0	Reconstruction Type 2: inner lane R	
17	Sta.1519+200	Sta.1521+0	1.8	2	12,060.0	Reconstruction Type 2: inner lanes LR	
18	Sta.1521+100	Sta.1521+900	0.8	2	5,360.0	Reconstruction Type 2: inner lanes LR	
19	Sta.1522+800	Sta.1522+850	0.05	1	167.5	Reconstruction Type 2: inner lane R	
20	Sta.1524+700	Sta.1524+800	0.1	1	335.0	Reconstruction Type 2: inner lane L	
21	Sta.1588+200	Sta.1588+800	0.6	2	4,020.0	Reconstruction Type 2: inner lanes LR	
22	Sta.1597+0	Sta.1597+40	0.04	1	134.0	Reconstruction Type 2: inner lane L	
23	Sta.1598+700	Sta.1598+710	0.01	1	33.5	Reconstruction Type 2: inner lane R	
24	Sta.1603+400	Sta.1603+450	0.05	1	167.5	Reconstruction Type 2: inner lane L	
25	Sta.1603+800	Sta.1603+820	0.02	1	67.0	Reconstruction Type 2: inner lane L	
26	Sta.1614+100	Sta.1614+135	0.04	2	268.0	Reconstruction Type 2: inner lanes LR	
27	Sta.1615+300	Sta.1615+380	0.08	3	804.0	Reconstruction Type 2: inner L, outer LR	
28	Sta.1616+300	Sta.1616+360	0.06	4	804.0	Reconstruction Type 2: inner LR, outer LR	
29	Sta.1621+700	Sta.1623+300	1.6	2	10,720.0	Reconstruction Type 2: inner lanes LR	
30	Sta.1631+550	Sta.1631+800	0.25	1	837.5	Reconstruction Type 2: inner lane L	
31	Sta.1632+100	Sta.1632+600	0.5	3	5,025.0	Reconstruction Type 2: inner LR, outer L	
32	Sta.1633+200	Sta.1633+900	0.7	2	4,690.0	Reconstruction Type 2: outer LR	
33	Sta.1635+685	Sta.1635+700	0.02	1	67.0	Reconstruction Type 2: inner lane R	
34	Sta.1638+800	Sta.1638+900	0.1	2	670.0	Reconstruction Type 2: inner lane LR	
35	Sta.1639+20	Sta.1639+800	0.78	4	10,452.0	Reconstruction Type 2: inner LR, outer LR	
36	Sta.1642+450	Sta.1642+500	0.05	1	167.5	Reconstruction Type 2: inner lane L	
37	Sta.1644+475	Sta.1644+500	0.02	1	67.0	Reconstruction Type 2: inner lane R	
38	Sta.1647+200	Sta.1647+800	0.6	3	6,030.0	Reconstruction Type 2: inner L, outer LR	
39	Sta.1652+670	Sta.1652+700	0.03	1	100.5	Reconstruction Type 2: inner lane R	
40	Sta.1653+350	Sta.1653+400	0.05	1	167.5	Reconstruction Type 2: inner lane L	
41	Sta.1656+570	Sta.1656+600	0.03	1	100.5	Reconstruction Type 2: inner lane L	

REBLOCKING							
No.	Chainage		length (km)	No. of Defective Lane/s	Area (sq. m)	Eng work details (which lanes)	Remarks
42	Sta.1659+970	Sta.1660+800	0.83	2	5,561.0	Reconstruction Type 2: inner R, outer R	
43	Sta.1662+646	Sta.1662+700	0.05	1	167.5	Reconstruction Type 2: outer R	
44	Sta.1666+385	Sta.1666+400	0.02	1	67.0	Reconstruction Type 2: outer L	
45	Sta.1670+691	Sta.1670+700	0.01	1	33.5	Reconstruction Type 2: inner L	
46	Sta.1673+400	Sta.1673+500	0.1	2	670.0	Reconstruction Type 2: inner lane LR	
47	Sta.1679+0	Sta.1679+660	0.66	2	4,422.0	Reconstruction Type 2: inner lane LR	
48	Sta.1686+0	Sta.1687+0	1	4	13,400.0	Reconstruction Type 2: inner LR, middle LR	
49	Sta.1687+0	Sta.1687+900	0.9	4	12,060.0	Reconstruction Type 2: inner L, middle LR, outer R	
50	Sta.1534+891	Sta.1534+900	0.01	1	33.5	Reconstruction Type 2: inner L	
51	Sta.1541+480	Sta.1541+500	0.02	1	67.0	Reconstruction Type 2: inner R	
52	Sta.1543+255	Sta.1543+300	0.05	1	167.5	Reconstruction Type 2: middle R	
53	Sta.1546+170	Sta.1548+100	1.93	2	12,931.0	Reconstruction Type 2: inner LR	
54	Sta.1551+100	Sta.1551+400	0.3	2	2,010.0	Reconstruction Type 2: inner LR	
55	Sta.1552+670	Sta.1552+700	0.03	2	201.0	Reconstruction Type 2: inner LR	
56	Sta.1553+300	Sta.1553+500	0.2	2	1,340.0	Reconstruction Type 2: inner R, middle R	
57	Sta.1554+755	Sta.1554+800	0.05	2	335.0	Reconstruction Type 2: inner LR	
58	Sta.1555+100	Sta.1555+900	0.8	2	5,360.0	Reconstruction Type 2: inner LR	
59	Sta.1557+100	Sta.1557+500	0.4	2	2,680.0	Reconstruction Type 2: inner LR	
60	Sta.1558+100	Sta.1558+200	0.1	2	670.0	Reconstruction Type 2: inner R, middle R	
61	Sta.1560+900	Sta.1561+700	0.8	2	5,360.0	Reconstruction Type 2: inner LR	
62	Sta.1562+500	Sta.1562+900	0.4	2	2,680.0	Reconstruction Type 2: inner LR	
63	Sta.1563+0	Sta.1563+600	0.6	2	4,020.0	Reconstruction Type 2: inner LR	
64	Sta.1563+900	Sta.1564+0	0.1	2	670.0	Reconstruction Type 2: inner LR	
65	Sta.1565+900	Sta.1566+0	0.1	1	335.0	Reconstruction Type 1: inner L	
66	Sta.1567+200	Sta.1567+600	0.4	1	1,340.0	Reconstruction Type 1: inner L	
67	Sta.1569+700	Sta.1570+800	1.1	2	7,370.0	Reconstruction Type 2: inner LR	
68	Sta.1571+500	Sta.1572+0	0.5	3	5,025.0	Reconstruction Type 2: inner R, middle R, outer R	
69	Sta.1575+700	Sta.1577+0	1.3	2	8,710.0	Reconstruction Type 2: inner LR	
70	Sta.1579+400	Sta.1580+900	1.5	3	15,075.0	Reconstruction Type 2: inner LR, middle R	
71	Sta.1584+200	Sta.1585+0	0.8	4	10,720.0	Reconstruction Type 2: inner LR, middle LR	
72	Sta.1585+100	Sta.1585+800	0.7	4	9,380.0	Reconstruction Type 2: inner LR, middle LR	
73	Sta.1586+100	Sta.1587+0	0.9	4	12,060.0	Reconstruction Type 2: inner LR, middle LR	
74	Sta.1587+100	Sta.1587+500	0.4	4	5,360.0	Reconstruction Type 2: inner LR, middle LR	
75	Sta.1588+0	Sta.1589+0	1	4	13,400.0	Reconstruction Type 1 and 2: inner LR Reconstruction Type 1 and 2: middle LR	
76	Sta.1589+0	Sta.1590+0	1	2	6,700.0	Reconstruction Type 2: inner LR	
77	Sta.1590+0	Sta.1590+900	0.9	2	6,030.0	Reconstruction Type 2: inner LR	
78	Sta.1591+300	Sta.1591+400	0.1	2	670.0	Reconstruction Type 2: inner LR	
79	Sta.1592+600	Sta.1593+0	0.4	2	2,680.0	Reconstruction Type 2: inner LR	
80	Sta.1595+0	Sta.1596+0	1	3	10,050.0	Reconstruction Type 1 and 2: inner LR Reconstruction Type 2: outer R	
81	Sta.1596+100	Sta.1597+0	0.9	3	9,045.0	Reconstruction Type 2: inner LR, outer R	
82	Sta.1597+0	Sta.1598+0	1	2	6,700.0	Reconstruction Type 2: inner LR	
83	Sta.1598+200	Sta.1598+900	0.7	2	4,690.0	Reconstruction Type 2: inner R, outer L	
84	Sta.1599+500	Sta.1601+400	1.9	4	25,460.0	Reconstruction Type 2: inner LR, outer LR	
85	Sta.1601+800	Sta.1602+0	0.2	2	1,340.0	Reconstruction Type 2: inner LR	
86	Sta.1602+200	Sta.1604+700	2.5	4	33,500.0	Reconstruction Type 2: inner LR, outer LR	
87	Sta.1608+500	Sta.1609+100	0.6	2	4,020.0	Reconstruction Type 2: inner R, outer R	
88	Sta.1608+500	Sta.1610+900	2.4	4	32,160.0	Reconstruction Type 2: inner LR, outer LR	
89	Sta.1611+400	Sta.1611+500	0.1	2	670.0	Reconstruction Type 2: inner R, outer L	
90	Sta.1612+170	Sta.1612+200	0.03	3	301.5	Reconstruction Type 2: inner LR, outer R	
91	Sta.1612+350	Sta.1612+400	0.05	2	335.0	Reconstruction Type 2: inner R, outer R	

REBLOCKING							
No.	Chainage		length (km)	No. of Defective Lane/s	Area (sq. m)	Eng work details (which lanes)	Remarks
92	Sta.1613+440	Sta.1613+500	0.06	1	201.0	Reconstruction Type 2: outer R	
93	Sta.1616+0	Sta.1616+400	0.4	2	2,680.0	Reconstruction Type 2: inner R, outer R	
94	Sta.1617+0	Sta.1618+500	1.5	2	10,050.0	Reconstruction Type 2: inner R, outer R	
95	Sta.1621+100	Sta.1621+600	0.5	3	5,025.0	Reconstruction Type 2: inner L, outer LR	
96	Sta.1622+300	Sta.1622+700	0.4	4	5,360.0	Reconstruction Type 2: inner LR, outer LR	
97	Sta.1622+900	Sta.1622+980	0.08	2	536.0	Reconstruction Type 2: inner L, outer L	
98	Sta.1623+500	Sta.1624+0	0.5	4	6,700.0	Reconstruction Type 2: inner LR, outer LR	
99	Sta.1628+100	Sta.1628+900	0.8	3	8,040.0	Reconstruction Type 2: inner LR, outer L	
100	Sta.1629+591	Sta.1629+600	0.01	2	67.0	Reconstruction Type 2: inner L, outer L	
101	Sta.1631+391	Sta.1631+400	0.01	1	33.5	Reconstruction Type 2: outer L	
102	Sta.1637+800	Sta.1640+500	2.7	2	18,090.0	Reconstruction Type 2: inner LR	
103	Sta.1645+691	Sta.1645+700	0.01	2	67.0	Reconstruction Type 2: inner LR	
Total			50.03		446,058.9		

ROAD SHOULDER							
No.	Chainage (From)	Chainage (To)	length (linear meter)	Side	No. of Sides	Area (sq. m)	Eng work details
1	1425+000	1426+058	1058	Left	1	2645	2.5m width, 28 cm thickness concrete shoulder
2	1425+000	1425+223	223	Right	1	557.5	
3	1426+000	1426 + 055	55	Right	1	137.5	
4	1426+546	1427 + 757	1211	Left	1	3027.5	
5	1426+546	1427 + 757	1211	Right	1	3027.5	
6	1431 + 538	1432 +851	1313	Left	1	3282.5	
7	1432 + 538	1433 +851	1313	Right	1	3282.5	
8	1437 + 425	1439 + 867	2442	Left	1	6105	
9	1437 + 425	1439 + 867	2442	Right	1	6105	
10	1443 + 707	1443 + 856	149	Left	1	372.5	
11	1443 + 707	1443 + 856	149	Right	1	372.5	
12	1445 + 039	1445 +310	271	Left	1	677.5	
13	1445 + 332	1446 + 313	981	Right	1	2452.5	
14	1446 + 003	1446 + 177	174	Left	1	435	
15	1446 +513	1447 + 932	1419	Left	1	3547.5	
16	1446 + 949	1448 + 445	1496	Right	1	3740	
17	1448 + 158	1448 + 431	273	Left	1	682.5	
18	1448 + 922	1449 + 633	711	Right	1	1777.5	
19	1448 + 922	1449 + 633	711	Left	1	1777.5	
20	1451 + 559	1451 + 804	245	Right	1	612.5	
21	1451 + 559	1451 + 804	245	Left	1	612.5	
22	1454 + 789	1456 + 12	1223	Left	1	3057.5	
23	1454 + 789	1456 + 12	1223	Right	1	3057.5	
24	1458 + 569	1458 + 612	43	Left	1	107.5	
25	1458 + 569	1458 + 612	43	Right	1	107.5	
26	1461 + 284	1463 + 87	1803	Left	1	4507.5	
27	1461 + 284	1463 + 87	1803	Right	1	4507.5	
28	1463 + 813	1463 + 857	44	Left	1	110	
29	1463 + 813	1463 + 857	44	Right	1	110	
30	1469 + 797	1469 + 944	147	Left	1	367.5	
31	1469 + 797	1469 + 944	147	Right	1	367.5	
32	1471 + 138	1471 + 380	242	Left	1	605	
33	1471 + 138	1471 + 380	242	Right	1	605	
34	1473 + 450	1475 + 532	2082	Left	1	5205	
35	1473 + 450	1475 + 532	2082	Right	1	5205	
36	1481 + 785	1482 + 51	266	Left	1	665	
37	1481 + 785	1482 + 51	266	Right	1	665	
38	1482 + 217	1483 + 624	1407	Left	1	3517.5	
39	1482 + 217	1483 + 624	1407	Right	1	3517.5	
40	1486 + 348	1487 + 298	950	Left	1	2375	
41	1486 + 348	1487 + 298	950	Right	1	2375	
42	1488 + 000	1488 + 124	124	Right	1	310	
43	1500 + 509	1500 + 975	466	Left	1	1165	
44	1500 + 509	1500 + 975	466	Right	1	1165	

ROAD SHOULDER							
No.	Chainage (From)	Chainage (To)	length (linear meter)	Side	No. of Sides	Area (sq. m)	Eng work details
45	1503 + 397	1503 + 728	331	Left	1	827.5	
46	1503 + 397	1503 + 728	331	Right	1	827.5	
47	1504 + 064	1506 + 289	2225	Right	1	5562.5	
48	1504 + 064	1507 + 23	2959	Left	1	7397.5	
49	1506 + 659	1507 + 81	422	Right	1	1055	
50	1509 + 879	1510 + 004	125	Left	1	312.5	
51	1512 + 000	1512 + 061	61	Right	1	152.5	
52	1512 + 935	1512 + 992	57	Left	1	142.5	
53	1513 + 000	1513 + 743	743	Left	1	1857.5	
54	1517 + 000	1518 + 764	1764	Left	1	4410	
55	1517 + 000	1518 + 764	1764	Right	1	4410	
56	1523 + 077	1524 + 000	923	Left	1	2307.5	
57	1523 + 077	1524 + 000	923	Right	1	2307.5	
58	1524 + 256	1525 + 202	946	Left	1	2365	
59	1524 + 256	1525 + 202	946	Right	1	2365	
60	1527 + 568	1528 + 477	909	Left	1	2272.5	
61	1527 + 568	1528 + 477	909	Right	1	2272.5	
62	1529 + 593	1531 + 528	1935	Left	1	4837.5	
63	1529 + 593	1531 + 528	1935	Right	1	4837.5	
64	1532 + 347	1533 + 159	812	Left	1	2030	
65	1533 + 435	1533 + 540	105	Right	1	262.5	
66	1533 + 701	1533 + 906	205	Right	1	512.5	
67	1535 + 372	1536 + 403	1031	Right	1	2577.5	
68	1536 + 000	1536 + 403	403	Left	1	1007.5	
69	1537 + 267	1539 + 000	1733	Left	1	4332.5	
70	1537 + 267	1539 + 000	1733	Right	1	4332.5	
71	1539 + 766	1540 + 000	234	Left	1	585	
72	1539 + 766	1540 + 000	234	Right	1	585	
73	1543 + 000	1544 + 000	1000	Left	1	2500	
74	1543 + 000	1544 + 000	1000	Right	1	2500	
75	1552 + 000	1559 + 000	7000	Left	1	17500	
76	1552 + 000	1559 + 000	7000	Right	1	17500	
77	1560 + 238	1563 + 502	3264	Left	1	8160	
78	1560 + 238	1563 + 502	3264	Right	1	8160	
79	1564 + 539	1564 + 991	452	Left	1	1130	
80	1564 + 539	1564 + 991	452	Right	1	1130	
81	1571 + 000	1572 + 000	1000	Left	1	2500	
82	1571 + 000	1572 + 000	1000	Right	1	2500	
83	1573 + 593	1577 + 734	4141	Left	1	10352.5	
84	1573 + 593	1577 + 734	4141	Right	1	10352.5	
85	1581 + 954	1583 + 003	1049	Left	1	2622.5	
86	1581 + 954	1583 + 003	1049	Right	1	2622.5	
87	1592 + 678	1593 + 316	638	Left	1	1595	
88	1592 + 678	1593 + 316	638	Right	1	1595	
89	1593 + 348	1593 + 638	290	Left	1	725	
90	1593 + 348	1593 + 638	290	Right	1	725	
91	1601 + 919	1603 + 056	1137	Left	1	2842.5	
92	1601 + 919	1603 + 056	1137	Right	1	2842.5	
93	1612 + 806	1612 + 860	54	Left	1	135	
94	1612 + 806	1612 + 860	54	Right	1	135	
95	1613 + 132	1613 + 180	48	Left	1	120	
96	1613 + 132	1613 + 180	48	Right	1	120	
97	1634 + 954	1635 + 645	691	Left	1	1727.5	
98	1634 + 954	1635 + 645	691	Right	1	1727.5	
99	1638 + 584	1639 + 000	416	Left	1	1040	
100	1638 + 584	1639 + 000	416	Right	1	1040	
101	1639+ 019	1640 +000	981	Left	1	2452.5	
102	1639+ 019	1640 +000	681	Right	1	1702.5	
103	1643 + 000	1643 + 398	398	Left	1	995	
104	1643 + 000	1643 + 398	398	Right	1	995	
105	1643 + 398	1643 + 504	106	Left	1	265	
106	1643 + 398	1643 + 504	106	Right	1	265	
107	1655 + 145	1655 + 298	153	Left	1	382.5	
108	1655 + 146	1655 + 389	243	Right	1	607.5	
109	1655 + 381	1655 + 579	198	Left	1	495	
110	1655 + 489	1655 + 580	91	right	1	227.5	
111	1673 + 221	1673 + 607	386	Left	1	965	
112	1673 + 222	1673 + 597	375	right	1	937.5	

ROAD SHOULDER							
No.	Chainage (From)	Chainage (To)	length (linear meter)	Side	No. of Sides	Area (sq. m)	Eng work details
113	1684 + 000	1684 + 886	886	Left	1	2215	
114	1684 + 000	1685 + 882	882	right	1	2205	
115	1692 + 574	1692 + 757	183	Left	1	457.5	
116	1692 + 576	1696 + 096	3520	right	1	8800	
117	1692 + 758	1696 + 841	4083	Left	1	10207.5	
118	1696 + 172	1696 + 874	702	right	1	1755	
119	1697 + 643	1697 + 674	31	Right	1	77.5	
120	1697 + 759	1697 + 825	66	Left	1	165	
121	1697 + 826	1699 + 072	1246	Right	1	3115	
122	1697 + 940	1698 + 063	123	Left	1	307.5	
123	1699 + 034	1699 + 595	561	Left	1	1402.5	
124	1699 + 827	1700 + 307	480	Left	1	1200	
125	1699 + 913	1700 + 135	222	Right	1	555	
126	1700 + 368	1700 + 389	21	Left	1	52.5	
127	1700 + 674	1700 + 883	209	Left	1	522.5	
128	1700 + 873	1700 + 979	106	Right	1	265	
129	1701 + 91	1702 + 32	909	Right	1	2272.5	
130	1701 + 112	1702 + 246	1134	Left	1	2835	
131	1513 + 136	1513 + 420	284	Left	1	710	
132	1513 + 390	1513 + 700	310	Right	1	775	
133	1520 + 109	1520 + 789	680	Left	1	1700	
134	1528 + 755	1528 + 860	105	Left	1	262.5	
135	1528 + 769	1529 + 467	698	Right	1	1745	
136	1530 + 004	1530 + 307	303	Right	1	757.5	
137	1530 + 116	1530 + 277	161	Left	1	402.5	
138	1530 + 749	1531 + 058	309	Right	1	772.5	
139	1531 + 12	1531 + 246	234	Left	1	585	
140	1535 + 414	1536 + 386	972	Right	1	2430	
141	1536 + 373	1537 + 000	627	Left	1	1567.5	
142	1540 + 048	1540 + 249	201	Left	1	502.5	
143	1542 + 588	1542 + 848	260	Right	1	650	
144	1549 + 499	1550 + 209	710	Right	1	1775	
145	1549 + 558	1550 + 208	650	Left	1	1625	
146	1554 + 354	1554 + 856	502	Left	1	1255	
147	1554 + 360	1554 + 861	501	Right	1	1252.5	
148	1556 + 747	1556 + 945	198	Right	1	495	
149	1556 + 878	1557 + 288	410	Left	1	1025	
150	1557 + 087	1557 + 179	92	Right	1	230	
151	1557 + 211	1557 + 526	315	Right	1	787.5	
152	1557 + 689	1557 + 725	36	Right	1	90	
153	1557 + 869	1558 + 217	348	Right	1	870	
154	1561 + 138	1562 + 81	943	Left	1	2357.5	
155	1562 + 464	1562 + 743	279	Right	1	697.5	
156	1562 + 560	1562 + 609	49	Left	1	122.5	
157	1562 + 883	1563 + 115	232	Right	1	580	
158	1563 + 007	1563 + 270	263	Left	1	657.5	
159	1563 + 312	1563 + 450	138	Right	1	345	
160	1563 + 381	1563 + 417	36	Left	1	90	
161	1564 + 010	1564 + 064	54	Right	1	135	
162	1564 + 307	1564 + 403	96	Left	1	240	
163	1564 + 333	1564 + 356	23	Right	1	57.5	
164	1564 + 434	1564 + 459	25	Right	1	62.5	
165	1565 + 642	1566 + 291	649	Left	1	1622.5	
166	1566 + 009	1566 + 293	284	Right	1	710	
167	1566 + 416	1567 + 127	1711	Left	1	4277.5	
168	1566 + 430	1567 + 075	645	Right	1	1612.5	
169	1568 + 037	1568 + 183	146	Left	1	365	
170	1568 + 240	1568 + 444	204	Left	1	510	
171	1572 + 030	1572 + 293	263	Right	1	657.5	
172	1572 + 031	1575 + 429	3398	Left	1	8495	
173	1572 + 420	1578 + 000	5580	Right	1	13950	
174	1575 + 510	1578 + 000	2490	Left	1	6225	
175	1575 + 510	1578 + 000	2490	Right	1	6225	
176	1581 + 415	1583 + 000	1585	Left	1	3962.5	
177			1585	Right	1	3962.5	
178	1588 + 539	1591 + 587	3048	Left	1	7620	
179			3048	Right	1	7620	
180	1601 + 390	1601 + 544	154	Right	1	385	

ROAD SHOULDER							
No.	Chainage (From)	Chainage (To)	length (linear meter)	Side	No. of Sides	Area (sq. m)	Eng work details
181	1601 + 393	1601 + 547	154	Left	1	385	
182	1601 + 561	1601 + 690	129	Right	1	322.5	
183	1601 + 565	1601 + 690	125	Left	1	312.5	
184	1613 + 537	1616 + 453	2916	Left	1	7290	
185	1614 + 128	1615 + 179	1051	Right	1	2627.5	
186	1615 + 393	1616 + 451	1058	Right	1	2645	
187	1625 + 000	1626 + 375	1375	Right	1	3437.5	
188	1625 + 006	1625 + 725	719	Left	1	1797.5	
189	1626 + 045	1626 + 390	345	Left	1	862.5	
190	1638 + 000	1639 + 000	1000	Right	1	2500	
191	1638 + 000	1639 + 918	1918	Left	1	4795	
192	1643 + 000	1649 + 166	6166	Left	1	15415	
193	1643 + 000	1649 + 886	6886	Right	1	17215	
194	1649 + 220	1649 + 720	500	Left	1	1250	
195	1649 + 980	1650 + 181	201	Right	1	502.5	
196	1649 + 979	1650 + 100	121	Left	1	302.5	
197	1650 + 113	1650 + 437	1537	Right	1	3842.5	
198	1650 + 722	1651 + 87	1929	Right	1	4822.5	
199	1651 + 286	1651 + 702	1365	Right	1	3412.5	
200	1651 + 449	1654 + 924	3475	Left	1	8687.5	
201	1654 + 761	1655 + 000	1894	Right	1	4735	
Total			197.29			493,220.00	

SIDE WALKS						
No.	Chainage	School	Length (m)	Side	Total Side Length (m)	Area (sq. m)
Cagayan de Oro (Puerto - Davao City (Ulas))						
1	1445 + 715	Dicklum Elementary School	15	2	30	45
2	1447 + 380	Manolo Fortich National High School	15	2	30	45
3	1447 + 560	Manolo Fortich Central Elementary School	15	2	30	45
4	1455 + 730	Dalirig Elementary School	15	2	30	45
5	1462 + 330	Maluko Elementary School	15	2	30	45
6	1470 + 920	San Vicente National High School	15	2	30	45
7	1474 + 425	Kisolon Central Elementary School	15	2	30	45
8	1486 + 660	Impalutao Integrated School	15	2	30	45
9	1494 + 400	Dalwangan Elementary School	15	2	30	45
10	1496 + 450	Patpat Elementary School	15	2	30	45
11	1511 + 590	San Jose Elementary School	15	1	15	22.5
12	1513 + 750	Laguillas Elementary School	15	2	30	45
13	1521 + 755	Cabangahan Elementary School	15	2	30	45
14	1524 + 300	Bangcud National High School	15	2	30	45
15	1524 + 455	Bangcud Central Elementary School	15	2	30	45
16	1528 + 120	Dabongdabong Elementary School	15	2	30	45
17	1535 + 460	Valencia City Central School	15	2	30	45
18	1535 + 570	Valencia National High School	15	2	30	45
19	1543 + 600	Central Mindanao University	15	1	15	22.5
20	1548 + 245	Tubigon Elementary School	15	2	30	45
21	1554 + 340	Philippine Countryville College	15	2	30	45

SIDE WALKS						
No.	Chainage	School	Length (m)	Side	Total Side Length (m)	Area (sq. m)
22	1557 + 930	San Andres Academy of Maramag Inc.	15	2	30	45
23	1562 + 150	Camp I Elementary School	15	2	30	45
24	1571 + 380	San Jose Integrated School	15	2	30	45
25	1575 + 700	Quezon Institute of Technology	15	2	30	45
26	1578 + 700	Salawagan National High School	15	2	30	45
27	1590 + 600	Puntian Elementary School	15	2	30	45
28	1592 + 885	Palacapao Elementary School	15	2	30	45
29	1613 + 650	Kabalansihan Elementary School	15	2	30	45
30	1618 + 730	Sinuda National High School	15	2	30	45
31	1621 + 500	Buda National High School	15	2	30	45
32	1631 + 245	Bayanihan Elementary School	15	2	30	45
33	1640 + 720	Ladian Elementary School	15	2	30	45
34	1647 + 000	Pamuhatan Primary School	15	2	30	45
35	1649 + 320	Balite Elementary School	15	2	30	45
36	1653 + 000	Kibalang Elementary School	15	2	30	45
37	1657 + 000	San Jose Primary School	15	2	30	45
38	1659 + 720	Marilog Central Elementary School	15	2	30	45
39	1663 + 000	Lumondao Elementary School	15	2	30	45
40	1684 + 190	Holy Cross College of Calinan	15	2	30	45
41	1689 + 900	Los Amigos Elementary School	15	2	30	45
42	1693 + 900	Tugbok Central Elementary School	15	2	30	45
43	1695 + 940	University of Southeastern Philippines - Mintal Campus	15	2	30	45
44	1696 + 350	Mintal Elementary School	15	2	30	45
45	1696 + 575	Mintal Comprehensive High School	15	2	30	45
46	1698 + 085	Holy Child - Green Meadows Campus	15	2	30	45
47	1698 + 155	Holy Child College of Davao	15	2	30	45
48	1700 + 100	City College of Davao	15	2	30	45
49	1701 + 390	San Pedro College - Ulas Campus	15	2	30	45
50	1511 + 000	Magallanes Elementary School	15	2	30	45
51	1512 + 805	Ateneo de Davao - Matina Campus	15	2	30	45
52	1512 + 960	Malayan Colleges Mindanao	15	2	30	45
53	1517 + 075	Davao City Special National High School	15	2	30	45
54	1517 + 480	Ateneo de Davao University Senior High School	15	2	30	45
55	1520 + 820	Erico T. Nograles National High School	15	2	30	45
56	1522 + 950	Dr. P. Ocampo College Davao Campus	15	2	30	45
57	1523 + 300	Jose Bastida Elementary	15	2	30	45

SIDE WALKS						
No.	Chainage	School	Length (m)	Side	Total Side Length (m)	Area (sq. m)
		School				
58	1525 + 130	St. Peter College of Davao	15	2	30	45
59	1529 + 580	Sirawan Elementary School	15	2	30	45
60	1531 + 310	Binugao Central Elementary School	15	2	30	45
61	1533 + 625	Inawayan National High School	15	2	30	45
62	1537 + 400	Almendras Elementary School	15	2	30	45
63	1540 + 000	Federico Yap National High School	15	2	30	45
64	1542 + 980	Coronon Elementary School	15	2	30	45
65	1547 + 920	Apolinar Franco, Sr. Elementary School	15	2	30	45
66	1557 + 580	Bato Elementary School	15	1	15	22.5
67	1563 + 285	Polytechnic College of Davao del Sur	15	2	30	45
68	1564 + 200	Digos City Central Elementary School	15	1	15	22.5
69	1564 + 800	Digos Seventh-Day Adventist Elementary School, Inc.	15	2	30	45
70	1564 + 960	Digos City National High School	15	2	30	45
71	1572 + 610	Guihing Central Elementary School	15	2	30	45
72	1575 + 430	Mariano Sorona Elementary School	15	2	30	45
73	1576 + 910	Southeastern College of Padada, Inc.	15	2	30	45
74	1579 + 860	Talas Elementary School	15	2	30	45
75	1581 + 920	Sulop Central Elementary School	15	1	15	22.5
76	1594 + 060	Malungon Gamay Elementary School	15	2	30	45
77	1594 + 555	Malungon Gamay National High School	15	1	15	22.5
78	1602 + 280	Banate National High School	15	2	30	45
79	1604 + 085	Tagaytay Elementary School	15	1	15	22.5
80	1611 + 300	Malalag Cogon Elementary School	15	2	30	45
81	1615 + 640	Malungon Central Elementary School & Special Education Center	15	2	30	45
82	1625 + 930	Malandag Central Elementary School	15	2	30	45
83	1631 + 050	Pulatana Elementary School	15	2	30	45
84	1638 + 575	Datu Andiam Manza National High School	15	2	30	45
85	1638 + 670	Tinagacan Elementary School	15	2	30	45
86	1643 + 100	Katangawan Central Elementary School	15	2	30	45
87	1643 + 225	Johnny Ang National High School	15	2	30	45
88	1652 + 000	Notre Dame of Dadiangas university	15	2	30	45
Total			1.32			3,803

TURNOUTS/LAYBY (NEAR PEDESTRIAN OVERPASS)						
No.	Chainage	School	Length (m)	Side	Total Side Length (m)	Area (sq. m)
Cagayan de Oro (Puerto - Davao City (Ulas))						

TURNOUTS/LAYBY (NEAR PEDESTRIAN OVERPASS)						
No.	Chainage	School	Length (m)	Side	Total Side Length (m)	Area (sq. m)
1	1445 + 715	Dicklum Elementary School	15	2	30	45
2	1447 + 380	Manolo Fortich National High School	15	2	30	45
3	1447 + 560	Manolo Fortich Central Elementary School	15	2	30	45
4	1455 + 730	Dalirig Elementary School	15	2	30	45
5	1462 + 330	Maluko Elementary School	15	2	30	45
6	1470 + 920	San Vicente National High School	15	2	30	45
7	1474 + 425	Kisolon Central Elementary School	15	2	30	45
8	1486 + 660	Impalutao Integrated School	15	2	30	45
9	1494 + 400	Dalwangan Elementary School	15	2	30	45
10	1496 + 450	Patpat Elementary School	15	2	30	45
11	1511 + 590	San Jose Elementary School	15	1	15	22.5
12	1513 + 750	Laguitas Elementary School	15	2	30	45
13	1521 + 755	Cabangahan Elementary School	15	2	30	45
14	1524 + 300	Bangcud National High School	15	2	30	45
15	1524 + 455	Bangcud Central Elementary School	15	2	30	45
16	1528 + 120	Dabongdabong Elementary School	15	2	30	45
17	1535 + 460	Valencia City Central School	15	2	30	45
18	1535 + 570	Valencia National High School	15	2	30	45
19	1543 + 600	Central Mindanao University	15	1	15	22.5
20	1548 + 245	Tubigon Elementary School	15	2	30	45
21	1554 + 340	Philippine Countryville College	15	2	30	45
22	1557 + 930	San Andres Academy of Maramag Inc.	15	2	30	45
23	1562 + 150	Camp I Elementary School	15	2	30	45
24	1571 + 380	San Jose Integrated School	15	2	30	45
25	1575 + 700	Quezon Institute of Technology	15	2	30	45
26	1578 + 700	Salawagan National High School	15	2	30	45
27	1590 + 600	Puntian Elementary School	15	2	30	45
28	1592 + 885	Palacapao Elementary School	15	2	30	45
29	1613 + 650	Kabalansihan Elementary School	15	2	30	45
30	1618 + 730	Sinuda National High School	15	2	30	45
31	1621 + 500	Buda National High School	15	2	30	45
32	1631 + 245	Bayanihan Elementary School	15	2	30	45
33	1640 + 720	Ladian Elementary School	15	2	30	45
34	1647 + 000	Pamuhatan Primary School	15	2	30	45
35	1649 + 320	Balite Elementary School	15	2	30	45
36	1653 + 000	Kibalang Elementary School	15	2	30	45
37	1657 + 000	San Jose Primary School	15	2	30	45
38	1659 + 720	Marilog Central Elementary School	15	2	30	45
39	1663 + 000	Lumondao Elementary School	15	2	30	45
40	1684 + 190	Holy Cross College of Calinan	15	2	30	45
41	1689 + 900	Los Amigos Elementary School	15	2	30	45
42	1693 + 900	Tugbok Central Elementary School	15	2	30	45
43	1695 + 940	University of Southeastern Philippines - Mintal Campus	15	2	30	45
44	1696 + 350	Mintal Elementary School	15	2	30	45
45	1696 + 575	Mintal Comprehensive High School	15	2	30	45

TURNOUTS/LAYBY (NEAR PEDESTRIAN OVERPASS)						
No.	Chainage	School	Length (m)	Side	Total Side Length (m)	Area (sq. m)
46	1698 + 085	Holy Child - Green Meadows Campus	15	2	30	45
47	1698 + 155	Holy Child College of Davao	15	2	30	45
48	1700 + 100	City College of Davao	15	2	30	45
49	1701 + 390	San Pedro College - Ulas Campus	15	2	30	45
Davao City (Poblacion) - General Santos City						
50	1511 + 000	Magallanes Elementary School	15	2	30	45
51	1512 + 805	Ateneo de Davao - Matina Campus	15	2	30	45
52	1512 + 960	Malayan Colleges Mindanao	15	2	30	45
53	1517 + 075	Davao City Special National High School	15	2	30	45
54	1517 + 480	Ateneo de Davao University Senior High School	15	2	30	45
55	1520 + 820	Erico T. Nograles National High School	15	2	30	45
56	1522 + 950	Dr. P. Ocampo College Davao Campus	15	2	30	45
57	1523 + 300	Jose Bastida Elementary School	15	2	30	45
58	1525 + 130	St. Peter College of Davao	15	2	30	45
59	1529 + 580	Sirawan Elementary School	15	2	30	45
60	1531 + 310	Binugao Central Elementary School	15	2	30	45
61	1533 + 625	Inawayan National High School	15	2	30	45
62	1537 + 400	Almendras Elementary School	15	2	30	45
63	1540 + 000	Federico Yap National High School	15	2	30	45
64	1542 + 980	Coronon Elementary School	15	2	30	45
65	1547 + 920	Apolinar Franco, Sr. Elementary School	15	2	30	45
66	1557 + 580	Bato Elementary School	15	1	15	22.5
67	1563 + 285	Polytechnic College of Davao del Sur	15	2	30	45
68	1564 + 200	Digos City Central Elementary School	15	1	15	22.5
69	1564 + 800	Digos Seventh-Day Adventist Elementary School, Inc.	15	2	30	45
70	1564 + 960	Digos City National High School	15	2	30	45
71	1572 + 610	Guihing Central Elementary School	15	2	30	45
72	1575 + 430	Mariano Sorona Elementary School	15	2	30	45
73	1576 + 910	Southeastern College of Padada, Inc.	15	2	30	45
74	1579 + 860	Talas Elementary School	15	2	30	45
75	1581 + 920	Sulop Central Elementary School	15	1	15	22.5
76	1594 + 060	Malungon Gamay Elementary School	15	2	30	45
77	1594 + 555	Malungon Gamay National High School	15	1	15	22.5
78	1602 + 280	Banate National High School	15	2	30	45
79	1604 + 085	Tagaytay Elementary School	15	1	15	22.5
80	1611 + 300	Malalag Cogon Elementary School	15	2	30	45
81	1615 + 640	Malungon Central Elementary School & Special Education Center	15	2	30	45
82	1625 + 930	Malandag Central Elementary School	15	2	30	45
83	1631 + 050	Pulatana Elementary School	15	2	30	45
84	1638 + 575	Datu Andiam Manza National High School	15	2	30	45
85	1638 + 670	Tinagacan Elementary	15	2	30	45

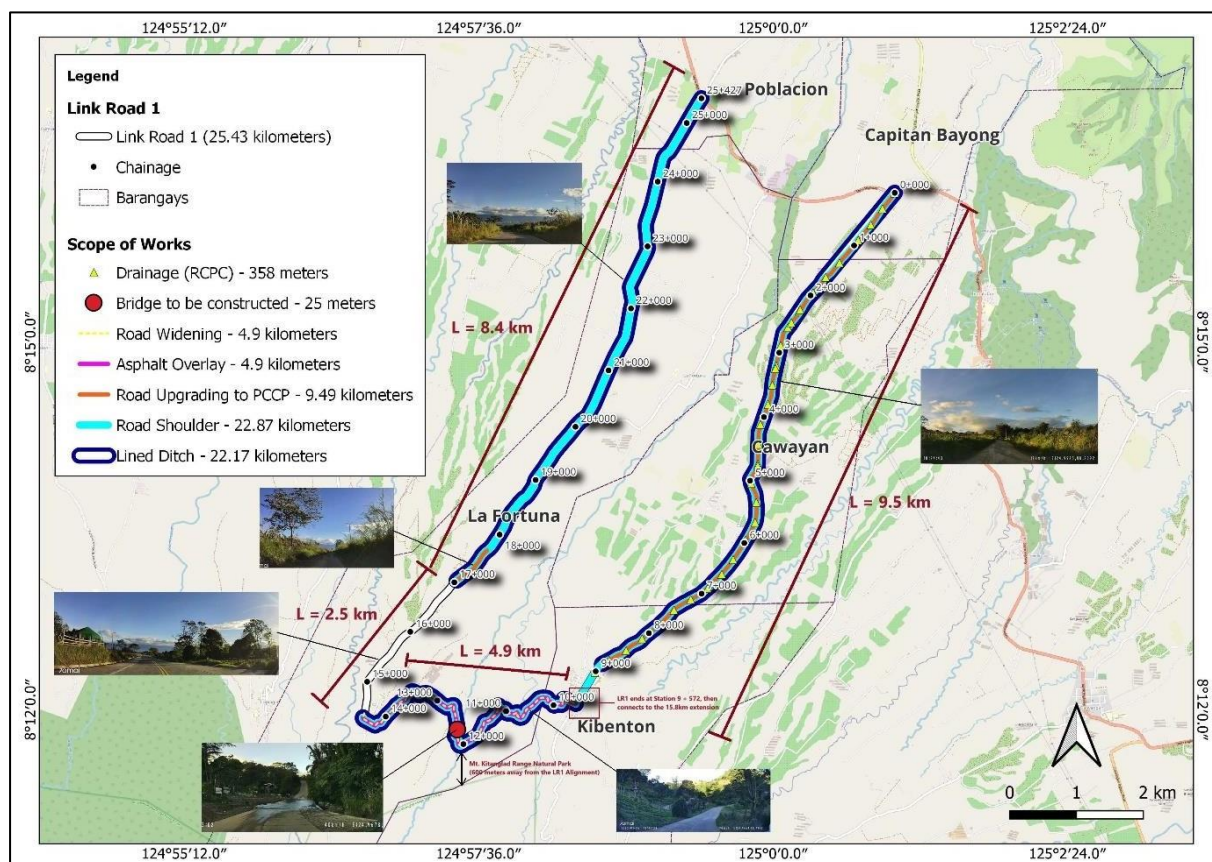
TURNOUTS/LAYBY (NEAR PEDESTRIAN OVERPASS)						
No.	Chainage	School	Length (m)	Side	Total Side Length (m)	Area (sq. m)
		School				
86	1643 + 100	Katangawan Central Elementary School	15	2	30	45
87	1643 + 225	Johnny Ang National High School	15	2	30	45
88	1652 + 000	Notre Dame of Dadiangas University	15	2	30	45
Total			1.32			3,803

SLOPE PROTECTION					
No.	Chainage (From)	Chainage (To)	Length (m)	Length (km)	Area (km ²)
Masonry Wall					
MC.1	K1427+462.5	K1427+532.5	70	0.07	0.00018
MC.5	K1463+988	K1464+988	1000	1	0.0021
MC.7	K1465+085	K1465+325	240	0.24	0.00066
MC.8	K1466+811	K1467+361	550	0.55	0.0015
MC.12	K1606+523	K1607+083	560	0.56	0.0015
MC.13	K1607+167	K1607+667	500	0.5	0.0015
MC.14	K1607+867	K1607+967	100	0.1	0.0003
MC.15	K1607+967	K1608+217	250	0.25	0.00072
MC.16	K1609+116.5	K1609+716.5	600	0.6	0.00177
MC.19	K1633+360	K1633+560	200	0.2	0.00045
MC.21	K1640+071	K1640+271	200	0.2	0.00247
Sub-Total				4.27	0.01315
Soil Nailing W/ Netting					
MC.1	K1427+462.5	K1427+532.5	70	0.07	0.00042
MC.2	K1451+380.8	K1451+530.8	150	0.15	0.0012
MC.4	K1459+667.5	K1459+742.5	75	0.075	0.0007
MC.5	K1463+988	K1464+988	1000	1	0.49
MC.7	K1465+085	K1465+325	240	0.24	0.0022
MC.8	K1466+811	K1467+361	550	0.55	0.0055
MC.12	K1606+523	K1607+083	560	0.56	0.0055
MC.13	K1607+167	K1607+667	500	0.5	0.0095
MC.14	K1607+867	K1607+967	100	0.1	0.001
MC.15	K1607+967	K1608+217	250	0.25	0.0024
MC.16	K1609+116.5	K1609+716.5	600	0.6	0.01003
MC.19	K1633+360	K1633+560	200	0.2	0.00105
MC.21	K1640+071	K1640+271	200	0.2	0.00057
Sub-Total				4.495	0.53007

LINED DITCH					
No.	Chainage (From)	Chainage (To)	Length (m)	Length (km)	Side
Left					
Cagayan de Oro (Puerto - Davao City (Ulas))					
1	1427 + 797	1431 + 439	3642	3.642	left side
2	1440 + 90	1441 + 332	1242	1.242	left side
3	1441 + 955	1443 + 129	1174	1.174	left side
4	1443 + 951	1444 + 634	683	0.683	left side
5	1465 + 87	1466 + 50	963	0.963	left side
6	1467 + 0	1467 + 179	179	0.179	left side
7	1482 + 534	1489 + 0	6466	6.466	left side
8	1490 + 480	1491 + 0	520	0.52	left side
9	1491 + 39	1491 + 553	514	0.514	left side
10	1494 + 820	1499 + 86	4266	4.266	left side
11	1499 + 845	1500 + 513	668	0.668	left side
12	1500 + 555	1500 + 861	306	0.306	left side
13	1563 + 0	1565 + 422	2422	2.422	left side
14	1565 + 578	1569 + 94	3516	3.516	left side
15	1593 + 686	1595 + 501	1815	1.815	left side
16	1595 + 659	1596 + 198	539	0.539	left side

17	1596 + 578	1597 + 412	834	0.834	left side
18	1605 + 909	1606 + 48	139	0.139	left side
19	1606 + 469	1607 + 167	698	0.698	left side

LINED DITCH					
No.	Chainage (From)	Chainage (To)	Length (m)	Length (km)	Side
20	1608 + 511	1608 + 695	184	0.184	left side
21	1616 + 84	1616 + 740	656	0.656	left side
22	1616 + 795	1617 + 550	755	0.755	left side
23	1618 + 66	1618 + 609	543	0.543	left side
24	1618 + 748	1619 + 294	546	0.546	left side
25	1619 + 690	1620 + 302	588	0.588	left side
26	1620 + 586	1620 + 910	324	0.324	left side
27	1621 + 88	1621 + 392	304	0.304	left side
28	1621 + 508	1621 + 662	154	0.154	left side
29	1621 + 747	1621 + 905	158	0.158	left side
30	1663 + 296	1665 + 149	1853	1.853	left side
31	1667 + 565	1668 + 52	487	0.487	left side
32	1669 + 578	1669 + 831	253	0.253	left side
33	1670 + 55	1674 + 583	4528	4.528	left side
Davao City (Poblacion) - General Santos City					
142	1613 + 400	1613 + 498	98	0.098	left side
143	1614 + 278	1614 + 792	514	0.514	left side
Right					
Cagayan de Oro (Puerto - Davao City (Ulas))					
190	1427 + 172	1428 + 43	871	0.871	right side
191	1441 + 351	1442 + 0	649	0.649	right side
192	1443 + 105	1444 + 0	895	0.895	right side
193	1465 + 228	1470 + 939	5711	5.711	right side
194	1487 + 589	1489 + 380	1525	1525	right side
195	1489 + 598	1489 + 647	49	0.049	right side
196	1489 + 905	1490 + 96	191	0.191	right side
197	1492 + 973	1493 + 307	334	0.334	right side
198	1494 + 70	1494 + 740	670	0.67	right side
199	1495 + 50	1496 + 195	1145	1.145	right side
200	1496 + 299	1497 + 932	1633	1.633	right side
201	1500 + 553	1501 + 389	836	0.836	right side
202	1530 + 114	1531 + 718	1604	1.604	right side
203	1534 + 0	1535 + 121	1121	1.121	right side
204	1562 + 539	1563 + 285	746	0.746	right side
205	1564 + 774	1564 + 898	124	0.124	right side
206	1593 + 673	1594 + 93	420	0.42	right side
207	1594 + 894	1595 + 37	143	0.143	right side
208	1595 + 589	1595 + 824	235	0.235	right side
209	1596 + 261	1596 + 555	294	0.294	right side
210	1596 + 844	1597 + 183	339	0.339	right side
211	1597 + 366	1597 + 842	476	0.476	right side
212	1606 + 357	1607 + 289	932	0.932	right side
213	1607 + 440	1608 + 771	1331	1.331	right side
214	1617 + 836	1618 + 71	235	0.235	right side
215	1618 + 670	1620 + 255	1585	1.585	right side
216	1620 + 619	1620 + 928	309	0.309	right side
217	1621 + 72	1621 + 921	849	0.849	right side
218	1663 + 621	1663 + 919	298	0.298	right side
219	1664 + 109	1665 + 98	989	0.989	right side
220	1665 + 339	1665 + 472	133	0.133	right side
221	1665 + 784	1665 + 932	148	0.148	right side
222	1666 + 259	1666 + 720	461	0.461	right side
223	1666 + 820	1668 + 199	1379	1.379	right side
224	1670 + 0	1670 + 366	366	0.366	right side
225	1671 + 635	1671 + 818	183	0.183	right side
226	1672 + 225	1672 + 633	408	0.408	right side
Total			72,148.00	72.148	

Annex 3. Road Works Map for Link Road 1

Annex 4. Detailed Road Works for Link Road 1

No.	ROAD WORKS	LENGTH	UNIT
1	Road Upgrading to PCCP	9.49	kilometers
2	Road Widening	4.9	kilometers
3	Asphalt Overlay	4.9	kilometers
4	Bridge to be Constructed	30	linear meter
5	Road Shoulder	22.87	kilometers
6	Drainage (RCPC)	358	linear meter
7	Drainage (Lined Ditch)	22.17	kilometers
8	Road Safety: Roadside Barrier	10	kilometers
9	Road Safety: Road Lighting	253	count
10	Road Safety: Road Safety Signages	30	count
11	Pavement Markings	25.43	kilometers

Annex 5. Inventory of Road Works in the Link Road 1

ROAD UPGRADING TO PCCP						
No.	Chainage		Length (km)	No. of Lanes	Area (sq. m)	Engg work details
1	0 + 000	8 + 837	8.84	2	59,228.00	
2	17 + 054	17 + 700	0.646	2	4,328.20	
Total			9.49		59,228.00	

ROAD WIDENING						
No.	Chainage		Length (linear meter)	No. of Lanes	Area (sq. m)	Engg work details
1	9 + 572	14 + 500	4928	2	13,305.60	Proposed road strip widening of 1.35meters on both sides, with thickness = 0.28 meters.
Total			4.9		13,305.60	

ASPHALT OVERLAY						
No.	Chainage		Length (linear meter)	No. of Lanes	Area (sq. m)	Engg work details
1	9 + 572	14 + 500	4928	2	33,017,600.00	Proposed asphalt overlay of 100mm on the existing pavement.
Total			4.9		33,017,600.00	

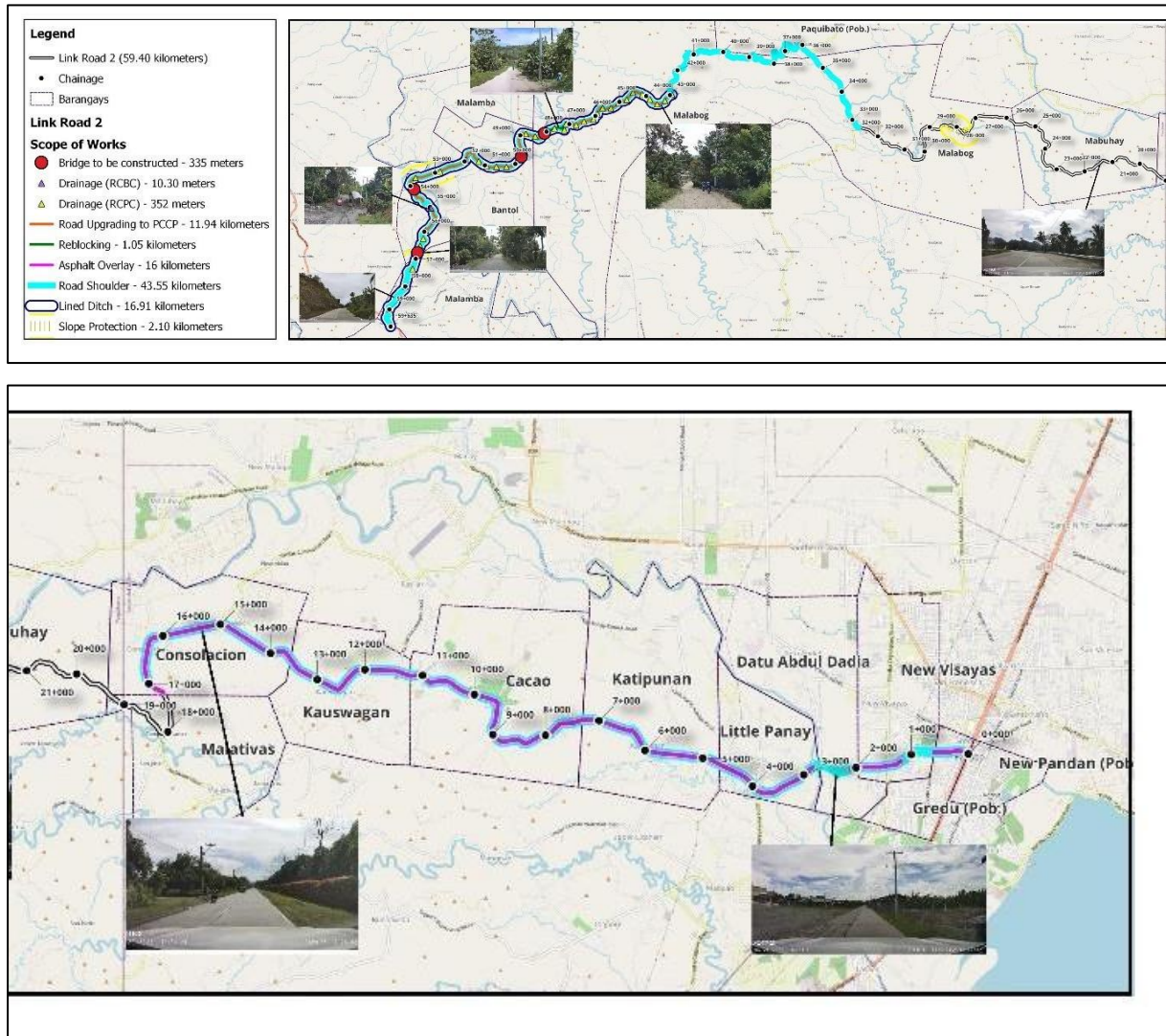
BRIDGE TO BE CONSTRUCTED					
No.	Chainage	Length (linear meter)	No. of Lanes	Name	Engg work details
1	10 + 448	30	2	Atugan River Crossing Spillway	
Total		30.0			

DRAINAGE (RCPC)			
No.	Chainage	Length (linear meter)	Engg work details
RCPC - Cross Drain			
1	0 + 005	11	
2	0 + 300	11	
3	0 + 600	11	
4	0 + 900	11	
5	1 + 340	11	
6	1 + 640	11	
7	1 + 940	11	
8	2 + 290	11	
9	2 + 590	11	
10	2 + 890	11	
11	3 + 202	11	
12	3 + 502	11	
13	3 + 802	11	
14	4 + 122	11	
15	4 + 422	11	
16	4 + 722	11	
17	5 + 045	11	

18	5 + 345	11	
19	5 + 645	11	
20	5 + 945	11	
21	6 + 300	11	

DRAINAGE (RCPC)			
No.	Chainage	Length (linear meter)	Engg work details
22	6 + 582	11	
23	6 + 882	11	
24	7 + 184	11	
25	7 + 484	11	
26	7 + 784	11	
27	8 + 133	11	
28	8 + 433	11	
29	8 + 733	11	
30	9 + 022	11	
Sub-Total		330	
RCPC - Lateral Pipe			
1	2 + 266	7	910 mm size
2	2 + 500	7	
3	3 + 245	7	
4	4 + 750	7	
Sub-Total		28	
Total		358	

Annex 6. Road Works Map of Link Road 2



Annex 7. Detailed Road Works for Link Road 2

No.	Scope of Works	Length (new)	Unit
1	Road Upgrading to PCCP	11.94	kilometers
2	Reblocking	1.05	kilometers
3	Bridge to be Constructed	315	linear meter
4	Drainage (RCBC)	10.30	linear meter
5	Drainage (RCPC)	352	linear meter
6	Drainage Lined Ditch	16.91	linear meter
7	Road Shoulder	43.55	kilometers
8	Slope Protection	2.10	kilometers
9	Road Safety: Road Side Barrier	57.311	kilometers
10	Road Safety: Road Lighting	2,343	count
11	Road Safety: Rumble Strips	57.311	kilometers
12	Road Safety: Pavement Markings	59.40	kilometers

Annex 8. Inventory of Road Works in Link Road 2

ROAD UPGRADING TO PCCP						
No.	Chainage		Length (m)	No. of Lanes	Area (sq.m)	Eng work details
1	42+932	46+932	4,000	2	26,800.00	Pavement width is 6.7 meter
2	47+940	54+698	6,758	2	45,278.60	
3	54+950	55+955	1,005	2	6,733.50	
4	56+645	56+818	173	2	1,159.10	
Total			11.94		79,971.20	

REBLOCKING						
No.	Chainage		Length (m)	No. of Lanes	Area (sq. m)	Engineering Works
1	46+932	47+980	1048	2	7021.6	Removal of existing substandard PCCP Preparation of subgrade and subbase Paving of PCCP with gravel shoulder
Total			1.05		7,021.60	

BRIDGE TO BE CONSTRUCTED					
No.	Chainage	Length (linear meters)	No. of Lanes	Bridge Name	Engineering work details
1	48 + 084	100.00	2.00	Siao Bridge	
2	49 + 707	90.00	2.00	Masupit Bridge	
3	54 + 163	120.00	2.00	Bantol - Davao River Bridge	
Total		310.00	linear meters		

DRAINAGE (RCBC)					
No.	Chainage	Length (m)	Total lane length	Name	Engineering work details
1	55 + 049	10.30	2.00	Banuayan Wooden Footbridge	Existing Banuayan Wooden Footbridge to be replaced with Box Culvert
Total		10.300			

DRAINAGE (RCPC)			
No.	Chainage	Length (m)	Engineering work details
1	42 + 932	11.00	
2	43 + 300	11.00	
3	43 + 600	11.00	
4	43 + 900	11.00	
5	44 + 140	11.00	
6	44 + 440	11.00	
7	44 + 740	11.00	
8	45 + 045	11.00	
9	45 + 345	11.00	
10	45 + 645	11.00	
11	45 + 945	11.00	
12	46 + 145	11.00	
13	46 + 445	11.00	
14	46 + 745	11.00	
15	47 + 125	11.00	
16	47 + 425	11.00	

17	47 + 725	11.00	
----	----------	-------	--

DRAINAGE (RCPC)			
No.	Chainage	Length (m)	Engineering work details
18	48 + 516	11.00	
19	48 + 816	11.00	
20	50 + 300	11.00	
21	50 + 600	11.00	
22	50 + 900	11.00	
23	51 + 230	11.00	
24	51 + 937	11.00	
25	52 + 837	11.00	
26	53 + 640	11.00	
27	55 + 945	11.00	
28	56 + 245	11.00	
29	56 + 545	11.00	
30	57 + 340	11.00	
31	58 + 000	11.00	
32	59 + 000	11.00	
Total		352.000	

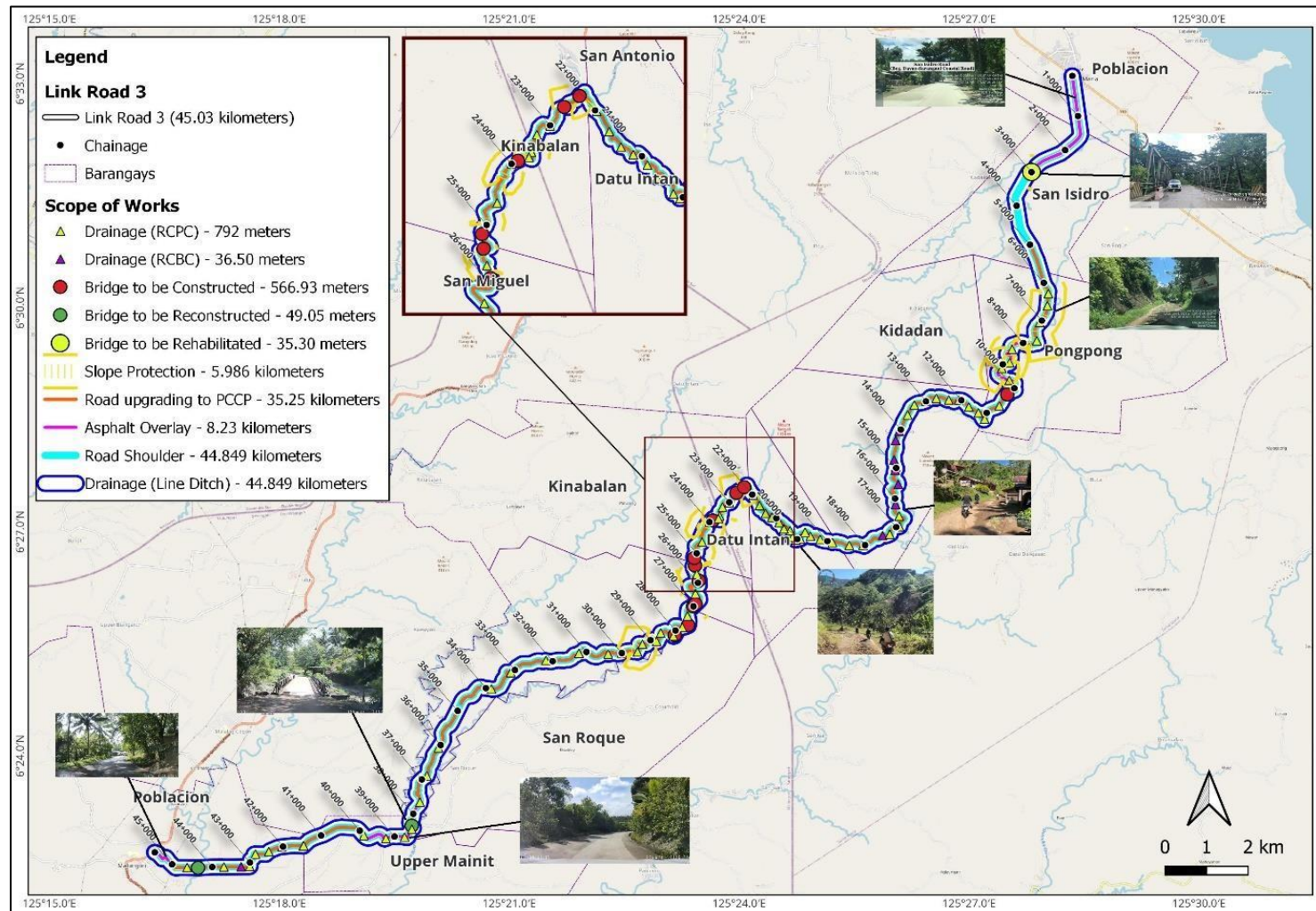
DRAINAGE (LINED DITCH) - OPEN & COVERED					
No.	Chainage		Length (linear meters)	Total Sides	Total Quantity (linear meter)
OPEN LINED DITCH					
1	42 + 932	45 + 680	2,748	2	5,496.00
1	45 + 780	47 + 540	1,760	2	3,520.00
1	47 + 630	51 + 750	4,120	2	8,240.00
1	51 + 870	54 + 485	2,615	2	5,230.00
1	54 + 485	56 + 799	2,314	2	4,628.00
1	56 + 799	59 + 491	2,692.00	2	5,384.00
Sub-Total			16,249.00		32,498.00
COVERED LINED DITCH					
1	54 + 485	55 + 000	515.00	2	1,030.00
2	59 + 491	59 + 635	144.13	2	288.26
Sub-Total			659.13		1,318.26
Total			16.91 km		

PAVED/ROAD SHOULDER							
No.	Chainage		Length (linear meters)	Total Sides	Total Quantity (linear meter)	Area (sq. m)	Remarks
CONCRETE ROAD SHOULDER							
1	0 + 010	2 + 684	2674	2	5,348.00	8,022.00	150mm thickness,
2	2 + 716	5 + 637	2,921.00	2	5,842.00	8,763.00	
3	5 + 669	17 + 000	11,331.00	2	22,662.00	33,993.00	
4	32 + 700	42 + 932	10,232.00	2	20,464.00	30,696.00	
5	42 + 932	45 + 680	2,748	2	5,496.00	8,244.00	
6	45 + 780	47 + 540	1,760	2	3,520.00	5,280.00	
7	47 + 630	51 + 750	4,120	2	8,240.00	12,360.00	
8	51 + 870	54 + 485	2,615	2	5,230.00	7,845.00	
9	54 + 485	59 + 635	5,150	2	10,300.00	15,450.00	
Total			43.55		87.10	130.653.00	

SLOPE PROTECTION						
No.	Chainage (From)	Chainage (To)	Length (m)	Length (km)	Height (m)	Area (sq. m.)
Masonry Wall						

LR2.1	K56+850	K57+000	150	0.15	2.80	420
-------	---------	---------	-----	------	------	-----

SLOPE PROTECTION						
No.	Chainage (From)	Chainage (To)	Length (m)	Length (km)	Height (m)	Area (sq. m.)
LR2.2	K52+550	K53+800	1250	1.25	2.64	3,300
LR2.3	K27+517	K28+217	700	0.7	3.00	2,100
Sub-Total				2.1		5,820
Soil Nailing W/ Netting						
LR2.1	K56+850	K57+000	150	0.15	9.33	1,400
LR2.2	K52+550	K53+800	1250	1.25	8.80	11,000
LR2.3	K27+517	K28+217	700	0.7	10.00	7,000
Sub-Total				2.1		19,400
Total				4.2		25,220

Annex 9. Road Works Map of Link Road 3

Annex 10. Detailed Road Works for Link Road 3

No.	SCOPE OF WORKS	LENGTH (new)	UNIT
1	Road Upgrading to PCCP	35.25	kilometers
2	Bridge to be Constructed	566.90	linear meter
3	Bridge to be Reconstructed	49.05	linear meter
4	Bridge to be Rehabilitated	35.30	linear meter
5	Drainage (RCBC)	36.50	linear meter
6	Drainage (RCPC)	792.00	linear meter
7	Drainage Lined Ditch	44.849	kilometers
8	Road Shoulder	44.849	kilometers
9	Slope Protection	5.986	kilometers
10	Road Safety: Guard Rail	12.240	kilometers
11	Road Safety: Road Lighting	1,116	count
12	Road Safety: Traffic Sign	3,316	kilometers
13	Road Safety: Reflectorized Pavement Studs	2,640	count

Annex 11. Inventory of Road Work in Link Road 3

ROAD UPGRADING TO PCCP						
No.	Chainage		Length (m)	No. of Lanes	Area (sq. m)	Engineering work details
1	5+060	7+653	2,593	2	17,373,100.00	
2	7+653	7+887	234	2	1,567,800.00	
3	10+031	13+498	3467	2	23,228,900.00	
4	13+498	34+552	21,054.00	2	141,061,800.00	
5	34+700	37+216	2,516.00	2	16,857,200.00	
6	37+216	37+527	311.00	2	2,083,700.00	
7	37+662	37+905	243.00	2	1,628,100.00	
8	39+807	43+901	4,094.00	2	27,429,800.00	
9	43+929	44+672	737.00	2	4,937,900.00	
Total			35.25 km		236,168,300.00	

BRIDGE TO BE CONSTRUCTED					
No.	Chainage	Length (m)	No. of Lanes	Bridge Name	Engineering work details
1	28 + 125	31.40	2	Bridge 1	
2	27 + 550	22.50	2	Bridge 2	
3	27 + 000	21.00	2	Bridge 3	
4	26 + 900	22.50	2	Bridge 4	
5	25 + 943	22.50	2	Bridge 5	
6	25 + 323	121.50	2	Bridge 6	
7	25 + 021	60.00	2	Bridge 7	
8	23 + 803	121.50	2	Bridge 8	
9	22 + 581	121.50	2	Bridge 9	
10	22 + 291	22.50	2	Bridge 10	
Total		566.90			

BRIDGE TO BE RE-CONSTRUCTED					
No.	Chainage	Length (m)	No. of Lanes	Bridge Name	Engineering work details
1	44 + 345	27.50	2	Kityan Bailey Bridge	
2	38 + 333	21.55	2	Upper Mainit Bailey Bridge	Total removal and replacement of entire bridge
Total		49.05			

BRIDGE TO BE REHABILITATED					
No.	Chainage	Length (m)	No. of Lanes	Bridge Name	Engineering work details
1	3 + 000	35.30	2.00	Mamulawan Bridge	Basically, both superstructure and substructure; More on maintenance like abutment slope protection repair, approach slab replacement, bridge connector replacement, repainting etc.
Total		35.30			

DRAINAGE (RCBC)					
No.	Chainage	Length (m)	Name	Engineering work details	Remarks
TO BE CONSTRUCTED					
1	14 + 300	3.00	Box Culvert 1	Paluhan Creek III	Proposed 1- barrel 2.80m x 3.0m x 10.30m box culvert
2	14 + 790	4.00	Box Culvert	Sabang-Lumabat	Proposed 1- barrel 2m x 4m x 10.30m

DRAINAGE (RCBC)					
No.	Chainage	Length (m)	Name	Engineering work details	Remarks
			2	Creek	box culvert (skewed @ 20-30 degrees left forward)
3	14 + 970	3.00	Box Culvert 3	Paluhan Creek II	Proposed 1- barrel -2.5m x 3.0m x 10.30m box culvert
4	15 + 070	2.00	Box Culvert 4	Paluhan Creek I	Proposed 1- barrel -1.70m x 2.0m x 10.30m box culvert
5	15 + 500	4.00	Box Culvert 5	Sitio Libug I Creek	Proposed 1- barrel -2.8m x 4.0m x 10.30m box culvert
6	16 + 160	4.00	Box Culvert 6	Sitio Libug II Creek	Proposed 1- barrel -2.8m x 4.0m x 10.30m box culvert
7	17 + 490	3.00	Box Culvert 7	Sitio Lais Creek	Proposed 2- barrel -1.70m x 2.0m x 15m box culvert skewed @ 30 degrees right forward
Sub-Total		23.000			
TO BE REHABILITATED					
1	14 + 060	4.50	Panamin Box Culvert	Existing 1 - 3m x 4m diameter size with 6m length	Extend the barrel to 10.30m and construct headwalls, wingwalls, apron slab.
2	41 + 510	4.50	Kityan Box Culvert	Existing 1 -3m x 3m diameter size with 6m length	
3	43 + 310	4.50	Kityan Box Culvert I	Existing 1 - 1.80m x 1.80m diameter size with 6m length	
Sub-Total		13.500			
Total		36.500			

DRAINAGE (RCPC)				
No.	Chainage	Length (m)	Engineering work details	Remarks
1	6 + 300	11.00		
2	6 + 600	11.00		
3	7 + 068	11.00		
4	7 + 565	11.00		
5	8 + 400	11.00		
6	8 + 859	11.00		
7	9 + 167	11.00		
8	9 + 684	11.00		
9	10 + 645	11.00		
10	11 + 165	11.00		
11	11 + 476	11.00		
12	11 + 765	11.00		
13	12 + 061	11.00		
14	12 + 368	11.00		
15	12 + 695	11.00		
16	13 + 000	11.00		
17	13 + 300	11.00		
18	13 + 600	11.00		
19	16 + 522	11.00		
20	16 + 912	11.00		
21	17 + 310	11.00		
22	18 + 050	11.00		
23	18 + 406	11.00		
24	18 + 842	11.00		
25	19 + 180	11.00		
26	19 + 482	11.00		

DRAINAGE (RCPC)				
No.	Chainage	Length (m)	Engineering work details	Remarks
27	19 + 670	11.00		
28	19 + 912	11.00		
29	20 + 040	11.00		
30	20 + 226	11.00		
31	20 + 424	11.00		
32	20 + 645	11.00		
33	20 + 890	11.00		
34	21 + 131	11.00		
35	21 + 345	11.00		
36	21 + 645	11.00		
37	21 + 953	11.00		
38	23 + 000	11.00		
39	23 + 260	11.00		
40	23 + 560	11.00		
41	23 + 700	11.00		
42	24 + 000	11.00		
43	24 + 600	11.00		
44	25 + 735	11.00		
45	26 + 568	11.00		
46	27 + 320	11.00		
47	27 + 708	11.00		
48	28 + 170	11.00		
49	28 + 540	11.00		
50	28 + 823	11.00		
51	29 + 250	11.00		
52	29 + 571	11.00		
53	30 + 000	11.00		
54	30 + 370	11.00		
55	31 + 270	11.00		
56	32 + 170	11.00		
57	33 + 120	11.00		
58	33 + 860	11.00		
59	36 + 088	11.00		
60	36 + 850	11.00		
61	37 + 670	11.00		
62	38 + 450	11.00		
63	38 + 750	11.00		
64	39 + 215	11.00		
65	39 + 850	11.00		
66	41 + 500	11.00		
67	42 + 027	11.00		
68	42 + 330	11.00		
69	42 + 715	11.00		
70	43 + 100	11.00		
71	43 + 725	11.00		
72	44 + 605	11.00		
Total		792.00		

DRAINAGE (LINED DITCH) - OPEN & COVERED						
No.	Chainage		Length (linear meter)	Total Sides	Total Quantity (linear meter)	Engineering work details
OPEN LINED DITCH						
1	7 + 855	13 + 000	5,145	2		
2	15 + 000	22 + 000	7,000	2		

DRAINAGE (LINED DITCH) - OPEN & COVERED						
No.	Chainage		Length (linear meter)	Total Sides	Total Quantity (linear meter)	Engineering work details
3	22 + 000	45 + 500	23,500	2		
Sub-Total			35,645			
	bridges removed in total length		651.25			
COVERED LINED DITCH						
1	0 + 000	7 + 855	7,855.00	2		
2	13 + 000	15 + 000	2,000.00	2		
Sub-Total						
		TOTAL	44.849 km			

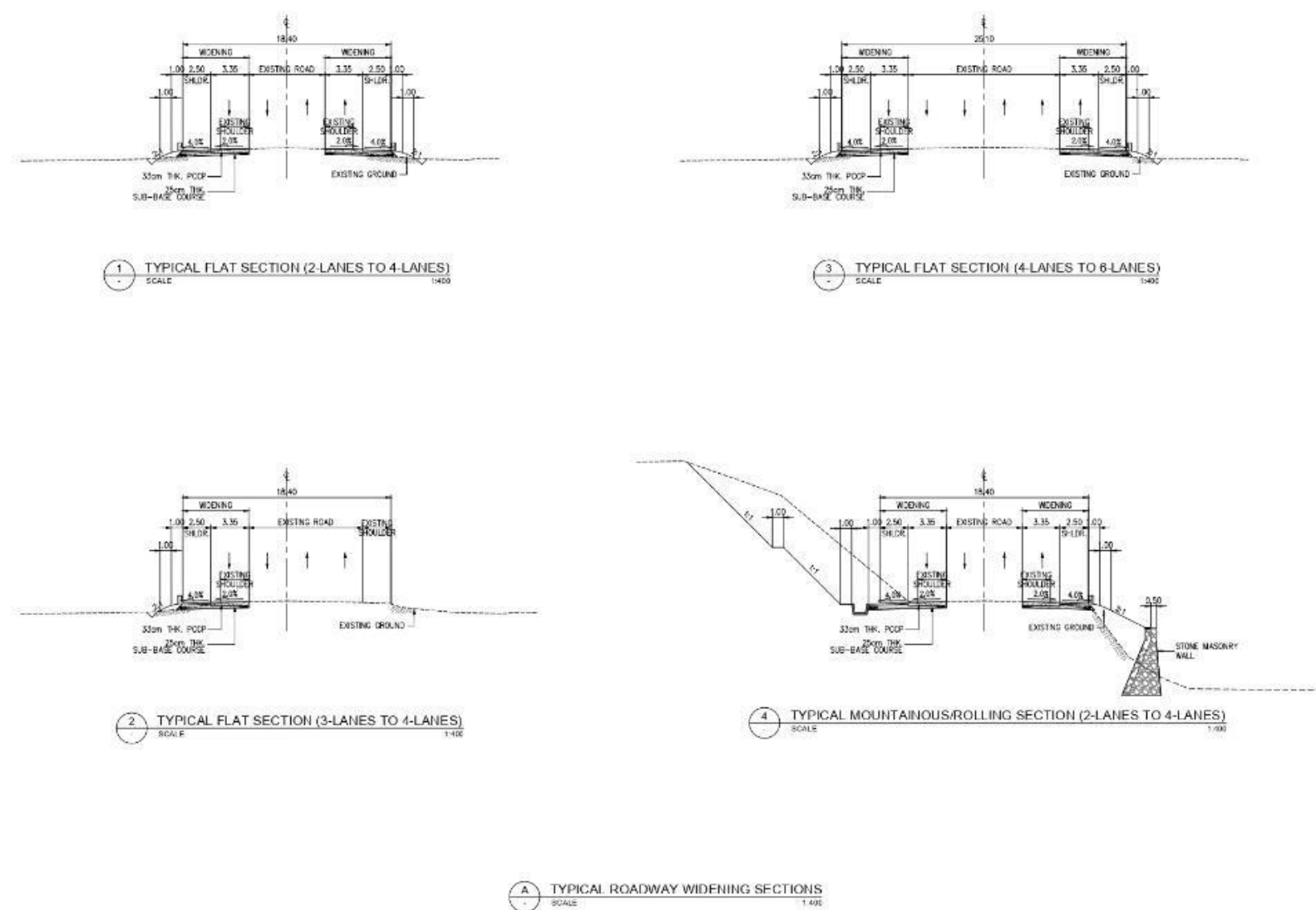
PAVED/ROAD SHOULDER							
No.	Chainage		Length (linear meter)	Total Sides	Total Quantity (linear meter)	Area (sq. m)	Remarks
CONCRETE ROAD SHOULDER							
1	0 + 000	45 + 500	45,500	2		136,500.00	entire length
	bridges removed in total length		651.25				
Total			44.849 km			136,500.000	

SLOPE PROTECTION					
No.	Chainage (From)	Chainage (To)	Length (linear meter)	Height (m)	Area (sq. m.)
Masonry Wall					
1	3 + 000	3+032	80	3	240
2	6 + 200	7 + 856	1656	3	4968
3	8 + 491	8 + 891	400	3	1200
4	8 + 955	9 + 555	600	3	1800
5	22 + 350	22 + 550	200	3	600
6	23 + 500	23 + 600	100	3	300
7	24 + 000	24 + 300	300	3	900
8	24 + 900	25 + 000	100	3	300
9	25 + 500	25 + 600	100	3	300
10	25 + 750	25 + 850	100	3	300
11	26 + 925	26 + 975	50	3	150
12	29 + 228	29 + 728	500	3	1500
Sub-Total			4,186.00		12,558.00
Soil Nailing W/ Netting					
1	8 + 491	8 + 891	400	11	4400
2	8 + 955	9 + 555	600	13	7800
3	24 + 000	24 + 300	300	13	3900
4	29 + 228	29 + 728	500	13	6500
Sub-Total			1,800.00		22,600.00
Total			5.986		35,158.00

Annex 12. Road Safety Countermeasures

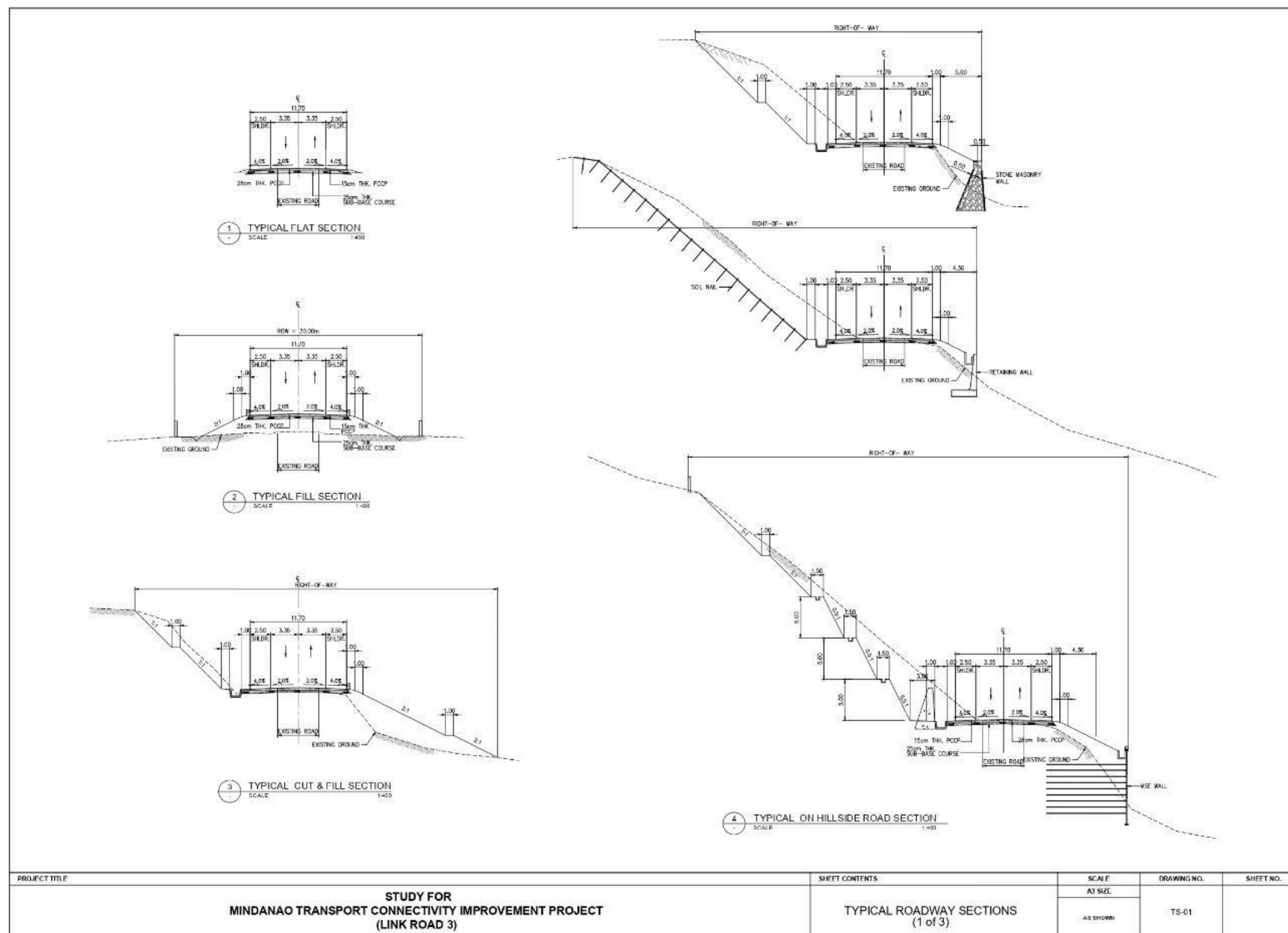
Road ID Sections	Location	Accident Type Severity (count) (DPWH/PNP) - 2016 to 2020			Recommendations/Countermeasures	How many every 100 meter segment (count)
		Fatal	Serious	Minor		
S00577MN	Puerto Alae (9.569 km)	6.2	35.6	6.2	1. Provision of streetlights and shoulder rumble strips	2.39
					2. Steel railings on road curves and speed signages	26.75
					3. Improve delineation especially on curves	1.33
					4. Clear roadside hazards	7.80
					5. Provide central hatching	0.96
	95.69				6. Provision of footpath	19.14
S00621MN	Manolo Fortich, Mangima Road Sumilao, San Vicente Road (37.577 km)	12	20.4	18	1. Provision of traffic signages	8.00
					2. Pedestrian overpass or vehicle lay-by on areas where schools are located	0.02
					3. Footpath provision	7.52
					4. Clear Roadside hazards	7.80
					5. Traffic calming devices (Población area)	4.00
					6. Provide Roadside barriers	5.02
	375.77				7. Provide central hatching	3.76
S00639MN	Impasug-ong, Sayre highway Malaybalay, Casisang road Valencia, Bagontaas, Poblacion, Lumbo (67.465 km)	32	64.2	15.4	1. Provision of streetlights and shoulder rumble strips	16.87
					2. Pedestrian overpass or vehicle lay-by on areas where schools are located	0.02
					3. Footpath provision	19.14
					4. Clear Roadside hazards	7.80
					5. Traffic calming devices (Población area)	4.00
					6. Provide Roadside barriers	9.02
	674.65				7. Provide central hatching	6.75
S00654MN	Quezon Overview road - Palacapao San Jose Road, Sinuda road (33.44 km)	4.8	4.2	0.8	1. Improve delineation on curves	4.64
					2. Provide roadside barriers	4.47
					3. Sight distance (Remove obstructions)	0.30
					4. Provide central hatching	3.34
					5. Clear roadside hazards	7.80
					6. Shoulder rumble strips	6.69
	334.4				7. Provision of street lights	8.36
SO1406MN	Calinan, Los Amigos Road (1.75 km)	0	0	0	1. Footpath provision	0.35
					2. Pedestrian overpass or vehicle lay-by on areas where schools are located	0.06
					3. Traffic / Speed signages	8.00
	17.5				4. Provide Central Hatching	0.18
S00039MN	Matina Crossing and Talomo Road, Davao city (7.37 km)	1.8	39.6	5.6	1. Footpath provision	1.47
					2. Pedestrian overpass or vehicle lay-by on areas where schools are located	0.08
					3. Traffic / Speed signages	8.00
	73.7				4. Provide Central Hatching	0.74
S00160MN	Davao City, Toril road (2.2 km)	3.8	32.6	8	1. Traffic calming	4.00
					2. Provide Central hatching	0.22
					3. Clear roadside hazards	7.80
					4. Traffic / Speed signages	8.00
					5. Footpath provision	0.44
	22				6. Pedestrian overpass or vehicle lay-by on areas where schools are located	0.27
S00162MN	Digos City, Cogon Road (2.42 km)	11.2	21.2	11.2	1. Provision of traffic signages	8.00
					2. Pedestrian overpass or vehicle lay-by on areas where schools are located	0.33
					3. Footpath provision	0.48
					4. Clear Roadside hazards	7.80
					5. Traffic calming devices (Población area)	4.00
					6. Provide Roadside barriers	0.32
	24.2				7. Provide central hatching	0.24
S00184MN	Zone III, Digos City (1.21 km)	9.2	64.2	15.6	1. Provision of traffic signages	8.00
					2. Pedestrian overpass or vehicle lay-by on areas where schools are located	0.66

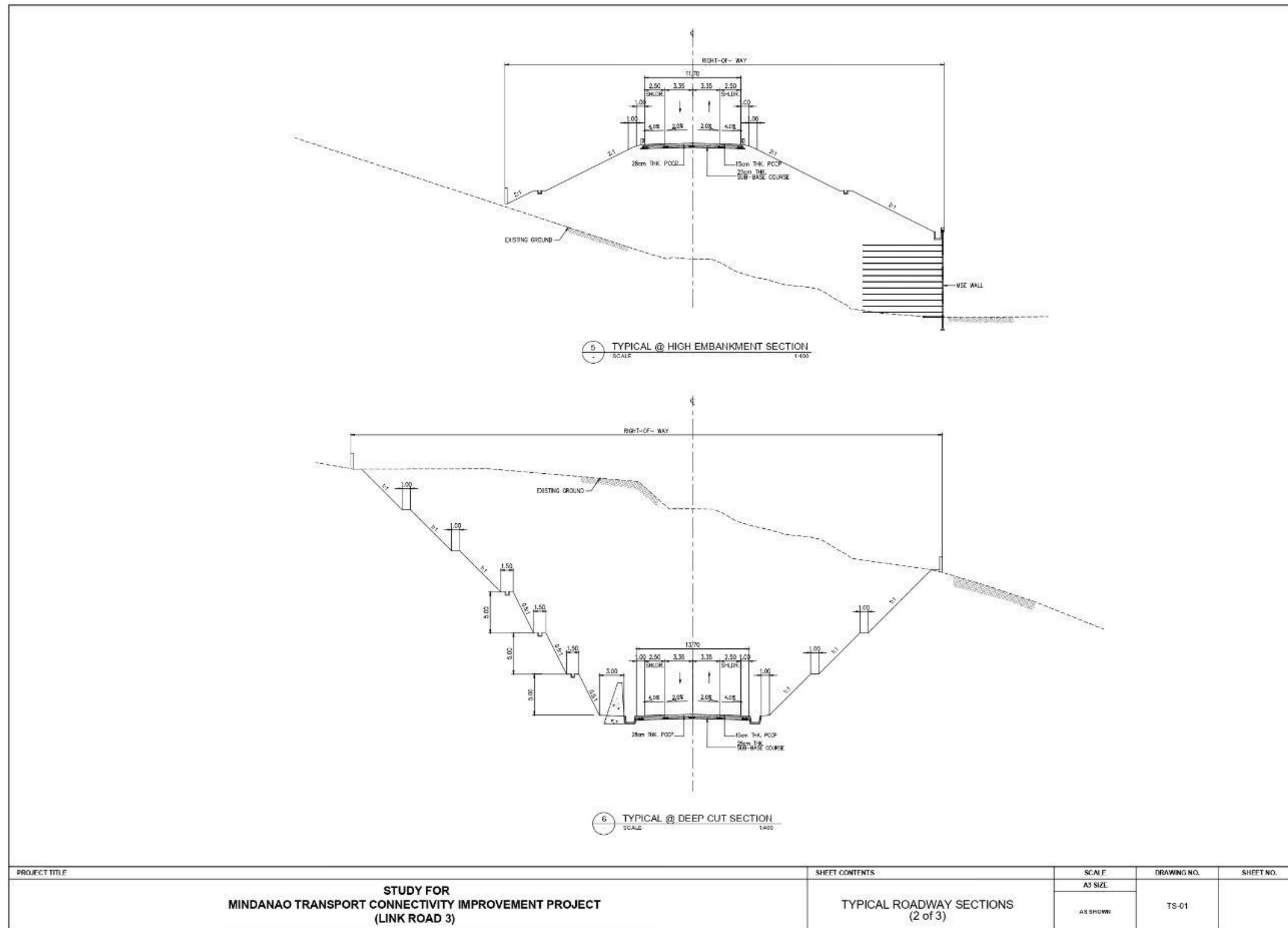
Road ID Sections	Location	Accident Type Severity (count) (DPWH/PNP) - 2016 to 2020			Recommendations/Countermeasures	How many every 100 meter segment (count)
		Fatal	Serious	Minor		
					3. Footpath provision	0.24
					4. Clear Roadside hazards	7.80
					5. Traffic calming devices (Población area)	4.00
					6. Provide Roadside barriers	0.16
	12.1				7. Provide central hatching	0.12
S00202MN	Malalag, Tagansule road (3.75 km)	3.2	5.4	0.6	1. Provision of street lights and shoulder rumble strips	0.94
					2. Pedestrian overpass or vehicle lay-by on areas where schools are located	0.21
					3. Footpath provision	0.75
					4. Clear Roadside hazards	7.80
					5. Traffic calming devices (Población area)	4.00
					6. Provide Roadside barriers	0.50
	37.5				7. Provide central hatching	0.38
S00220MN	Malungon, Poblacion road (4.04 km)	7.6	26.2	4.2	1. Provision of street lights and shoulder rumble strips	1.01
					2. Pedestrian overpass or vehicle lay-by on areas where schools are located	0.20
					3. Footpath provision	0.81
					4. Clear Roadside hazards	7.80
					5. Traffic calming devices (Población area)	4.00
					6. Provide Roadside barriers	0.54
	40.4				7. Provide central hatching	0.40
S00231MN	General Santos City Road (22.36 km)	5.2	56	69.4	1. Provide Roadside barriers	2.99
					2. Provide central hatching	2.24
					3. Clear Roadside hazards	7.80
					4. Traffic calming devices	4.00
	223.6				5. Traffic / Speed signages	8.00
Note: Can also use 2017 iRAP counter measures as basis before the Detailed Engineering Design (DED)						

Annex 13. Typical Section**Main Corridor**


PROJECT TITLE	SHEET CONTENTS	SCALE	DRAWING NO.	SHEET NO.
STUDY FOR MINDANAO TRANSPORT CONNECTIVITY IMPROVEMENT PROJECT (MAIN CORRIDOR)	TYPICAL ROADWAY SECTIONS	A3 SIZE	TS-01	
		1:400		

Link Road





Annex 14. DENR Certification



DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES
KAGAWARAN NG KAPALIGIRAN AT LIKAS YAMAN

CERTIFICATION

To Whom It May Concern:

This is to certify that the Proposed Mindanao Transport Connectivity Project (MTCIP), specifically the Link Roads in Brgy, La Fortuna and Brgy, Kibenton Impasug-ong, Bukidnon does not fall within the Boundary of Mt. Kitanglad Range Natural Park (MKRNP)-ASEAN Heritage Park per Republic Act No. 8978, also known as the Mt. Kitanglad Range Protected Area Act of 2000.

This certification is issued upon the request of **Galerio Environmental Consultancy, Inc.**, through Ms. Oda Beltran for whatever legal purpose it may serve best.

Done this 15TH day of March 2024 in Malaybalay City, Bukidnon Province, Philippines.



THOMAS L. CARDENTE II, Ph.D.
OIC, PENR Officer
DENR Bukidnon

San Victores St., Barangay 9, Malaybalay City, Bukidnon
E-mail add: penrobukidnon@denr.gov.ph Telephone No.: (088) 813-2104

Annex 15. Flora and Fauna Assessment Methodology**Flora Assessment**

The methodology used in the flora assessment is based on the Terrestrial Ecosystems Biodiversity and Assessment Monitoring Manual (DENR-BMB, 2017). A 20-meter transect line was established and identified from the center line for both sides of the road in Main Corridor, Link Road 1, Link Road 2, & Link Road 3 as the basis for identifying existing species in the affected areas.

Nested quadrats were established along transects for the in-depth survey. The nested quadrats were marked by stakes and enclosed by nylon rope. Three dimensions of the nested quadrats were made to stratify the object of study, i.e. the secondary-growth forest and plantations:

- 10 m x 10 m - for sampling of trees with more than 10 cm diameter at breast height (DBH) and more than 4 m in height (Canopy Layer)
- 5 m x 5 m – for sampling of small to medium size trees, large herbs (e.g. banana), and large grasses (bamboo). Small to medium size trees include those having less than 10 cm DBH, less than 4 m in height. (Under Canopy Layer)
- 1 m x 1 m – for sampling of wildlings (< 1 m height), grasses, herbs, ferns, other plant forms that grow close to the ground (Ground Layer / Undergrowth)

All floral species within the established plots were identified, counted and listed for computation of diversity analysis. The species outside of the sampling plots were captured by conducting a transect walk. These floral species were listed only for determination of species richness and computation of diversity values. All plant species were assessed based on their form/habit, ecological status, conservation status and economic value/uses using available references and existing policies, local or international.

The parameters used in the assessment include the relative values for density, frequency, and dominance. Also included are the computed importance values, which determine the ranks of the species within the sampled area. Importance value determines the measure of how dominant a species is in a sampled area, thereby indicating the ecological importance of a species in a given ecosystem. As such, it gives a view of prioritizing a selected range of species for conservation, which, in turn, would greatly influence its ecosystem in terms of nutrient cycling, energy transfer, and micro-climatic effects.

The parameters mentioned and their corresponding formulas are as follows:

- **Abundance (Abun)** - the number of individuals of a species regardless of area size
- **Relative Abundance (RAbun)** - percent composition of an organism of a particular kind relative to the total number of organisms in the area

$$\text{Total abundance} = \frac{\text{Abundance (Abun)}}{\text{Total abundance}} \times 100$$

- **Density (Den)** – the number of individuals of a species in a given area
- **Relative Density** - Proportion of the number of individuals of one species relative to the total number of individuals of all species

Density (Den)

$$\frac{\text{No. of individuals of a species}}{\text{Total number of plots}} \times 100$$

Total Density

- **Frequency (Freq)** - Number of nested quadrats or subplots in which a species is found.

$$\frac{\text{No. of times a species occurred in all plots}}{\text{Total number of plots}}$$

- **Relative Frequency (RFreq)**- the proportion of the frequency of a species relative to all frequencies of all species in the transect

$$\frac{\text{Frequency (Freq)}}{\text{Relative frequency (RFreq)}} \times 100$$

- **Basal Area** - circumference at breast height occupied by each species
- **Dominance (Dom)** – the average basal area of all individuals of a species

$$\frac{\text{Basal dominance of A species}}{\text{Total basal area}}$$

- **Relative Dominance (RDom)** - Proportion of the average basal area of one species relative to the total basal area of all species

$$\frac{\text{Dominance (Dom)}}{\text{Relative Dominance (RDom)}} \times 100$$

- **Importance Value (IV)** - total of all relative values per species, the species with the highest value indicating the dominant species that would exert influence on the ecosystem.

$$\frac{\text{Sum of relative values}}{\text{No. of relative values used}}$$

Density, Frequency and Dominance shall be used to compute the Importance Value for plant diversity, while fauna diversity will utilize relative values of Abundance and Frequency.

Biodiversity measurements were computed and analyzed using the Shannon-Weiner Diversity and Pielou's Evenness Indexes, with formulas illustrated below:

$$\text{Shannon Diversity Index} = H' = -[\sum (p_i)(\ln p_i)]$$

Where:

“H”- represents the symbol for the amount of diversity in ecosystem (species diversity)

“pi”- represents the proportion or relative abundance of each individual species to the total (measured from 0 to 1)

“ln pi” - represents the natural logarithm of pi

Pielou’s Evenness Index = $J = H/H_{max} = -[\sum (p_i)(\ln p_i)]/\ln S,$

Where:

“J” – represents the symbol for the species richness “H”

– species diversity

“Hmax” – species maximum diversity

“S” – number of species in the community

The interpretation of the values obtained using the above formulas was based on the Fernando Biodiversity Scale, 1998 shown in the table below.

Table. Fernando Biodiversity Scale

Relative Values	Shannon-Weiner Index (H')	Pielou's Evenness Index (J')
Very High	3.5 & above	0.77-1.00
High	3.0-3.49	0.50-0.74
Moderate	2.5-2.99	0.25-0.49
Low	2.0-2.49	0.15-0.24
Very Low	1.9 & below	0.05-0.14

Fauna Assessment

The methodology used in the fauna assessment is based on the Terrestrial Ecosystems Biodiversity and Assessment Monitoring Manual (DENR-BMB, 2017).

Passive Methods

Mist Netting

Mist nets were set up along recognized flyways in the research area, providing feeding trees and roosting sites. In order to estimate the population and identify different species, volant mammals (such as fruit and insect bats) and avian (bird) species were caught using mist nets. The species that were captured in the nets were properly documented and handled before they were released back into their natural habitat. To minimize the negative ecological impact of the survey, the nets were checked twice a day: once in the evening from 9:00 p.m. to 10:00 p.m. and once early in the morning, at 4:00 a.m. to 5:00 a.m. All captured species underwent thorough documentation prior to their release. During the course of the activity, no voucher specimens were gathered.

Live Trapping

During the evaluation, spring-loaded live traps were used to capture non-volant mammals, specifically rodents. To increase the chances of catching prey, the traps were smoked to eliminate any metal odor and other smells. Peanut butter-covered roasted coconut flesh was used as bait in the traps to attract them. The traps were placed near the mist net's location, such as under fallen trees and close to its habitat. They were checked regularly in the evening after being set and again early in the morning the next day. The traps were inspected for any captures, reset if triggered, and rebaited if necessary. If the bait was discovered to be infested with ants, it was replaced.

Key Informant Interviews (KII)

Key Informant Interviews, including discussions with workers familiar with the area, were conducted to identify fauna not captured by other methods. Information on species presence and usage was gathered through field guides. The opportunistic interviews, carried out informally during the assessment, involved workers encountered on-site or nearby residents. This approach encouraged spontaneous conversations, avoiding the unease often caused by formal questionnaires. Local residents' feedback played a vital role in assessing the overall

fauna, and the collected information was systematically documented. Stakeholder engagement and the Knowledge, Information, and Intelligence (KII) process are crucial for a comprehensive fauna assessment, tapping into the valuable knowledge of nearby communities. Listening to their concerns provides firsthand insights into the project's impact on local wildlife and habitats.

Active Methods

Transect Count and Point Counts

The designated transect line was traversed twice daily, from approximately 6:00–8:00 AM and 4:00–6:00 PM, to observe active birds and other fauna. Point counts were utilized in specific areas known for frequent bird activity. The collected information encompassed identified bird species, their observed calls, and ecological details such as habits, habitat type, associations with other species, and involvement in mixed-species flocks.

Annex 16. Ambient Air Quality Sampling Methodology**List of Reference Methods for the Air Sampling Activity**

Parameter	Reference Method	
	Method ID	Method Title
TSP	40 CFR Part 50: Appendix B	Method for the Determination of Suspended Particulate Matter in the Atmosphere (<i>High-volume Method</i>)
PM ₁₀	40 CFR Part 50: Appendix J	Method for the Determination of PM ₁₀ in the Atmosphere
SO ₂	40 CFR Part 50: Appendix A2	Method for the Determination of SO ₂ in the Atmosphere
NO ₂	James P. Lodge. Methods of Ambient Air Sampling & Analysis: Method 406	Determination of Nitrogen Dioxide Content of the Atmosphere (<i>Griess-Saltzman Reaction</i>)

Sampling Method

The collection of ambient air samples used the active, integrated sampling technique over a longer period of time. The active, integrated sampling technique extracts ambient air within the vicinity of the project area (outdoor location) through an air flow controller that regulates the rate at which air samples enter the sampling container.

List of Sampling Methods for the Air Sampling Activity

Parameter	Sampling Method	Equipment Used	Responsible Party
TSP	Filtration	BGI PQ200 Air Sampler (<i>Mesa laboratories, Inc.</i>)	GECI
PM ₁₀			
SO ₂	Wet Impinger	Standard Impinger (<i>JCG 3-gas Sampler</i>)	
NO ₂			

Sampling Method for Airborne Particulate Matter (TSP/ PM₁₀)

Ambient air was drawn at a constant flow rate into a specialty-shaped inlet using a high-volume sampler (BGI PQ200 Air Sampler), where suspended particulate matter (aerodynamic diameter $\leq 100 \mu\text{m}$) was inertially separated and collected on a separate filter element. The high-volume samples can be used to determine the average ambient particulate matter over the sampling period (*United States Environmental Protection Agency, 1999*). The filter element was then sent to a third-party DENR-accredited laboratory and analyzed. A general diagram of the typical high-volume sampler set-up is shown below:

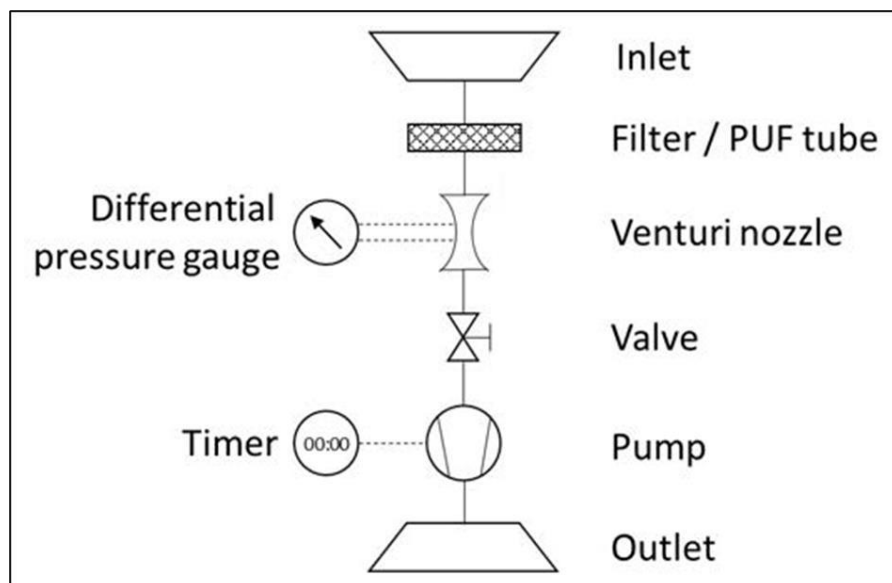


Figure. Diagram of a Typical High-volume Air Sampler (Hermanson, 2019)

Sampling Method for SO₂ and NO₂

SO₂ and NO₂ were collected using an all-glass impinger (3-gas sampler) by causing the drawn ambient air to impinge on a surface submerged in an absorbing solution passing through a control device (to determine the volume of air that passed through the filter and impinged on the absorbing solution for each parameter). The SO₂ and NO₂ present in the collected sample react with the reagents in the absorbing solutions, forming azo dyes. The collected samples were transferred to a third-party DENR-accredited laboratory and analyzed. A general diagram of a typical 3-gas sampler set-up is shown below:

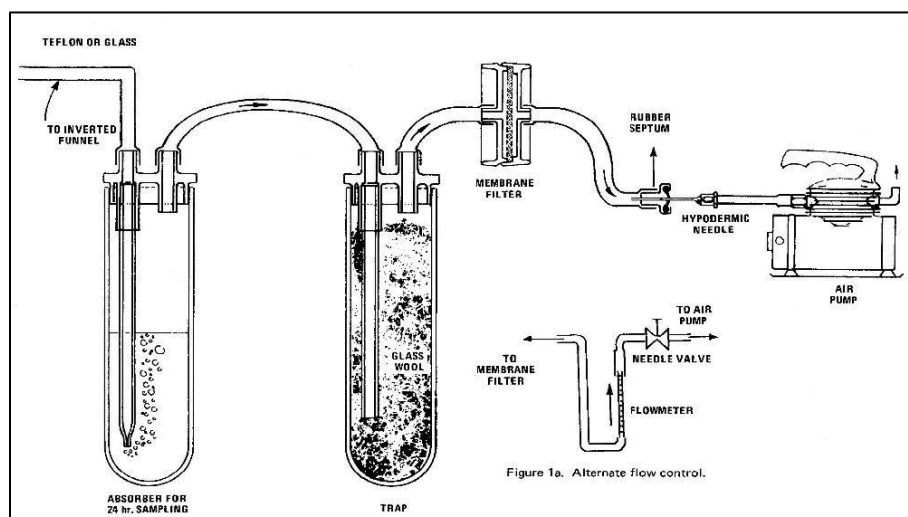


Figure. Diagram of a Typical 3-Gas Sampler (US - EPA, 1999)

Sample Analytical Method

Each sampling station was monitored for one hour using an ambient air particle sampler, BGI PQI 200, with calibration validity from February 17, 2023, to February 17, 2024, and a gas

sampler, JCG Tri-gas Sampler, with calibration validity from February 17, 2023, to February 17, 2024. SO₂ and NO₂ samples were preserved in a pre-cleaned and sterilized icebox to

avoid contamination. The TSP filter was placed in a sealed envelope, while the PM₁₀ and PM_{2.5} filters were placed in a pre-cleaned and sterilized plastic petri dish. TSP, PM₁₀, PM_{2.5}, SO₂, and NO₂ samples were transported and analyzed at ELARSI, Inc., Quezon Ave., Quezon City, a Department of Environment and Natural Resources (DENR)-accredited laboratory.

List of Analytical Methods Used for the Laboratory Analysis Procedure

Parameter	Analysis Method	Responsible Party
TSP	Gravimetric	3 RD Party DENR Accredited Laboratory (Elarsi, Inc.)
SO ₂	Pararosaniline (Colorimetric)	
NO ₂	Griess-Saltzman	
PM ₁₀	Gravimetric	

The following provides a description of the parameters:

- **Total Suspended Particulate (TSP):** Total suspended particulate (TSP) refers to the mixture of a multi-phase system of airborne solid matter and low-vapor pressure liquid particles having an aerodynamic particle size of 0.01–100 micrometers and larger.
- **Sulfur Dioxide (SO₂):** Sulfur Dioxide is a colorless gas with a pungent smell at low concentrations. When SO₂ emissions from fuel burning mix with water and oxygen in the air, it forms sulfate aerosols—acidic compounds that fall to the earth as acid rain.
- **Nitrogen Dioxide (NO₂):** NO₂ is a reddish-brown gas with an odorless, pungent smell. NO₂ is formed when fossil fuels are burned in an internal combustion engine at high temperatures. NO₂ in the atmosphere interacts with water, oxygen, and other chemicals present in the air to form other toxic NO_x compounds and nitrate particulates. The nitrate particles that result from NO_x contribute to haze and can decrease visibility.
- **PM₁₀:** PM₁₀ is a type of suspended inhalable coarse particle, either solid or liquid, with a diameter of 10 mm or less. PM₁₀ can remain suspended in the atmosphere for days to weeks, allowing the particulates to travel over long distances before deposition on the surface via gravity.
- **PM_{2.5}:** PM_{2.5} is also a type of suspended particulate matter, but much finer than PM₁₀. Pollution from fine particulates (PM_{2.5}) is a concern when levels in the air are unhealthy. Breathing in unhealthy levels of PM_{2.5} can increase the risk of health problems like heart disease, asthma, and low birth weight. Unhealthy levels can also reduce visibility and cause the air to appear hazy.

The air sampling parameters and guideline values are lifted from DAO 2000–81 and DAO 2013–13. Due to instrument sensor malfunctions, ozone, carbon monoxide, and lead were not measured in all sampling sites. Philippine legislation related to air quality comprises:

- Republic Act (RA) 8749: Clean Air Act of 1999
- DAO 2000-81: Implementing Rules and Regulations of RA 8749
- DAO 2013-13: PM_{2.5} Guideline Values

Annex 17. PAGASA Climatological Normal and Extreme

Republic of the Philippines
Department of Science and Technology
Philippine Atmospheric, Geophysical and Astronomical Services Administration
Climatology and Agrometeorology Division
CLIMATE AND AGROMET DATA SECTION
PAGASA Science Garden Complex, Agham Road, Diliman Quezon City, Philippines
Telefax: (632)-434-2698

CLIMATOLOGICAL EXTREMES

STATION: **DAVAO CITY, DAVAO DEL SUR**
YEAR: **AS OF 2021**

LATITUDE: **07°07'40.41"N**
LONGITUDE: **125°39'17.43"E**
ELEVATION: **17.29m**

MONTH	TEMPERATURE (°C)				GREATEST DAILY RAINFALL (mm)		STRONGEST WINDS (mps)			SEA LEVEL PRESSURES (mbs)			
	HIGH	DATE	LOW	DATE	AMOUNT	DATE	SPD	DIR	DATE	HIGH	DATE	LOW	DATE
JAN	35.0	01-15-1973	17.0	01-10-1912	122.4	01-28-2000	22	N	01-25-1962	1018.6	01-17-1959	1000.1	01-22-1989
	35.0	01-22-2016											
FEB	36.7	02-25-1915	16.1	02-03-1962	124.3	02-20-1970	20	NNE	02-08-2004	1018.4	02-27-1969	1001.9	02-13-2001
MAR	36.7	03-25-1915	17.4	03-16-1912	132.2	03-27-1988	15	N	03-03-1976	1018.5	03-30-1958	1000.1	03-19-2004
APR	37.0	04-30-1977	19.1	04-13-1912	193.0	04-02-1993	18	N	04-23-1974	1016.6	04-07-1965	1001.8	04-12-1985
MAY	37.3	05-05-1905	20.2	05-01-1914	174.3	05-08-1966	31	NNW	05-15-1976	1016.5	05-09-1957	1002.3	05-30-1970
JUNE	35.2	06-02-1905	20.3	06-10-1961	176.4	06-06-2008	21	NW	06-18-1962	1016.6	06-06-1966	1001.2	06-30-1970
JULY	36.0	07-25-2021	20.0	07-03-1917	179.6	07-02-1902	19	NE	07-06-2001	1016.0	07-02-1965	999.6	07-03-2001
AUG	36.0	08-02-1905	18.5	08-07-1918	242.6	08-02-1902	15	N	08-14-1998	1015.7	08-03-1965	1001.2	08-17-1990
							15	N	08-17-2019				
SEP	35.1	09-17-1977	20.0	09-03-1916	123.7	09-21-1911	20	S	09-21-1983	1018.2	09-22-1950	1001.3	09-24-1970
OCT	35.9	10-08-2016	19.2	10-19-1918	153.7	10-08-2013	16	NW	10-22-1995	1016.1	10-07-1959	998.6	10-18-1970
NOV	36.2	11-17-1908	19.1	11-14-1911	114.4	11-24-2002	15	N	11-08-1974	1016.8	11-17-1965	999.8	11-06-1996
DEC	35.0	12-08-1987	16.2	12-24-1918	153.6	12-02-1910	15	N	12-15-1962	1016.7	12-12-2002	1001.2	12-05-2001
	35.0	12-05-2017											
ANNUAL	37.3	05-05-1905	16.1	02-03-1962	242.6	08-02-1902	31	NNW	05-15-1976	1018.6	01-17-1959	998.6	10-18-1970
Period of Record	1903 - 2021				1902 - 2021		1950 - 2021			1949 - 2021			

PREPARED BY: **CADS/CAD/PAGASA**



Republic of the Philippines
Department of Science and Technology
Philippine Atmospheric, Geophysical and Astronomical Services Administration
Climatology and Agrometeorology Division
CLIMATE AND AGROMET DATA SECTION
PAGASA Science Garden Complex, Agham Road, Diliman Quezon City, Philippines
Telefax: (632)-434-2698

CLIMATOLOGICAL EXTREMES

STATION: **MALAYBALAY, BUKIDNON**
YEAR: **AS OF 2021**

LATITUDE: **08°09'04.80"N**
LONGITUDE: **125°08'02.04"E**
ELEVATION: **627m**

MONTH	TEMPERATURE (°C)				GREATEST DAILY RAINFALL (mm)		STRONGEST WINDS (mps)			SEA LEVEL PRESSURES (mbs)			
	HIGH	DATE	LOW	DATE	AMOUNT	DATE	SPD	DIR	DATE	HIGH	DATE	LOW	DATE
JAN	34.0	01-23-1988	11.7	01-16-1956	140.6	01-14-2014	22	NE	01-07-1974	1020.5	01-28-1949	987.0	01-07-1972
FEB	35.2	02-05-2002	10.0	02-04-1973	109.2	02-07-1962	19	NE	02-10-1974	1019.4	02-19-1949	998.1	02-28-1972
MAR	35.5	03-31-1990	12.0	03-01-1949	170.6	03-19-1982	14	NE	03-01-1992	1019.6	03-26-1949	998.9	03-17-1970
APR	36.4	04-15-2016	12.5	04-02-1996	184.2	04-06-1999	21	NW	04-05-1966	1019.2	04-27-1949	996.6	04-24-1971
MAY	36.2	05-16-1998	14.0	05-08-2010	126.3	05-15-1991	18	WNW	05-05-1966	1019.9	05-02-1949	997.9	05-25-1971
JUNE	34.5	06-14-2017	13.0	06-26-1962	130.4	06-07-2002	18	N	06-20-1985	1019.6	06-11-1949	999.4	06-14-1974
JULY	33.4	07-12-2021	14.0	07-04-2017	138.2	07-26-2018	15	S	07-28-1992	1015.3	07-22-2015	997.4	07-04-1967
AUG	34.0	08-31-2021	15.0	08-24-2010	113.6	08-01-1978	22	SW	08-28-1984	1016.2	08-11-1997	998.0	08-23-1967
			15.0	08-10-2016									
			15.0	08-22-2020									
SEP	34.0	09-03-2007	15.3	09-21-1986	128.6	09-29-2010	18	NW	09-02-1971	1015.9	09-30-1997	998.6	09-20-1971
OCT	34.0	10-31-1995	14.9	10-30-1968	195.9	10-08-1979	20	N	10-21-1982	1016.3	10-11-1997	960.6	10-12-1970
NOV	34.8	11-29-1968	13.1	11-29-1967	144.8	11-20-1993	19	SW	11-22-1973	1015.9	11-07-1997	996.1	11-20-1973
DEC	33.6	12-08-2002	12.5	12-06-2009	112.4	12-21-2017	14	NE	12-21-1973	1017.4	12-12-2002	998.2	12-24-1954
ANNUAL	36.4	04-15-2016	10.0	02-04-1973	195.9	10-08-1979	22	NE	01-07-1974	1020.5	01-28-1949	960.6	10-12-1970
							22	SW	08-28-1984				
Period of Record	1949 - 2021				1952 - 2021		1966 - 2021			1949 - 2021			

PREPARED BY: **CADS/CAD/PAGASA**



Republic of the Philippines
Department of Science and Technology
Philippine Atmospheric, Geophysical and Astronomical Services Administration
Climatology and Agrometeorology Division
CLIMATE AND AGROMET DATA SECTION
PAGASA Science Garden Complex, Agham Road, Diliman Quezon City, Philippines
Telefax: (632)-434-2698

CLIMATOLOGICAL EXTREMES

STATION: **GENERAL SANTOS, SOUTH COTABATO**
YEAR: **AS OF 2021**

LATITUDE: **06°03'25.85"N**
LONGITUDE: **125°06'11.19"E**
ELEVATION: **132.199m**

MONTH	TEMPERATURE (°C)				GREATEST DAILY RAINFALL (mm)		STRONGEST WINDS (mps)			SEA LEVEL PRESSURES (mbs)			
	HIGH	DATE	LOW	DATE	AMOUNT	DATE	SPD	DIR	DATE	HIGH	DATE	LOW	DATE
JAN	37.5	01-24-1988	17.1	01-24-1965	105.9	01-17-1966	20	S	01-09-1982	1017.0	01-16-1959	1000.2	01-28-1988
FEB	38.0	02-18-1992	17.2	02-04-1958	96.5	02-22-2000	16	NNE	02-03-1975	1017.0	02-12-2019	999.7	02-15-1988
	38.0	02-04-2016											
MAR	38.9	03-28-1991	16.9	03-09-1963	60.8	03-28-2017	18	SW	03-22-1983	1017.7	03-30-1958	1001.3	03-29-1988
APR	39.4	04-16-2016	18.3	04-11-1963	109.0	04-17-2004	19	S	04-19-1971	1016.8	04-01-1966	1000.5	04-11-1985
MAY	38.5	05-05-1998	18.7	05-14-1951	151.8	05-18-2021	16	NNE	05-19-2007	1017.3	05-09-1957	1001.6	05-13-1990
							16	ENE	05-07-2021				
JUNE	37.0	06-06-1991	17.9	06-10-1961	142.0	06-22-1983	17	S	06-24-1972	1016.0	06-02-1966	1001.4	06-11-1986
	37.0	06-02-2014											
JULY	37.0	07-16-2016	17.2	07-09-1985	76.0	07-22-1983	17	SSE	07-24-1972	1017.3	07-02-1965	1002.2	07-26-1992
AUG	36.5	08-29-2016	17.5	08-16-1985	126.0	08-28-1959	18	NW	08-23-2000	1015.8	08-23-1965	1002.0	08-12-1986
SEP	37.0	09-23-1992	18.0	09-05-1985	189.5	09-08-1977	18	SSE	09-14-1972	1016.0	09-15-1963	1001.8	09-26-1988
OCT	37.0	10-16-1980	18.2	10-08-1961	101.0	10-18-1970	17	S	10-12-1972	1016.0	10-08-1959	1001.0	10-12-1970
NOV	37.0	11-01-1994	18.3	11-28-1951	102.1	11-09-1962	25	SE	11-06-2007	1018.2	11-16-1965	1000.5	11-06-1996
DEC	37.5	12-04-1987	18.0	12-30-1950	62.2	12-14-1964	15	NE	12-05-1997	1017.1	12-02-1966	1000.9	12-08-1984
ANNUAL	39.4	04-16-2016	16.9	03-09-1963	189.5	09-08-1977	25	SE	11-06-2007	1018.2	11-16-1965	999.7	02-15-1988
Period of Record	1949 - 2021				1949-2021		1966 - 2021			1949 - 2021			

PREPARED BY: **CADS/CAD/PAGASA**



Republic of the Philippines
Department of Science and Technology
Philippine Atmospheric, Geophysical and Astronomical Services Administration
Climatology and Agrometeorology Division
CLIMATE AND AGROMET DATA SECTION
PAGASA Science Garden Complex, Agham Road, Diliman Quezon City, Philippines
Telephone: 8284-0800 loc. 113

CLIMATOLOGICAL NORMALS

STATION: **MALAYBALAY, BUKIDNON**
PERIOD: **1991 - 2020**

LATITUDE: **08°09'04.80"N**
LONGITUDE: **125°08'02.04"E**
ELEVATION: **689.5 m**

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16a)	(16b)
MONTH	RAINFALL		TEMPERATURE						VAPOR PRESS. (mbs)	RH (%)	MSLP (mbs)	WIND		CLOUD AMT. (okta)	NO. OF DAYS W/	
	AMOUNT (mm)	NO. OF RD	MAX (°C)	MIN (°C)	MEAN (°C)	DRY BULB (°C)	WET BULB (°C)	DEW POINT (°C)				DIR (16pt)	SPD (mps)		TSTM	LTNG
JAN	174.8	14	29.1	17.9	23.5	23.3	21.5	20.7	24.5	86	1010.0	S	1	6	2	1
FEB	112.8	10	29.7	17.6	23.6	23.4	21.4	20.5	24.2	84	1010.3	E	1	5	2	1
MAR	104.1	10	30.7	17.7	24.2	24.1	21.7	20.6	24.5	82	1010.1	S	1	5	2	2
APR	118.3	10	31.6	18.3	25.0	24.8	22.3	21.3	25.4	81	1009.3	S	1	5	5	3
MAY	240.1	17	31.1	19.2	25.2	25.1	22.9	22.1	26.6	84	1009.0	S	1	6	11	6
JUN	319.5	20	29.9	19.2	24.6	24.4	22.7	22.0	26.5	87	1009.1	S	1	6	9	6
JUL	350.2	21	29.1	19.0	24.0	23.8	22.3	21.7	26.0	88	1009.2	S	1	7	10	6
AUG	300.7	19	29.2	18.9	24.0	23.8	22.3	21.6	25.9	88	1009.3	S	1	7	10	6
SEP	290.8	20	29.5	18.8	24.1	23.8	22.3	21.6	25.9	88	1009.5	S	1	7	11	7
OCT	292.1	19	29.8	18.8	24.3	24.0	22.4	21.7	26.1	87	1009.2	S	1	6	10	7
NOV	177.6	15	30.1	18.5	24.3	24.1	22.3	21.5	25.8	86	1008.9	S	1	6	5	4
DEC	160.9	14	29.8	18.3	24.0	23.9	22.0	21.2	25.4	86	1009.2	S	1	6	3	3
ANNUAL	2,641.9	189	30.0	18.5	24.2	24.0	22.2	21.4	25.6	86	1009.5	S	1	6	80	52

Definition of Terms:

Climatological Normals

- Period averages computed for a uniform and relative long period comprising at least three (3) consecutive 10-year period.

Rainfall Amount (column 2)

- The amount of precipitation (rain, hail, etc.) expressed in millimeters depth of the layer of the water which has fallen.

Number of Rainy Days (column 3)

- A rainy day is defined as a period of 24 hours beginning at 8AM to 8 AM of the next day during which at least 1 mm of rain is recorded.

Maximum Temperature (column 4)

- The maximum temperature in °C recorded for the day, usually occurring in the early afternoon.

Minimum Temperature (column 5)

- The minimum temperature in °C recorded for the day, usually occurring during early hours of the morning (before sunrise).

Mean Temperature (column 6)

- The average of the maximum and minimum temperature in °C recorded for the day. Mean Temperature = Maximum + Minimum / 2

Dry Bulb Temperature (column 7)

- It gives the air temperature in °C at the time of observation.

Wet Bulb Temperature (column 8)

- It gives the temperature in °C that an air parcel would have if cooled adiabatically to saturation at constant pressure by evaporating water in it.

Dew Point Temperature (column 9)

- The temperature in °C at a given pressure, to which the air must be cooled to become saturated. It is the temperature when atmospheric moisture begins to condense to liquid forming "dew" upon objects.

Vapor Pressure (column 10)

- Denotes the partial pressure of water vapor in atmosphere in millibars (mbs). As the water evaporates, additional water vapor is introduced into space above and pressure increases slightly as the new vapor is added. The increasing pressure is due to an increase in the partial pressure of water vapor.

Relative Humidity (column 11)

- The ratio of the amount of water vapor actually in the air to the maximum amount the air can hold at that temperature.

Mean Sea Level Pressure (column 12)

- The force exerted by the weight of the atmosphere on a unit area at mean sea level. It is also the atmospheric pressure at mean sea level measured in millibars.

Prevailing Winds (column 13 & 14)

- The prevailing wind direction expressed using the 16 compass points which is most frequently observed during a given period while the average wind speed in meters per second is the arithmetic average of the observed wind speed.

Cloud Amount (column 15)

- The amount of cloud present in the sky, expressed in oktas of the sky cover. Okta is the function used in denoting cloud amount and is equal to 1/8 of the whole sky.

Days with Thunderstorm (column 16a)

- A thunderstorm day is defined as an observational day during which thunder is recorded at the station.

Days with Lightning (column 16b)

- A day with lightning is reported whenever lightning is observed.

PREPARED BY: **CADS/CAD/PAGASA**



Republic of the Philippines
Department of Science and Technology
Philippine Atmospheric, Geophysical and Astronomical Services Administration
Climatology and Agrometeorology Division
CLIMATE AND AGROMET DATA SECTION
PAGASA Science Garden Complex, Agham Road, Diliman Quezon City, Philippines
Telephone: 8284-0800 loc. 113

CLIMATOLOGICAL NORMALS

STATION: **GENERAL SANTOS, SOUTH COTABATO**
PERIOD: **1991 - 2020**

LATITUDE: **06°03'25.85"N**
LONGITUDE: **125°06'11.19"E**
ELEVATION: **132.199m**

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16a)	(16b)
MONTH	RAINFALL		TEMPERATURE						VAPOR PRESS. (mbs)	RH (%)	MSLP (mbs)	WIND		CLOUD AMT. (okta)	NO. OF DAYS W/	
	AMOUNT (mm)	NO. OF RD	MAX (°C)	MIN (°C)	MEAN (°C)	DRY BULB (°C)	WET BULB (°C)	DEW POINT (°C)				DIR (16pt)	SPD (mps)		TSTM	LTNG
JAN	96.9	9	32.3	22.6	27.5	27.4	24.4	23.3	28.6	79	1009.6	NE	2	5	2	2
FEB	53.0	7	32.9	22.8	27.9	27.7	24.4	23.1	28.4	76	1009.9	NE	2	5	2	2
MAR	55.3	6	34.0	23.0	28.5	28.3	24.7	23.4	28.7	75	1009.9	NE	2	5	2	3
APR	54.1	6	34.3	23.5	28.9	28.8	25.2	23.9	29.7	75	1009.4	S	2	5	4	5
MAY	72.2	8	33.5	23.6	28.5	28.4	25.3	24.2	30.3	78	1009.3	S	2	5	7	8
JUN	101.9	12	32.2	23.1	27.7	27.6	25.0	24.1	30.0	82	1009.5	S	1	6	6	5
JUL	98.1	11	31.7	22.8	27.2	27.1	24.7	23.9	29.7	83	1009.5	S	1	6	4	4
AUG	91.3	11	31.7	22.8	27.3	27.2	24.7	23.9	29.6	82	1009.7	S	1	6	4	4
SEP	83.3	10	32.2	22.8	27.5	27.4	24.8	23.8	29.6	81	1009.7	S	1	6	5	5
OCT	99.6	10	32.6	22.8	27.7	27.6	24.9	23.9	29.8	81	1009.3	S	1	5	6	6
NOV	77.5	8	32.8	23.0	27.9	27.8	25.0	24.0	29.8	80	1008.7	S	2	5	5	5
DEC	74.9	8	32.6	23.0	27.8	27.7	24.7	23.7	29.3	79	1008.6	W	2	5	3	3
ANNUAL	958.1	106	32.7	23.0	27.9	27.7	24.8	23.8	29.5	79	1009.4	S	2	5	50	52

Definition of Terms:

Climatological Normals

- Period averages computed for a uniform and relative long period comprising at least three (3) consecutive 10-year period.

Rainfall Amount (column 2)

- The amount of precipitation (rain, hail, etc.) expressed in millimeters depth of the layer of the water which has fallen.

Number of Rainy Days (column 3)

- A rainy day is defined as a period of 24 hours beginning at 8AM to 8 AM of the next day during which at least 1 mm of rain is recorded.

Maximum Temperature (column 4)

- The maximum temperature in °C recorded for the day, usually occurring in the early afternoon.

Minimum Temperature (column 5)

- The minimum temperature in °C recorded for the day, usually occurring during early hours of the morning (before sunrise).

Mean Temperature (column 6)

- The average of the maximum and minimum temperature in °C recorded for the day. Mean Temperature = Maximum + Minimum / 2

Dry Bulb Temperature (column 7)

- It gives the air temperature in °C at the time of observation.

Wet Bulb Temperature (column 8)

- It gives the temperature in °C that an air parcel would have if cooled adiabatically to saturation at constant pressure by evaporating water in it.

Dew Point Temperature (column 9)

- The temperature in °C at a given pressure, to which the air must be cooled to become saturated. It is the temperature when atmospheric moisture begins to condense to liquid forming "dew" upon objects.

Vapor Pressure (column 10)

- Denotes the partial pressure of water vapor in atmosphere in millibars (mbs). As the water evaporates, additional water vapor is introduced into space above and pressure increases slightly as the new vapor is added. The increasing pressure is due to an increase in the partial pressure of water vapor.

Relative Humidity (column 11)

- The ratio of the amount of water vapor actually in the air to the maximum amount the air can hold at that temperature.

Mean Sea Level Pressure (column 12)

- The force exerted by the weight of the atmosphere on a unit area at mean sea level. It is also the atmospheric pressure at mean sea level measured in millibars.

Prevailing Winds (column 13 & 14)

- The prevailing wind direction is determined using the 16 compass points which is most frequently observed during a given period while the average wind speed in meters per second is the arithmetic average of the observed wind speed.

Cloud Amount (column 15)

- The amount of cloud present in the sky, expressed in oktas of the sky cover. Okta is the function used in denoting cloud amount and is equal to 1/8 of the whole sky.

Days with Thunderstorm (column 16a)

- A thunderstorm day is defined as an observational day during which thunder is recorded at the station.

Days with Lightning (column 16b)

- A day with lightning is reported whenever lightning is observed.

PREPARED BY: CADS/CAD/PAGASA



Republic of the Philippines
Department of Science and Technology
Philippine Atmospheric, Geophysical and Astronomical Services Administration
Climatology and Agrometeorology Division
CLIMATE AND AGROMET DATA SECTION
PAGASA Science Garden Complex, Agham Road, Diliman Quezon City, Philippines
Telephone: 8284-0800 loc. 113

CLIMATOLOGICAL NORMALS

STATION: **DAVAO CITY, DAVAO DEL SUR**
PERIOD: **1991 - 2020**

LATITUDE: **07°07'40.41"N**
LONGITUDE: **125°39'17.43"E**
ELEVATION: **17.29m**

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16a)	(16b)
MONTH	RAINFALL		TEMPERATURE						VAPOR PRESS. (mbs)	RH (%)	MSLP (mbs)	WIND		CLOUD AMT. (okta)	NO. OF DAYS W/	
	AMOUNT (mm)	NO. OF RD	MAX (°C)	MIN (°C)	MEAN (°C)	DRY BULB (°C)	WET BULB (°C)	DEW POINT (°C)				DIR (16pt)	SPD (mps)		TSTM	LTNG
JAN	166.8	11	30.9	23.7	27.3	26.8	24.3	23.3	28.7	82	1010.1	N	2	6	3	4
FEB	114.4	9	31.3	23.7	27.5	27.0	24.2	23.1	28.3	80	1010.4	N	3	6	3	3
MAR	106.6	9	32.3	24.1	28.2	27.7	24.5	23.3	28.7	78	1010.2	N	2	5	5	5
APR	114.6	9	33.1	24.7	28.9	28.5	25.2	24.0	29.9	77	1009.6	N	2	5	9	11
MAY	166.2	13	32.7	25.0	28.9	28.5	25.7	24.8	31.3	80	1009.2	S	2	6	16	20
JUN	192.7	14	32.0	24.7	28.4	28.0	25.5	24.6	31.0	82	1009.2	S	2	6	15	17
JUL	168.6	13	31.7	24.5	28.1	27.8	25.3	24.4	30.6	82	1009.0	S	2	6	13	16
AUG	167.4	12	31.8	24.5	28.2	27.9	25.3	24.4	30.5	81	1009.2	S	2	6	13	17
SEP	162.0	11	32.2	24.4	28.3	28.0	25.3	24.3	30.5	81	1008.3	S	2	6	14	17
OCT	194.8	12	32.6	24.4	28.5	28.0	25.3	24.3	30.5	81	1008.9	S	2	6	16	19
NOV	139.7	12	32.2	24.4	28.3	27.8	25.2	24.2	30.3	81	1008.7	N	2	6	12	14
DEC	141.7	11	31.6	24.2	27.9	27.5	24.9	23.9	29.8	81	1009.0	N	2	6	6	9
ANNUAL	1,835.5	136	32.0	24.4	28.2	27.8	25.0	24.1	30.0	81	1009.3	N	2	6	125	152

Definition of Terms:

Climatological Normals

- Period averages computed for a uniform and relative long period comprising at least three (3) consecutive 10-year period.

Rainfall Amount (column 2)

- The amount of precipitation (rain, hail, etc.) expressed in millimeters depth of the layer of the water which has fallen.

Number of Rainy Days (column 3)

- A rainy day is defined as a period of 24 hours beginning at 8 AM to 8 AM of the next day during which at least 1 mm of rain is recorded.

Maximum Temperature (column 4)

- The maximum temperature in °C recorded for the day, usually occurring in the early afternoon.

Minimum Temperature (column 5)

- The minimum temperature in °C recorded for the day, usually occurring during early hours of the morning (before sunrise).

Mean Temperature (column 6)

- The average of the maximum and minimum temperature in °C recorded for the day. Mean Temperature = Maximum + Minimum / 2

Dry Bulb Temperature (column 7)

- It gives the air temperature in °C at the time of observation.

Wet Bulb Temperature (column 8)

- It gives the temperature in °C that an air parcel would have if cooled adiabatically to saturation at constant pressure by evaporating water in it.

Dew Point Temperature (column 9)

- The temperature in °C at a given pressure, to which the air must be cooled to become saturated. It is the temperature when atmospheric moisture begins to condense to liquid forming "dew" upon objects.

Vapor Pressure (column 10)

- Denotes the partial pressure of water vapor in atmosphere in millibars (mbs). As the water evaporates, additional water vapor is introduced into space above and pressure increases slightly as the new vapor is added. The increasing pressure is due to an increase in the partial pressure of water vapor.

Relative Humidity (column 11)

- The ratio of the amount of water vapor actually in the air to the maximum amount the air can hold at that temperature.

Mean Sea Level Pressure (column 12)

- The force exerted by the weight of the atmosphere on a unit area at mean sea level. It is also the atmospheric pressure at mean sea level measured in millibars.

Prevailing Winds (column 13 & 14)

- The prevailing wind direction expressed using the 16 compass points which is most frequently observed during a given period while the average wind speed in meters per second is the arithmetic average of the observed wind speed.

Cloud Amount (column 15)

- The amount of cloud present in the sky, expressed in oktas of the sky cover. Okta is the function used in denoting cloud amount and is equal to 1/8 of the whole sky.

Days with Thunderstorm (column 16a)

- A thunderstorm day is defined as an observational day during which thunder is recorded at the station.

Days with Lightning (column 16b)

- A day with lightning is reported whenever lightning is observed.

PREPARED BY: **CADS/CAD/PAGASA**

Annex 18. LGU Covered by the MTCIP

Region	Province	City/Municipality	Barangays
REGION X NORTHERN MINDANAO	Misamis Oriental	Cagayan de Oro City	Puerto
	Bukidnon	Manolo Fortich	Mambatangan Alae Lunocan San Miguel Diclum Tankulan (Pob) Lingion Darilig Maluko
		Sumilao	San Vicente Kisolon
		Impasug-ong	Poblacion La Fortuna Capitan Bayong Cawayan Kibenton Impalutao
		Malaybalay City	Dalwangan Patpat Kalasungay Sumpung Barangay 2 Barangay 3 Barangay 4 Barangay 5 Barangay 7 Barangay 8 Barangay 9 Casisang San Jose Laguitas Aglayan Cabangahan Bangcud
		Valencia City	Colonia Mailag Bagontaas Poblacion Lumbo
		Maramag	Dologon Tubigon Bayabason Panadtalan Anahawon North Poblacion South Poblacion Camp 1
		Quezon	San Jose Poblacion (kiokong) Libertad Salawagan Mibantang\ Cebole Pinalayan Kiburiao Puntian Palacapao
		Kitatao	East Dalurong Kahusayan Sinuda Kipilas Kiulom
REGION XI DAVAO REGION	Davao del Sur	Davao City	Datu Salumay Baganihan Marilog Buda Salaysay Suawan (Tuli) Tamugan Lacson Malamba Bantol Malabog Mabuhay Calinan Riverside Los Amigos Ula Tugbok Mintal Santo Nino Catalunan Pequeno Talomo Poblacion Matina Crossing Ma-a Bucana Barangay 5-A Barangay 6-A Barangay 2-A Barangay 1-A Barangay 38-D

Region	Province	City/Municipality	Barangays
			Barangay 39-D Bago Aplaya Dumoy Lubogan Toril (Poblacion) Crossing Bayabas Marapangi Lizada Sirawan Binugao
		Santa Cruz	Inawayan Darong Astorga Coronon Zone I Zone II Zone III Zone IV Tuban Tagabuli Bato
		Digos City	Sinawilan Cogon Kiaot Zone 2 (Pob) Zone 3 (Pob) Zone 1 (Pob) San Jose (Balutakay)
		Hagonoy	Balutakay Leiling Hagonoy Crossing Guihing Palique
		Padada	Northern Paligue Southern Paligue Don Sergio Osmena Almendras NC Ordaneza District Upper Limozo Harada Butai
		Sulop	Talas Palili Kiblagon
		Malalag	New Baclayon Kiblangon Tagansule Bolton
		Demoloc	Malita
	Davao del Norte	Panabo City	Malativas Consolacion Kauswagan Cacao Katipunan Little Panay Datu Abdul Dadia New Visayas Gredu (Poblacio) New Pandan (Pob)
	Davao Occidental	Santa Maria	Poblacion San Isidro Pongpong San Antonio Datu Intan
REGION SOCCSKSARGEN	XII South Cotabato	General Santos City	Batomelong Tinagacan Katangawan Ligaya Lagao Dadiangas North Labangal Apopong
	Sarangani	Malungon	Poblacion Upper Mainit San Miguel San Roque Kinabalan

Source: Galerio Environment Consultancy Inc., Data Analysis Report

Annex 19. Environmental Risk Assessment (ERA)

1. Introduction

1.1 Objective of the ERA

This ERA aims to identify and analyze the hazards and assess the risks associated with the proposed Mindanao Transport Connectivity Improvement Project (MTCIP). The study includes a characterization of the consequences of identified potential hazards in terms of loss of human lives or injuries, damage to or loss of assets, and environmental risks. It likewise aims to present mitigating measures to control the hazards. The project involves the improvement, rehabilitation, upgrading, construction, and maintenance of a total of 421.12 km of road corridor traversing the areas of Cagayan de Oro, Bukidnon, Davao provinces, Sarangani, and General Santos City. Four existing highways will be upgraded, rehabilitated, and improved. These are the following: Sayre Highway, Bukidnon-Davao Road, Digos-Makar Road, and Davao-Cotabato Road. Also to be upgraded and/or constructed are three link roads, the first of which is wholly within the Municipality of Impasug-ong, Bukidnon; the second extends eastward from the Davao-Bukidnon Highway to the City of Panabo, Davao del Norte; and the third link road extends northeastward from the Digos-Makar Road in the Municipality of Malungon, Sarangani, to the Municipality of Santa Maria, Davao Occidental.

1.2 Scope and Limitations

This ERA involves the analysis of the various potential safety (fire, explosion, toxicity) and physical hazards related to the MTCIP. It complies with the requirements of the Procedural Guidelines for Scoping of Environmental Risk Assessment (Annex 2-7e) of the Revised Procedural Manual of DENR AO 03-30 and focuses on safety risks, which are characterized by low probability, high consequence, accidental nature, and acute effects" (EMB-EIAMD, 2007). It is aligned with the World Bank's ESS1 Guidance Note on Hazard or Risk Assessment, which states that "hazard or risk assessment is an instrument for identifying, analyzing, and controlling hazards associated with the presence of dangerous materials and conditions at a project site".

Geological and natural hazards are not extensively covered in this section, as these risks are covered in separate sections of the ESIA and in other geological and geotechnical studies for the project. The ERA likewise does not include environmental impacts from normal and other planned operations, as these are discussed in other sections of the ESIA Report.

1.3 ERA Framework

The Procedural Manual for DAO 2003-30 (Annex 2-7e) defines environmental risk assessment as "the use of universally accepted and scientific methods to assess the risks associated with a project. Risk is defined as a measure of potential human injury, death, economic loss, or environmental damage. It is determined based on the probability (likelihood) of the loss, injury, death, or damage occurring and the severity (magnitude) of the loss, injury, death, or damage if it occurs. In simple terms, risk involves two measurable parameters: severity and probability.

The general ERA process is illustrated in Figure 1. The various elements and steps in the risk assessment procedure are elaborated on in the succeeding sections.

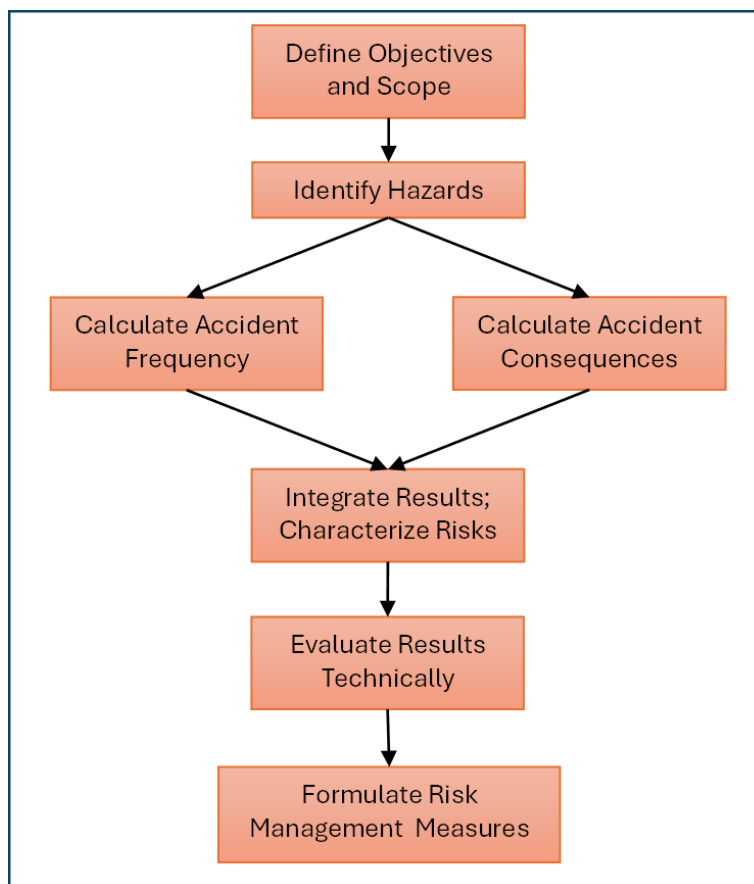


Figure 1. The Risk Assessment Process

2. ERA Methodology

Hazards were rated as to their consequence severity (“C”) and their frequency or probability of occurrence (“F”) using 5x5 rating charts. Table 1 and Table 2 show the rating charts for consequence severity and frequency of occurrence, respectively. Indicative risks were characterized by integrating the results of the Consequence Severity Rating (C) and the Frequency of Occurrence Rating (F) using a 5x5 Risk Rating Matrix as shown in Table 3.

2.1 Consequence Severity Analysis

Consequence severity analysis involved the qualitative description of possible impacts on people, assets, and the environment in the event of accidents or incidents due to the identified hazards. An accident or consequence is graded according to a Consequence Severity Rating Chart, as shown in Table 1. The rating ranges from 1 to 5, with 1 being the lowest consequence and 5 having the highest consequence severity.

Table 1. The Consequence Severity Rating Chart Used in Consequence Analysis

RATING	DESCRIPTION	CONSEQUENCE/IMPACT		
		ON-SITE HEALTH AND SAFETY	ENVIRONMENT AND COMMUNITY	ASSETS
1	Very low	Self-administered first aid treatment; No	No community complaints; no corrective actions required; No breach of	No property damage

RATING	DESCRIPTION	CONSEQUENCE/IMPACT		
		ON-SITE HEALTH AND SAFETY	ENVIRONMENT AND COMMUNITY	ASSETS
		specific treatment	regulations	
2	Low	First Aid treatment injury	Impacts confined to site; corrective actions required; no breach of regulations	Slight/temporary damage and nuisance to one or more properties
3	Moderate	Medical treatment injury; possible loss time injury	Off-site environmental/community damage could easily be contained or prevented; breach of regulations	Significant but temporary damage to property
4	High	Injuries require hospitalization	May result to uncontained environmental or community damage; multiple community complaints; may result to civil prosecution	Sustained damage to property lasting many months
5	Very High	Fatalities; Permanent disabilities	Long term environmental damage; May result to criminal prosecution	Long term and possible permanent loss of property

2.2 Probability/Frequency Analysis

The probability or frequency analysis of accidents or incidents due to the realization of project hazards was described using a Probability of Occurrence Rating Chart, as shown in Table 2. Probability (frequency) was assigned values ranging from 1 to 5, with 1 corresponding to the lowest probability and 5 having the highest probability value.

Table 2. The Probability of Occurrence Rating Chart Used in Frequency Analysis

RATING	DESCRIPTION	EXPLANATION
1	Rare	Might occur at some time in exceptional circumstances
2	Unlikely	Could occur at some time although unlikely
3	Possible	Might occur at some time
4	Likely	Will probably occur, has happened
5	Almost Certain	Expected to occur, quite common

2.3 Risk Characterization

Risk characterization involved the integration of the results of the consequence severity analysis and consequence probability analysis. For purposes of risk prioritization, indicative risk (IR) values were computed for each identified hazard by computing the product of the severity rating and probability rating values. Table 3 shows the guide for interpreting the risk matrix.

Table 3. Risk Matrix

Qualitative Risk Matrix			Probability/Frequency				
			1	2	3	4	5
			Rare	Unlikely	Possible	Likely	Almost Certain
Consequence/ Impact	5	Very High	5	10	15	20	25
	4	High	4	8	12	16	20
	3	Moderate	3	6	9	12	15

	2	Low	2	4	6	8	10
Qualitative Risk Matrix			Probability/Frequency				
			1	2	3	4	5
			Rare	Unlikely	Possible	Likely	Almost Certain
	1	Very Low	1	2	3	4	5
		Low Risk		Medium Risk			High Risk

3. ERA Scoping and Risk Screening of Hazardous Substances at the Project Site

ERA scoping and risk screening procedures were undertaken to determine the level of environmental risk assessment to be undertaken. The criteria and process used in risk screening were based on Annex 2-7e (Guidelines for the Conduct of Environmental Risk Assessment) of the Revised Procedural Manual of DAO 2003-30.

The level of ERA coverage is defined by the type of hazardous substance and the expected maximum inventory of this substance to be stored or handled at the project site at any one time. The levels of ERA coverage are as follows (Annex 2-7e of the RPM of DAO 2003-30):

- Level 2: Facilities that will use, manufacture, process, or store hazardous materials in excess of Level 2 threshold inventory shall be required to conduct a quantitative risk assessment (QRA) and prepare an emergency or continuity plan based on the results of the QRA;
- Level 1: Facilities that will use, manufacture, process, or store hazardous materials in excess of Level 1 threshold inventory shall be required to prepare an emergency or contingency plan based on the worst-case scenario. The plan shall be based on a Hazard Analysis study and
- Risk screening level: specific facilities or the use of certain processes shall require the conduct of a risk screening study even if the projected or estimated inventory does not reach the threshold levels.

The project is not expected to use, handle, transport, or store significant amounts of substances that are explosive, flammable, oxidizing, or toxic. For the purpose of refueling its equipment and vehicles, it may utilize diesel tanker trucks, the volume of which is minimal (much less than the DENR Level 1 Threshold Inventory for diesel). Classified as a flammable substance, the DENR Level 1 Threshold Inventory for diesel is 5000 tons. Given this, the level of ERA coverage for this project is a risk screening level. It is required to conduct a risk screening study and prepare an emergency plan based on a hazard analysis. Figure 2 shows the procedure and results of the ERA scoping.

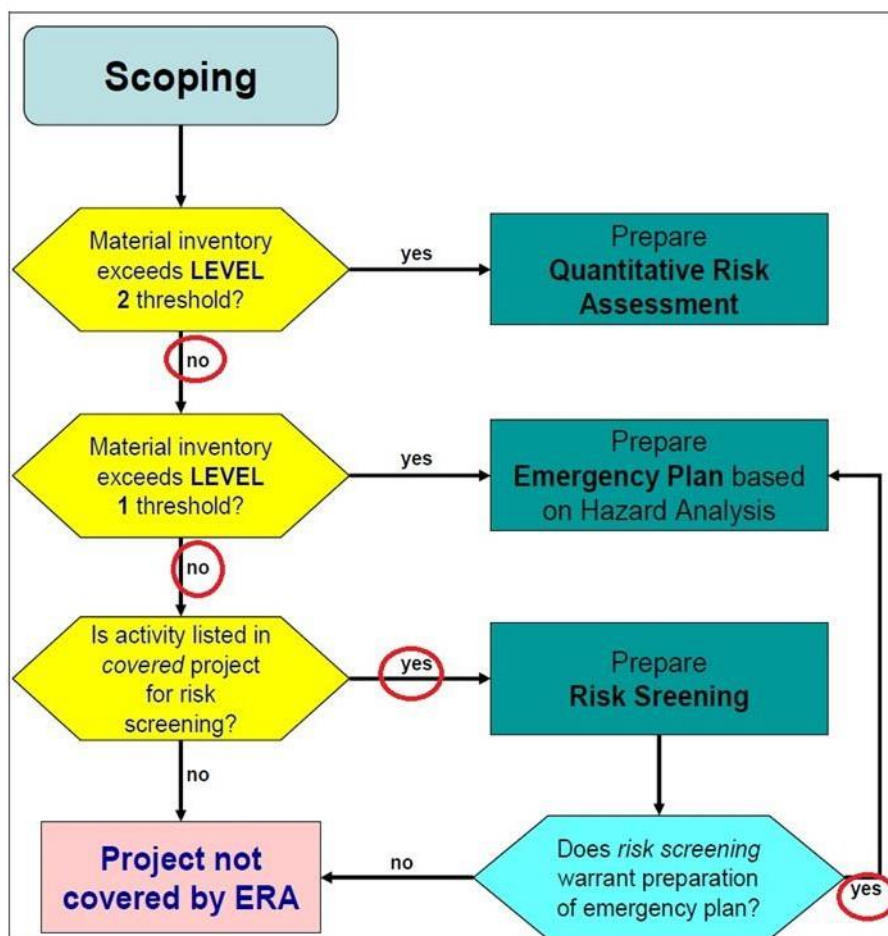


Figure 2. Result of ERA Scoping for the MTCIP

4. Hazard Identification and Analysis

Hazards associated with MTCIP that could result in injury to or fatality to workers, and the public, as well as damage to assets and the environment, were identified. Identified hazards include both safety and physical factors. External factors such as sabotage and terrorism were included in the hazard analysis.

Chemical hazards, particularly those that have the potential to cause fire, explosions, and toxic releases, were identified and analyzed. However, since the quantities of chemicals involved are expected to be way below the DENR Level 1 threshold inventory, no quantitative risk assessment is necessary. Small quantities of diesel fuel, acetylene, and oxygen gases may be stored and used at the work site.

Table 4 lists the identified hazards associated with the project during the construction and operation phases.

Table 4. MTCIP Hazard and Risk Characterization

HN	Activity/Hazard	Consequence/Risk	Causes/ Contributing Factors	At Risk Sectors	C	F	Risk*	Recommended Control Measures
A. Construction Phase								
1	Clearing of vegetation beside the existing road	<ul style="list-style-type: none"> Struck by felling trees, debris and equipment part Vibration and noise from power saws and other equipment leading to vibration-induced illness; hearing loss. Vehicular and equipment accidents 	<ul style="list-style-type: none"> Human error; Equipment failure; 	<ul style="list-style-type: none"> Workers Nearby residents and road users 	3	3	9	<ul style="list-style-type: none"> Ensure that tree-felling workers have skills and knowledge of the job Provide appropriate PPEs Provide barriers around the work area
2	Cement batching operation/ Cement mixing and activities that generate air emission	<ul style="list-style-type: none"> Exposure of workers, nearby road users and residents to fugitive airborne cement dusts (may contain respirable silica) and air emission predisposing to respiratory, dermal and eye diseases Exposure to high level noise that may lead to hearing loss 	<ul style="list-style-type: none"> Inadequate equipment maintenance Proximity of workers to the batching equipment Inappropriate PPEs Dust from earthworks, unpaved roads and other civil works Air emission from construction activities 	<ul style="list-style-type: none"> Nearby workers Nearby residents and road users 	2	3	6	<ul style="list-style-type: none"> Ensure timely and regular maintenance of equipment Provide barriers around the work area Provide affected workers with appropriate PPEs (e.g. goggles, respirators, gloves, hard hats, safety shoes, earmuffs) Regular water sprinkling to suppress dusts from going airborne
3	Construction activity and movement of construction vehicles and equipment in existing roads	<ul style="list-style-type: none"> Traffic accidents Injuries and/or fatalities to construction workers and road users Public vehicle colliding with construction vehicle, equipment or structure 	<ul style="list-style-type: none"> Movement of public vehicles in proximity to work zones in existing roads Reckless driving Insufficient work zone safety equipment installed (e.g. safety fences, road markers, flags, “stop-go” paddles, etc.) Insufficient implementation of traffic rules Insufficient safety signages Inappropriate PPE Vehicle/equipment malfunction Human error 	<ul style="list-style-type: none"> Project workers Pedestrians Project assets 	5	3	15	<ul style="list-style-type: none"> Coordinate with LGU and traffic enforcers for stricter implementation of traffic rules especially at work zones Install safety barriers (e.g. fence), signages and other safety equipment to delineate and draw attention to road work zones Traffic management (including ingress/egress of vehicles at construction site), including properly trained personnel to manage traffic flow (i.e. banksman) Authorized road closures Implement pedestrian walkways Ensure that contractor’s vehicles, trucks and equipment are of good working condition through timely inspections of construction sites Ensure that the contractor employs properly trained crew and operators, especially drivers of large equipment like cranes and earth moving vehicles.
4	Construction activity near to live electric line or overhead power line	<ul style="list-style-type: none"> Electrocution Fire Injuries and/or possible fatalities to construction workers 	<ul style="list-style-type: none"> Failure to notice live electric line or overhead power line Inappropriate PPE 	<ul style="list-style-type: none"> Project workers Project assets 	5	2	10	<ul style="list-style-type: none"> Provide safety signages Coordination with local electricity provider to provide power isolation, if required. Training/briefing of construction personnel Ensure wearing of appropriate PPEs working near or with electricals
5	Storage and use of flammable liquids (e.g. diesel) and gases (e.g. acetylene gas, industrial oxygen gas)	<ul style="list-style-type: none"> Fire/Explosion accidents at work site Injuries, and/or possible fatalities Damage to assets 	<ul style="list-style-type: none"> Spillage of fuel and subsequent ignition Mechanical impacts on fuel tanks/ cylinders Presence of ignition source 	<ul style="list-style-type: none"> Project workers Public Project assets Environment 	5	2	10	<ul style="list-style-type: none"> Fuel storage tanks to be provided with secondary containment. Ensure the availability and accessibility of fire protection and suppression systems near storage of tank cylinders of flammable gases Eliminate sources of ignition near fuel storage areas Good housekeeping
6	Earthworks on steep and elevated terrains	<ul style="list-style-type: none"> Landslides and/or rock falls that may result to injury/fatality and/or damage to assets Vehicular/equipment accidents (fall from heights, collisions) 	<ul style="list-style-type: none"> No retaining walls/barriers in unstable slopes may cause slope failure Human error Insufficient safety barriers and signages 	<ul style="list-style-type: none"> Public Project workers Project assets 	5	2	10	<ul style="list-style-type: none"> Install safety barriers and signages near the edge of ravines and steep slopes Install retaining walls/barriers in unstable slopes
7	Bridge construction activities	<ul style="list-style-type: none"> Damage to bridge structures under construction that could lead to bridge failure/ collapse Fatalities/injuries Damage to properties 	<ul style="list-style-type: none"> Design errors, deficiency in construction, material defects Failure to follow current construction standards and codes Inadequate supervision and monitoring of construction Lack of quality control for materials 	<ul style="list-style-type: none"> Public Project workers Project assets 	5	3	15	<ul style="list-style-type: none"> Install safety barriers and signages Supervision and monitoring of construction to ensure that designs, plans and required materials are properly implemented
8	Slipforming construction activities	<ul style="list-style-type: none"> Fatigue on workers which reduced mental alertness and physical ability Increased probability to meeting accidents (e.g. hit by moving equipment, falling from heights, collisions, etc.) 	<ul style="list-style-type: none"> Inadequate rest period/ break time Long hours of work (exceeds recommended duration) Hot environmental conditions 	<ul style="list-style-type: none"> Project workers Project assets 	4	3	12	<ul style="list-style-type: none"> Ensure adequate break times/ rest period for workers Provide adequate drinking water supply for workers Practice worker rotation for exhausting jobs
9	Terroristic attacks and/or sabotage of bridge/road structures	<ul style="list-style-type: none"> Major damage that may lead to bridge failure/collapse and/or loss of road functionality Additional cost for remedial measures Fatalities/ injuries to people 	<ul style="list-style-type: none"> Inadequate security Peace and order problems 	<ul style="list-style-type: none"> Project workers Road users Project assets 	5	2	10	<ul style="list-style-type: none"> Coordinate with LGU and Philippine National Police (PNP) in case of terroristic threats Deploy security personnel to monitor and secure the road/ bridge perimeters, and equipment depot, as necessary Follow security announcement/advice from government’s (national and local) security agency

HN	Activity/Hazard	Consequence/Risk	Causes/ Contributing Factors	At Risk Sectors	C	F	Risk*	Recommended Control Measures
								<ul style="list-style-type: none">▪ Incorporate terroristic attacks in the emergency response and contingency plan for the Project
C.	Operation Phase							<ul style="list-style-type: none">▪
10	Movement of vehicles on roads	<ul style="list-style-type: none">▪ Traffic accidents (collisions, hitting pedestrians, etc.)▪ Fire/explosion resulting from traffic accident▪ Damage to road and bridge structures that may result to failuer▪ Fatalities/ injuries	<ul style="list-style-type: none">▪ Human error▪ Vehicular malfunction▪ Inefficient lightings and safety signages	<ul style="list-style-type: none">▪ Public▪ Project assets	5	3	15	<ul style="list-style-type: none">▪ Coordinate with LGU for stricter implementation of traffic management▪ Implement appropriate speed and weight limits on the bridge▪ Regulate passage of fuel tankers and carriers
11	Maintenance activity and movement of equipment	<ul style="list-style-type: none">▪ Traffic accidents▪ Injuries and/or fatalities to workers and road users▪ Public vehicle colliding with vehicle, equipment or structure	<ul style="list-style-type: none">▪ Movement of public vehicles in proximity to work zones▪ Reckless driving▪ Insuffcient work zone safety equipment installed (e.g. safety fences, road markers, flags, "stop-go" paddles, etc.)▪ Insufficient implementation of traffic rules▪ Insufficient safety signages▪ Inappropriate PPE▪ Vehicle/equipment malfunction▪ Human error	<ul style="list-style-type: none">▪ Workers▪ Public▪ Project assets	5	3	15	<ul style="list-style-type: none">▪ Coordinate with LGU for stricter implementation of traffic management at work zones▪ Install safety barriers (e.g. fence), signages and other safety equipment to delineate and draw attention to road work zones▪ Traffic management to manage traffic flow▪ Authorized road closures▪ Implement pedestrian walkways▪ Ensure that contractor's vehicles, trucks an equipment are of good working condition through timely inspections of construction sites▪ Ensure that the contactor employs properly trained crew and operators, especially drivers of large equipment like cranes and earth moving vehicles.
12	Terroristic attacks and/or sabotage of bridge/road structures	<ul style="list-style-type: none">▪ Major damage that may lead to bridge failure/collapse and/or loss of road functionality▪ Cost for major repairs▪ Disruption of transport connectivity▪ Fatalities/ injuries to people	<ul style="list-style-type: none">▪ Inadequate security▪ Peace and order problems	<ul style="list-style-type: none">▪ Workers▪ Public▪ Project assets	5	2	10	<ul style="list-style-type: none">▪ Coordinate with LGU and Philippine National Police (PNP) in case of terroristic threats▪ Follow security announcement/advice from government's (national and local) security agency
* <div></div> -Medium Risk <div></div> -High Risk								

The identified hazards associated with the MTCIP have the potential to result in either medium risks or high risks. These indicative risks assume the absence of mitigation.

The main high risks associated with the MTCIP, with potential consequences, at worst case, of multiple fatalities and major damage to assets, are traffic accidents resulting from the movement of vehicles and equipment on roads during the construction and operation phases of the project, defective or insufficient safety signage, and insufficient implementation of traffic rules.

4.1 Risk from Traffic Accidents

The risks from traffic accidents could be high if unmitigated. The hazards of traffic accidents could lead to fatalities.

Factors contributing to the risk of traffic accidents include the following:

- Unsafe actions of workers and road users
- Insufficient work zone safety equipment is installed (e.g., safety fences, road markers, flags, “stop-go” paddles, etc.).
- Insufficient implementation of traffic rules
- Human error
- Vehicle/equipment malfunction
- Inadequate equipment maintenance
- Insufficient safety signages

5. Risk Management

Potential inherent (unmitigated) risks from the MTCIP project could be high in some aspects and must be prevented and/or controlled with the application of appropriate mitigation measures. Measures for the prevention and control of project-associated risks should be specified in the risk management and emergency plan of MTCIP. Such measures may include capability-building (if required) and resources. The identified risks should be managed and reduced to as low as reasonably practicable. Reasonable in this context means a balance between the benefits of increased safety, environmental protection, or lives saved, and the costs involved in the process of risk reduction. Major considerations in risk reduction are:

- Appropriate road infrastructure design;
- Compliance with design standards (construction and operation);
- Regular inspection and maintenance of the infrastructure, equipment, and facilities;
- Installation and proper maintenance of safety systems (e.g., signaling and control systems, early warning devices, fire prevention and control systems, etc.);
- Conduct of training
- Establishment of appropriate emergency response and contingency systems.

6. Summary and Recommendation

This Environmental Risk Assessment (ERA) was prepared for the proposed Mindanao Transport Connectivity Improvement Project (MTCIP). The identified hazards associated with the MTCIP have the potential to result in either medium risks or high risks. The main high risks

associated with the MTCIP, with potential consequences, at worst case, of multiple fatalities and major damage to project assets, are traffic accidents resulting from the movement of vehicles and equipment on roads during the construction and operation phases of the project, defective or insufficient safety signage, and insufficient implementation of traffic rules.

Measures for the prevention and control of project-associated risks should be specified in the risk management and emergency plan of MTCIP. There is need to manage and reduce to as low as reasonably practicable the identified risks. In this context, reasonable means a balance between the benefits of increased safety, environmental protection, or lives saved and the costs involved in the process of risk reduction.

Annex 20. Documentation of Public Consultation, September 26-29, 2023**Public Consultation**

DATE	REGION, PROVINCE VENUE	OFFICES/ AGENCY	PARTICIPANTS		STAKEHOLDERS RECOMMENDATIONS	DPWH-UPMO RESPONSE
			Male	Female		
September 26, 2023	Region X Northern Mindanao Province of Misamis Oriental PPDO Auditorium, Provincial Capitol, Cagayan de Oro City	DPWH- UPMO		5	1. The Provincial LGU stated that while Cagayan de Oro City is part of the MTCIP, the Provincial Government of Misamis Oriental has no jurisdiction over the city. 2. MinDA asked to clarify the project timeline	3. DPWH-UPMO replied that it will be noted GECI explained the importance of the infrastructure project in Misamis Oriental, emphasizing its significance for transportation. If the project extends to other provinces and barangays, such as Puerto, it can significantly impact the province of Misamis Oriental. that the farmers of Misamis Oriental can benefit from this proposed infrastructure in terms of impact. It can make it easier, faster, cheaper, and safer for them to transport agricultural products to the market and bring commodities to the inland areas. 4. DPWH-UPMO presented the timeline and the need for endorsement of the province.
		GECI	2	8		
		MinDA		1		
		LGU	3	1		
September 26, 2023	Region X Northern Mindanao Province of Bukidnon PPDO Auditorium, Provincial Capitol, Malaybalay City	DPWH- UPMO		5	5. Status of construction of 2-lanes along Impasug-ong section of the main corridor with a box culvert 6. RROW process in widening. 7. Possibility of a connecting bridge from Dologon to Pulangi manmade lake for tourism purposes. 8. Construction of parallel bridge near Maloos area in Kitaotao to replace the current sharp-curve bridge, which causes many accidents and harms to road users. Reminded that RRWO acquisition in Kitaotao area is a primary challenge to DPWH road improvement projects. 9. Inquiry if there will be construction of new roads under the MTCIP. 10. If not, will Sayre Highway be improved into six-lane road. 11. Inquiry on the MTCIP budget on highway protection and how the	17. DPWH-UPMO will consider with request for additional data to support GECI. 18. DPWH-UPMO follows R 10752. 19. DPWH-UPMO will inform the DEO about the proposed bridge for feasibility study. 20. DPWH-UPMO requested LGU Kitaotao to submit accidents incident report for documentation and to consider the recommendations for road improvements. 21. DPWH-UPMO replied that MTCIP is still in FS phase, and for presentation to NEDA-ICC. Prior to it, PDC and RDC endorsement are needed. 22. DPWH-UPMO replied that when the loan is secured, road design foreign consultants will be
		GECI	2	8		
		DPWH-DEO 1 st District	1	2		
		LGUs and other sectoral groups	19	5		

DATE	REGION, PROVINCE VENUE	OFFICES/ AGENCY	PARTICIPANTS		STAKEHOLDERS RECOMMENDATIONS	DPWH-UPMO RESPONSE
			Male	Female		
					<p>Provincial LGU could help.</p> <p>12. The stretch of Sayre Highway should have an island or extra lanes for U-turn. This is to avoid illegal U-turns that causes most road accidents and death of commuters.</p> <p>13. Inquiry if the planned "expressway" along Sayre Highway will push through.</p> <p>14. Sharp turns and slope along Quezon section must be addressed.</p> <p>15. Recommendations from Provincial LGUs:</p> <p>a. Tunnel should be built, if possible.</p> <p>b. Road design should be standardized along Sayre Highway.</p> <p>c. Incidents reports are not essential in the design process, accidents still occur.</p> <p>d. DPWH should enforce preventive measures to protect the roads to maximize money spent on the project.</p> <p>16. PPDO recommended that MTCIP be presented to PDC, scheduled on September 27, 2023, for proper endorsement by PDC to RDC.</p>	<p>procured. All suggestions (#s4-11a-d) will be considered in the design phase.</p> <p>23. The MTCIP was presented to PDC- Bukidnon and will pass SP Resolution endorsing the project to RDC.</p>
September 27, 2023	Region XI Davao Region Davao City DPWH Regional Office Conference Hall, Davao City (2-4pm)	DPWH- UPMO		5	<p>24. Inquiry on the payment for the affected houses and areas for relocation. As per initial field investigation by GECI, many houses standing along/close to the cliff in sitios along the proposed Link Road 2 may be affected. And, Malabog LGU is not informed yet of the final route of the proposed road development, so cannot determine the exact number of affected households. Asked when they will know the final design of the road.</p> <p>25. Clarifications on the drainage</p>	<p>32. DPWH-UPMO replied that the project is still in FS phase; technical options analysis is still being conducted by GECI; land acquisition and compensation will be based on RA 10752; ROW will be determined after the FS. Information is needed from to be included in the option analysis and/or final design of the road.</p> <p>33. DPWH-UPMO replied that improvement will be a complete package.</p> <p>34. DPWH-UPMO said that</p>
		GECI	2	8		
		DPWH-RO and DEO	4	2		
		LGUs and other sectoral groups	12	6		

DATE	REGION, PROVINCE VENUE	OFFICES/ AGENCY	PARTICIPANTS		STAKEHOLDERS RECOMMENDATIONS	DPWH-UPMO RESPONSE
			Male	Female		
					<p>system along the proposed improvement of the main corridor.</p> <p>26. Bantol LGU reminded of different types of land ownership in the affected areas (e.g. ancestral domain, A&D, and CADT issued land). Inquiry on the mode of acquisition that will be used. Asked on the RROW width.</p> <p>27. Saloy LGU reminded that affected households by previous DPWH road projects have not been paid yet. And, inquired when will they know the final road alignment.</p> <p>28. Suggestions from Barangay LGUs:</p> <p>29. Discuss and present the final design to the Barangay Councils.</p> <p>30. Barangay Councils can suggest areas that will not be greatly affected by the project.</p> <p>31. Sitio Cabonbon has lot of residents that will be affected by the project.</p>	<p>replacement cost will be applied to affected structures, crops and trees. For land acquisition, RA10752 and other guidelines will be applied. RRWO will be 20 meters.</p> <p>35. DPWH-RO explained that for MTCIP, affected households will be paid by DPWH first, not by barangay LGUs.</p> <p>36. DPWH-UPMO replied that the MTCIP main and link roads are still being studied and be presented to NEDA ICC. Final design will be done after NEDA approval.</p>
September 27, 2023	Region XI Davao Region Province of Davao del Norte Provincial Capitol Conference Hall, Tagum City (9-11am)	DPWH- UPMO		5	<p>37. The Provincial LGU informed that the proposed alignment is included in the 2024 provincial development plan, with hazard assessments guided by MGB and PHILVOCS. The proposed alignment will pass through the existing provincial road.</p> <p>38. It was suggested that social and environmental factors must be included in the study, and inquired about how it will be done.</p> <p>39. Provincial LGU reminded DPWH that affected households of previous road projects are not yet compensated. Further inquired, if the MTCIP will affect other or additional households. Suggested that the Barangay LGUs must.</p> <p>40. Mr. Benjie Sandigan from DPWH clarified that the proposed original road alignment for Link Road 3 is unsafe for travel due to a section in Brgy. Pongpong before Sitio Lumbia, where it is not feasible to</p>	<p>42. DPWH-UPMO and GECI appreciated the PLGU plan and requested information. DPWH-UPMO replied that connectivity between Panabo and Bunawan areas are considered in the MTCIP.</p> <p>43. GECI responded that the study conforms to the E&S mandate of the World Bank and will submit an ESIA for the project.</p> <p>44. DPWH-UPMO and GECI explained that compensation will be due to affected lands and other assets in current market values. Cost will be part of the project valuation.</p> <p>45. DPWH-UPMO responded that farm- to-market road is considered and that</p>
		GECI	2	8		
		DPWH-RO and DEO	3	8		
		LGUs and other sectoral groups	11	4		



DATE	REGION, PROVINCE VENUE	OFFICES/ AGENCY	PARTICIPANTS		STAKEHOLDERS RECOMMENDATIONS	DPWH-UPMO RESPONSE
			Male	Female		
					<p>construct two lanes, especially during heavy rains, as it is susceptible to landslides.</p> <p>41. DPWH-DEO recommended rerouting of the proposed Link Road 3 to avoid passing through landslide-prone slope, narrow ridges and avoided loss of assets along ancestral lands:</p> <p>e. Kidadan as a potential rerouting option while maintaining the same exit route. Two suggested routes are:</p> <p>f. A route before the landslide-prone area that leads downward into a section of</p> <p>g. Barangay Kidadan and then exits to Barangay Lumbia.</p> <p>h. An alternative route that enters the main portion of Barangay Kidadan and proposes the construction of a bridge.</p>	
September 28, 2023	Region XI Davao Region Province of Davao del Sur Digos City Gymnasium Hall (9-11am)	DPWH- UPMO		5	46. Clarification on which road will be renovated. He asked whether it is the wide one or the highlands.	<p>54. DPWH RMC II, UPMO, explained that the World Bank's plan is to maintain a four-lane road to enhance mobility, which will be sustained for five years, covering a total of 428 km. She also highlighted that when traveling through the area from CDO- DAVAO- GENSAN</p> <p>55. DPWH-UPMO replied that the focus is on connecting farms to roads to provide easier access. DPWH- UPMO collaborates closely with MINDA and various LGUs to assess the needs of each town. The LGUs were urged to provide the necessary data to identify problem areas in the region.</p> <p>56. GECl replied that the reason for procuring incident reports is to determine the number of</p>
		GECl	2	8	47. Padada LGU asked what structures will be placed in the municipality and to those towns that weren't mentioned.	
		DPWH-RO and DEO		4	48. Provincial LGU requested GECl to determine all the affected barangays of the project. Inquires further what is the connection of the accident incident reports to the needed repair of the roads.,	
		LGUs and other sectoral groups	25	19	49. Provincial LGU expects to see clear improvement to be installed. Cited that overpass were installed but of less usage to the resident, asked further if proper studies were conducted for the overpasses. Further inquired if the road will be converted into 8-lane road with bike lanes and streets lights that will	

DATE	REGION, PROVINCE VENUE	OFFICES/ AGENCY	PARTICIPANTS		STAKEHOLDERS RECOMMENDATIONS	DPWH-UPMO RESPONSE
			Male	Female		
					<p>meet super international standards; and why the road will only be maintained for 5 years.</p> <p>50. Municipal LGU of Sta Cruz, inquired if drainage system is included in the design of the project; if due diligence is really implemented, and relocation sites for affected households.</p> <p>51. Inquiries on study conducted to address potential flooding issues during road construction and how to minimize their impact.</p> <p>52. IP representative inquired about the project plan's for the remote barangays of Binaton, Kapatagan, Goma and Balabag. Brgy. Kapatagan is prone to landslides.</p> <p>53. Barangay LGU of Hagonoy stated that estimated 40 car accidents are caused by slippery road; and asked about the project's intervention on the issue.</p>	<p>beneficiaries and the population in need of road improvements. She also added that they aim to gather environmental profiles for each barangay to assess factors like flood susceptibility, steep slopes, or other hazards. This data is valuable for identifying beneficiaries from a social perspective.</p> <p>57. DPWH-UPMO reiterated that the project is still in the feasibility study stage. She also added the need for the barangays to submit incident reports in order to identify the areas along the main corridor that need improvements. She also added that it is up to the Congressman which areas he wants the project to be placed. The DPWH's duty is only to supervise the construction of these projects.</p> <p>58. GECI explained that due diligence follows WB ES standards. Selected barangays are along the main corridor road; and the LGU is responsible in relocation/ resettlement in coordination with DPWH and other relevant agencies.</p> <p>59. DPWH-UPMO and GECI explained that flooding and other factors are part of the due diligence and option analysis.</p> <p>60. DPWH-UPMO replied that that for now, the main corridor, is the main focus for Davao Oriental. She added that they will assess the needs for road access in the mentioned barangays in Digos and what they can do for the IP's community. Their assessment is DPWH-UPMO noted the issue and will be relayed to the office in charge.</p>

DATE	REGION, PROVINCE VENUE	OFFICES/ AGENCY	PARTICIPANTS		STAKEHOLDERS RECOMMENDATIONS	DPWH-UPMO RESPONSE
			Male	Female		
September 28, 2023	Region XII SOCSKSARGEN General Santos City City Hall of General Santos (2-4 pm)	DPWH- UPMO		5	<p>61. Representatives from the City Legislative Council stated that GenSan will not be affected by the project even if the main corridor starts with the city. But the city government is supportive of the project.</p> <p>62. Inquiries if the ROW is included, the estimated budget for the project and the environmental impacts.</p> <p>63. The local officials expressed concern that the proposed road will be one of the uncompleted road projects by DPWH.</p> <p>64. Concern on the lifespan of the project, and recurring road repairs despite concrete pavement with 20-30 years lifespan.</p> <p>65. Inquiries on the specific farm-to-market road that will be impacted by the project. LGUs lack the capability to maintain their roads and speculation on the criteria used for the inclusion to the project.</p> <p>66. Inquiries on the following:</p> <ul style="list-style-type: none"> i. Incorporating the effect of drainage system j. No mountain should be traversed k. Land use plan prohibitions l. Outline of Due Diligence m. WB funds FS or the construction also <p>67. Concerns on the uneven heights of median barriers and replacement of trees should include maintenance.</p> <p>68. Recommendation on the use of tunnel.</p>	<p>69. DPWH-UPMO replied that the loan/budget covers end to end of the main corridor road.</p> <p>70. DPWH-UPMO announced that ROW is included, due diligence is being done for the estimated budget and ECC will be secured.</p> <p>71. DPWH-UPMO responded that regular preventive maintenance and use of quarterly rating will be observed; that international consultants will be contracted.</p> <p>72. DPWH-UPMO responded that the lifespan of the concrete pavement is around 20 years.</p> <p>73. DPWH-UPMO clarified that local roads are under the mandates of DILG and not an oversight of DPWH.</p> <p>74. DPWH-UPMO and GECI clarified drainage system is also a concern on the project. that due diligence involves site observations, collection of information to evaluate potential of the project, ECC includes concerns on mountains areas, and WB loan covers implementation.</p> <p>75. DPWH-UPMO that median barriers and tree replacement will be observed in coordination with other agencies.</p>
		GECI	2	8		
		DPWH-RO and DEO	2			
		LGUs and other sectoral groups	11			
		MinDA	1			
September 29, 2023	Region XII SOCSKSARGEN Province of Sarangani City Hall of General Santos City (2-4pm)	DPWH- UPMO		5	<p>76. Barangay LGU official concerns on the compensation of affected families.</p> <p>77. Concern on the proposed Link Road 3, there no existing road that connects San Miguel and Datu Intan. Suggestion on the different route to connect Malungon to Sta.</p>	<p>80. DPWH-UPMO said that RA10752 will be followed for the compensation of affected families.</p> <p>81. DPWH-UPMO replied that due diligence and option analysis study is considered as an alternative. He also added that the Sta. Maria-Malungon Road.</p>
		GECI	2	8		
		DPWH-RO and DEO	1			
		LGUs and other sectoral groups	9	6		
		MinDA				

DATE	REGION, PROVINCE VENUE	OFFICES/ AGENCY	PARTICIPANTS		STAKEHOLDERS RECOMMENDATIONS	DPWH-UPMO RESPONSE
			Male	Female		
					<p>Maria.</p> <p>78. Concern about conducting multiple Feasibility Studies on the same section conducted by different consultants.</p> <p>79. One of the proposals could traverse the ancestral domain of the tribe Tagakaulo and is awaiting the issuance of the DENR for the Certification of Non- Overlapping.</p>	<p>82. GECl added that they are aware of the existing feasibility studies and these studies were used as a part of their review in conducting the Due Diligence and Options Analysis. If one of these feasibility studies is approved, funds from the World Bank will be secured.</p>

Minutes of Meeting: Public Consultation with Stakeholders under Mindanao Transport Connectivity Improvement Project

DATE, TIME AND PLACE OF THE MEETING:		26 SEPTEMBER 2023	9:00 A.M to 11:00 AM	PROVINCIAL CAPITOL, MISAMIS ORIENTAL
Attendees:				
	Lilibeth B. Rico	DPWH RMC II, UPMO	PM III	
	Evangeline Carabal	DPWH RMC II, UPMO	PM I	
	Olivia M. Baguio	DPWH RMC II, UPMO	PM I	
	Bryna Nolletth Lazaro	DPWH RMC II, UPMO	Engr.II	
	Rejan Mala	DPWH RMC II, UPMO	Engr.II	
	Armand A. Perez	GECI	a.perez@galerioenvi.com	
	Julia W. Echavez	GECI	j.echavez@galerioenvi.com	
	Oda S. Beltran	GECI	o.beltran@galerioenvi.com	
	Carmeli Marie C. Chaves	GECI	c.chaves@galerioenvi.com	
	Vanessa Pallarco	GECI	v.pallarco@galerioenvi.com	
	Leonila P. Galerio	GECI	gec@galerioenvi.com	
	Maricel D. Lloren	GECI	m.lloren@galerioenvi.com	
	Jecar Dela Cerna	GECI	j.delacerna@galerioenvi.com	
	Robeen John Gerodiaz	GECI	r.gerodiaz@galerioenvi.com	
	Agnes Cabanayan	GECI	a.cabanayan@galerioenvi.com	
Participants	John Vanie Lody	POO	0905-285-8909	
	Rene B. Guingguisa	PENRO	0912-706-4441	
	Ron R. Salva	PPDO - MISOR	0917-727-1303	
	Lordilie Enjambre	MINDA	0917-631-8048	
	Florante C. Jipus	PEO - MISOR	0927-552-3987	
NO.	SUBJECTS		STATUS/ ACTIONS	
1.	OPEN FORUM			
	Mr. Ron Salva explained that the Cagayan de Oro is highly urbanized, and the province of Misamis Oriental has no jurisdiction over Cagayan de Oro City.		Ms. Olivia Baguio from DPWH RMC II, UPMO replied that they have taken that into consideration and made note of it. Carmeli Chaves from GECI explained the importance of the infrastructure project in Misamis Oriental, emphasizing its significance for transportation. If the project extends to other provinces and barangays, such as Puerto, it can significantly impact the province of MisOr. She also mentioned that the farmers of Misamis Oriental can benefit from this proposed infrastructure in terms of impact. It can make it easier, faster, cheaper, and safer for them to transport agricultural products to the market and bring commodities to the inland areas.	
	Lordilie Enjambre asked for the project timeline		Ms. Olivia Baguio presented the timeline and mentioned that they are on a tight schedule. Vanessa Pallarco emphasized that this is a long-term development project that will benefit the communities.	

PHOTODOCUMENTATION



Registration
(September 26, 2023)





Singing of National Anthem
(September 26, 2023)



Presentation of the proposed project
(September 26, 2023)



Ron Salva informed that the province of MisOr is independent to Cagayan de Oro City.
(September 26, 2023)

DATE, TIME AND PLACE OF THE MEETING:	26 SEPTEMBER 2023	2:00 P.M. TO 4:00 PM	PPDO CONFERENCE ROOM, MALAYBALAY CITY, BUKIDNON
Attendees:			
	Lilibeth B. Rico	DPWH RMC II, UPMO	PM III
	Evangeline Carabal	DPWH RMC II, UPMO	PM I
	Olivia M. Baguio	DPWH RMC II, UPMO	PM I
	Bryna Nolleth Lazaro	DPWH RMC II, UPMO	Engr.II
	Rajan Mala	DPWH RMC II, UPMO	Engr.II
	Armand A. Perez	GECI	a.perez@galerioenvi.com
	Julia W. Echavez	GECI	j.echavez@galerioenvi.com
	Oda S. Beltran	GECI	o.beltran@galerioenvi.com
	Carmeli Marie C. Chaves	GECI	c.chaves@galerioenvi.com
	Vanessa Pallarco	GECI	v.pallarco@galerioenvi.com
	Leonila P. Galerio	GECI	gec@galerioenvi.com
	Maricel D. Lloren	GECI	m.lloren@galerioenvi.com
	Jecar I. Dela Cerna	GECI	j.delacerna@galerioenvi.com
	Robeen John Gerodiaz	GECI	r.gerodiaz@galerioenvi.com
	Agnes Cabanayan	GECI	a.cabanayan@galerioenvi.com
Participants	Rosemarie A. Paderanga	MEO - Kitaotao	0917-514-4907
	Flordelis C. Enriquez, CESE	DPWH Bukidnon 1st District	0917-718-4013
	Jan Paulo C. Lisondra	DPWH Bukidnon 1st District	0917-707-2996
	Sarah Jane B. Lacrama	DPWH Bukidnon 1st District	0917-203-5908
	Rowena S. Himarangan	J.O - Brgy. Casisang	0970-583-4352
	Lucille O. Turque	J.O - Brgy. Casisang	0905-101-0703
	Wennie S. Angit	MPDO - Kitaotao	0917-544-5260
	Joemar M. Sario	Brgy. Kagawad - Kalasungay	0916-300-3803
	Ma. Marryl B. Arango	J.O - Brgy. Diklum	0997-433-7457
	Albert B. de Mesa	Brgy. Captain - Kisolon	0917-634-0808
	Ronald E. Baslan	MENRO - Manolo Fortich	0945-028-1528
	Ronald John R. Cabilla	MEO - Manolo Fortich	0967-871-9141
	Eduardo E. Nezo	MPDO - Manolo Fortich	0965-611-4929
	Loreto T. Realda Jr.	Brgy. Captain - Bayabason	0935-747-9739
	Romaldo Abello Jr.	Brgy. Kagawad - Dologon	0917-599-1334
	Miguel G. Ceballos	Brgy. Captain - Dologon	0917-718-4593
	Kevin Loyd B. Carcueva	LGU Valencia	0917-873-3387
	Francisco D. Guinayna	LGU Impasug-ong	0917-149-4972
	Noel R. Rojas	Brgy. Captain - Kibenton	0926-104-6694
	Rodrigo O. Lumba	Brgy. Captain - San Jose	0912-960-9723
	Romeo V. Segarino	Brgy. Captain - Puntian	0909-228-4194
	Loreto T. Realda Jr.	Brgy. Captain - Bayabason	0935-747-9737
	Rizza O. Igcalinos	BS - San Jose	0946-847-5555
	Jomarie D. Cabisay	DPWH Bukidnon 2nd District	0995-709-6618
	Genevive R. Buyante	DPWH Bukidnon 2nd District	0917-708-4549
	Rosalinda R. Lopez	Brgy. Captain - Salawagan	0936-333-9005
	Epasmo Cesar A. Ramirez	Brgy. Captain - Alae	0967-570-3910
	Jose I. Ilair	MPDO - Quezon	0998-986-0531
	Floramae D. Penosa	Brgy. Captain - Darilig	0915-595-1772
	Ramir M. Linohon	Brgy. Captain - Maluko	0967-671-9435
	Rustan Dela Cerna	CEO - Malaybalay City	0917-889-1532
	Jesrel B. Mangubat	PPDO - Malaybalay City	0917-319-2637
	Mitchell Talatala	CMO - Malaybalay City	

NO.	SUBJECTS	STATUS/ ACTIONS
OPEN FORUM		
	Engr. Flordelis C. Enriquez requested the consideration of constructing two lanes along the Impasug-ong section and mentioned that they have proposed this twice for the Kitatao bridge, suggesting a box culvert.	Ms. Olivia Baguio from DPWH RMC II, UPMO, mentioned that it could be considered as a replacement. She also requested additional data from their office to support the study team
	Engr. Florante Jipus inquired about the project's Right of Way (ROW).	Ms. Olivia Baguio responded regarding the acquisition of Right-of- Way (ROW) as mandated by RA 10752, including the replacement of the affected structure. She also discuss the replacement cost and the current market value for land acquisition from financing institutions such as DBP and Land Bank.
	Ms. Lordilie Ejambre suggested the possibility of connecting the bridge from Dologon and brgy. She also recommended considering the potential for tourism development, particularly near the Pulangi bridge.	Ms.Olivia Baguio explained that this project focused solely on the main corridor. She also added that they will inform the DPWH district about these suggestions and assured everyone that road maintenance will continue. Ms. Lordilie Ejambre added that the area is a submerged road and impassable.
	Ms. Wennie S. Angit suggested constructing a new parallel bridge near Maloos area. They mentioned that the sharp curve design of the current bridge has caused harm and even death to residents and recommended the design improvement to prevent such events. Additionally, one of the primary challenges in the Kitaotao area is Right of Way (ROW), especially in accident-prone areas.	Ms.Olivia Baguio requested LGU Kitaotao to submit incident reports for documentation of incidents near the area. These reports will help consider the LGU Kitaotao's suggestions for road improvements and support future feasibility studies. She also mentioned that there is an expected loan by 2024 that could be used to conduct an engineering design study, taking road safety interventions and possible bridge construction into consideration.
	The presence of the Governor was acknowledged.	Ms. Olivia Baguio briefed the Governor Rogelio Roque on the topics covered prior to his arrival, including the Mindanao Transport Connectivity Project's conceptualization and its purpose of supporting the agricultural sector in Mindanao. Also, discussed road design improvements in accident- prone areas. additionally, Ms. Olive Baguio outlined target dates for initial steps in securing a loan from the World Bank.
	<p>Governor Roque shared his thoughts on the proposed project and asked if the construction of a new road is included in the Proposal.</p> <p>Governor Roque asked if the Sayre Highway would be improved into a six- lane road.</p> <p>Governor Roque expressed his concern about the DPWH's budget constraints for highway protection. He also inquired about how the LGU could assist in the project's implementation.</p> <p>Governor Roque suggested that most parts of the Sayre highway should have an island to avoid illegal U-turns of vehicles and improve movement along the highway. He also added that there should be an extra lane for U-turns, and asked about the planned expressway whether it will be continued or not.</p>	<p>Ms. Olivia Baguio replied that there is a proposed construction of a new road in Giginto.</p> <p>Ms. Olivia Baguio explained the project concepts as a long-term performance-based program with the goal of improving mobility and safety. She highlighted sections that have degraded and cannot be maintained due to budget constraints. With this project, these damaged sections will undergo rehabilitation, and contractors will be compensated based on their level of service.</p> <p>Ms. Lilibeth B. Rico, from DPWH RMC II, UPMO replied that in order to submit the Feasibility Study to NEDA, they need the provincial endorsement to conduct the said study. Through this, it will help the loan approval for the project to commence.</p> <p>Ms. Olivia Baguio replied that as of the moment, the project is still in the feasibility study phase. When the loan is secured next year, road design consultants will be procured, and another round of public consultations will be conducted.</p> <p>Ms. Olivia Baguio replied that a high standard highway will be constructed by JICA. She also added a brief route for the highway and made sure that no overlapping between the two projects will happen.</p>
	Jesrel B. Mangubat from PPDO Malaybalay stated that there will be a Provincial Development Council and Peace and Order joint meeting the next day and suggested that any representative from the DPWH or GECl should be present in the meeting.	Ms. Olivia Baguio stated that they will be attending the joint meeting between the PDC and Peace and Order department.
	Jose I. Ilair, MPDO from Quezon expressed his concern regarding the safety especially in the overview section due to its sharp turns and slope.	Engr. Armand Perez from GECl added that it is important for the LGU's to submit incident reports so that it will be taken into consideration in the design process. Through this, it will help the project facilitators to determine the exact black spots around the area.
	<p>Governor Roque also added the following points:</p> <ol style="list-style-type: none"> 1. If possible, a tunnel should be built. 2. Road design should be standardized. 3. Incident reports are not essential in the design process. 4. He stated that even with a properly drafted design, considering all design aspects, accidents still occur. 	<p>Ms. Olivia Baguio stated that it is still in the Feasibility Study phase and still awaiting for the loan. She also explained the details of the proposals. Furthermore, she mentioned that they are actively working on preventive measures to address the impact of climate change and protect these roads from degrading faster than expected.</p> <p>Flordelis C. Enriquez clarified why the loan will be first</p>



	5. He also emphasized that the government should enforce preventive measures to protect the roads to maximize the money spent on these projects.	secured before the engineering side of the project. She also mentioned the Governor's earlier suggestion earlier to construct tunnels and stated that there have been initial communications with JICA.
	PM Lilibeth B. Rico shared her final thoughts on the meeting and subsequently thanked the Governor for his insights.	

PHOTODOCUMENTATION	
	Presentation of the proposed project (September 26, 2023)
	Wennie S. Angit recommended the design improvement to prevent incidents. (September 26, 2023)
	Jose I. Ilair Expressed his concern regarding the safety. (September 26, 2023)
	Engr. Armand Perez requested the LGU's for secondary data of incidents of reports as part of a baseline for report writing. (September 26, 2023)



Governor Rogelio Neil Roque requested the endorsement to the Provincial Development Council (PDC)



(September 26, 2023)

DATE, TIME AND PLACE OF THE MEETING:	27 SEPTEMBER 2023	2:00 P.M. TO 4:00 PM	DPWH CONFERENCE ROOM, DAVAO CITY
Attendees:			
	Lilibeth B. Rico	DPWH RMC II, UPMO	PM III
	Evangeline Carabal	DPWH RMC II, UPMO	PM I
	Olivia M. Baguio	DPWH RMC II, UPMO	PM I
	Bryna Nolleth Lazaro	DPWH RMC II, UPMO	Engr.II
	Rejan Mala	DPWH RMC II, UPMO	Engr.II
	Armand A. Perez	GECI	a.perez@galerioenvi.com
	Julia W. Echavez	GECI	j.echavez@galerioenvi.com
	Oda S. Beltran	GECI	o.beltran@galerioenvi.com
	Carmeli Marie C. Chaves	GECI	c.chaves@galerioenvi.com
	Vanessa Pallarco	GECI	v.pallarco@galerioenvi.com
	Leonila P. Galerio	GECI	gec@galerioenvi.com
	Maricel D. Lloren	GECI	m.lloren@galerioenvi.com
	Jecar Dela Cerna	GECI	j.delacerna@galerioenvi.com
	Robeen John Gerodiaz	GECI	r.gerodiaz@galerioenvi.com
	Agnes Cabanayan	GECI	a.cabanayan@galerioenvi.com
Participants	Austria Cillich	CEC	
	Almario M. Monton		0949-363-2842
	Jordan Samantha		0905-441-9702
	Claudave Talungon	DPWH - DCDEO	0999-951-3784
	Jocelyn Magnave	DPWH - DCDEO	0932-497-2834
	Jonnel P. Mata	DPWH RO XI	0906-900-2818
	Richard A. Pagasa	DCDEO	0917-561-5890
	Lilibeth M. Sarmiento	DCDEO	0977-843-7030
	Edgar D. Al-ag	TORIL	0930-636-9210
	Edwin B. Fiel	BANTOL	0939-238-4756
	Allan P. Saimo-Ag	LIGA	0917335
	Ronnie John T. Riano	LIGA	0938-195-3388
	Elvielyn T. Westauno	CPDO	0943-140-3093
	Aileen S. Fudader	CPDO	0949-180-1290
	Ferdinand B. Dallo	DAVAO CITY 2nd DEO	0948-802-7134
	Crusil E. Guyot	CENRO	0942-079-7148
	Aicelavinia T. Monce	CENRO	0948-430-2911
	Jonary Salfoza P. Panggaga	CENRO	0948-199-6667
	Purificacion S. Sayko	MARILOG PROPER	0919-336-9967
	Leonardo Camelotes	CALINAN	0981-375-1944
	Jessielito C. Areja	MALABOG	0910-334-3974
	Christopher B. Asibal	CENRO	0998-535-3475
	Alberto L. Etorma	MALITA	0912-469-8220
	Melody S. Dagusok	CEO	
	Garry	SALOY	0909209471
	Leonardo Camelotes	CALINAN	0981-375-1944
	Jessielito C. Areja	MALABOG	0910-334-3974
	Christopher B. Asibal	CENRO	0998-535-3475
	Alberto L. Etorma	MALITA	0912-469-8220
	Melody S. Dagusok	CEO	
	Garry	SALOY	0909209471

NO.	SUBJECTS	STATUS/ ACTIONS
	OPEN FORUM	
	<p>Barangay Captain Jessielito C. Areja asks if there will be payment for the affected houses.</p> <p>Barangay Captain Jessielito C. Areja when we assisted the galerio, many sitios were affected and they needed to be moved because they were close to the cliff. I hope we can find out here so at least they can find a relocation area.</p> <p>Barangay Captain Jessielito C. Areja stated the majority of the identified roads have no development yet. We would like to know when we can know the final route of the project so that we can already inform the affected residents and we can assist them to look for another location.</p>	<p>Carmeli Marie C. Chaves - All structures affected directly will be compensated according to right of way sites and acquisition. She also added that they will assist and look for a location or some package to safeguard their rights to fair compensation to those entitled for resettlement.</p> <p>Lilibeth Rico - At least the stage is under feasibility studies. We have identified some technical option analysis. Here we are comparing what is the feasible road that everyone is considering.</p> <p>Joey Tulaylay - With regards to the acquisition (RA 10752) during the process we identify the right of way then we do finalization of right of way so we can account for those who are affected. It is part of the requirement in acquiring ECC.</p> <p>Lilibeth Rico - Also added that during the feasibility study, it was studied that the resettlement action plan has a preliminary route to determine the just compensation, including the cost in the project cost when we submit to NEDA. Although the right of way is paid by the Philippine government it is already part of the project cost when we submitted.</p>
	<p>CEO - Clarification with regards to the proposed road the whole stretch, do we have a drainage system established?</p> <p>Follow Up Question - Is the drainage system included in drainage right of way, is there a budget?</p>	Unknown - Complete Package
	Barangay Bantol Captain Edwin B. Fiel - Stated that they have different types of land ownership in their barangay, there is ancestral domain, alienable and disposable land and, they have CADT areas. He is asking what the ways are to be used for acquisition.	Unknown - The non-compensable land will not be paid, but the replacement of the structure will get paid. This includes the improvements, structure, and trees.
	<p>Barangay Saloy - Raised concern with regard to the land that can't be budgeted by the DPWH base from this previous experience.</p> <p>Barangay Bantol Captain Edwin B. Fiel - If we need to ask for a right of way for this project, we will ask for it. If not, we will not ask for the right of way.</p> <p>Follow up question - base in the design I saw is 6 to 7m wide.</p> <p>whatever we can do to implement the project we will do</p> <p>Yes, we have here the barangay profile.</p> <p>Barangay Captain Jessielito C. Areja - When can we know the final road/alignment?</p>	<p>Joey - Explaining the process of issuing permits to enter. stating that they should not issue permits to enter when the DPWH has not paid the affected owner. and so that the residents won't blame the barangay.</p> <p>Lilibeth Rico - The project needed is 20 meters.</p> <p>What we are talking about here is the national road standard, so the right of way acquisition here is 20m.</p> <p>Lilibeth Rico - Maybe sir that's all we'll ask you to allow our consultant to do a survey for feasibility studies.</p> <p>Carmeli Marie C. Chaves - Asking for barangay profile.</p> <p>Lilibeth Rico - We are in the process of identifying the road. That is why we need this information so we can include it for submission.</p> <p>Carmeli Marie C. Chaves - If we look at the timeline, the ICC submission is in November 2023 so we will know if it will be approved on April 18, 2024. As of now this is not the final alignment.</p>
	<p>Barangay Bantol Captain Edwin B. Fiel - How about the traverse alignment? Is this final?</p> <p>Follow up question - When will we know the final option?</p>	<p>Carmeli Marie C. Chaves - That is one of the options. We have Option 1, 2, and 3. Only DPWH can tell.</p> <p>Lilibeth Rico - We have criteria to follow.</p> <p>Carmeli Marie C. Chaves - We have criterias to follow. The criteria is the least adverse impact.</p> <p>Julia Echavez explains the criteria for the environmental side.</p> <p>For the environment, our criteria is the number of trees that will be affected. the water quality, the steep slopes, and the flood prone areas so that's the criteria for environmental.</p>
	Barangay Saloy - Asking for final alignment.	Arman A. Perez - We are still doing option analysis. We are still studying the areas that are not that affected by residents and crops. We are still coming up with options 1, 2, and 3 where it

		costs less. We will submit that to the world bank. when it comes back to us that will be the time, we will know the final alignment and we will show it to you and that will be the time we talk to you again.
	Suggestion - before you submit the final report. I suggest that you proceed to the barangay council so we can help. We can suggest areas that will not be greatly affected by this project.	Lilibeth Rico - This project is still being studied until we submit it to NEDA to comply with the requirements of economic internal rate of return, that's why we have criteria. So, after it is approved, it will be recommended by NEDA with the world bank to finance the project, then the detailed engineering design will be done to study what the actual arrangement will be.
	Barangay Malabog - Raised in sitio Cabonbon where there are a lot of residents in the area.	Lilibeth Rico - We will present you a map showing the existing road.

PHOTODOCUMENTATION		
	Invocation and National Anthem	(September 27, 2023)
	Presentation of the proposed project	(September 27, 2023)
	Jessielito C. Areja inquired about the final alignment of the project.	(September 27, 2023)

DATE, TIME AND PLACE OF THE MEETING:	27 SEPTEMBER 2023	9:00 A.M. TO 11:00 AM	PROVINCIAL CAPITOL OF DAVAO DEL NORTE
ATTENDEES:			
	Lilibeth B. Rico	DPWH RMC II, UPMO	PM III
	Evangeline Carabal	DPWH RMC II, UPMO	PM I
	Olivia M. Baguio	DPWH RMC II, UPMO	PM I
	Bryna Nolleth Lazaro	DPWH RMC II, UPMO	Engr.II
	Rejan Mala	DPWH RMC II, UPMO	Engr.II
	Armand A. Perez	GECI	a.perez@galerioenvi.com
	Julia W. Echavez	GECI	j.echavez@galerioenvi.com
	Oda S. Beltran	GECI	o.beltran@galerioenvi.com
	Carmeli Marie C. Chaves	GECI	c.chaves@galerioenvi.com
	Vanessa Pallarco	GECI	v.pallarco@galerioenvi.com
	Leonila P. Galerio	GECI	gec@galerioenvi.com
	Maricel D. Lloren	GECI	m.lloren@galerioenvi.com
	Jecar Dela Cerna	GECI	j.delacerna@galerioenvi.com
	Robeen John Gerodiaz	GECI	r.gerodiaz@galerioenvi.com
	Agnes Cabanayan	GECI	a.cabanayan@galerioenvi.com
Participants	Germa G. Navarro	BLGU	0985599681
	Anselmo Junio	PGO-DAVNOR	0956-054-6924
	Reynante Monares	PGO	0917-630-3940
	Tessie G. Ababon	PEO	0968-853-5468
	Jonar P. Francisco	PENRO - LGU	0921-617-2991
	Almario M. Monton	DPWH XI	0949-363-2842
	Samantha Jordan	DPWH XI	0905-441-9702
	Summaya Sukaino	DPWH XI	0906-422-7196
	Norhanifan Disuma	DPWH XI	0907-274-7827
	Hazel Zafrá	PLGU - PPDO	0925-500-4670
	Romcel Duro-on	PPDO Davao Del Norte	0933-323-4485
	Thalian A. Sarico	DPWH DDN	0998426996
	Dave A. Agron	DPWH - SUB - DEO	0927-395-2690
	Chirwen P. Nazarevo	DPWH - DDN	0921-683-9315
	Myrene D. Dumayongan	SK - Pandapan	0997-322-7036
	John Mark a. Lemosnero	SK - Pandapan	0953-209-2197
	Manolito D. Alcober		0948-146-6460
	Gemma C.	PPDO-DDN	0946-738-5923

	Montegrade		
	Jonnell P. Mata	DPWH RO XI	0906-900-2818
	Lito S. Sanani	Beunavista	0991-814-4857
	Joseph Raymund Sumusal	LGU Panabo	0917-310-8863
	Felix Jonases P. Sengaon	CPDO	0917-637-0912
	Eric R. Aduawan	CEO	0948-963-0444

NO.	SUBJECTS	STATUS/ ACTIONS
OPEN FORUM		
	Ms. Hazel Zafra from PPDO shared that project alignment was included in their provincial development plan of 2014. She also addressed the question of ongoing projects, both city and provincial, and shared that they have already conducted hazard assessments in the alignment area. They have identified major decision areas regarding hazards, and their sources for this information are the MGB and Phivolcs.	<p>Camille Chavez from GECI said that she's happy that davao del norte is updating their PDPFT.</p> <p>She also commented that they want to connect the urban areas where the markets are to make it safer, cheaper, and faster to bring their commodities to where they are supposed to be. However, she's eager to obtain the information that she shares on the ongoing projects from the LGU, Provinces, City and DPWH.</p>
	Tessie Ababon - shared that the alignment will pass through to the existing road.	Lilibeth Rico from UPMO said that they are also considering the connectivity of Panabo and Bunawan area.
	Joey from DPWH XI suggested that during the verification of the site, a section will be included detailing the condition of the road and its coverage. He emphasized the need for a sectional approach, reiterating the condition of the existing road must be taken into consideration.	<p>Armand Perez from GECI stated that this is part of the TOR of the world bank. He also added that some roads are under construction, that's the reason why they are in the process of option analysis.</p> <p>Julia Echavez added that the purpose of introducing the project is to provide essential details. While we cannot give you all the specifics at this moment, we and the other consultant are working on it. The GECI has been preparing the straight-line diagram indicating which sections have been completed and which ones are still ongoing. The goal is to simplify the project.</p> <p>Carmeli Chaves also added that this is just an introductory part of the project, and the DPWH will conduct another consultation with the consultant to present the final road alignment.</p> <p>Lilibeth Rico inserted that the end goal of this project is securing provincial endorsement which is one of the requirements of RDC and to secure the approval of NEDA.</p>
	Tessie Ababon from CPDO suggested considering social and environmental factors and inquired about the process of this study?	<p>Julia Echavez said that what they are doing right now is conforming to the requirements, and as part of the mandate from the world bank, we are required to prepare and submit the environmental and social framework.</p> <p>We are also in preparation to submit the ESIA (Environmental and Social Impact Assessment) and the environmental and social management plan of the project, right now we are here for data gathering.</p> <p>Carmeli Chaves expressed her satisfaction that the issue of safeguard has been raised, She noted that they haven't discussed the possibility of involuntary resettlement for this project, which is the primary concern. Currently, we've been assessing the potential impacts of the project, and one of these impacts is the voluntary resettlement, and according to the law those affected will be compensated or relocated.</p> <p>Carmeli Chaves mentioned that they have conducted initial estimates of the number of households for link road 2 but they are still in the process of confirming that information.</p>
	Tessie Ababon said that the DPWH is still not providing compensation for the affected project on	Carmeli Chaves said that there will be compensation of those affected households based on the current market value.

	<p>the local road.</p> <p>She inquired if the affected households will be relocated and compensated, so that the barangay Captain will inform them accordingly.</p>	<p>Julia Echavez clarified that for trees, it depends if it is a fruit bearing tree that will be subject for compensation, but if it is a natural growing tree that will be subject to DENR administrative order and replacement, the DPWH will implement this.</p> <p>Compensation will be provided for fauna.</p> <p>Lilibeth Rico said this is also part of the project cost acquisition, and emphasized that they will be using appraisal based on BIR or the Zonal value for the purpose of budgeting.</p> <p>Carmeli Chaves in addition this road is definitely longer than the threshold limit of 20km so more than 20km DPWH would apply for ECC for this link road.</p>
	Gemma Montegrande from PPDO emphasized the consideration of commodities such as crops within the area, to preserve the transported products.	Lilibeth Rico responded that one of the considerations is the farm-to-market road.
	One of the LGU Panabo participants suggested the improvement of the ecological setting because the trees will be affected, especially considering the forecasted of roads in different segments like Davao-Bukidnon road.	Julia Echavez responded that the engineering, social and environmental team is taking into account the ecological setting of the proposed project.
	<p>Felix Jonases Sengaon from CPDO informed that there is ongoing 4-lanes construction from brgy. Malativas to Consolation, as well as an ongoing 2-lanes bridge construction in Katipunan.</p> <p>Felix Jonases raised his concern that the landslides occurring in brgy. Cacao and Catipunan, The affected properties affected by this project.</p> <p>Felix Jonases requested the study team to conduct consultations with the City Government of Panabo.</p> <p>Felix Jonases raised the design problem of the road pavement will also be considered</p> <p>Felix Jonases consider the quarry industry, particularly the sand and gravel quarry, in the project planning</p>	Lilibeth Rico responded that they will consider the implementing office and the detailed engineer.
	Joseph Sumusal asking about the project cost and suggested not to limit the budget	
	Hazel Zafra suggested overseeing the project design, road safety.	Lilibeth Rico stated that the world bank will not limit the budget cost and also endorsed the GECI team to extend their assistance to them.

PHOTODOCUMENTATION

Welcoming of participants

(September 27, 2023)



Acknowledgement of participants

(September 27, 2023)



Presentation of the proposed project

(September 27, 2023)

	<p>Joseph Sumusal suggested not to limit the budget</p> <p>(September 27, 2023)</p>
	<p>Hazel Zafra suggested overseeing the project design, road safety.</p> <p>(September 27, 2023)</p>
	<p>Julie Echaves responded that the engineering, social, and environmental team is considering the ecological setting of the proposed project.</p> <p>(September 27, 2023)</p>

DATE, TIME AND PLACE OF THE MEETING:	28 SEPTEMBER 2023	9:00 A.M. TO 11:00 AM	DIGOS GYMNASIUM, DAVAO DEL SUR
ATTENDEES:			
	Lilibeth B. Rico	DPWH RMC II, UPMO	PM III
	Evangeline Carabal	DPWH RMC II, UPMO	PM I
	Olivia M. Baguio	DPWH RMC II, UPMO	PM I
	Bryna Nolleth Lazaro	DPWH RMC II, UPMO	Engr.II
	Rejan Mala	DPWH RMC II, UPMO	Engr.II
	Armand A. Perez	GECI	a.perez@galerioenvi.com
	Julia W. Echavez	GECI	j.echavez@galerioenvi.com
	Oda S. Beltran	GECI	o.beltran@galerioenvi.com
	Vanessa Pallarco	GECI	v.pallarco@galerioenvi.com
	Leonila P. Galerio	GECI	gec@galerioenvi.com
	Maricel D. Lloren	GECI	m.lloren@galerioenvi.com
	Jecar Dela Cerna	GECI	j.delacerna@galerioenvi.com
	Robeen John Gerodiaz	GECI	r.gerodiaz@galerioenvi.com
	Agnes Cabanayan	GECI	a.cabanayan@galerioenvi.com
Participants	Cris Trinidad	LGU - Admin	
	Joyce Buit	LGU - Guihing	
	Sommaya Sukarno	DPWH	
	Samantha Jordan	DPWH	
	Helen Nunez		
	Ellen Villegas		
	Marites Duramo	Brgy. Captain - Bato	
	Felimonito Villegas Jr.	LGU - Digos City	0907-209-4938
	Maximo Eltagonde	Brgy. Captain	0950-232-5469
	Alan Angub	LGU - Sta. Cruz	0907-381-3411
	Annalou Bongawan	LGU - Sta. Cruz	0920-339-7311
	El Mark Tayabas	PEO - Davao del Sur	0912-523-2926
	Ramel Morello	Brgy. Captain - Aplaya	0975-317-6273
	Ommi Kharzom Buat	MPDO	
	Flora Mae Dominice	MPPDC	
	Jocelyn Arellano	Brgy. Captain - Mabini	0919-785-7147
	Wilson Ayop	MEO	0919-098-9013
	Rebecca Ronda	MTO	0920-377-0048
	Rodeto Muda	Brgy. Captain - Malalag	0970-020-0212
	Concepcion Carlos	MSWD	0907-573-2448
	Noel Ferolino	LGU - Padada	0949-449-7408
	Imelda Rebuyon	PLGU - Davao del Sur	0921-692-6189

	Charles Abuda		0909-270-5603
	Dr. Raymond Cuba	BDONB	0928-507-4817
	Dyanne Grace Cabigas	IP	0946-446-0071
	Randy Villarta	Brgy. Captain - Balutakay	0960-878-5208
	Fritz Gerald Surposa	LGU - Leling	0909-656-0975
	Alfredo Dacuta Jr.	LGU - San Isidro	0951-248-7000
	Francisco Guerrero Jr.	LGU - Padada	
	Alexis Villejo	LGU	
	Bermie Banagbanag	MPDO	0948-721-2126
	Gina Chua	PPDO - Davao del Sur	0918-935-1402
	Leah Eborda	MEO	0909-931-5624
	Dennis Lasat III	MPDO	0907-094-1939
	Nilda Corro	Tribal Office	0912-759-9795
	Alma Dilag	LGU - Crossing	0948-996-2003
	Judith Reponte	KALIPI	0910-043-0455
	Maria Wilma Malait	Women Sector	0929-400-1782
	Willie Villegas	VMO - Sulop	
	Noel Alegre	MEO	0998-958-4829
	Emma Algabre	MSWDO	0923-028-1399
	Myrna Relano	LGU - Malalag	0910-467-0540
	Amelia Deguinon	MSDO	0950-115-8237
	Ronaldo Salvilla	MPDC	
	Lyssa Mae Cabaobao	OMAD	0968-881-2398
	Harvey Ryari Embuo		0938-386-6841
	Arnulfo Lantas	OCPDC	0910-555-8454
	Azucena Buquia	MEO	0939-998-8811

NO.	SUBJECTS	STATUS/ ACTIONS
OPEN FORUM		
	Mr. Noel Ferolino of LGU Padada stated that they need clarification on which road will be renovated. He asked whether it is the wide one or the highlands.	Ms. Olivia Baguio from DPWH RMC II, UPMO, explained that the World Bank's plan is to maintain a four-lane road to enhance mobility, which will be sustained for five years, covering a total of 428 km. She also highlighted that when traveling through the area from CDO-DAVAO-GENSAN, you can observe damage resulting from the effects of climate change. To address this, some areas will incorporate canals to mitigate the deteriorating performance of submerged rotors over time. Furthermore, Ms. Olivia Baguio mentioned that one of the structural interventions between Davao del Sur and Davao City is to improve mobility and design speed by overlaying asphalt on the existing roads
	Mayor Fransisco Guerrero Jr. from Padada LGU asked what structures will be placed in the municipality and to those towns that weren't mentioned.	Ms. Olivia Baguio explained that they are working on connecting farms to roads to provide easier access. She added that they are collaborating closely with MINDA and various LGUs to assess the needs of each town. Furthermore, she urged the mayors of these towns to provide the necessary data to identify problem areas in the region.
	<p>Ms. Olivia Baguio asked when the next PDC will be meeting</p> <p>Ms. Imelda Rebuyon from PLGU Davao del Sur requested Mr. Armand Perez to determine all the affected barangays of this project.</p> <p>Ms. Imelda Rebuyon asked about the connection between the incident reports and the needed repairs of these roads.</p>	<p>Ms. Imelda Rebuyon from PLGU Davao del Sur replied that the next PDC meeting will take place in October. She also added that there will be meetings with the Governors because they are still confused about which roads are directly affected.</p> <p>Mr. Armand Perez from GECI said that they have been in constant communication with various government offices in these areas to request incident reports to help them identify those affected areas.</p> <p>Ms. Julia Echavez from GECI replied that the reason for procuring incident reports is to determine the number of beneficiaries and the population in need of road improvements. She also added that they aim to gather environmental profiles for each barangay to assess factors like flood susceptibility, steep slopes, or other hazards. This data is valuable for identifying beneficiaries from a social perspective.</p> <p>Mr. Jerry David added that, at the moment, there are ongoing deviation lane barriers, and as part of safety measures, the installation of streetlights is being considered. Given that the project is still in its feasibility study phase, all of these concerns will be raised.</p> <p>Mr. Jerry David explained that the project is still in the feasibility study phase and is considering every aspect.</p>

<p>Ms. Imelda Rebuyon asked if bike lanes, streetlights and islands will be installed.</p> <p>Ms. Imelda Rebuyon stated that as early as now they are expecting to see clear improvements to be installed.</p> <p>Ms. Imelda Rebuyon asked about existing overpasses with less usage from the residents. She also asked if there were proper studies conducted on these overpasses.</p> <p>Ms. Imelda Rebuyon asked whether the road will be converted into an eight- lane road, if there will be bike lanes and streetlights installed, and if it will meet the super international standards. She also inquired if the road will only be maintained for five years.</p>	<p>Ms. Olivia Baguio reiterated that the project is still in the feasibility study stage. She also added the need for the barangays to submit incident reports in order to identify the areas along the main corridor that need improvements. She also added that it is up to the Congressman which areas he wants the project to be placed. The DPWH's duty is only to supervise the construction of these projects.</p> <p>Ms. Olivia Baguio explained that the goal is to standardize the maintenance of the roads. She added that, before the road is turned over to the district offices, which will be the eventual owners of the road, the project facilitators will first make sure that the maintenance of the newly rehabilitated road will be maintained in compliance with the standards set by the project coordinators. Ms. Olivia Baguio also stated that after the project concludes, the warranty period will take effect, and then the project will be handed over to the district offices.</p>
<p>A participant stated that they thought that the drainage system project included those in the barangay area and not just highways.</p>	<p>The question was addressed by Ms. Olivia, she stated that when it comes to the World Bank Project, if that lane connects to the main line that is consistently flooded, that'll be the time to necessitate the installation of drainage.</p> <p>Furthermore, it is also said that the decision for this depends on the study. Ms. Oda clarified that what they're doing is social analysis and the study in the area. They need to make sure in due diligence that the environmental and social standards of the World Bank were compiled. thus, he interior barangays included in this study and was classified into direct and indirect areas</p>
<p>Mr. Alan Angub raised this concern at this juncture, saying that why is it that in the area of Sta. Cruz only 3 barangays were included in the said project.</p> <p>Follow-up question from Mr. Alan Angub, stating that if the due diligence was really implemented and that it is the very example of non-communication inserting due diligence.</p> <p>Mr. Cris Trinidad asked about the relocation in Sta. Cruz.</p> <p>Has there been a study conducted to address potential flooding issues during construction or to minimize their impact?</p>	<p>Ma'am Oda S. Beltran from GECl answered the concern about why only three barangays were included. She explained that the selection was based on the study's results and the criteria provided by the World Bank, and it doesn't necessarily mean that only these three will be included.</p> <p>Ms. Oda then explained that due diligence is the discussion between the consultant and the bank. That's why it will follow the standard provided by the World Bank to really look at what the necessary things to do in this project.</p> <p>It was then answered that the person responsible for the relocation is in the LGU. They must communicate with the DPWH office.</p> <p>Ms. Oda clarified to Mr. Allan the role of the consultants. The study provided by the consultant through the gathered data would assist the LGU and other offices in preventing situations like this (potentially referring to flooding during construction). The consultants will analyze the data and recommend necessary actions. The study conducted by the consultants will also be valuable in securing loans from the bank. The project's objective is to classify which sections require 2 or 4 lane roads and identify the necessary interventions</p>
<p>Ms. Evangeline Carabal from DPWH raised her concern and suggested that, if possible, they should establish a standard for the structure or</p>	<p>The representative mentioned that this concern had already been noted in their previous meeting.</p>

	design of the cartrail.	
	Ms. Dyanne Grace Cabigas, a representative from IPs in Digos City, inquired about the projects planned for the city, specifically mentioning these three barangays: Brgy. Binaton, Brgy. Kapatagan, and Brgy. Goma, as well as Brgy. Balabag. She also highlighted that Brgy. Kapatagan is prone to landslides, which is one of their main problems."	Ms. Olivia Baguio answered that for now, their main corridor, as shown in the slides, is directed to Davao Oriental, and they have one project intended for Davao Oriental. She added that they will assess the needs for road access in the mentioned barangays in Digos and what they can do for the IP's community. Their assessment is currently focused on what's shown in the corridor, and later on, they will make recommendations to the locals.
	Randy Villarta, a Balutakay Barangay Captain, stated that in Hagonoy, they are suffering from a slippery road that has caused an estimated 40 car accidents. He asked about the intervention for this issue.	This concern has been noted and will be relayed to the office in charge.

PHOTODOCUMENTATION	
	<p>Invocation and National Anthem</p> <p>(September 28, 2023)</p>
	<p>Bryna Nolleth Lazaro acknowledged the participants</p> <p>(September 28, 2023)</p>
	<p>Presentation of the proposed project</p> <p>(September 28, 2023)</p>



Oda Beltran stated that they need to make sure in due diligence that the environmental and social standards of the World Bank were compiled.

(September 28, 2023)



Ms. Dyanne Grace Cabigas inquired about the projects planned within the Ancestral domain.

(September 28, 2023)

DATE, TIME AND PLACE OF THE MEETING:		28 SEPTEMBER 2023	2:00 P.M. TO 4:00 PM	CITY HALL OF GENERAL SANTOS CITY
ATTENDEES:				
	Lilibeth B. Rico	DPWH RMC II, UPMO	PM III	
	Evangeline Carabal	DPWH RMC II, UPMO	PM I	
	Olivia M. Baguio	DPWH RMC II, UPMO	PM I	
	Bryna Nolleth Lazaro	DPWH RMC II, UPMO	Engr.II	
	Rejan Mala	DPWH RMC II, UPMO	Engr.II	
	Armand A. Perez	GECI	a.perez@galerioenvi.com	
	Julia W. Echavez	GECI	j.echavez@galerioenvi.com	
	Oda S. Beltran	GECI	o.beltran@galerioenvi.com	
	Vanessa Pallarco	GECI	v.pallarco@galerioenvi.com	
	Leonila P. Galerio	GECI	gec@galerioenvi.com	
	Maricel D. Lloren	GECI	m.lloren@galerioenvi.com	
	Jecar Dela Cerna	GECI	j.delacerna@galerioenvi.com	
	Robeen John Gerodiaz	GECI	r.gerodiaz@galerioenvi.com	
	Agnes Cabanayan	GECI	a.cabanayan@galerioenvi.com	
	Participants	Wil Francis Magnabijon	CEO	0910-814-8454
Alvin Veneracion		CMO	0921-674-5410	
Jim Changco		CMO	0917-641-7459	
Dominador Lagare		City Councilor		
Reymando Clabi		Brgy. Captain - Dalwangan	0950-145-3992	
Reyna Jane Albutra		SPCCO - Lagare	0915-096-2130	
Margarita Jimena - Tuico		Yes We care	0928-746-7966	
Benjamin Garcia		Chamber	0917-530-6972	
Benny Claudio		Chamber	0917-634-1121	
Gina Villor		CPDO	0932-885-8322	
Ritchie Matutina		Brgy. Captain - City Heights	0948-933-5248	
Alikhan Bentaib		Brgy. Captain - Batomelon	0935-894-2397	
Josephine Jubakib		Wise	0975-502-9288	
Rose Ann Absin		Yes We Care	0919-788-7731	
Mary Joy Neri		GCCM	0933-603-0561	
Bernadeth Francisco		CPDO		
Allan Marcilla		City ENRO	0985-232-4011	
Wilijado Fuster Jr.		DPWH SCIST DEO	0975-747-1766	
Lei Angelous Bantilan		DPWH SCIST DEO	0956-175-8981	
Renato Buhat Jr.		MinDA - Amosan	0917-129-9527	
Raymond Elicano		SPCCO - Lagare	0930-792-6035	

NO.	SUBJECTS	STATUS/ ACTIONS
OPEN FORUM		
	<p>Ms. Olivia Baguio acknowledged the presence of City Councilor of General Santos City Mr. Dominador Lagare.</p> <p>City Councilor Dominador Lagare addressed that they will not be affected by the project although the main corridor is Cagayan, Davao and GenSan and asked if this particular loan will be up to Malungon only.</p> <p>The City Councilor Dominador Lagare said that on behalf of the city mayor they are fully supportive of this proposed project.</p>	Ms. Olivia Baguio replied that the loan will cover end to end.
	<p>Mr. Benny Claudio asked if ROW is still considered in the project.</p> <p>Mr. Claudio inquired about the estimated budget for the project.</p> <p>Mr. Claudio added about the environmental permit.</p>	<p>Ms. Olivia Baguio answered that once the loan/budget is secured, ROW is included in the budget.</p> <p>Ms. Olivia explained that they are still at the due diligence and option analysis.</p> <p>Environmental permits are the requirements of ICC and there must be an environmental report (ECC). As for ECC we are still gathering data.</p>
	Mr. Alvin Veneracion conveyed that there has been consistent road construction for the past 50 years, particularly in Sarangani and Davao del Sur. He expressed concerns that the proposed Davao-Gensan project may join the list of uncompleted road projects.	<p>Ms. Olivia Baguio stated that the organization conducts regular preventive maintenance and uses a quarterly rating system. In the event of difficulties, they have access to international consultants who can recommend appropriate measures. These consultants work under contracts spanning 5-7 years, with designated 2-year periods for handling rehabilitation-related matters.</p> <p>The evaluations occur on a quarterly basis, as the PCCP preparation process is measured in square meters. Upon completing maintenance on one section, they will proceed to the next.</p>
	<p>Mr. Veneracion added that following a road construction project on one side, another construction commenced, resulting in a series of ongoing road developments. However, these roads fail to offer the intended convenience, thus defeating their purpose.</p> <p>Mr. Chairman asked the lifespan of a concrete pavement</p> <p>Mr. Chairman expressed concern regarding the recurring road construction repairs despite a concrete pavement's 20-year lifespan. He questioned whether contractors are held accountable or if corruption plays a role in this issue.</p>	Ms. Olivia Baguio responded that the lifespan of a concrete pavement is around 20 years
	Mr. Chairman inquired about the specific farm-to-market road in General Santos that would be	Mr. Rejan Mala clarified that the project as a whole is from Cagayan to Gensan. In Gensan, part of the topic is the upgrading,

	<p>impacted by the proposed project. Based on the objectives of providing and enabling more efficient movement of agricultural products from hinterlands to market.</p> <p>Mr. Chairman added about local government units (LGUs) that lack the capability to maintain their local roads, and questioned the criteria for these roads to be considered for inclusion by the Department of Public Works and Highways (DPWH).</p> <p>Ms. Bernadeth conveyed that they will coordinate with DPWH and DA regarding farm-to-market roads.</p>	<p>maintenance and rehabilitation of existing roads. Farm-to-market roads are not under DPWH's mandate but fall under the Department of Agriculture budget.</p> <p>Ms. Olivia Baguio explained that local roads are under the mandates of DILG. DPWH can't overstep in other areas because they have their own budget unless recommended by other agencies. Ms. Baguio further explained the process of assigning DPWH to handle the local roads.</p>
	<p>Ms. Bernadeth Francisco recommended incorporating the effects on the drainage system into the analysis and noted that the diversion route (Davao- Gensan) possesses certain restrictions due to its terrain, preventing conversion for alternative purposes.</p> <p>Mr. Chairman commented that the road to Davao supposedly Kiblawan and not Baluyan, no mountains will be traversed.</p>	<p>Ms. Olivia Baguio responded that they are here for inputs and in the process of gathering data.</p> <p>Ms. Olivia Baguio indicated that the matter would be given due consideration.</p>
	<p>Mr. Lei Angelous Bantilan asked regarding the land use plan, certain areas will be prohibited as part of the environment. What will be the definite outline of the Due Diligence and Option Analysis?</p> <p>We expect further consultations regarding those projects?</p> <p>The World Bank funding the feasibility study only or the construction also?</p> <p>Mr. Lei Angelous Bantilan shared that foreign funded projects are longer lasting and use different approaches when it comes to construction.</p> <p>Ms. Bernadeth added input that in the feasibility study should consider the light, drainage, and median barrier in the design.</p> <p>Mr. Alvin Veneracion continues on the concern of median barrier and its design to be added to the study.</p> <p>Mr. Chairman adds to the concern that median barriers that have been set down in Davao del Sur and Koronadal City are too high in comparison to the median barriers in Upper Sinawal Bridge up</p>	<p>Ms. Julia Echavez elaborated on the necessity of due diligence, which includes site reconnaissance and information collection to evaluate potential improvements for various tasks. The engineering team is composed of geologists, road safety specialists, hydrology experts, and additional professionals who closely monitor the primary corridors and assess various alternatives for the link roads.</p> <p>Ms. Echavez responded that they are at the feasibility study stage to view options to consider for the link roads and to outlook for improvements and upgrades for the main corridors. This is for the introduction of the study and will be updated as the study proceeds.</p> <p>The World Bank is set to finance the construction project. Following the completion of the feasibility study, various stages must be taken into account within the established timeline, ensuring that both international consultants and foreign contractors are engaged.</p> <p>Ms. Olivia Baguio emphasized that the current phase is focused on a feasibility study. The design process will involve consultations, and the employment of international consultants along with the adherence to international standards will be ensured.</p> <p>Ms. Baguio explained that at this point of time the study is gathering data for the options injected in the Due Diligence and Option Analysis. Local Government Units will be consulted.</p> <p>Ms. Baguio responded that regional office and district office have their own area of responsibility</p>

	to Airport.	
	<p>Mr. Allan Marcilla was concerned about the trees affected by the project and proposed to do an inventory on the number of trees affected and include the funding of tree replacement in the costing of the project.</p> <p>Mr. Allan Marcilla added that in the environment plan of the project sequestration should be incorporated.</p>	<p>Ms. Olivia Baguio explained that they have an appeal in the department. The replacement is part of the contract of the contractor in the case of the internationally funded projects.</p> <p>It is part of the terms of reference, and we have experts. In terms of tree replacement to be cut, DPWH has a policy and joint agreement with the DENR.</p> <p>Ms. Baguio stated that they are not mandated by their budget. We have agreements with other agencies that we don't go beyond us. mandate. We have MoA with</p>
	<p>Mr. Chairman commented that on the contract of the contractor the budget of replacement for trees should include the budget for maintenance.</p> <p>Mr. Allan Marcilla stated that CENRO submitted documents but there is no budget yet.</p> <p>Mr. Chairman's additional concern is the maintenance of the island in the center of the roads.</p> <p>Mr. Chairman suggested that with the use of the technology to construct a water line for the maintenance.</p>	<p>CENRO. We paid for the seedlings as well as the nurturing with the help of CENRO's identified organizations.</p> <p>As a government agency we are also working on a bigger budget.</p> <p>Ms. Baguio explained that the upkeep of the island is not under the mandates of the DPWH. The maintenance for the island has no budget.</p>
	Mr. Renato Buhat concerns public safety particularly the size of the signages and the streetlights during construction.	Mr. Rejan Mala stated that they will discuss this with the construction team to the implementation of the concern.
	Mr. Chairman asked based on the project objective it started from hinterlands. Is it possible to include the farm-to-market road in the world bank project?	Ms. Olivia Baguio explained that it's not only the DPWH, but the world bank has also funded local projects but they have processes to follow and only 3 projects qualified.
	<p>City Councilor Dominador Lagare asked why we can't utilize tunnels and what is the engineering problem.</p> <p>City Councilor Dominador Lagare in addition asks if there are any protected sites that have presidential proclamation in the main corridors.</p> <p>City Councilor Dominador Lagare reiterated good points in the meeting and shared that the City Government of General Santos is supportive of the project and thanked the participants of the meeting.</p>	<p>Mr. Rejan Mala explained that the construction for a tunnel is costly.</p> <p>Ms. Olivia Baguio stated that there are no protected areas in Gensan that can be affected by the proposed project.</p> <p>Ms. Baguio further explained the process of handling the documents in case that there are protected areas affected.</p>

	<p>Ms. Olivia Baguio asked for any additional concerns, particularly incident reports for the intervention of road safety measures.</p> <p>Mr. Armand Perez of GEI requested records from the City of General Santos City on accident reports or road accidents in the previous five years to utilize the data for the improvement of implementing road safety measures.</p>	<p>City Councilor Dominador Lagare responded that the City's PNP - Traffic Enforcement Unit holds the statistical data for the monthly accident report. And will have a MTRB meeting along with PNP-TEU for the concern.</p>
2.	Adjournment	
	<p>Ms. Lilibeth B. Rico for her departing message thanked the mayor and all the participants for their insights on the project.</p>	

PHOTODOCUMENTATION	
	Registration September 28, 2023)
	Invocation and National Anthem (September 28, 2023)
	Acknowledgement of participants (September 28, 2023)





Dominador Lagare said that on behalf of the city mayor they are fully supportive of this proposed project.

(September 28, 2023)



Lei Angelous Bantilana asking about the definite outline of the Due Diligence and Option Analysis?

(September 28, 2023)

DATE, TIME AND PLACE OF THE MEETING:	29 SEPTEMBER 2023	9:00 AM TO 11:00 AM	ALABEL, PROVINCE SARAGANI
Attendees:			
	Lilibeth B. Rico	DPWH RMC II, UPMO	PM III
	Evangeline Carabal	DPWH RMC II, UPMO	PM I
	Olivia M. Baguio	DPWH RMC II, UPMO	PM I
	Bryna Nolleth Lazaro	DPWH RMC II, UPMO	Engr.II
	Rejan Mala	DPWH RMC II, UPMO	Engr.II
	Armand A. Perez	GECI	a.perez@galerioenvi.com
	Julia W. Echavez	GECI	j.echavez@galerioenvi.com
	Oda S. Beltran	GECI	o.beltran@galerioenvi.com
	Vanessa Pallarco	GECI	v.pallarco@galerioenvi.com
	Leonila P. Galerio	GECI	gec@galerioenvi.com
	Maricel D. Lloren	GECI	m.lloren@galerioenvi.com
	Jecar Dela Cerna	GECI	j.delacerna@galerioenvi.com
	Robeen John Gerodiaz	GECI	r.gerodiaz@galerioenvi.com
	Agnes N. Cabanayan	GECI	a.cabanayan@galerioenvi.com
Participants	Reuben G. Salazar	DPWH - SDEO	0905-553-0924
	Caryl Joy D. Forro	PENRO – LGU/Alabel	0998-190-7991
	Renato A. Buhat, Jr.	MinDA – AMO SCm	0917-129-9527
	Elmer C. Jingco	PEO	0995-633-6305
	Divine Grace Sumaira T. Fernandez	PLGU	0927-559-4205
	Nenita Sitier	PPDO	0917-498-1043
	Arnold F. Santos	PPDO	
	Joji Eunice C. Lasalita	PPDO	0908-896-6047
	Edwin Aballe	Barangay Captain - San Miguel	0930-221-8388
	Cesar C. Fernando	IPMR	
	Romeo T. Moda	IPMR - San Miguel	09109644703
	Annie Lorraine Jorillo	Brgy. Treasurer - Poblacion Malungon	0981-086-9669
	Arman U. Guili	SP	0939-350-8814
	Richard E. Saranillo	MPDO	0917-628-5451
	Norma P. Adia	BLGU	0909-646-9398
	Shiela S. Manocay	BLGU	0966-924-5279
	Ahasuerus Keen A. Pacheco	MPDO	0970-804-2987
	Mark Anthony Zagales	MEO	0970-188-6000



NO.	SUBJECTS	STATUS/ ACTIONS
Open forum		
	Nenita Sitier of PPDO mentioned the upcoming Provincial Development Council (PDC) – Sectoral presentation in October 2023. In line with the aforesaid event, she asked for the copy of the presentation to be endorsed and submitted to the PDC secretariat to be included in the agenda.	PM Olivia Baguio responded that her team would provide a copy of the presentation. Furthermore, DPWH will wait for the invitation for the PDC – Sectoral presentation.
	Edwin Aballe, Brgy. Captain of Brgy. San Miguel, Malungon, raised the concern on the affected structures. He was particularly concerned on how to explain the compensation to the public. Caryl Joy D. Forro of PENRO informed the participants that Galerio Environmental Consultancy Inc. is in-charge of the Feasibility Study and data collection for Due Diligence and Options Analysis.	PM Olivia Baguio referred to RA 10752 otherwise known as An Act Facilitating the Acquisition of Right-Of-Way Site or Location for National Government Infrastructure Projects as a reference for the compensation. She iterated that in foreign-assisted projects, there are additional costs (e.g., transportation) with the government compensating them. As the project is still in its first phase, they are only required to provide the estimated cost of the project. On the Detailed Engineering Design, LGUs will be involved.
	Richard E. Saranillo of MPDO requested a recap of the presentation as they arrived late due to other prior commitments.	PM Olivia Baguio recapitulated the whole presentation.
	Mr. Arman U. Guili commented that the road, as presented, from San Miguel to Datu Intan is not an existing road and can only be traversed through motorcycles and horses. He asked for clarification where the road connected to the Sta. Maria Road will traverse. Mr. Arman also suggested a different route traversing five barangays which allegedly benefits more farmers. Mr. Arman Guili also pointed out various routes and which barangays could benefit most but he emphasized the road from San Roque traversing barangay Upper Lumapat to San Juan wherein these 3 barangays produce most of the agricultural products particularly coconuts, banana and cacao and pointed out that in one of these barangays, a cacao processing plant was constructed but was stopped due to difficult road access.	Ms. Olivia Baguio took note of Mr. Guili's suggestions and explained that the feasibility studies are not limited to only one option. Mr. Armand Perez from GEI affirmed Mr. Guili's sentiments regarding the difficult conditions of the road from San Miguel to Datu Intan. Mr. Armand informed Mr. Guili that there are three proposals being prepared to be presented to NEDA. Ms. Olivia Baguio added that if the procurement of the loan is done, international consultants will be hired. Ms. Olivia Baguio thanked Mr. Arman Guili's inputs and assured him that they will look closely into his suggestions.
	Engr. Mark Anthony Zagales, Municipal Engineer from Malungon, commented on the conduction of the feasibility studies.	Ms. Olivia Baguio stated that her team together with the World Bank, went to the Sta. Maria area but they were only able to go to the passable sections in Malungon area.
	Will there only be revisions of the Feasibility Studies? Mr. Zagales also suggested that the most feasible route for them is the San Miguel - Datu Intan road.	Ms. Olivia Baguio stated that a feasibility study offers different alternatives, and it aims to give options to the project facilitators. She also added that there will be more consultations in the future. Ms. Olivia Baguio thanked Mr. Zagales for his input. She explained that the project is still in its first phase and is still awaiting future funding from the World Bank. Once the loan is secured, and the approval from NEDA, the department will hire international consultants to aid the detailed design process. In addition, a representative from MinDA stated that there are five FS and one was recommended. The due diligence and option analysis study is considered as an alternative. He also added that the Sta. Maria-Malungon Road is part of the areas identified by the NTF- ELCAC.
	Mr. Arman U. Guili asked if the funding presented will	A representative from MinDA replied that all of the proposals connecting to the main corridor can be

	prioritize the proposed national road.	proposed to the board. He also asked the PLGU if they have any proposal that does not connect the two roads.
	Mr. Guili asked where the proposed road traverses. He also suggested a different route which, according to his own opinion, is easier to connect to the main corridor. He also expressed his concern to the IP people near the area because according to him it comprises 80-85% of residents from the Tribo Tagakaulo. In addition, he also noted that from junction Malungon traversing Upper Mainit to San Miguel connecting Brgy. Kawayan are also provincial roads and every year, funds are allocated for concreting. He finished his statement by leaving it up to the hands of the project facilitators whether or not they will follow their suggestions.	A representative from MinDA thanked Mr. Guili for his recommendations and stated that they encourage more input from the locals as it is the main goal of the public consultation.
	Mr. Richard E. Saranillo, MPDO, expressed his gratitude towards the Governor's prioritization of the proposal. Mr. Saranillo also noted that there is misinformation regarding a Malungon to Sta. Maria road. The truth is the study is still on-going and has not yet been approved by the World Bank.	A MinDA representative clarified that certain sections of the road already have initial fundings.
	Mr. Elmer Jingco expressed his concern about conducting multiple Feasibility Studies on the same section conducted by different consultants. He suggested to exempt the area with existing FS and focus on other scope of the project to save funds.	Ms. Olivia Baguio clarified that the consultants' job is to create Due Diligence and Options Analysis, which means that they will not start from scratch but rather provide possible recommendations. Mr. Armand Perez explained that they are hired by the World Bank to conduct due diligence which means that they will recommend which proposal costs less but gives premium benefits to its beneficiaries. He added that despite the fact that there are existing feasibility studies around the area, it will be compiled and determine which proposals will give the most benefits at a lower cost. Ms. Julia Echavez from GECI added that they are aware of the existing feasibility studies and these studies were used as a part of their review in conducting the Due Diligence and Options Analysis. If one of these feasibility studies is approved, funds from the World Bank will be secured. Ms. Olivia Baguio set a target date for the approval of the loan which is by April 2024. Mr. Armand Perez urged the LGU's to provide precise and detailed data to identify the black spots that need rehabilitation as it is one of the requirements from the World Bank Ms. Vanessa Pallarco from GECI added that the existing FS can be used as a reference as a part of the desk review. At the same time as part of the added feature of the ESF from the world bank, the interventions should adhere with the World Bank's "do no harm" principle which looks into the relationships between the community.
	Mr. Arman Guili added that one of the proposals could traverse the ancestral domain of the tribe Tagakaulo and is awaiting the issuance of the DENR for the Certification of Non-Overlapping. He also appealed to the team to consider his earlier proposal.	Ms. Olivia Baguio thanked Mr. Arman and assured that they will be working with various government agencies.
2.	Other Matters	

	Miss Bryna Nolleth Lazaro from DPWH RMC II, UPMO informed everyone that the meeting will be cut short as they will still travel to Malita.	
--	--	--

PHOTODOCUMENTATION	
	Registration (September 29, 2023)
	Acknowledgement of participants (September 29, 2023)
	Presentation of the proposed project (September 29, 2023)

	<p>Edwin Aballe expressed concern about the structures that were affected. He particularly worried about how to communicate the compensation plan to the public.</p> <p>(September 29, 2023)</p>
	<p>Richard E. Saranillo expressed his appreciation for the Governor's support and prioritization of the proposal.</p> <p>(September 29, 2023)</p>
	<p>Arman Guili questioned the proposed road's path and suggested an easier alternative. He expressed concern for the Tagakaulo tribe, an Indigenous People (IP) living in the area, who make up 80-85% of residents.</p>

DATE, TIME AND PLACE OF THE MEETING:	29 SEPTEMBER 2023	2:00 P.M. TO 4:00 PM	MALITA, OCCIDENTAL DAVAO
Attendees:			
	Lilibeth B. Rico	DPWH RMC II, UPMO	PM III
	Evangeline Carabal	DPWH RMC II, UPMO	PM I
	Olivia M. Baguio	DPWH RMC II, UPMO	PM I
	Bryna Nolletth Lazaro	DPWH RMC II, UPMO	Engr.II
	Rejan Mala	DPWH RMC II, UPMO	Engr.II
	Armand A. Perez	GECI	a.perez@galerioenvi.com
	Julia W. Echavez	GECI	j.echavez@galerioenvi.com
	Oda S. Beltran	GECI	o.beltran@galerioenvi.com
	Vanessa Pallarco	GECI	v.pallarco@galerioenvi.com
	Leonila P. Galerio	GECI	gec@galerioenvi.com
	Maricel D. Lloren	GECI	m.lloren@galerioenvi.com
	Jecar Dela Cerna	GECI	j.delacerna@galerioenvi.com
	Robeen John Gerodiaz	GECI	r.gerodiaz@galerioenvi.com
	Agnes N. Cabanayan	GECI	a.cabanayan@galerioenvi.com
Participants	Janice T. Otorodos	Brgy. Sec - Demoloc	0935-186-2585
	Jerry P. Matanggo	Brgy. Kagawad - Demoloc	
	Alberto Baliota III	Brgy. Chairman - Demoloc	0966-421-3746
	Frederick F. Fajardo	PPDO	0917-301-9584
	Jovie Ann B. Ortigas	PEO	
	Victoria U. Yu	Brgy. Captain - Pongpong	
	Cesar T. Calzada, Jr.	Brgy. Captain - Poblacion	0912-609-8616
	Mariano G. Panorio	Brgy. Captain - San Isidro	0912-519-3297
	Anthony B. Guindulan	Brgy. Captain - Datu Intan	0930-786-7121
	Rogelio A. Mamulawan	Brgy. Kagawad - San Antonio	
	Benjie E. Sandigan	DPWH – DEO	0917-322-6001
	Rey G. Mejares	DPWH	0910-983-9968
	Madelyn C. Birondo	PENRO – LGU	0921-272-1387
	Rey Marlone B. Dela Cruz	BLGU - Malita	0953-320-3124

NO.	SUBJECTS	STATUS/ ACTIONS
OPEN FORUM		
	Ms. Olivia Baguio inquired about PPDO on when the next Provincial Development Council will be held.	Mr. Frederick Fajardo of PPDO responded that the next PDC will be in October, although no specified date yet.
	Mr. Rey Mejares of DPWH - District informed that there is an existing road project and explained the details of the project.	Ms. Olivia Baguio shows appreciation for the information given.
	Mr. Frederick Fajardo asked about the involvement and influence of government agencies such as PENRO in the road project handling, the road right of way and the affected households.	Ms. Olivia Baguio explained that the hired consultants are in charge of the feasibility study and gather this sort of data for Due Diligence and Optional Analysis to deliberate by MinDA for submission. The involvement of government agencies is to provide data that can contribute to the study. Mr. Anthony Guindulan, the Barangay Captain of Datu Intan, shared his community's experience with flooding and landslides.
	Mr. Joey from DPWH District, asked the barangay captains of the affected barangays if they had encountered issues like floods or landslides.	Mr. Joey assured Captain Guidalan that his input will be considered.
	Mr. Jerry Matanggo from Brgy. Demoloc had an additional query regarding whether there is compensation for the cutting of trees, including coconut.	Ms. Olivia Baguio clarified that there is an existing law in place to compensate for the cutting of trees and houses affected by the project. Additionally, she noted that the Philippine Coconut Authority is responsible for covering the cost associated with compensating coconut trees.
	Alberto Baliota from Brgy. Demoloc asked about the project's effects on their community.	Ms. Olivia Baguio mentioned that the inclusion of Barangay Demoloc is considered as an alternative option in the project. Additionally, she stated that there are currently five existing alternative options under review, in line with the Due Diligence and Optional Analysis. Mr. Armand Perez from GECI clarified that the inclusion of brgy. Demoloc in the study was based on DPWH data. He further explained that if a section of a barangay was affected to a certain extent, it is considered as being involved in the study.
	Alberto Baliota added there is an existing road project from Demoloc to Malungon, but it has been interrupted due to conflicts related to boundaries.	PM Olivia Baguio affirmed that the provided inputs would be considered in the decision-making process.
	Mr. Benjie Sandigan of DPWH-DEO referred to Indigenous Peoples' Rights Act of 1997 as a reference in the concern that the National Commission on Indigenous Peoples should be informed on account of Ancestral Domain in order to invite IPs during consultation.	PM Olivia Baguio stated that NCIP is one of our partners. Ms. Oda Beltran of GECI reported that they have conducted assessments from Poblacion to Sta. Maria to Barangay San Antonio. Additionally, she mentioned that in Sarangani, a member of the Sangguniang Panlalawigan informed them that they have resolved the ancestral domain issue in San Miguel.
	Ms. Beltran asked the BLGUs about the status of CADT (Certificate of Ancestral Domain Title), considering that 90% of the population in the five barangays of Sta. Maria belongs to the Tagakaulo community. She also noted that based on their observations, the road is situated on top of a	Mr. Anthony Guindulan stated that most of the population there belongs to the Tagakaulo community, and there are no Ancestral domain issues. He also mentioned that the community relies on experts for road construction due to their limited knowledge in that field.

	mountain.	
	Mr. Joey requested DPWH on the alignment of the road construction.	Mr. Benjie Sandigan from DPWH clarified that the original road alignment is unsafe for travel due to a section in Brgy. Pongpong before Sitio Lumbia, where it is not feasible to construct two lanes, especially during heavy rains, as it is susceptible to landslides.
	Ms. Maricel Lloren from GECI clarified the direction of the mentioned routes, and	Mr. Sandigan recommended exploring Barangay Kidadan as a potential rerouting option while maintaining the same exit route. He presented two suggested routes: A route before the landslide-prone area that leads downward into a section of Barangay Kidadan and then exits to Barangay Lumbia. An alternative route that enters the main portion of Barangay Kidadan and proposes the construction of a bridge.
	Ms. Oda Beltran requested the DPWH to assist GECI for review of the suggested routes	
	A representative of Barangay Affairs Santa Maria inquired about the involvement of the Local Government Unit in the Project.	Ms. Olivia Baguio responded that the Local Government Units (LGUs) play a role in providing assistance for security purposes, contributing to the Comprehensive Land Use Plan (CLUP), and involving residents in providing input for the design of the proposed project The representative added with regards to the CLUPs that it is not finalized because it is only the first term of the new administration.
	Alberto Baliota inquired whether brgy. Demoloc could be included in Phase 2 of the project.	Ms. Olivia Baguio replied that MinDA will decide to finalize the project.
2.	ADJOURNMENT	
	Ms. Lilibeth B. Rico expressed her gratitude to the guest and all participants for sharing their valuable insights on the project in her departing message.	

PHOTODOCUMENTATION	
	Invocation and National Anthem (September 29, 2023)
	
	Mr. Rey Mejares informed about an existing road project and elaborated on its specifics. (September 29, 2023)



Mr. Anthony Guindulan.] shared his community's experience with flooding and landslides.

(September 29, 2023)



Mr. Sandigan suggested considering Barangay Kidadan as a possible alternative route while keeping the same exit route intact.

(September 29, 2023)



Oda Beltran requested the DPWH to provide assistance to GEI in reviewing the suggested route.

(September 29, 2023)

Annex 21. Documentation of Key Informant Interview (KII), October 16 and 19, 2023**Location:** H4ID | Camp Evangelista, Brgy. Patag, Cagayan Davao de Oro City**Date and Time:** October 16, 2023 / 2:45 PM to 4:15 PM**ATTENDEES: (10)**

1. Gen. Jose Maria A. Cuerpo
2. Col. Albert C. Flores
3. LTC Michael S. Benyan
4. LTC Reynaldo Goce
5. Kol Ted B. Dumosmog
6. Vanessa Pallarco
7. Carmeli Marie C. Chaves
8. Maricel Lloren
9. Jecar Dela Cerna
10. Marjanesse Armillaz

Vanessa Pallarco

- Asked Gen. Cuerpo for his insight on the road project including the pipelines.

Jose Maria A. Cuerpo

- Thought the project was good, and his team who were in the meeting agreed.
- Suggested to consider the IP's insights, Right of way issue (ROW), FPIC, and CADT
- Mobile Community Support and Sustainment Team (MCSST)
- Suggested checking with the PNP for additional details on the city's crimes. To PNP Gen. Layog(?)
- Cagayan de Oro cities is considered safe.
- TIKAS DPWH - Tatag ng Imprastruktura para sa Kapayapaan at Seguridad" (TIKAS) program

Carmeli Marie Chaves

- Do you think this project will contribute to peacebuilding?

Jose Maria A. Cuerpo

- Yes, there's a low rate for ambush cases etc. in Claveria
- NPA names: Peddler, SPLC
- On going roads: Agusan del Norte, Lapas, San Luis, St. peter, Malaybalay
- Kabanglasang laak, cut road

Carmeli Marie Chaves

- Only main highway, including safety

Jose Maria A. Cuerpo

- so far, Link Road areas are okay, safe

Ted B. Dumosmog

- ROW problem in the Main Corridor

Jose Maria A. Cuerpo

- no problem with NPA

Vanessa Pallarco: CMO

- Normal highway standard
- BDP – Brgy. Development Program
- Challenges; failed bid, not aligned to brgy., long process

Jose Maria A. Cuerpo

- Agricultural landowners' problem if their land is within the project line.
- Solution to agricultural problems suggested by Gen. Cuerpo:
 - Present how this project simplifies the market compared to the conventional methods
 - The DPWH offers landowners
 - The Right of Way should only be considered as a last resort, as pursuing this option could exacerbate the issue and prove unhelpful

Jose Maria A. Cuerpo

- Suggest to tenure map
- DPWH should conduct a detailed survey
- When DPWH conducts a consultation, it should include social cost and how it would affect the IP community.
- The coverage of Civil Military Operation includes Region 10 and Caraga

Carmeli Marie Chaves

- Peace and security is a long-time problem; do you think there's still hope?

Jose Maria A. Cuerpo

- Yes, reaching out to them is crucial. In their isolated state, providing accurate information is vital to prevent them from being easily influenced by potentially harmful ideologies, such as communism.
- According to Cuerpo, Indigenous Peoples (IPs) value this type of project because it makes them feel acknowledged by the government. They sense that the government is attentive to their needs and concerns, fostering a sense of inclusion and consideration.
- Before, Indigenous Peoples (IPs) felt abandoned as the government provided insufficient support in their area
- Environmental risk assessment is also considered when undertaking projects like this.
- The DPWH planned a road designed for long-term access, climate resilience, and safety

- Cuerpo mentioned that the slope in Bukidnon is possibly 40 degrees, making it challenging and unsafe.

Carmeli Marie Chaves

- Emphasized that a crucial aspect of this due diligence project is the safety of the residents.

Ted B. Dumosmog

- Recommended solutions for road-related issues, such as road crashes, emphasizes the significance of proper signage
- It was also stated that road building always comes with a proper drainage system

Vanessa Pallarco

- How is peace security in CDO?

Jose Maria A. Cuerpo

- It is good and safe

All:

- They also mentioned that road projects are highly welcomed.

Ted B. Dumosmog

- Also recommended opening new roads, possibly connecting Malaybalay and Talaka, Magpit to Davao from Kidapawan

Photo Documentation



Jose Maria A. Cuerpo recommended taking into account the insights of Indigenous Peoples (IPs), addressing the Right of Way (ROW), obtaining Free, Prior, and Informed Consent (FPIC), and respecting Certificate of Ancestral Domain Title (CADT)



Carmeli Marie Chaves emphasized: Resident safety is a vital aspect of a due diligence project.

ATTENDANCE SHEET

Project : MTCIP - DDOA
Activity : Key Informant Interview
City/Mun. : Cagayan de Oro City/ Misamis Oriental
Date : October 16, 2023

NAME	AGE	GENDER			CONTACT NUMBER	EMAIL ADDRESS	SIGNATURE
		MALE	FEMALE	LGBT			
1. COL TED B DUMOSMOG	53	✓			09176046001	teddummo91@yahoo.com	
2. LTC RENEAL RUMAL GOCE	47	✓			09176207477	cardinalrey-99@yahoo.com	
3. LTC MICHAEL REY S. PENYAN	47	✓			0917-573-6684	reyspenyan@gmail.com	
4. COL ALBERT C. FLORES	51	✓			0917 309 2996	jetstey97@yahoo.com	
5. MAJOR JOSE MARIA R. CUERPO	55	✓			0917-077-9990		
6.							
7.							
8.							
9.							
10.							
11.							
12.							
13.							
14.							
15.							

Location: Eastern Mindanao Command, Davao City, Davao del Sur

Date and Time: October 19, 2023 / 3:00 PM to 4:15 PM

ATTENDEES: (6)

1. LT Gel Diaz PN
2. Col Monfort PA
3. LTC Ezra Balagtey
4. Vanessa Pallarco
5. Maricel Lloren
6. Jecar Dela Cerna

Gel Diaz

- Is there a possible impact on biodiversity?

Vanessa Pallarco

- Environmental safeguard
- Implement project for peace

Ezra Balagtey

- concern about capitalist

Monfort

- Mitigating shareholder resistance
- Soften the resistance by hiring people to do labor
- Inquiring about environmental and social standards

Vanessa Pallarco

- discussed the parameters, environmental factors, and consideration
- gender component (teenage pregnancy, labor)
- political timeline
- local political dynamics (road rehabilitation)

Monfort

- The main urgency is addressing poverty
- areas of partnership and cooperation for implementation

Vanessa Pallarco

- Asking about how to contribute to ELCAC efforts?

Monfort

- piso sign at the end

- economic benefit

Vanessa Pallarco

- Asking about high risk areas?

Ezra Balagtey

- urgency free
- The drivers of conflict are still there
- concretize the peace gain
- drivers of conflict in Bukidnon (Land issue)
- burning of heavy equipment like backhoe in Impasug-ong
- Issue in Sumilao, Bukidnon

Monfort

- There are some risk from local police, mayors, Indigenous people (IPs)
- We are your partner during implementation
- avoiding some issues
- hiring locals to guard and monitor the equipment

Vanessa Pallarco

- conflict induce dynamics?

Ezra Balagtey

- FPIC one of the developments of ancestral domain
- National heritage (burial site)
- resource utilization mapping
- mapping of ancestral domain

Monfort

- asking for the coordinates of the alignment

Gel Diaz

- inquiring about the availability or specification for soil and gravel

Monfort

- asking about the total length of the project

Ezra Balagtey

- Suggested that laborers will come from local community
- labor is part of security
- security sensitivity

Vanessa Pallarco

- White and red areas?

Ezra Balagtey

- Bukidnon - still in the process of clearing
- Davao City - clear
- Malungon - clear

Gel Diaz: suggested and raised her concerns about the following:

1. Design - Technological Innovation that can last 50 to 100 years
2. Solar light
3. Road Waste
4. Solid Waste Management
5. Climate change resilience - buying of resilience index software
6. Particles from car wheels that may affect marine biodiversity

Photo Documentation

Vanessa Pallarco presented the proposed project to the participants.

ATTENDANCE SHEET

Project : MTCIP - DDOA
Activity : Key Informant Interview
City/Mun. : Davao City
Date : 10/19/23

	NAME	ADDRESS	SECTORAL REPRESENTATIVE						SIGNATURE
			Women	Youth	Senior Citizen	Indigenous People	Business Sector	Peace & Security	
1.	LT GEN B DUE PN	DAVAO CITY	/					/	
2.	CON MONFORT PA							/	
3.	ATZ BERA BARA								
4.									
5.									
6.									
7.									
8.									
9.									
10.									
11.									
12.									
13.									
14.									
15.									



Annex 22. Documentation of Focus Group Discussions (FGDs), October 17, 18, and 20, 2023**Location:** CPDO Conference Room, Cagayan, Davao de Oro City, Misamis Oriental**Date and Time:** October 17, 2023 / 9:00 AM to 11:00 AM**Attendees:** (Please see attendance sheet)**Q1: What are your current experiences with using the [name of main corridor segment and/or link road] in your area? (how often, how long, for what purpose the road is used)**

Jeo M. Vaterio M. Vaterio (City Planning Development Office): The road is smooth and fast, except in Puerto where it's always crowded. The planned road improvement doesn't seem to solve the issue because the chosen exit is very congested. I wonder why they picked that route; some people use balabal road for faster travel.

Jocelyn M. Salcedo M. Salcedo (Women and Senior Representative): Same concern with Sir Joe; they usually take the Balabal route instead of the congested Puerto route.

Jeo M. Vaterio M. Vaterio: There is also a similar project with yours. Does the railway plan affect the highway? Malaybalay road is also very populated causing traffic

Carmeli Chaves (GECI): There is an overlapping of project

Carmeli Chaves: What is your evaluation of this project? Do you find it helpful?

Carmeli Chaves: How do you assess this project? Do you think it will help you as a resident of CDO?

Simonette F. Sagaral (ORO-TIPC): From the investment office one of their concerns is the logistics. Way back 2017, the port is undergoing expansion and it's crucial because it is not just about the congested port but also the traffic experienced when transporting goods. That's why it is important for them to consider the logistic side and facilitate the transport of goods. The port is large but not adequate.

John Asuwan (CEO): I'm familiar with the area because I used to own a farm in Libona. Initially, I took this road because it was closer in terms of distance. However, since 2014-2015, I've been using the back road despite its rough condition for two reasons: first, it takes only about 45 minutes to travel, and second, it's much safer, reducing the risk of accidents. So, my reaction to this is that:

- It's advisable for different groups working in similar projects to collaborate and share their roadmaps to prevent conflict and overlapping efforts.
- I echoed Monette's point about agricultural business. In the agricultural sector, it's crucial to identify the destination for goods. For instance, corn from Bukidnon has been a trade staple for two decades, with mills improving in brgy. Alae area.
- Traditionally, trading and vegetable transportation occur in Puntod and Bulua, respectively, directing transportation through Puerto, which is much farther away, and doesn't make sense. Why not make new roads that could shorten travel time, and that's one of the reasons why we have coastal roads, to decongest the traffic in

Puerto, bypassing is a better option. I suggest holding a meeting with other groups working on different projects to improve project implementation.

Carmeli Chaves: Agrees with the suggestion and opinion of Sir John

John Asuwan: If we can just cut down the travel time it'll be efficient. Those are the things we need to consider.

Carmeli Chaves: Who developed the mentioned shortcut road and coastal road? John

Asuwan: DPWH

Simonette F. Sagaral: Infrastructure is not only the answer to congested roads. There is also a group that supports telecommuting, shortening the work week. There are many ways to address the issue, not just active transport.

Carmeli Chaves: That's right, telecommuting could also be a way to address congested roads. DPWH's solution is to have 4-way roads. Think also of the logistic system.

Liza: same with Sir John

Jeo M. Vaterio (CPDO): What is the timeframe of this project? When will this be implemented?

Oda Beltran (GECI): if this project is approved by NEDA and other related offices, maybe by 2024.

Carmeli Chaves: In addition to your concerns; road crashes, congestion etc. what other challenges have you experienced in this road project?

John Asuwan: Some trucks passing in the Talakad area are prone to natural disasters like floods. However, if the road is widened, it becomes an advantage, especially for those transporting goods. I suggest considering additional bypasses in some areas here in Cagayan.

Carmeli Chaves: good point, consider roads and highways that's not just Puerto John Asuwan: The biggest challenge is the area in the northern part of the town Carmeli Chaves: We will have to ask the City Planning

Q2: What are your hopes and expectations for the project? In addition to what you've mentioned.

Isidro G. Reyes G. Reyes (ON-TIPS)

- One of the problems is the result of statistics, 60% of the population is in the urban area and 40% in rural areas.
- There are cases of immigration.

Carmeli Chaves: Improving the main corridor and openings of roads can encourage immigrants to the city. The objective is to link the agricultural communities and bring their product closer to the market. There will be a possibility that the people will migrate to where their livelihood is.

Isidro G. Reyes: People in the agricultural area will no longer go to the City to buy or sell products.

Jeo M. Vaterio: The DPWH created a tourist spot along the road, providing travelers with a

view to appreciate. It serves as a rest stop, allowing them to take a break and relax after a long drive. However, numerous business owners or commercial establishments, such as coffee shops, have their stalls there. If this road project is implemented and includes a stopover for travelers, it's possible that additional establishments may emerge in the area.

Carmeli Chaves: Yes, however, it could pose an environmental problem. We wouldn't want to introduce something that might harm the area, as there's a chance it could negatively impact the environment.

Isidro G. Reyes: In the 1980s, DENR discouraged the construction of highways in forest lands due to the potential negative environmental impact. However, over time, they recognized the potential advantages. People might be attracted to live there, and having it designated as a national highway could offer protection through increased monitoring. Moreover, the highway could act as a buffer against grass and forest fires, a recurring challenge faced by DENR every year.

Carmeli Chaves: Would like to ask if the areas along Puerto and Sayre highway frequently experience floods?

Isidro G. Reyes: the lower part of the said area.

Carmeli Chaves: Is there a problem in relation to earthquakes? Isidro

G. Reyes: none

Carmeli Chaves: How about peace and order issue in this area? Between what group?

Isidro G. Reyes: Actually, CDO has 11-14 barangays covered by ELCAC

Carmeli Chaves: You think this project will improve access to education, health care and other services?

Simonette F. Sagaral: From our POV, the DPWH is not the only office studying the area of Cagayan.

Isidro G. Reyes: At one point, CDO's participation rate reached 120%, prompting curiosity about why it exceeded 100%. Upon analysis, it was discovered that students from Tagoloan and various nearby areas were coming to Cagayan for education.

Q3: Are there any other concerns aside about the project from what was mentioned?

Isidro G. Reyes: Some DPWH project areas are a flood and landslide prone area; I suggest conducting a thorough geologic study to avoid this type of problem

Carmeli Chaves: therefore, FS should include detailed geologic studies

Simonette F. Sagaral: First consideration is water

Carmeli Chaves: indeed, if we plan an urban development, we do not only consider the land but also water. Most specially here in CDO where it is susceptible in flooding and our drainage system needs to be upgraded.

Isidro G. Reyes: Usually, their only 10% available drainage system where in fact the DPWH standard must be 30%.

Carmeli Chaves: Will inform DPWH about this

Oda Beltran: In relation to Q2, how's the situation of the IP communities in Puerto? What is their current location or status? Are they resettled?

Isidro G. Reyes: usually compensation. Though, this is not a concern for DPWH but the LGU's

Simonette F. Sagaral: there should be city urban planning and CHUD should be here for this to ask their POV

Isidro G. Reyes: Involuntary Resettlement

Carmeli Chaves: what is your response to that? Is there a program from the LGU that deals with that?

Jocelyn M. Salcedo: yes, we could refer that to CHUD

Isidro G. Reyes: in the housing back log way back year 2013, they counted the effect of the project to the community. The problem is they don't have enough mechanism to prevent immigrants.

Carmeli Chaves: Yes, there is none because according to our Constitution we have the freedom of domicile. We have no border control.

Carmeli Chaves: is Right of Way acquisition part of the issue?

Isidro G. Reyes: yes. offers rental housing

Jeo M. Vaterio: the ROW problem does not only affect the residents. There are cases where they experience utility problem in which the project was done but the equipment used stays in the area which causes trouble.

Carmeli Chaves: why?

Jeo M. Vaterio: lack of utility provider

Carmeli Chaves: so, what do you suggest addressing this issue? Jeo

M. Vaterio: there should be a coordination meeting.

Isidro G. Reyes: no budget for relocating. There is also a problem with tree cutting.

Jeo M. Vaterio: in addition to tree cutting issue, the implementation of DPWH for this is by segment. Suggests DPWH to apply permit of cutting trees by whole not only by section.

Carmeli Chaves: Your feedback is well noted Isidro

G. Reyes: actions too late to be addressed. Vanesa

Pallarco (GECI): additional question

Carmeli Chaves: Vanesa Pallarco is our conflict specialist

Vanesa Pallarco: ask about community health and safety, if they have felt/seen the long-term contribution to peace and development implemented in Cagayan de Oro? Do you think the project contributes to this?

Isidro G. Reyes: yes, social services

Oda Beltran: contractor hires outside worker. In your past experiences, is there no issues from your offices on hiring outside construction worker or are there policies for that?

Jeo M. Vaterio: Usually, LGU would like them to hire workers inside the community and provide

training programs. There are only 30% skilled workers. Security concerns.

Vanesa Pallarco: Do you have a grievance mechanism for labor practices for example the outside laborers have been involved in abuse to someone from the community?

Isidro G. Reyes: that should be part of project monitoring.

Carmeli Chaves: In addition, the port of CDO is a major port and this project involves port-to-port from CDO to Gensan. I've heard many trafficking issues, and the port is one of the hot spots. In direct impact there might be cases where the port will be used not only for crops and goods but also children or women. We have mentioned cases about immigrants, it may not be just from Cagayan de Oro, do you think there's a place for worries? Is there a program from LGUs to prevent human trafficking issues?

Jocelyn M. Salcedo: Yes, we have. Though it is not actually a program but a council for the protection of children and VAWC.

Carmeli Chaves: How about the monitoring of ports?

Jocelyn M. Salcedo: City police

John Asuwan: about peace and order, there are two things to look at (1) rebelde, (2) organized crime groups. If there is better infrastructure, there would be a chance that these would leave the area.

Jocelyn M. Salcedo: agrees to the statement of Mr. John Asuwan and added; incident like hold ups, ambush etc. may occur because they could easily use the roads.

Carmeli Chaves: it'll now become a police problem.

John Asuwan: to the access roads, somehow there should be a control unit and must respond quickly.

Carmeli Chaves: army and police should be involved here.

Isidro G. Reyes: comments on Puerto, it is congested. Why not consider Alala to Libona

Q4: What are your suggestions on how the road improvement project can be implemented to address these concerns, manage risks, or mitigate possible adverse effects?

Simonette F. Sagaral Upgrade Lane in Puerto. Is there an impact in master planning?

Jeo M. Vateria: none because the DPWH gave their alignment too late.

Carmeli Chaves: is there transport plan in Cagayan?

Isidro G. Reyes: there is but not really for network plan, the transport masterplan focusses on the transport.

Carmeli Chaves: ask for a copy Isidro

G. Reyes: not for disclosure

Isidro G. Reyes: Must have streetlights.

Oda Beltran: We will take note of this and coordinate to other project

Isidro G. Reyes: Addition, CDO lacks many things including perfect plan, they must improve.

Why not consider linking to Talakag area?

Carmeli Chaves: may we ask for the opinion of the representative of CHUDD about the existing housing program?

Oliver Torres (CHUDD): District 1 housing with 16 hectares but only 10 hectares are built. There is also project in relation to NHA, a condo type building has 960(?) units.

Carmeli Chaves: still not enough for everyone right? So, what's the plan of your office?

Oliver Torres Mayor's current mandate is the (CMP) Community Mortgage Program because it is one of the projects that is achievable and won't take too much time to finish.

Carmeli Chaves: how is the Local Shelter Plan?

Oliver Torres the project was stopped, it supposed to have 8 pilot barangays; Carmen, Macasandig, Gusa etc. The objective of this plan is to have the barangays look for possible land and the city will help in implementing it by facilitating.

Oda Beltran: concerns about the ISF, where are they now?

Oliver Torres: no update, the last update done by CHUDD was profiling only.

Q5: How would you and your community like to be involved in the planning, design, and implementation of the road improvement project? Would you like to be involved?

Rogelio Cortola (Brgy. Puerto Representative): Concerns on where the affected areas be relocated, for in DPWH's they'll be compensated but not relocated. Also, if they'll relocate what will happen to their livelihood?

Carmeli Chaves: no ROW

Oliver Torres: ISF concern, urban renewal, no cost of land accusation and no displacement.

Simonette F. Sagaral suggests the involvement of business communities.

GECl: already part of the evaluation.

Jeo M. Vaterio: lessen/avoid curvy roads.

Isidro G. Reyes: consider tunnel project, reduce tree cutting

Photo Documentation:

Oda Beltran discussed the proposed study of Mindanao Transport Connectivity Improvement Project (MTCIP)



Jeo M. Vaterio is inquiring about the project's timeline and its implementation date.



Oliver Torres provided information about a collaborative project with the National Housing Authority (NHA).

ATTENDANCE SHEET

Project : MTCIP - DDOA
Activity : Focus Group Discussion
City/Mun. : Cayan de Oro City/ Misamis Oriental
Date : October 17, 2023

NAME	ADDRESS	SECTORAL REPRESENTATIVE							SIGNATURE
		Women	Youth	Senior Citizen	Indigenous People	Business Sector	Peace & Security		
1. UZA MARJORIE ROSE M. NOVA	Cagayan de Oro City								
2. Julius Anggemay	Cagayan de Oro City	✓		✓					
3. Jocelyn M. Salcedo	Cagayan de Oro	✓		—					
4. Hanin Lagunday	Cagayan de Oro			—					
5. Joni Asundad	CDO								
6. Oda S. Beltran				✓					
7. Carmeli Chares	Galerio ECI	✓							
8. Vanessa Palencia	GECI								
9. Jero M. Valerio	CPDO								
10. SIMONETTE F. SAGARAL	ORA-TIRC	✓							
11. ISIDRO G. PIRLEY	OP-TIRC								
12. Monica Uson	GECI								
13. MARJANESSE ARMILLO	GECI - OST								
14. ROGELIO W. CORONADO	Puerto								
15. FORRES, OLIVER GREGORY	CIUDD								

REGISTRATION FORM

Project : MTCIP - DDOA
 Activity : Focus Group Discussion
 City/Mun. : Cayan de Oro City/ Misamis Oriental
 Date : October 17, 2023

	NAME	AGE	GENDER			CONTACT NUMBER	EMAIL ADDRESS	SIGNATURE
			MALE	FEMALE	LGBT			
1.	Liza MARJORIE POSE M. NUNAL	45		✓		09157646799	lizamontilla@gmail.com	Jms
2.	Julius Anggromay	28	✓			09050383421	reignjebarek34@gmail.com	Jr
3.	Jocelyn M. Sakedo	40		✓		09952010826	jomensakedo3@gmail.com	Jm/J. Sakedo
4.	Hanin Laguinabab	26	✓			0995-254-0789	hlaguinabab17@gmail.com	Hanin
5.	John Aguas	49	✓			09177919090	JOHNWKS@GMAIL.COM	John
6.	Oda S. Beltran	64		✓		09994209123	edaskbeltran@gmail.com	Eda
7.	Carmeli Chaves	54		✓		09177944273	c.chaves@univim.com	C. Chaves
8.	Vanessa Armas	37		✓		09178237310	vanessaarman@gmail.com	Vanessa
9.	Jeo M. Valeris	50	✓			09999939776	valeriojeo@gmail.com	Jeo
10.	SIMONE F. SAGARA	51		✓		09551531630	sfsagara@gmail.com	Sf
11.	ISILUS G. PROLEK					0917506311		Isilus
12.	Maricel Vaton	74		✓		0917050372		Maricel
13.	MARJANESSE PRIMILLA	22		✓		09950311219		Marjanesse
14.	Agela M. COROSIO	73				0971770012		Agela
15.	TORRES, OLIVER GREGORY	76	✓			0906701700	torresoliviagregory@gmail.com	Oliver

Location: Tourism Hall, Municipality of Impasug-ong, Province of

Bukidnon Date and Time: October 18, 2023 / 9:00 AM to 11:00 AM

Attendees: (Please see consent form and attendance sheet)

Q1: What are your current experiences with using the [name of main corridor segment and/or link road] in your area? (how often, how long, for what purpose the road is used) What are the biggest challenges you face as a road user? (e.g., access, road conditions, road safety, conflict, transport cost, personal conditions)

Oda Beltran Beltran (GECl): In relation to what I've said about the road improvement project, would anyone like to share your insights?

Florentino Minggi (Senior Citizen): Inquiring if the hired workers from the proposed project will be coming from the local residents of the affected barangays?

Oda Beltran Beltran: Based on the guidelines from DPWH and LGUs, the preference is to hire locals; however, not all positions may be filled by local residents. This is because there might not be qualified individuals (skilled workers) within the community for certain roles, such as the project engineer etc.

Estrella Torres (Senior Representative): Raise her concern of the affected houses and buildings, and asked what this project will do?

Oda Beltran

- They'd be compensated and relocated if they wanted to. That depends on the decision between the owner and the office responsible.
- Are there any other barangays that might be included in the project?

Frederick S. Nacaytuna (IP Representative): Transporting of goods will be easy and convenient from the airport to the port. However, once the road is developed, I think one potential issue could be that some drivers might take advantage of the roads, driving carelessly and fast without considering the other travelers.

Jingle (LGU Impasug-ong):

- In my experience, traveling from Brgy. Kapitan Bayong to Cawayan is difficult due to rough roads, the difficulty of students going to school, and emergency cases that may arise due to heavy rains, leading to slippery roads.
- The trucks from big companies also contribute to road damage due to the goods that they transport.

Josefino Manalo (Brgy. Captain - Cawayan): The advantage of having 4 lanes is to reduce travel time, such as from Bukidnon to the airport

Florentino Minggi: big companies use this road. I suggest inviting them to share their perspectives since they significantly benefit from it.

Oda Beltran: Is there also a separate action or coordination for this concern, sir?

Marilou Nacaytuna (Women representative): There are no signs or railings, which could lead to accidents. There is also a need to widen the road.

Cristita Navarro (Business Sector): The road is particularly inconvenient for us since I run a small business as a fish vendor. Transporting raw products is always challenging due to the road conditions, sometimes resulting in minor accidents that can damage our goods.

Oda Beltran: How about the senior citizens? Do you have any comments or suggestions?

Nario Suldahan (IP Sector): I recommend reducing the curves as they can contribute to road accidents. Drivers have to slow down while navigating the curves, affecting traffic flow. Curves often became hotspots of accidents.

Oda Beltran: That concern will be raised with the road planner.

Estrella Torres:

- One of our dilemmas is travel delay, and I suggested road repairs to address this problem
- There is no proper sign for senior citizen crossing the street
- Having 4-6 lanes would enhance road capacity, easier transportation especially for business owners who need to reach the market early.

Carmeli Marie C. Chaves (GECI): Are there enough pedestrians? All:

yes, the problem is the drivers.

Estrella Torres: Speed limit should be implemented. No signage for seniors

Q2: What are your hopes and expectations for the project? What are the specific needs of your community that the road improvement project can address? How do you think the road improvement project will impact:

- your income, livelihood or occupation?
- access to education, healthcare, or other essential services?
- housing and land tenure?
- social interactions?
- community health and safety?
- conflict situation?

Oda Beltran: Any recommendation of the project and wideness of the road

Attendee: One of the attendee's suggested of installation of overpass Jingle:

Allocation and compensation for affected structures or houses.

Frederick S. Nacaytuna:

- Most likely around 30 meters wide. Also, if there's road construction, I suggest reducing the curve formations.
- Curved road suggestions namely: Impasug ong, Sayawan, Malaging, Buntongon, Banduan.

Josefino Manalo: Recommend solar street lights on highways for the safety of the riders.

Teodocia Escobio (Senior Citizen):

- Classification of lanes for vehicles and a separate lane for motorcycles should be implemented
- There should be ordinance from the Municipality for reckless driver and seminars for motorist

Oda Beltran: Noted. How about housing and land tenure?

All: Raise their concern for relocation site of affected household

Carmeli Marie C. Chaves: Where are crops transported?

All: Davao, Gensan, and CDO

Carmeli Marie C. Chaves: How long does it take to get to the market? All:

Approximately 3 hours from Impasugong to Bulua.

Florentino Minggi: I recommend creating a shortcut from farm-to-market road

Carmeli Marie C. Chaves: Do you have the resettlement area?

Teodocia Escobio: The LGU housing is on-going

Carmeli Marie C. Chaves: DPWH will coordinate the LGU of impasug-ong

Q3 & Q4: Carmeli Marie C. Chaves: Suggestions for road improvements?

Josefino Manalo: Some residents have vacant lots at the back of their houses. If they are affected by road construction, they may consider moving their house to the vacant lot.

Carmeli Marie C. Chaves: What is the total percentage of poverty in Barangay Kawayan?

Josefino Manalo: The poverty rate in Barangay Kawayan is 1% only. although this figure may vary based on the criteria used to define poverty.

Carmeli Marie C. Chaves: how about the case for involuntary resettlement? Ideally the resettlement area should be here in impasug-ong area, right?

All: yes

Carmeli Marie C. Chaves: What are your suggestions?

Frederick S. Nacaytuna: Some IPs won't approve this idea. Though they will follow IPRA law. I recommend, the DPWH allows them to just move to the area not included in the road because they are willing to do so.

Oda Beltran: How about the IPs? Do you have suggestions on community health and safety here? What needs to be improved?

Carmeli Marie C. Chaves: We notice that there are numerous plantations here, don't you have concerns about the fertilizers or pesticides used?

Estrella Torres

- It brings us a threat over time that could lead to water pollution.
- There should be creeks where the polluted water could pass through to prevent the contamination of other water bodies.

Frederick S. Nacaytuna:

- The farmers also adopt organic farming; however, for small scale farmers, it's hard for them to survive economically. This situation might lead to a negative impact on their businesses, resulting in lower profit and income.
- I suggest that the LGU restrict the expansion of agriculture plantations when the road is developed because uncontrolled expansion may lead to additional polluted communities.

Vanessa Pallarco (GECI): In addition to health and safety, is there any health center in your area? How is it?

All: There's a barangay center but no doctors.

Vanessa Pallarco: If the road is implemented, will it be helpful for the community?

Participant: Yes, there was a situation in our area where a pregnant woman went into labor, and due to road-related issues, she ended up giving birth in the middle of the road. It'd be an easy transport if this road could be implemented.

Oda Beltran

- How about the students' problem with the road? Is there any?

Maricar D. Belican (Youth Sector): The poorly maintained road inconveniences students. Due to its condition, we frequently arrive late to class, and our shoes and outfits often get covered in mud.

Estrella Torres: there should be a road regulation implemented.

Oda Beltran: conflict situation?

Frederick S. Nacaytuna: Roads are a significant issue here, and having sufficient road infrastructure would be beneficial for all of us.

Estrella Torres: How about the other barangays that are not mentioned or included in their project that needs immediate road attention? Is it possible that their area would also benefit from these road projects, or are there any projects such as farm to market roads that involve them?

Oda Beltran: We cannot give you an assurance for that, but we will take note of this and will recommend this to the right office.

Estrella Torres: What are we going to do for this?

Oda Beltran

- This concern will initially be brought to the attention of the LGUs before being forwarded to the DPWH, as it follows a step-by-step process.
- Is there an IP's here like Higaanon?
- Is there CADT here? how about cultural heritage?

Frederick S. Nacaytuna: not yet released certificate of ancestral domain.

Oda Beltran: proposed natural park. Where does the road end in Dumalaging? Frederick

S. Nacaytuna: bridge

Marilou Nacaytuna: which is prone to landslides.

Vanessa Pallarco: What is the grievance mechanism, if any? For instance, if there's an issue, where would you go to address it? Additionally, when there are projects like this, where do you typically receive information about them?

Jingle: We have meetings every Monday led by the LGU from the mayor's office, and they are the ones who keep us informed. They will update us.

Marilou Nacaytuna: Every Wednesday of the month, if there is a project, they will present it to the Municipal Planning and Development Office (MPDC). All representatives will be there to be informed by the new project if there's any.

Oda Beltran: How about in the barangays, do you have barangay assembly?

Josefino Manalo: Yes, because that is also required.

Oda Beltran: Are there any other conflicts from other parties?

Participant: There is a land conflict, and the tribal elders continue to assert their claim to the ancestral domain, despite losing the legal battle in court.

Jingle: Currently, out of 13 barangays, only 3 are lacking primary schools and ALS.

Oda Beltran: Are there any additional conflicts?

Estrella Torres: The compensation of the affected areas

Carmeli Marie C. Chaves

- There are laws addressing this; for instance, they cannot compel you to leave the area without providing compensation first.
- you have your rights to not sign the paper/contract if you did not receive the compensation yet.
- Vanessa Pallarco: Are there any political dynamics?

Q5: How would you and your community like to be involved in the planning, design and implementation of the road improvement project?

Oda Beltran: recommendation for bunkhouse?

Participant: It would be beneficial if laborers from outside the area maintain a logbook, allowing the barangay to effectively monitor their activities. Conducting a slight background check is essential, as we may not be aware of any pending issues. For instance, in Barangay Kibenton, an individual from the laborer was apprehended for drug use.

Oda Beltran: We should make this as a policy.

Carmeli Marie C. Chaves: Do laborers who are not from the area typically stay, or do they leave after completing their work?

Participant: Some choose to stay if they like the area and find reasons such as marriage etc.

Vanessa Pallarco: Are there issues of violence against women and children given that there are new laborers?

Estrella Torres: There is. There is a situation where someone from another barangay is employed in a specific barangay, and there have been cases where laborers got someone

from the area pregnant.

Marilou Nacaytuna: There are also reported cases of abuse involving a teenage couple, and there have been instances of early pregnancies among individuals aged 14 to 15 years old. Although, nowadays, women in Sitio Bulunan have become empowered, acquiring knowledge about their rights and protection.

Oda Beltran: To conclude this discussion, we would like to hear your message on the project.

Frederick S. Nacaytuna: Grateful for this project, as it finally provides an opportunity to address the issues in each barangay. Hopefully, the raised concerns will be forwarded to the respective offices for consideration.

Estrella Torres: If this road project is implemented, we will have easy access to hospitals, and there won't be hindrances for students going to school. As a member of the senior community, I am thankful to be part of this discussion.

Nario G. Suldahan: We are thankful to have cemented roads in our area.

IPMP Datu: I hope this will be implemented.

Lorsarinao: Thankful for the road project.

Maricar D. Belican, Christopher Florencia, Sony and cristel: Expressed gratitude for this project because it brings convenience and proves to be helpful for them.

Photo Documentation:



Oda Beltran discussed the proposed study of Mindanao Transport Connectivity Improvement Project (MTCIP)



Frederick S. Nacaytuna shared about how grateful it is of this Project



Josefino Manalo shared her suggestion of solar streetlights on highways for the safety of the riders.



Florentino Minggi suggests the establishment of shortcut connecting the farm-to-market road



Estrella Torres recommended implementing appropriate signage for senior citizen crossing on the street.

CONSENT FORM

(October 18, 2023)

STUDY PROJECT:**Conduct of FGD and KII****Due Diligence and Options Analysis: Mindanao Transport Connectivity Improvement Project****FACILITATOR/S:** Galerio Environmental Consultancy Incorporated (GECI) Social Team**DOCUMENTERS:** Galerio Environmental Consultancy Incorporated (GECI) Social Team

1. I agree to participate in the FGD and KII for Municipality/City of Impasugong organized and facilitated by GECI, to contribute with the study project.
2. GECI Social Team had explained the study project and I understand the objectives of FGD and KII.
3. I am aware that the FGD and KII will respond to the Guide Questions prepared for the study project.
4. I acknowledge that I will remain unnamed; answer any of the guide questions at my own free will; and have the rights to decline to answer the questionnaire at any point.
5. I agree for the documentation and audio recording of the proceedings for analysis and entry planning purposes. I also agree that the data and information will be stored securely and safely and will be used solely for the Due Diligence and Options Analysis for Mindanao Transport Connectivity Improvement Project.

Signed on this day 18 of October, 2023 in Tourism Hall.

NAME	BARANGAY	ORGANIZATION / INSTITUTION	SIGNATURE
1. Anna T. Comungit	Impasugong	Business Sector	[Signature]
2. Goldie Mae Casiro	Impasugong	(Business) Sector	[Signature]
3. Vonna Bric Paday	Impasugong	Business Sector	[Signature]
4. Marife C. Antivo	Impasugong	Business Sector	[Signature]
5. CHRISTOPHER V. FLORENO	Impasugong	Business Sector	[Signature]
6. Maricel D. Dagno	POBLACION.IMP.	BUSINESS SECTOR	[Signature]
7. Maricar D. Belican	Population, Imp.	Youth	[Signature]
8. Anna Liza B. Saphan	Population Imp.	Youth	[Signature]
9. Narcyana Marilen P. Imalutao	Impasugong	Women	[Signature]
10. Suldaahan, Nario G.	Impasugong	IP Sector	[Signature]

CONSENT FORM

(October 18, 2023)

STUDY PROJECT:**Conduct of FGD and KII****Due Diligence and Options Analysis: Mindanao Transport Connectivity Improvement Project****FACILITATOR/S:** Galerio Environmental Consultancy Incorporated (GECI) Social Team**DOCUMENTERS:** Galerio Environmental Consultancy Incorporated (GECI) Social Team

6. I agree to participate in the FGD and KII for Municipality/City of Impasug-on organized and facilitated by GECI, to contribute with the study project.
7. GECI Social Team had explained the study project and I understand the objectives of FGD and KII.
8. I am aware that the FGD and KII will respond to the Guide Questions prepared for the study project.
9. I acknowledge that I will remain unnamed; answer any of the guide questions at my own free will; and have the rights to decline to answer the questionnaire at any point.
10. I agree for the documentation and audio recording of the proceedings for analysis and entry planning purposes. I also agree that the data and information will be stored securely and safely and will be used solely for the Due Diligence and Options Analysis for Mindanao Transport Connectivity Improvement Project.

Signed on this day 18 of October, 2023 in Tourism Hall.

NAME	BARANGAY	ORGANIZATION / INSTITUTION	SIGNATURE
11. Suminiao, Silvano C.	IP Poblacion	IP Sector	
12. Cortezola Sanitua			
13. Lot Sanitua			L.S
14. Florida M. Roman SC-Treas.			
15. Eudella Torres	Poblacion SC		
16. Hermocidia Palmas	Poblacion		
17. Teodora Escobar	Poblacion		
18. Florentino G. Manganit	PK. J.M. M.	SC / VSCA / J.M.	
19. Sonila F. Patis	P.I. Poblacion	SC /	
20. Florentino G. Manganit	PK. J.M. M.	SC	

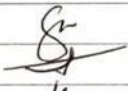
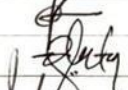
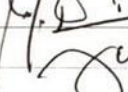
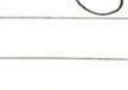


CONSENT FORM

(October 18, 2023)

STUDY PROJECT:**Conduct of FGD and KII****Due Diligence and Options Analysis: Mindanao Transport Connectivity Improvement Project****FACILITATOR/S:** Galerio Environmental Consultancy Incorporated (GECI) Social Team**DOCUMENTERS:** Galerio Environmental Consultancy Incorporated (GECI) Social Team

11. I agree to participate in the FGD and KII for Municipality/City of Impassang organized and facilitated by GECI, to contribute with the study project.
12. GECI Social Team had explained the study project and I understand the objectives of FGD and KII.
13. I am aware that the FGD and KII will respond to the Guide Questions prepared for the study project.
14. I acknowledge that I will remain unnamed; answer any of the guide questions at my own free will; and have the rights to decline to answer the questionnaire at any point.
15. I agree for the documentation and audio recording of the proceedings for analysis and entry planning purposes. I also agree that the data and information will be stored securely and safely and will be used solely for the Due Diligence and Options Analysis for Mindanao Transport Connectivity Improvement Project.

Signed on this day 18 of October, 2023 in Tourism Hall.

	NAME	BARANGAY	ORGANIZATION / INSTITUTION	SIGNATURE
21.	JAMILAP, JOSIELYN	CAWATAN	WOMEN	
22.	Pacheco, Sarah	CAWATAN	WOMEN	
23.	Cristita Navarro	CAWATAN	WOMEN	
24.	Fredrick Macaytana	Impassang	MAMAHT	
25.	JOSEFINO D. MARALLO	CAWATAN	BLGU	
26.	Benissa Joya D. Chin	Poblacion	Poblacion Women	
27.				
28.				
29.				
30.				

ATTENDANCE SHEET

Project : MTCIP - DDOA
Activity : Focus Group Discussion
City/Mun. : Impasungong
Date : October 15, 2023

NAME	ADDRESS	SECTORAL REPRESENTATIVE							SIGNATURE
		Women	Youth	Senior Citizen	Indigenous People	Business Sector	Peace & Security		
1. Anna T. Coninguit	P-9 Impasungong	✓				✓		Anna T. Coninguit	
2. Goldie Mae Casilo	P-2 Impasungong	X				✓		Goldie Mae Casilo	
3. Vonna Batic Paday	P-3 Impasungong	X				✓		Vonna Batic Paday	
4. Marife C. Antivo	P-5 Impasungong					✓		Marife C. Antivo	
5. CHRISTOPHER V. FLORENCIO	P-7 Poblacion Imp.					✓		CHRISTOPHER V. FLORENCIO	
6. Marice D. Dagud	P-7 Poblacion Imp.	✓				✓		Marice D. Dagud	
7. Maricar D. Belican	P-3, Poblacion Imp.		✓					Maricar D. Belican	
8. Anna Liza B. Josephin	P-3, Poblacion Imp.		✓					Anna Liza B. Josephin	
9. Nacayutan, Nailon P.	Poblacion Imp.	✓						Nacayutan, Nailon P.	
10. Nacayutan, Nario G.	Poblacion				✓			Nacayutan, Nario G.	
11. Nacayutan, Nario G.	Poblacion				✓			Nacayutan, Nario G.	
12. CORAZON A. SAGUN								CORAZON A. SAGUN	
13. For A. SAGUN								For A. SAGUN	
14. Teodora E. Escobio	Poblacion			✓				Teodora E. Escobio	
15. FLORENCIO G. MORALES	P-7 Poblacion	✓		✓	✓			FLORENCIO G. MORALES	



ATTENDANCE SHEET

Project : MTCIP - DDOA
Activity : Focus Group Discussion
City/Mun. :
Date :

NAME	ADDRESS	SECTORAL REPRESENTATIVE						SIGNATURE
		Women	Youth	Senior Citizen	Indigenous People	Business Sector	Peace & Security	
1. Hermocilia M. Salinas	Poblacion P.8	✓		✓				Hermocilia M. Salinas
2. Lorela F. Pulis	Pob. Imp.	✓		✓				Lorela F. Pulis
3. Eufrencia G. Torres	Pob. Imp.	✓		✓				Eufrencia G. Torres
4. Flor da M. Romon	P-8 Poblacion	✓						Flor da M. Romon
5. VAVARRO C. CRISTINA	P-4 CAYAN	✓		✓		✓		VAVARRO C. CRISTINA
6. TUMILAP, JOSEFINA	CAYAN	✓						TUMILAP, JOSEFINA
7. JOSEFINA SAMP	CAYAN	✓		✓				JOSEFINA SAMP
8. Fredanick S. Nacayutan	Impasungong				✓			Fredanick S. Nacayutan
9. JOSEFINA B. MANAYAN	CAYAN			✓				JOSEFINA B. MANAYAN
10. JENICA LOPEZ B. LUM	Poblacion	✓						JENICA LOPEZ B. LUM
11.								
12.								
13.								
14.								
15.								



REGISTRATION FORM

Project : MTCIP - DDOA
 Activity : Key Informant Interview Focus Group Discussion
 City/Mun. : Impassay, ongo
 Date : October 18, 2023

#	NAME	AGE	GENDER			CONTACT NUMBER	EMAIL ADDRESS	SIGNATURE
			MALE	FEMALE	LGBT			
1.	Germa T. Comenget	57		/		09679829750		<i>Germa</i>
2.	Goldie Mae Casino	37		/		09614433827		<i>Goldie</i>
3.	Vonna Blue Paday	38		/		09977260271	vonna blue 20@gmail.com	<i>Vonna</i>
4.	Marife C. Antivo	44		/		09066184768		<i>Marife</i>
5.	CHRISTOPHER V. FLORENCE	44	/			09550180723		<i>Chris</i>
6.	Maricel D. Dagno	41		✓		09498471452		<i>Maricel</i>
7.	Maricar D. Belican	23		/		09712577661	maricarbelican@gmail.com	<i>Maricar</i>
8.	Anna Liza B. Caplinan	23		/		09204499790		<i>Anna</i>
9.	Nacantun, Marilon P.	50		/		0965-942-0745		<i>Marilon</i>
10.	Calderon, Nario G.	53	✓			09652987921		<i>Nario</i>
11.	Vaminad, Silvano C.	62	✓					<i>Silvano</i>
12.	Corazon A. Sahizaga	60	✓	/				<i>Corazon</i>
13.	Lor A. Sahizaga	64	✓	/				<i>Lor</i>
14.	Florida M. Pomus							<i>Florida</i>
15.	Eufrelia G. Tamas	71		/		09679439645		<i>Eufrelia</i>



REGISTRATION FORM

Project : MTCIP - DDOA
 Activity : Key Informant Interview Focus Group Discussion
 City/Mun. :
 Date :

#	NAME	AGE	GENDER			CONTACT NUMBER	EMAIL ADDRESS	SIGNATURE
			MALE	FEMALE	LGBT			
1.	Hermocilio M. Salinas							<i>Hermocilio</i>
2.	Teodora T. Escobio					09353252582		<i>Teodora</i>
3.	THEODORA G. PAKHAK	70	✓			0966150654		<i>Theodora</i>
4.	Desula F. Putis	73		✓		09679887397		<i>Desula</i>
5.	Navarro Erelita	61		/		0		<i>Navarro</i>
6.	TAMILAP, JOSIELYN	49		/		09510860337		<i>Tamilap</i>
7.	Doctol, Camy	68		/		09659980884		<i>Doctol</i>
8.	Frederick S. Nacaylana	57	✓			09974077898		<i>Frederick</i>
9.	JOSEFINO G. Mawaco	69	✓			09051511398		<i>Josefino</i>
10.	Benita Soyua P. Chiu	47		/		0933-748-4843		<i>Benita</i>
11.								
12.								
13.								
14.								
15.								



Location: Third Floor, Function Hall, Panabo City, Davao del

Norte Date and Time: October 20, 2023 / 1:00 PM to 5:00 PM

Attendees: (Please see Consent Form and Attendance Sheet)

Q1: What are your current experiences with using the [name of main corridor segment and/or link road] in your area? (how often, how long, for what purpose the road is used)

Frensele Marie E. Layan (CMO Housing)

- The road was used by the eleven barangays like students, employees, etc.,
- At the same time, it is used from farm-to-market roads.
- The existing two lanes are already concreted, but the damage to the road is evident, having been used for a considerable amount of time.
- Part of Brgy. Consolation is wide

Jessie V. Lorin (CPDO)

- The 11 barangays are part of the city's Comprehensive Land Use Plan (CLUP) proposal for a 20-meter-wide road extending from the city proper to Brgy. Consolation, and it has already been concreted.
- Brgy. Consolation is a boundary between Brgy. Malabog and Fatima.
- Brgy. Malabog to Fatima is already 4 lanes which is part of Davao City, while in Panabo City, the road from brgy. Consolation to the city proper is also 4 lanes.

Carmeli Marie C. Chaves (GECI): Who is the landowner of the 20 meters?

Jessie V. Lorin: Based on the CLUP, a 20-meter-wide section of the road is part of the provincial road network.

Carmeli Marie C. Chaves: Is there a need for land acquisition? Jessie

V. Lorin

- For the acquisition of land for the construction of 4 lanes, it depends on the boundaries. If landowners are going to be affected, I advise conducting a parcellary survey to identify the landowners.
- Most of the teachers who live in the city proper are often assigned to rural barangays like Consolation.
- Mode of transportation are motorcycle and ongbak (bao-bao)

Carmeli Marie C. Chaves: Inquiring about areas prone to floods and the geological fault line in the 11 barangays.

Jessie V. Lorin: mentioned that there is no flooding

- In Brgy. Katipunan, there is an existing steep slope on both sides, and it has been suggested to implement slope protection measures in the areas.

Oda Beltran (GECI): Is there an agreement between the City of Davao and Panabo for the linking of road?

Jessie V. Lorin

- I don't know about that, but Davao City has a proposal for a road tunnel.
- In Malabog, the road going to Lacson is affected by landslides in certain parts.

Oda Beltran: Inquiring about where the road ends?

Jessie V. Lorin: It starts with Brgy. Gredu, Little Panay, Catipunan, Cacao, Kauswagan, Consolation which is the boundary of Brgy. Malabog, Davao City.

Oda Beltran: Inquiring about the 11-barangay identified? All:

Mabuhay is not included in Panabo City

Jessie V. Lorin: Mabuhay is part of Davao City, but it can traverse to brgy. Consolation.

All: Only 10 barangays belong to Panabo City namely: Datu Abdul Dadia, Katipunan, Cacao, Kauswagan, Consolacion, Malativas, Little Panay, New Visayas, Gredu, and New Pandan

Oda Beltran: Inquiring about the estimated population of 10 barangays?

Jessie V. Lorin: I suggested to visit CPDO office because we have the data on that

Oda Beltran: Conveyed that we are still in information gathering.

What are the biggest challenges you face as a road user? (e.g., access, road conditions, road safety, conflict, transport cost, personal conditions)

Frensele Marie E. Layan

- The road from Davao linking to Panabo is an easily accessible
- an alternate route from Davao to reduce traffic congestion

Jessie V. Lorin: If the project is approved, the road from Panabo can traverse from Calinan to Cagayan

Carmeli Marie C. Chaves: Do you favor linking the road? All:

Yes, to lessen the traffic.

Carmeli Marie C. Chaves

- inquiring about the current use of a road by farmers and anticipate the potential impact if the road were to be improved?
- She also asks farmers' information about origin destination, local market location, the types of vehicles used, and the cultural commodities available?

All

- They responded that the farmers are using this road to reach the market
- They use jeep or boom truck
- Their products include bananas such as Cardaba and Binangay, along with vegetables and spices.

Oda Beltran: inquiring about what else is lacking in the roads?

Jessie V. Lorin: Responded the absence of streetlight, leading to numerous accidents

Q2: What are your hopes and expectations for the project? In addition to what you've mentioned.

Vanessa Pallarco (GECI) - inquiring about the following:

- Peace and Order
- Grievance Mechanism
- Complains about Roads
- Sexual Harassment
- Gender and Development Program
- PWD and Senior Citizen Measures for crossing the road, like pedestrian lane
- Designated Bike Lane

Jessie V. Lorin - peace and order

- There are existing police in every barangay, including the army and police.
- Regarding grievance within the families, report to the barangay
- All • For construction complaints, go to the City Engineer's Office
- Sexual harassment issues are handled at the barangay level
- There is an existing GAD (Gender and Development) in the city

Emely G. Anito (CEO): Road measures are only implemented in urban areas, but bike lanes are not included

Oda Beltran: Plan for city improvement?

Jessie V. Lorin: Widen and cement the road

Carmeli Marie C. Chaves

- asking about the location of nearest hospital, and
- inquiring about the access to remote barangay

Jessie V. Lorin

- We have a Rural Health Unit (RHU) and the ongoing construction of a proposed building located in Little Panay.
- There's an emergency hospital in Barangay Consolation, which takes 30 minutes travel time.
- Each barangay has Barangay Health Workers (BHW) and designated midwives.

All: Every barangay has emergency rescue services.

Carmeli Marie C. Chaves: Asking Ms. Frensele about her expectations for the affected barangays and inquiring about the LGU's programs in response to the situation.

Frensele Marie E. Layan

- The focus of the housing itself is on those ISF. We assure their relocation, and the property owners will be compensated.
- There is a resettlement site in Barangay Katipunan covering a total of 5 hectares.

Carmeli Marie C. Chaves: Is there ISF along the alignment? Frensele

Marie E. Layan

- No ISF will be affected, only private owners.
- The ISF reside in the coastal area and near the creek
- We also have Resettlement Action Plan (RAP) program

How do you think the road improvement project will impact your income, livelihood or occupation?

All

- Never late in work due to improved transportation
- Potential for business investors will bloom
- An increase in land value
- changes in land use
- possibility of attracting additional migrants to the area

Oda Beltran: Inquiring about the presence of Indigenous Peoples (IPs) in the 10 barangays and whether they have ownership of Ancestral Domain?

All: They responded that there are IPs in every barangay. However, they mentioned that there is no identified Ancestral Domain in the 10 barangays.

Frensele Marie E. Layan: One of the City Housing programs includes providing parcel of land to Indigenous Peoples (IPs) community

Vanessa Pallarco: Inquiring about Muslim community?

Frensele Marie E. Layan

- Mentioned that, as per the request of Muslim community, they have been relocated. Additionally, there are some Muslims who reside in Christian community as well.
- Most migrants come from Marawi.

How do you think the road improvement project will impact:

- **Access to education or other essential services?**
- **Housing and land tenure**
- **social interactions?**
- **Rebel returnee community**
- **Community Safety**

Frensele Marie E. Layan

- Construction and expansion of new schools could be enhances

- Regarding housing, it will be more accessible to landowners, especially once the road is developed.
 - Land value will increase
 - They mentioned that in 10 barangays there are different associations. They also noted the presence of rebel returnees in these 10 barangays.
- All
- There is an existing farmers association; they celebrated their festival last month.

What are your concerns about the project? Do you think the project poses any risk to you or your community? Can you elaborate more about these possible risks and impacts?

GECI: Inquiring about a bunk house for construction workers, and asking for labor guidelines?

All: The contractor will inform the barangays and the City. The City may also request labor guidelines from the contractor to ensure compliance.

Vanessa Pallarco: Asking about Cultural and Gender Sensitivity orientation or seminar for construction worker?

Emely Anito (CEO): Just inform the Engineering Department or the City Mayor.

Carmeli Marie C. Chaves: Inquiring about the location of Port in Panabo City and what types of crops they export?

All

- The port is located in Brgy. San Pedro and is equipped with gantry cranes. It is known as the Davao City International Terminal (DICT), where they export crops such as bananas and pineapple.
- The fish port is located in Brgy. Kaganuhan near the coastal road.
- One of the biggest plantations here in Panabo is the TADECO (Tagum Agricultural Development Company), and most of their employees are inmates.

What are your suggestions or recommendations on how the road improvement project can be implemented to address these concerns, manage risks, or mitigate possible adverse effects?

- Additional street lights
- Slope Protection
- Improvement of drainage system for flood prone area

How would you and your community like to be involved in the planning, design and implementation of the road improvement project?

- Barangay consultation for every barangay
- Alternative road that passed through to barangay Mandug to Callawa, Davao City.

Sir Jessie describes an alternate route from the national highway of Panabo City, starting from Barangay Gredu, New Visayas, Datu Abdul from Little Panay, then turning left to reach various barangays including Maduao, Tagpore, Buenavista, Mabunao, San Roque, Panabo City, and finally reaching Barangay Callawa in Davao City.

Photo Documentation



Vanessa Pallarco discussed the proposed study of Mindanao Transport Connectivity Improvement Project (MTCIP)



Jessie V. Lorin describes an alternate route from Panabo City to Davao City



Frensele Marie E. Layan emphasized that the City's housing initiative is focused on the ISF and ensure their location to suitable sites



Emely Anito stated that the road improvements are limited to urban regions


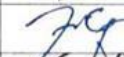

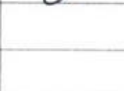
CONSENT FORM

(October 20, 2023)

STUDY PROJECT:Conduct of FGD and KIIDue Diligence and Options Analysis: Mindanao Transport Connectivity Improvement Project**FACILITATOR/S:** Galerio Environmental Consultancy Incorporated (GECI) Social Team**DOCUMENTERS:** Galerio Environmental Consultancy Incorporated (GECI) Social Team

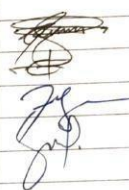
21. I agree to participate in the FGD and KII for Municipality/City of Panabo City organized and facilitated by GECI, to contribute with the study project.
22. GECI Social Team had explained the study project and I understand the objectives of FGD and KII.
23. I am aware that the FGD and KII will respond to the Guide Questions prepared for the study project.
24. I acknowledge that I will remain unnamed; answer any of the guide questions at my own free will; and have the rights to decline to answer the questionnaire at any point.
25. I agree for the documentation and audio recording of the proceedings for analysis and entry planning purposes. I also agree that the data and information will be stored securely and safely and will be used solely for the Due Diligence and Options Analysis for Mindanao Transport Connectivity Improvement Project.

Signed on this day 20 of October, 2023 in Function Hall of Panabo City.

NAME	BARANGAY	ORGANIZATION / INSTITUTION	SIGNATURE
41. JESIE V. LORIN			
42. EMILY G. API TO			
43. FRIENSBUE MARIE E. LAYAN			
44. Cyren C. Rukilla			
45.			
46.			
47.			
48.			
49.			
50.			

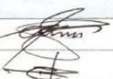
ATTENDANCE SHEET

Project : MTCIP - DDOA
 Activity : Focus Group Discussion
 City/Mun. : Panabo City / Davao del Norte
 Date : October 20, 2023

NAME	ADDRESS	SECTORAL REPRESENTATIVE							SIGNATURE
		Women	Youth	Senior Citizen	Indigenous People	Business Sector	Peace & Security		
1. JESSIE V. LORIN	LGU - PANABO - CIPDO								
2. EMELY G. ANITO	LGU - PANABO - CEO								
3. FRANCIS MARIE E. LAYAN	LGU - PANABO - UNO HUMAN								
4. Cyreen C. Rutillo	LGU - PANABO - CAD								
5.									
6.									
7.									
8.									
9.									
10.									
11.									
12.									
13.									
14.									
15.									

**REGISTRATION FORM**

Project : MTCIP - DDOA
 Activity : Focus Group Discussion
 City/Mun. : Panabo City / Davao del Norte
 Date : October 20, 2023

NAME	AGE	GENDER			CONTACT NUMBER	EMAIL ADDRESS	SIGNATURE
		MALE	FEMALE	LGBT			
1. JESSIE V. LORIN	43	✓			0991-360-8539	jacie.lorin.202@gmail.com	
2. EMELY G. ANITO	56		✓		0991-360-8531	emelyanito96@yahoo.com	
3. FRANCIS MARIE E. LAYAN	31		✓	✓	09308774428	francise@gmail.com	
4. Cyreen C. Rutillo	25		✓		099289316155	Cyreen.Rutillo1597@gmail.com	
5.							
6.							
7.							
8.							
9.							
10.							
11.							
12.							
13.							
14.							
15.							



Annex 23. Environmental and Social Management Measures Implementation Costs Per Package**Main Corridor Package 1**

Project Activities	Environmental Components	Type of Cost	Cost	%	Final Cost (in millions)
PRE-CONSTRUCTION PHASE					
Acquisition and Applicable Permits processing	People	Development Cost	194.57	10.00%	2.33
Land Acquisition RROW	People (Disturbance/Displacement of Settlers)		194.57	25.00%	5.83
	People (households' involuntary resettlements)		194.57	25.00%	5.83
Hiring of Workers (Local)	People (barangay host		194.57	15.00%	194.57
Site Preparation	Land		194.57	5.00%	1.17
Vegetation Clearing	Water		194.57	10.00%	2.33
Utilities Relocation	People		194.57	15.00%	3.50
CONSTRUCTION PHASE					
Construction of Temp Facilities for Workers	Land, Water, People (Solid Waste Management Plan)	Civil Works Cost	164.43	20.00%	3.94
	Land, Water, People (Adequate Sanitation Facilities)		164.43	15.00%	2.95
	People (Safety, Risks, Peace and Order) Coordinators		411.09	10.00%	4.92
Civil Works for the Main Corridor and Link Roads	Land (ground vibration control)		164.43	5.00%	0.98
	Land, Water, People (Proper disposal of debris/spoils and other solid wastes)		164.43	5.00%	0.98
	Land, Water, People (Proper onsite handling, transport and disposal of hazardous materials)		164.43	10.00%	1.97
	Water (implementing measures for water spillage)		164.43	20.00%	3.94
	Land, Water (oil spill management implementation)		164.43	15.00%	2.95
	Air, People (dust control measures)		164.43	5.00%	0.98
	Air, People (Air emission and noise control measures)		164.43	5.00%	0.98
	People (Occupational Safety and Health		411.09	50.00%	24.62
	People (safety risks: Barriers, early warning devices)		411.09	10.00%	4.92
	People (coordinator for basic resources/providers, residents for any threats and concerns)		411.09	10.00%	4.92
	People (traffic control measures implementation)		411.09	20.00%	9.85
	DEMOBILIZATION AND OPERATIONAL PHASE				
Dismantling of Temporary	Land, Water (solid waste management plan)		67.28	40.00%	3.22

Project Activities	Environmental Components	Type of Cost	Cost	%	Final Cost (in millions)
Facilities for Workers	Air, People (Air emission and noise control measures)		336.40	20.00%	8.06
	People (Occupational Safety and Health)		88.53	30.00%	3.18
Road Operations	Water (storm water management implementation)		336.40	40.00%	16.12
	People (enhancement employment livelihood)		88.53	20.00%	2.12
	People (Road traffic noise control)		88.53	10.00%	1.06
	People (Occupational Safety and Health)		88.53	30.00%	3.18
	People (traffic control measures implementation)		88.53	10.00%	1.06

Main Corridor Package 2

Project Activities	Environmental Components	Type of Cost	Cost	%	Final Cost (in millions)
PRE-CONSTRUCTION PHASE					
Acquisition and Applicable Permits processing	People	Development Cos	194.57	10.00 %	2.22
Land Acquisition RROW	People (Disturbance/Displacement of Settlers)		194.57	25.00 %	5.56
	People (households involuntary resettlements)		194.57	25.00 %	5.56
Hiring of Workers (Local)	People (barangay host		194.57	15.00 %	3.34
Site Preparation	Land		194.57	5.00%	1.11
Vegetation Clearing	Water		194.57	10.00 %	2.22
Utilities Relocation	People		194.57	15.00 %	3.34
CONSTRUCTION PHASE					
Construction of Temp Facilities for Workers	Land, Water, People (Solid Waste Management Plan)	Civil Works Cost	164.43	20.00 %	3.76
	Land, Water, People (Adequate Sanitation Facilities)		164.43	15.00 %	2.82
	People (Safety, Risks, Peace and Order) Coordinators		411.09	10.00 %	4.70
Civil Works for the Main Corridor and Link Roads	Land (ground vibration control)		164.43	5.00%	0.94
	Land, Water, People (Proper disposal of debris/spoils and other solid wastes)		164.43	5.00%	0.94
	Land, Water, People (Proper onsite handling, transport and disposal of hazardous materials)		164.43	10.00 %	1.88
	Water (implementing measures for water spillage)		164.43	20.00 %	3.76

Project Activities	Environmental Components	Type of Cost	Cost	%	Final Cost (in millions)
	Land, Water (oil spill management implementation)		164.43	15.00 %	2.82
	Air, People (dust control measures)		164.43	5.00%	0.94
	Air, People (Air emission and noise control measures)		164.43	5.00%	0.94
	People (Occupational Safety and Health)		411.09	50.00 %	23.51
	People (safety risks: Barriers, early warning devices)		411.09	10.00 %	4.70
	People (coordinator for basic resources/providers, residents for any threats and concerns)		411.09	10.00 %	4.70
	People (traffic control measures implementation)		411.09	20.00 %	9.40
DEMOBILIZATION AND OPERATIONAL PHASE					
Dismantling of Temporary Facilities for Workers	Land, Water (solid waste management plan)		67.28	40.00 %	3.08
	Air, People (Air emission and noise control measures)		336.40	20.00 %	7.69
	People (Occupational Safety and Health)		88.53	30.00 %	3.04
Road Operations	Water (storm water management implementation)		336.40	40.00 %	15.39
	People (enhancement employment livelihood)		88.53	20.00 %	2.02
	People (Road traffic noise control)		88.53	10.00 %	1.01
	People (Occupational Safety and Health)		88.53	30.00 %	3.04
	People (traffic control measures implementation)		88.53	10.00 %	1.01

Main Corridor Package 3

Project Activities	Environmental Components	Type of Cost	Cost	%	Final Cost (in millions)
PRE-CONSTRUCTION PHASE					
Acquisition and Applicable Permits processing	People	Development Cost	194.57	10.00%	1.80
Land Acquisition RROW	People (Disturbance/Displacement of Settlers)		194.57	25.00%	4.49
	People (households involuntary resettlements)		194.57	25.00%	4.49
Hiring of Workers (Local)	People (barangay host)		194.57	15.00%	2.70
Site Preparation	Land		194.57	5.00%	0.90
Vegetation Clearing	Water		194.57	10.00%	1.80

Project Activities	Environmental Components	Type of Cost	Cost	%	Final Cost (in millions)
Utilities Relocation	People		194.57	15.00%	2.70
CONSTRUCTION PHASE					
Construction of Temp Facilities for Workers	Land, Water, People (Solid Waste Management Plan)	Civil Works Cost	164.43	20.00%	3.04
	Land, Water, People (Adequate Sanitation Facilities)		164.43	15.00%	2.28
	People (Safety, Risks, Peace and Order) Coordinators		411.09	10.00%	3.80
Civil Works for the Main Corridor and Link Roads	Land (ground vibration control)		164.43	5.00%	0.76
	Land, Water, People (Proper disposal of debris/spoils and other solid wastes)		164.43	5.00%	0.76
	Land, Water, People (Proper onsite handling, transport and disposal of hazardous materials)		164.43	10.00%	1.52
	Water (implementing measures for water spillage)		164.43	20.00%	3.04
	Land, Water (oil spill management implementation)		164.43	15.00%	2.28
	Air, People (dust control measures)		164.43	5.00%	0.76
	Air, People (Air emission and noise control measures)		164.43	5.00%	0.76
	People (Occupational Safety and Health)		411.09	50.00%	18.99
	People (safety risks: Barriers, early warning devices)		411.09	10.00%	3.80
	People (coordinator for basic resources/providers, residents for any threats and concerns)		411.09	10.00%	3.80
	People (traffic control measures implementation)		411.09	20.00%	7.60
DEMOBILIZATION AND OPERATIONAL PHASE					
Dismantling of Temporary Facilities for Workers	Land, Water (solid waste management plan)		67.28	40.00%	2.49
	Air, People (Air emission and noise control measures)		336.40	20.00%	6.22
	People (Occupational Safety and Health)		88.53	30.00%	2.45
Road Operations	Water (storm water management implementation)		336.40	40.00%	12.43
	People (enhancement employment livelihood)		88.53	20.00%	1.64
	People (Road traffic noise control)		88.53	10.00%	0.82
	People (Occupational Safety and Health)		88.53	30.00%	2.45
	People (traffic control measures implementation)		88.53	10.00%	0.82

Main Corridor Package 4

Project Activities	Environmental Components	Type of Cost	Cost	%	Final Cost (in millions)	
PRE-CONSTRUCTION PHASE						
Acquisition and Applicable Permits processing	People	Development Cost	194.57	10.00%	2.69	
Land Acquisition RROW	People (Disturbance/Displacement of Settlers)		194.57	25.00%	6.73	
	People (households involuntary resettlements)		194.57	25.00%	6.73	
Hiring of Workers (Local)	People (barangay host		194.57	15.00%	4.04	
Site Preparation	Land		194.57	5.00%	1.35	
Vegetation Clearing	Water		194.57	10.00%	2.69	
Utilities Relocation	People		194.57	15.00%	4.04	
CONSTRUCTION PHASE						
Construction of Temp Facilities for Workers	Land, Water, People (Solid Waste Management Plan)	Civil Works Cost	164.43	20.00%	4.55	
	Land, Water, People (Adequate Sanitation Facilities)		164.43	15.00%	3.41	
	People (Safety, Risks, Peace and Order) Coordinators		411.09	10.00%	5.68	
Civil Works for the Main Corridor and Link Roads	Land (ground vibration control)		164.43	5.00%	1.14	
	Land, Water, People (Proper disposal of debris/spoils and other solid wastes)		164.43	5.00%	1.14	
	Land, Water, People (Proper onsite handling, transport and disposal of hazardous materials)		164.43	10.00%	2.27	
	Water (implementing measures for water spillage)		164.43	20.00%	4.55	
	Land, Water (oil spill management implementation)		164.43	15.00%	3.41	
	Air, People (dust control measures)		164.43	5.00%	1.14	
	Air, People (Air emission and noise control measures)		164.43	5.00%	1.14	
	People (Occupational Safety and Health		411.09	50.00%	28.42	
	People (safety risks: Barriers, early warning devices)		411.09	10.00%	5.68	
	People (coordinator for basic resources/providers, residents for any threats and concerns)		411.09	10.00%	5.68	
	People (traffic control measures implementation)		411.09	20.00%	11.37	
	DEMOBILIZATION AND OPERATIONAL PHASE					
Dismantling of Temporary Facilities for Workers	Land, Water (solid waste management plan)			67.28	40.00%	3.72
	Air, People (Air emission and noise control measures)			336.40	20.00%	9.30
	People (Occupational Safety			88.53	30.00%	3.67

Project Activities	Environmental Components	Type of Cost	Cost	%	Final Cost (in millions)
	and Health				
Road Operations	Water (storm water management implementation)		336.40	40.00%	18.60
	People (enhancement employment livelihood)		88.53	20.00%	2.45
	People (Road traffic noise control)		88.53	10.00%	1.22
	People (Occupational Safety and Health)		88.53	30.00%	3.67
	People (traffic control measures implementation)		88.53	10.00%	1.22

Main Corridor Package 5

Project Activities	Environmental Components	Type of Cost	Cost	%	Final Cost (in millions)
PRE-CONSTRUCTION PHASE					
Acquisition and Applicable Permits processing	People	Development Cost	194.57	10.00%	2.31
Land Acquisition RROW	People (Disturbance/Displacement of Settlers)		194.57	25.00%	5.78
	People (households involuntary resettlements)		194.57	25.00%	5.78
Hiring of Workers (Local)	People (barangay host		194.57	15.00%	3.47
Site Preparation	Land		194.57	5.00%	1.16
Vegetation Clearing	Water		194.57	10.00%	2.31
Utilities Relocation	People		194.57	15.00%	3.47
CONSTRUCTION PHASE					
Construction of Temp Facilities for Workers	Land, Water, People (Solid Waste Management Plan)	Civil Works Cost	164.43	20.00%	3.91
	Land, Water, People (Adequate Sanitation Facilities)		164.43	15.00%	2.93
	People (Safety, Risks, Peace and Order) Coordinators		411.09	10.00%	4.89
Civil Works for the Main Corridor and Link Roads	Land (ground vibration control)		164.43	5.00%	0.98
	Land, Water, People (Proper disposal of debris/spoils and other solid wastes)		164.43	5.00%	0.98
	Land, Water, People (Proper onsite handling, transport and disposal of hazardous materials)		164.43	10.00%	1.95
	Water (implementing measures for water spillage)		164.43	20.00%	3.91
	Land, Water (oil spill management implementation)		164.43	15.00%	2.93
	Air, People (dust control		164.43	5.00%	0.98

Project Activities	Environmental Components	Type of Cost	Cost	%	Final Cost (in millions)
	measures)				
	Air, People (Air emission and noise control measures)		164.43	5.00%	0.98
	People (Occupational Safety and Health)		411.09	50.00%	24.44
	People (safety risks: Barriers, early warning devices)		411.09	10.00%	4.89
	People (coordinator for basic resources/providers, residents for any threats and concerns)		411.09	10.00%	4.89
	People (traffic control measures implementation)		411.09	20.00%	9.77
DEMOBILIZATION AND OPERATIONAL PHASE					
Dismantling of Temporary Facilities for Workers	Land, Water (solid waste management plan)		67.28	40.00%	3.20
	Air, People (Air emission and noise control measures)		336.40	20.00%	8.00
	People (Occupational Safety and Health)		88.53	30.00%	3.16
Road Operations	Water (storm water management implementation)		336.40	40.00%	16.00
	People (enhancement employment livelihood)		88.53	20.00%	2.10
	People (Road traffic noise control)		88.53	10.00%	1.05
	People (Occupational Safety and Health)		88.53	30.00%	3.16
	People (traffic control measures implementation)		88.53	10.00%	1.05

Main Corridor Package 6

Project Activities	Environmental Components	Type of Cost	Cost	%	Final Cost (in millions)
PRE-CONSTRUCTION PHASE					
Acquisition and Applicable Permits processing	People	Development Cost	194.57	10.00%	2.48
Land Acquisition RROW	People (Disturbance/Displacement of Settlers)		194.57	25.00%	6.19
	People (households involuntary resettlements)		194.57	25.00%	6.19
Hiring of Workers (Local)	People (barangay host		194.57	15.00%	3.72
Site Preparation	Land		194.57	5.00%	1.24
Vegetation Clearing	Water		194.57	10.00%	2.48
Utilities Relocation	People		194.57	15.00%	3.72
CONSTRUCTION PHASE					

Project Activities	Environmental Components	Type of Cost	Cost	%	Final Cost (in millions)
Construction of Temp Facilities for Workers	Land, Water, People (Solid Waste Management Plan)	Civil Works Cost	164.43	20.00%	4.19
	Land, Water, People (Adequate Sanitation Facilities)		164.43	15.00%	3.14
	People (Safety, Risks, Peace and Order) Coordinators		411.09	10.00%	5.23
Civil Works for the Main Corridor and Link Roads	Land (ground vibration control)		164.43	5.00%	1.05
	Land, Water, People (Proper disposal of debris/spoils and other solid wastes)		164.43	5.00%	1.05
	Land, Water, People (Proper onsite handling, transport and disposal of hazardous materials)		164.43	10.00%	2.09
	Water (implementing measures for water spillage)		164.43	20.00%	4.19
	Land, Water (oil spill management implementation)		164.43	15.00%	3.14
	Air, People (dust control measures)		164.43	5.00%	1.05
	Air, People (Air emission and noise control measures)		164.43	5.00%	1.05
	People (Occupational Safety and Health)		411.09	50.00%	26.17
	People (safety risks: Barriers, early warning devices)		411.09	10.00%	5.23
	People (coordinator for basic resources/providers, residents for any threats and concerns)		411.09	10.00%	5.23
	People (traffic control measures implementation)		411.09	20.00%	10.47
	DEMOBILIZATION AND OPERATIONAL PHASE				
Dismantling of Temporary Facilities for Workers	Land, Water (solid waste management plan)		67.28	40.00%	3.43
	Air, People (Air emission and noise control measures)		336.40	20.00%	8.57
	People (Occupational Safety and Health)		88.53	30.00%	3.38
Road Operations	Water (storm water management implementation)		336.40	40.00%	17.13
	People (enhancement employment livelihood)		88.53	20.00%	2.25
	People (Road traffic noise control)		88.53	10.00%	1.13
	People (Occupational Safety and Health)		88.53	30.00%	3.38
	People (traffic control measures implementation)		88.53	10.00%	1.13

Main Corridor Package 7

Project Activities	Environmental Components	Type of Cost	Cost	%	Final Cost (in millions)
PRE-CONSTRUCTION PHASE					
Acquisition and	People	Development	194.57	10.00%	2.69

Project Activities	Environmental Components	Type of Cost	Cost	%	Final Cost (in millions)
Applicable Permits processing		Cost			
Land Acquisition RROW	People (Disturbance/Displacement of Settlers)		194.57	25.00%	6.73
	People (households involuntary resettlements)		194.57	25.00%	6.73
Hiring of Workers (Local)	People (barangay host		194.57	15.00%	4.04
Site Preparation	Land		194.57	5.00%	1.35
Vegetation Clearing	Water		194.57	10.00%	2.69
Utilities Relocation	People		194.57	15.00%	4.04
CONSTRUCTION PHASE					
Construction of Temp Facilities for Workers	Land, Water, People (Solid Waste Management Plan)	Civil Works Cost	164.43	20.00%	4.55
	Land, Water, People (Adequate Sanitation Facilities)		164.43	15.00%	3.41
	People (Safety, Risks, Peace and Order) Coordinators		411.09	10.00%	5.69
Civil Works for the Main Corridor and Link Roads	Land (ground vibration control)		164.43	5.00%	1.14
	Land, Water, People (Proper disposal of debris/spoils and other solid wastes)		164.43	5.00%	1.14
	Land, Water, People (Proper onsite handling, transport and disposal of hazardous materials)		164.43	10.00%	2.28
	Water (implementing measures for water spillage)		164.43	20.00%	4.55
	Land, Water (oil spill management implementation)		164.43	15.00%	3.41
	Air, People (dust control measures)		164.43	5.00%	1.14
	Air, People (Air emission and noise control measures)		164.43	5.00%	1.14
	People (Occupational Safety and Health		411.09	50.00%	28.46
	People (safety risks: Barriers, early warning devices)		411.09	10.00%	5.69
	People (coordinator for basic resources/providers, residents for any threats and concerns)		411.09	10.00%	5.69
	People (traffic control measures implementation)		411.09	20.00%	11.38
DEMOBILIZATION AND OPERATIONAL PHASE					
Dismantling of Temporary Facilities for Workers	Land, Water (solid waste management plan)		67.28	40.00%	3.73
	Air, People (Air emission and noise control measures)		336.40	20.00%	9.31
	People (Occupational Safety and Health		88.53	30.00%	3.68
Road	Water (storm water		336.40	40.00%	18.63

Project Activities	Environmental Components	Type of Cost	Cost	%	Final Cost (in millions)
Operations	management implementation)				
	People (enhancement employment livelihood)		88.53	20.00%	2.45
	People (Road traffic noise control)		88.53	10.00%	1.23
	People (Occupational Safety and Health)		88.53	30.00%	3.68
	People (traffic control measures implementation)		88.53	10.00%	1.23

Main Corridor Package 8

Project Activities	Environmental Components	Type of Cost	Cost	%	Final Cost (in millions)
PRE-CONSTRUCTION PHASE					
Acquisition and Applicable Permits processing	People	Development Cost	194.57	10.00%	2.93
Land Acquisition RROW	People (Disturbance/Displacement of Settlers)		194.57	25.00%	7.32
	People (households involuntary resettlements)		194.57	25.00%	7.32
Hiring of Workers (Local)	People (barangay host		194.57	15.00%	4.39
Site Preparation	Land		194.57	5.00%	1.46
Vegetation Clearing	Water		194.57	10.00%	2.93
Utilities Relocation	People		194.57	15.00%	4.39
CONSTRUCTION PHASE					
Construction of Temp Facilities for Workers	Land, Water, People (Solid Waste Management Plan)	Civil Works Cost	164.43	20.00%	4.95
	Land, Water, People (Adequate Sanitation Facilities)		164.43	15.00%	3.71
	People (Safety, Risks, Peace and Order) Coordinators		411.09	10.00%	6.19
Civil Works for the Main Corridor and Link Roads	Land (ground vibration control)		164.43	5.00%	1.24
	Land, Water, People (Proper disposal of debris/spoils and other solid wastes)		164.43	5.00%	1.24
	Land, Water, People (Proper onsite handling, transport and disposal of hazardous materials)		164.43	10.00%	2.48
	Water (implementing measures for water spillage)		164.43	20.00%	4.95
	Land, Water (oil spill management implementation)		164.43	15.00%	3.71
	Air, People (dust control measures)		164.43	5.00%	1.24
	Air, People (Air emission and		164.43	5.00%	1.24

Project Activities	Environmental Components	Type of Cost	Cost	%	Final Cost (in millions)
	noise control measures)				
	People (Occupational Safety and Health)		411.09	50.00%	30.95
	People (safety risks: Barriers, early warning devices)		411.09	10.00%	6.19
	People (coordinator for basic resources/providers, residents for any threats and concerns)		411.09	10.00%	6.19
	People (traffic control measures implementation)		411.09	20.00%	12.38
DEMOBILIZATION AND OPERATIONAL PHASE					
Dismantling of Temporary Facilities for Workers	Land, Water (solid waste management plan)		67.28	40.00%	4.05
	Air, People (Air emission and noise control measures)		336.40	20.00%	10.13
	People (Occupational Safety and Health)		88.53	30.00%	4.00
Road Operations	Water (storm water management implementation)		336.40	40.00%	20.26
	People (enhancement employment livelihood)		88.53	20.00%	2.67
	People (Road traffic noise control)		88.53	10.00%	1.33
	People (Occupational Safety and Health)		88.53	30.00%	4.00
	People (traffic control measures implementation)		88.53	10.00%	1.33

Link Road Package 1

Project Activities	Environmental Components	Type of Cost	Cost	%	Final Cost (in millions)
PRE-CONSTRUCTION PHASE					
Acquisition and Applicable Permits processing	People	Development Cost	194.57	10.00%	1.15
Land Acquisition RROW	People (Disturbance/Displacement of Settlers)		194.57	25.00%	2.88
	People (households involuntary resettlements)		194.57	25.00%	2.88
Hiring of Workers (Local)	People (barangay host		194.57	15.00%	1.73
Site Preparation	Land		194.57	5.00%	0.58
Vegetation Clearing	Water		194.57	10.00%	1.15
Utilities Relocation	People		194.57	15.00%	1.73
CONSTRUCTION PHASE					
Construction of Temp Facilities	Land, Water, People (Solid Waste Management Plan)	Civil Works Cost	164.43	20.00%	1.95

Project Activities	Environmental Components	Type of Cost	Cost	%	Final Cost (in millions)		
for Workers	Land, Water, People (Adequate Sanitation Facilities)		164.43	15.00%	1.46		
	People (Safety, Risks, Peace and Order) Coordinators		411.09	10.00%	2.44		
Civil Works for the Main Corridor and Link Roads	Land (ground vibration control)		164.43	5.00%	0.49		
	Land, Water, People (Proper disposal of debris/spoils and other solid wastes)		164.43	5.00%	0.49		
	Land, Water, People (Proper onsite handling, transport and disposal of hazardous materials)		164.43	10.00%	0.97		
	Water (implementing measures for water spillage)		164.43	20.00%	1.95		
	Land, Water (oil spill management implementation)		164.43	15.00%	1.46		
	Air, People (dust control measures)		164.43	5.00%	0.49		
	Air, People (Air emission and noise control measures)		164.43	5.00%	0.49		
	People (Occupational Safety and Health)		411.09	50.00%	12.18		
	People (safety risks: Barriers, early warning devices)		411.09	10.00%	2.44		
	People (coordinator for basic resources/providers, residents for any threats and concerns)		411.09	10.00%	2.44		
	People (traffic control measures implementation)		411.09	20.00%	4.87		
	DEMOBILIZATION AND OPERATIONAL PHASE						
	Dismantling of Temporary Facilities for Workers		Land, Water (solid waste management plan)		67.28	40.00%	1.60
Air, People (Air emission and noise control measures)		336.40	20.00%		3.99		
People (Occupational Safety and Health)		88.53	30.00%		1.57		
Road Operations	Water (storm water management implementation)	336.40	40.00%		7.98		
	People (enhancement employment livelihood)	88.53	20.00%		1.05		
	People (Road traffic noise control)	88.53	10.00%		0.52		
	People (Occupational Safety and Health)	88.53	30.00%		1.57		
	People (traffic control measures implementation)	88.53	10.00%		0.52		

Link Road Package 2

Project Activities	Environmental Components	Type of Cost	Cost	%	Final Cost (in millions)
PRE-CONSTRUCTION PHASE					
Acquisition and Applicable Permits	People	Development Cost	194.57	10.00%	1.90

Project Activities	Environmental Components	Type of Cost	Cost	%	Final Cost (in millions)
processing					
Land Acquisition RROW	People (Disturbance/Displacement of Settlers)		194.57	25.00%	4.75
	People (households involuntary resettlements)		194.57	25.00%	4.75
Hiring of Workers (Local)	People (barangay host)		194.57	15.00%	2.85
Site Preparation	Land		194.57	5.00%	0.95
Vegetation Clearing	Water		194.57	10.00%	1.90
Utilities Relocation	People		194.57	15.00%	2.85
CONSTRUCTION PHASE					
Construction of Temp Facilities for Workers	Land, Water, People (Solid Waste Management Plan)	Civil Works Cost	164.43	20.00%	3.21
	Land, Water, People (Adequate Sanitation Facilities)		164.43	15.00%	2.41
	People (Safety, Risks, Peace and Order) Coordinators		411.09	10.00%	4.01
Civil Works for the Main Corridor and Link Roads	Land (ground vibration control)		164.43	5.00%	0.80
	Land, Water, People (Proper disposal of debris/spoils and other solid wastes)		164.43	5.00%	0.80
	Land, Water, People (Proper onsite handling, transport and disposal of hazardous materials)		164.43	10.00%	1.60
	Water (implementing measures for water spillage)		164.43	20.00%	3.21
	Land, Water (oil spill management implementation)		164.43	15.00%	2.41
	Air, People (dust control measures)		164.43	5.00%	0.80
	Air, People (Air emission and noise control measures)		164.43	5.00%	0.80
	People (Occupational Safety and Health)		411.09	50.00%	20.06
	People (safety risks: Barriers, early warning devices)		411.09	10.00%	4.01
	People (coordinator for basic resources/providers, residents for any threats and concerns)		411.09	10.00%	4.01
	People (traffic control measures implementation)		411.09	20.00%	8.02
DEMOBILIZATION AND OPERATIONAL PHASE					
Dismantling of	Land, Water (solid waste		67.28	40.00%	2.63

Project Activities	Environmental Components	Type of Cost	Cost	%	Final Cost (in millions)
Temporary Facilities for Workers	management plan)				
	Air, People (Air emission and noise control measures)		336.40	20.00%	6.56
	People (Occupational Safety and Health)		88.53	30.00%	2.59
Road Operations	Water (storm water management implementation)		336.40	40.00%	13.13
	People (enhancement employment livelihood)		88.53	20.00%	1.73
	People (Road traffic noise control)		88.53	10.00%	0.86
	People (Occupational Safety and Health)		88.53	30.00%	2.59
	People (traffic control measures implementation)		88.53	10.00%	0.86

Link Road Package 3

Project Activities	Environmental Components	Type of Cost	Cost	%	Final Cost (in millions)
PRE-CONSTRUCTION PHASE					
Acquisition and Applicable Permits processing	People	Development Cost	194.57	10.00%	0.84
Land Acquisition RROW	People (Disturbance/Displacement of Settlers)		194.57	25.00%	2.10
	People (households involuntary resettlements)		194.57	25.00%	2.10
Hiring of Workers (Local)	People (barangay host		194.57	15.00%	1.26
Site Preparation	Land		194.57	5.00%	0.42
Vegetation Clearing	Water		194.57	10.00%	0.84
Utilities Relocation	People		194.57	15.00%	1.26
CONSTRUCTION PHASE					
Construction of Temp Facilities for Workers	Land, Water, People (Solid Waste Management Plan)	Civil Works Cost	164.43	20.00%	1.42
	Land, Water, People (Adequate Sanitation Facilities)		164.43	15.00%	1.06
	People (Safety, Risks, Peace and Order) Coordinators		411.09	10.00%	1.77
Civil Works for the Main Corridor and Link Roads	Land (ground vibration control)		164.43	5.00%	0.35
	Land, Water, People (Proper disposal of debris/spoils and other solid wastes)		164.43	5.00%	0.35
	Land, Water, People (Proper onsite handling, transport and		164.43	10.00%	0.71

Project Activities	Environmental Components	Type of Cost	Cost	%	Final Cost (in millions)
	disposal of hazardous materials)				
	Water (implementing measures for water spillage)		164.43	20.00%	1.42
	Land, Water (oil spill management implementation)		164.43	15.00%	1.06
	Air, People (dust control measures)		164.43	5.00%	0.35
	Air, People (Air emission and noise control measures)		164.43	5.00%	0.35
	People (Occupational Safety and Health		411.09	50.00%	8.86
	People (safety risks: Barriers, early warning devices)		411.09	10.00%	1.77
	People (coordinator for basic resources/providers, residents for any threats and concerns)		411.09	10.00%	1.77
	People (traffic control measures implementation)		411.09	20.00%	3.54
DEMOBILIZATION AND OPERATIONAL PHASE					
Dismantling of Temporary Facilities for Workers	Land, Water (solid waste management plan)		67.28	40.00%	1.16
	Air, People (Air emission and noise control measures)		336.40	20.00%	2.90
	People (Occupational Safety and Health		88.53	30.00%	1.14
Road Operations	Water (storm water management implementation)		336.40	40.00%	5.80
	People (enhancement employment livelihood)		88.53	20.00%	0.76
	People (Road traffic noise control)		88.53	10.00%	0.38
	People (Occupational Safety and Health		88.53	30.00%	1.14
	People (traffic control measures implementation)		88.53	10.00%	0.38

Link Road Package 4

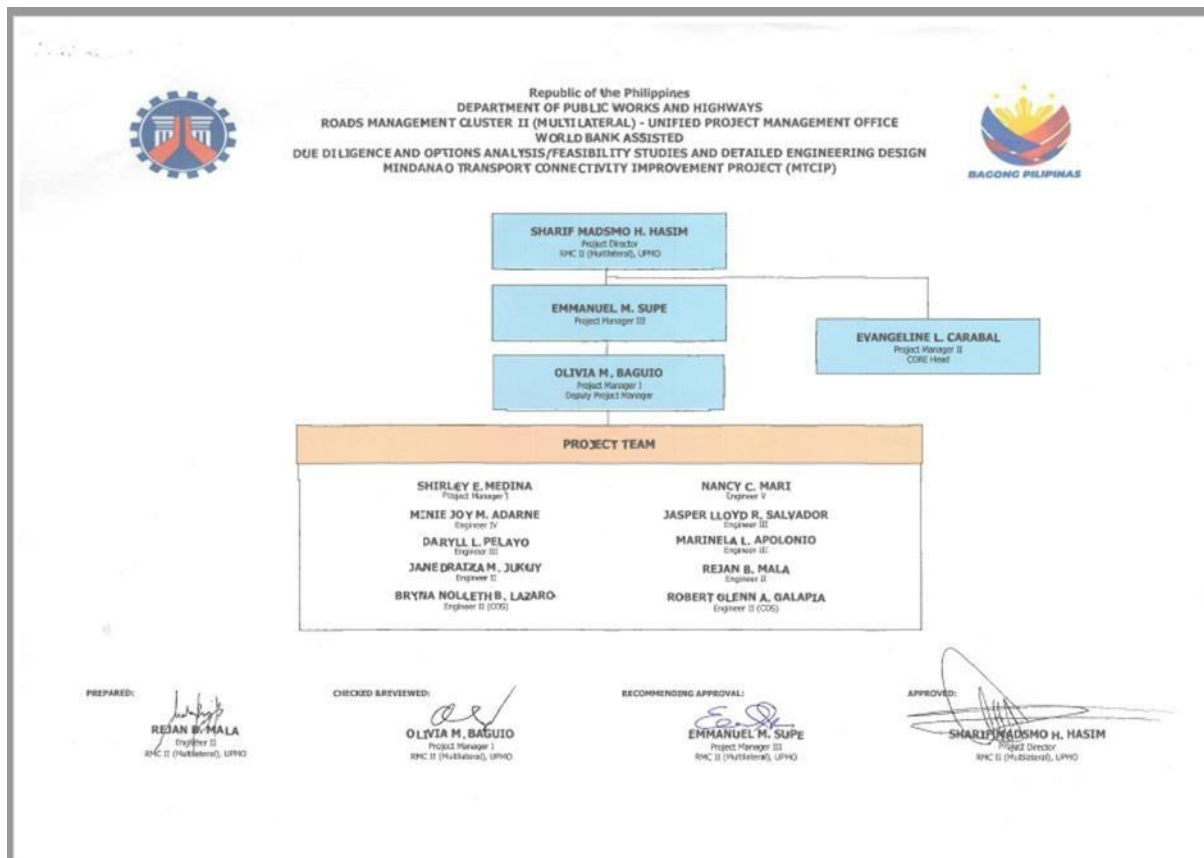
Project Activities	Environmental Components	Type of Cost	Cost	%	Final Cost (in millions)
PRE-CONSTRUCTION PHASE					
Acquisition and Applicable Permits processing	People	Development Cost	194.57	10.00%	0.82
Land Acquisition RROW	People (Disturbance/Displacement of Settlers)		194.57	25.00%	2.06
	People (households involuntary resettlements)		194.57	25.00%	2.06
Hiring of Workers (Local)	People (barangay host		194.57	15.00%	1.24
Site	Land		194.57	5.00%	0.41

Project Activities	Environmental Components	Type of Cost	Cost	%	Final Cost (in millions)
Preparation					
Vegetation Clearing	Water		194.57	10.00%	0.82
Utilities Relocation	People		194.57	15.00%	1.24
CONSTRUCTION PHASE					
Construction of Temp Facilities for Workers	Land, Water, People (Solid Waste Management Plan)	Civil Works Cost	164.43	20.00%	1.39
	Land, Water, People (Adequate Sanitation Facilities)		164.43	15.00%	1.05
	People (Safety, Risks, Peace and Order) Coordinators		411.09	10.00%	1.74
Civil Works for the Main Corridor and Link Roads	Land (ground vibration control)		164.43	5.00%	0.35
	Land, Water, People (Proper disposal of debris/spoils and other solid wastes)		164.43	5.00%	0.35
	Land, Water, People (Proper onsite handling, transport and disposal of hazardous materials)		164.43	10.00%	0.70
	Water (implementing measures for water spillage)		164.43	20.00%	1.39
	Land, Water (oil spill management implementation)		164.43	15.00%	1.05
	Air, People (dust control measures)		164.43	5.00%	0.35
	Air, People (Air emission and noise control measures)		164.43	5.00%	0.35
	People (Occupational Safety and Health)		411.09	50.00%	8.71
	People (safety risks: Barriers, early warning devices)		411.09	10.00%	1.74
	People (coordinator for basic resources/providers, residents for any threats and concerns)		411.09	10.00%	1.74
	People (traffic control measures implementation)		411.09	20.00%	3.49
DEMOBILIZATION AND OPERATIONAL PHASE					
Dismantling of Temporary Facilities for Workers	Land, Water (solid waste management plan)		67.28	40.00%	1.14
	Air, People (Air emission and noise control measures)		336.40	20.00%	2.85
	People (Occupational Safety and Health)		88.53	30.00%	1.13
Road Operations	Water (storm water management implementation)		336.40	40.00%	5.70
	People (enhancement employment livelihood)		88.53	20.00%	0.75
	People (Road traffic noise control)		88.53	10.00%	0.38
	People (Occupational Safety and Health)		88.53	30.00%	1.13
	People (traffic control measures implementation)		88.53	10.00%	0.38

Link Road Package 5

Project Activities	Environmental Components	Type of Cost	Cost	%	Final Cost (in millions)
PRE-CONSTRUCTION PHASE					
Acquisition and Applicable Permits processing	People	Development Cost	194.57	10.00%	1.25
Land Acquisition RROW	People (Disturbance/Displacement of Settlers)		194.57	25.00%	3.13
	People (households involuntary resettlements)		194.57	25.00%	3.13
Hiring of Workers (Local)	People (barangay host		194.57	15.00%	1.88
Site Preparation	Land		194.57	5.00%	0.63
Vegetation Clearing	Water		194.57	10.00%	1.25
Utilities Relocation	People		194.57	15.00%	1.88
CONSTRUCTION PHASE					
Construction of Temp Facilities for Workers	Land, Water, People (Solid Waste Management Plan)	Civil Works Cost	164.43	20.00%	2.11
	Land, Water, People (Adequate Sanitation Facilities)		164.43	15.00%	1.58
	People (Safety, Risks, Peace and Order) Coordinators		411.09	10.00%	2.64
Civil Works for the Main Corridor and Link Roads	Land (ground vibration control)		164.43	5.00%	0.53
	Land, Water, People (Proper disposal of debris/spoils and other solid wastes)		164.43	5.00%	0.53
	Land, Water, People (Proper onsite handling, transport and disposal of hazardous materials)		164.43	10.00%	1.06
	Water (implementing measures for water spillage)		164.43	20.00%	2.11
	Land, Water (oil spill management implementation)		164.43	15.00%	1.58
	Air, People (dust control measures)		164.43	5.00%	0.53
	Air, People (Air emission and noise control measures)		164.43	5.00%	0.53
	People (Occupational Safety and Health		411.09	50.00%	13.21
	People (safety risks: Barriers, early warning devices)		411.09	10.00%	2.64
	People (coordinator for basic resources/providers, residents for any threats and concerns)		411.09	10.00%	2.64
	People (traffic control measures implementation)		411.09	20.00%	5.28
DEMOBILIZATION AND OPERATIONAL PHASE					
Dismantling of Temporary Facilities for	Land, Water (solid waste management plan)		67.28	40.00%	1.73
	Air, People (Air emission and		336.40	20.00%	4.32

Project Activities	Environmental Components	Type of Cost	Cost	%	Final Cost (in millions)
Workers	noise control measures)				
	People (Occupational Safety and Health		88.53	30.00%	1.71
Road Operations	Water (storm water management implementation)		336.40	40.00%	8.65
	People (enhancement employment livelihood)		88.53	20.00%	1.14
	People (Road traffic noise control)		88.53	10.00%	0.57
	People (Occupational Safety and Health		88.53	30.00%	1.71
	People (traffic control measures implementation)		88.53	10.00%	0.57

Annex 24. Office Order of DPWH Officials/Personnel Assigned to the Due Diligence and Options Analysis (DDOA)/ Feasibility Studies (FS) and Detailed Engineering Design (DED) for MTCIP

Annex 25. Stakeholders Consultation**Stakeholders consultation of Regional Office**

Activity	Date and Time	Invitees	Question	Respond
Workstream 4 Environmental and Social Impact Assessment (ESIA)	March 18, 2024 1:00 PM to 2:00 PM	DPWH Regional Offices X, XI, XII District Engineering Office (DEO)	All participants: Requesting for e-copy of presentation	UPMO Olivia Baguio: Responded that they will send the e-copy of the meeting.

Photo Documentation

Table 1. Stakeholders' consultation of Line Agencies

Activity	Date and Time	Invitees	Question	Respond
Workstream 4 Environmental and Social Impact Assessment (ESIA)	March 18, 2024 2:00 PM to 3:00 PM	DENR, DHSUD, DOST, NCIP, NEDA, DA, PPA	All participants: Requesting for e-copy of presentation	UPMO Olivia Baguio: Responded that they will send the e-copy of the meeting.
			Estrella Luz Peñanosa – NEDA X: Asking about the labor influx?	UPMO Olivia Baguio: Responded in accordance with RA 6685, the DPWH will follow the RA 6685 to hire fifty percent (50%) of the unskilled and the thirty percent (30%) of the skilled worker locally. Coordination with the LGUs the City/Municipality about the program which is include the livelihood program, which is applicable with the local community including women which is also encourage to participate.
				UPMO Olivia Baguio: We have already existing MOA with the NCIP, and their office will guide/lead us on the step-by-step process of what we should do.
			NCIP representative: Asking about suggested measures for addressing the concern of potential IPs affected by the certain project? Additionally, what existing mechanism are in place between the wDPWH and NCIP?	

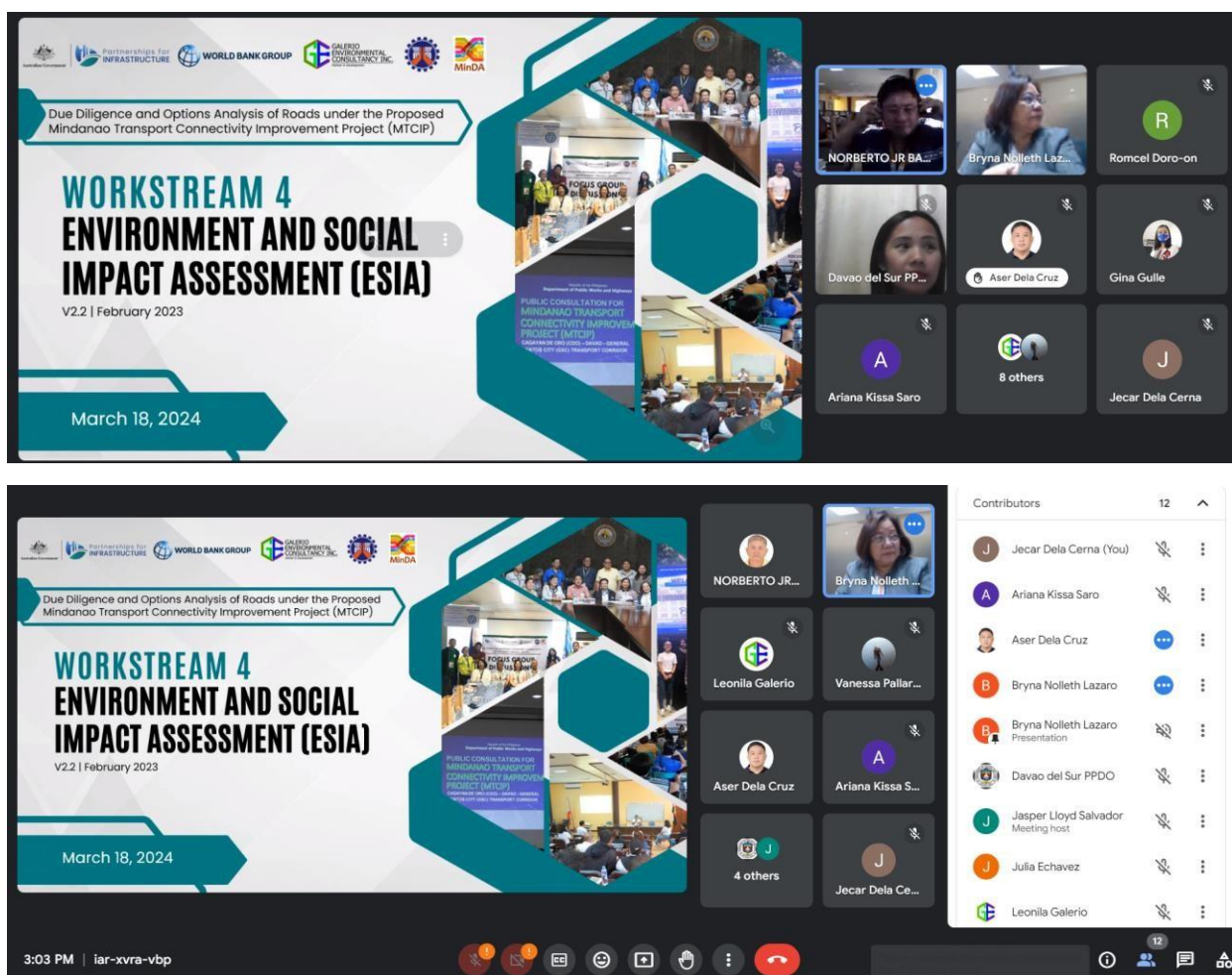
Photo Documentation



Stakeholders' consultation for Local Government Units (LGU)

Activity	Date and Time	Invitees	Question	Respond
Workstream 4 Environmental and Social Impact Assessment (ESIA)	March 18, 2024 1:00 PM to 2:00 PM	LGU's	All participants: Requesting for e-copy of presentation	UPMO Olivia Baguio: Responded that they will send the e-copy of the meeting.

Photo Documentation



Appendix 2. Subproject Environmental and Social Risks and Impacts Screening Form

(Reference: DPWH SEMS 2017 Annex 2: Screening Table for Project Environmental and Social Impact)

Environmental and Social Impacts	Indicate level of project impact (and corresponding EA type)			Identify mitigating measures in project design and in EMP/RAP/IPP*
	High-change (EMP)	major (EIS)	Medium-manageable (EIS or IEE/EMP)	
Site sensitivity				
Intrusion in environmentally sensitive areas or key biodiversity area (natural forest, watersheds, mangroves)				
Land conversion; consistency with Land Use/Zoning				
Vulnerability to natural hazards (flood/landslide/erosion prone)				
Harvesting/Extraction of water, trees, minerals, gravel, sand, etc.				
Geology/Soils				
Change in surface landform /topography/terrain/slope				
Change in sub-surface conditions				
Inducement of subsidence				
Inducement of landslides or other natural hazards				
Soil Erosion				
Terrestrial Biology				
Vegetation removal; loss of productive lands, natural habitats or loss of access to parks				
Disturbance to natural ecosystem/ wildlife				
Hydrology/Hydrogeology				
Change in drainage flow				
Inducement of flooding				
Restriction of natural waterways				
Water Quality and Water Resource availability				
Surface- or groundwater pollution				
Limited access to potable water				
Water resource competition				
Waste generation				
Domestic sewage				
Solid wastes				
Construction debris				
Freshwater / Coastal / Marine Ecology				
Threat to aquatic plants and animals				
Loss of natural habitat				

Environmental and Social Impacts	Indicate level of project impact (and corresponding EA type)			Identify mitigating measures in project design and in EMP/RAP/IPP*
	High-change (EMP)	major (EIS)	Medium-manageable (EIS or IEE/EMP)	
Air Quality and Traffic congestion				
Air pollution / increase in greenhouse gas				
Traffic congestion				
Increase in noise				

Environmental and Social Impacts	Indicate level of project impact (and corresponding EA type)			Identify mitigating measures in project design and in EMP/RAP/IPP*
	High-change (EMP)	major (EIS)	Medium-manageable (EIS or IEE/EMP)	
Increase in vibration				
SOCIAL IMPACTS				
Land acquisition and Involuntary resettlement				
Land acquisition				
Change in land ownership				
Displacement of property/ livelihoods				
Involuntary resettlement/ displacement of settlers				
Indigenous Peoples				
Presence or Impact (+ or -) Indigenous People				
Located in area/s covered by a Certificate of Ancestral Domain Title or existing claim to one?				
Require land used by IPs for productive (food gathering, gardening, farming, pasture, fishing, forests) and/or cultural purposes (sacred ground, place of rites, etc.)?				
Public health				
Effect on Community health and safety				
Effect on Occupational health and safety				

Conducted by:

Reviewed and approved by:

Note: Screening to be conducted by DED Consultant reviewed and approved by UPMO-RMCII

Appendix 3. PEISS Forms and Templates

Appendix 3-A. Environmental Impact Statement Outline

(Extracted from EMB MC 2007-02 'Revised Procedural Manual of DAO 2003-30. Basically, meets the requirements of ESS1, i.e. ESIA)

ANNEX 2-12 ENVIRONMENTAL IMPACT STATEMENT (EIS) OUTLINE

EIS OUTLINE (Maximum of about 250 pages)

**NOTE: REFER TO ANNEX 2-7a (EIS SCOPING AND PROCEDURAL SCREENING CHECKLIST)
FOR SPECIFIC CONTENTS/REQUIREMENTS OF EACH SECTION**

Project Fact Sheet

Table of Contents

Executive Summary

- 1) Brief Project Description
- 2) Brief Summary of Project's EIA Process
- 3) Summary of Baseline Characterization
- 4) Summary of Impact Assessment and Environmental Management Plan
- 5) Summary of Environmental Monitoring Plan
- 6) EMF and EGF Commitments

DRAFT MAIN EIS

1. BASIC PROJECT INFORMATION

2. DESCRIPTION OF THE PROJECT'S EIA PROCESS

- 2.1. Terms of Reference of the EIA Study
- 2.2. EIA Team
- 2.3. EIA Study Schedule
- 2.4. EIA Study Area
- 2.5. EIA Methodology
- 2.6. Public Participation

3. PROJECT DESCRIPTION

- 3.1. Project Location and Area
- 3.2. Project Rationale
- 3.3. Project Alternatives
- 3.4. Project Development Plan, Process/Technology Options and Project Components
- 3.5. Description of Project Phases (Activities/Environmental Aspects, Associated Wastes and Built-in Pollution Control Measures)
 - 3.5.1. Pre-construction/ Pre-operational phase
 - 3.5.2. Construction/Development phase
 - 3.5.3. Operational phase
 - 3.5.4. Abandonment phase
- 3.6. Manpower Requirements
- 3.7. Project Cost
- 3.8. Project Duration and Schedule

4. BASELINE ENVIRONMENTAL CONDITIONS, IMPACT ASSESSMENT AND MITIGATION

- 4.1. The Land (Discuss only relevant modules)
 - 4.1.1. Land Use and Classification

ANNEX 2-12

- 4.1.2. Pedology
- 4.1.3. Geology and Geomorphology
- 4.1.4. Terrestrial Biology
- 4.2. The Water (Discuss only relevant modules)
 - 4.2.1. Hydrology & Hydrogeology
 - 4.2.2. Oceanography
 - 4.2.3. Water Quality
 - 4.2.4. Freshwater Biology
 - 4.2.5. Marine Biology
- 4.3. The Air (Discuss only relevant modules)
 - 4.3.1. Meteorology
 - 4.3.2. Air Quality and Noise
- 4.4. The People

5. ENVIRONMENTAL RISK ASSESSMENT (WHEN APPLICABLE)

6. ENVIRONMENTAL MANAGEMENT PLAN

- 6.1. Impacts Management Plan
- 6.2. Social Development Framework
- 6.3. IEC Framework
- 6.4. Emergency Response Policy and Generic Guidelines
- 6.5. Abandonment /Decommissioning /Rehabilitation Policies and Generic Guidelines
- 6.6. Environmental Monitoring Plan
 - 6.2.1. Self-Monitoring Plan

Note: Attach under this section the filled out Project Environmental Monitoring and Audit Prioritization Scheme (PEMAPS) Questionnaire in Annex 2-7d of the RPM
 - 6.2.1. Multi-sectoral Monitoring Framework
 - 6.2.1. Environmental Guarantee and Monitoring Fund Commitment

- 6.7. Institutional Plan for EMP Implementation

7. BIBLIOGRAPHY/REFERENCES

8. ANNEXES

- 8.1. Scoping Checklist
- 8.2. Original Sworn Accountability Statement of Proponent
- 8.3. Original Sworn Accountability Statement of Key EIS Consultants
- 8.4. Proof of Public Participation
- 8.5. Baseline Study Support Information
- 8.6. Impact Assessment and EMP Support Information

NOTE: The EIA review process will advise DOH if the project will pose a significant public health risk to the environment, e.g. public health may be affected if the wastes/discharges are direct contributors to the leading causes of mortality/morbidity in the DIA, regardless of environmental management measures. To assist EMB on its review, DOH shall coordinate with the DENR-EMB on the declaration of Health Sensitive Projects and Health Sensitive Areas. Until such time, DOH shall review EHIA independently of the EIA Process, consistent with the DENR-DOH MOA on EHIA. Further, workers' HIA component of the EHIA is recommended to be coordinated by DOH with DOLE for the latter's consideration in its requirement of an Occupational Health and Safety Program from the Proponent.

Appendix 3-B. Sample IEE Checklist Application Form (Sample Road & Bridge)

Annex 2-1

INITIAL ENVIRONMENTAL EXAMINATION (IEE) CHECKLIST REPORT FORM
for
ROAD AND BRIDGE PROJECTS

This IEE Checklist Report Form shall be used for proposed **ROAD AND BRIDGE PROJECTS** required an IEE Report / IEE Checklist for ECC Application.

This IEE Checklist Report Form shall be submitted along with the following documents:

- Proof of Compatibility with the existing Land Use Plan
- Proof of Authority over the Project Site
- Accountability Statements of Proponent (see attached form) and the Preparer (if any, following Annexes 2-22 of Revised Procedural Manual for DAO 2003-30)
- Photographs or plates/vicinity map of the project site showing impact areas and affected areas and communities
- Duly Accomplished Project Environmental Monitoring & Audit Prioritization Scheme (PEMAPS) Questionnaire (see Annex 2-7d of Revised Procedural Manual for DAO 2003-30)
(No other documents shall be required as pre-requisite to ECC applications per DENR MC 2010-14.)

Read the questions carefully and write the required information on the spaces provided or otherwise check (✓) the appropriate boxes ☐. Boxes with check marks ☒ are mandatory requirements. Use additional sheets if necessary and indicate this in the appropriate space.

Project proponents are strongly **discouraged** from engaging the services of consultants/facilitators/preparers to accomplish/fill-up the IEE Checklist Report Form. The Report Forms have been designed to be user-friendly.

Furthermore, the EMB Regional Office is required to complete the processing of an ECC application using the IEE Checklist Report within twenty (20) working days upon receipt of duly-accomplished forms with complete attachments.

Misleading or erroneous answers are grounds for legal action and/or denial of ECC issuance.

Initial Environmental Examination (IEE) Checklist Report Form for Road and Bridge Projects

PROJECT FACT SHEET

Name of the Project	Improvement of Capoayan - Punaog - Ablang - Sagang Farm to Market Road		
Proponent Name	Tarlac Provincial LGU		
Proponent Address	San Vicente, Tarlac City, Tarlac		
Proponent Means of Contact	Name:	Designation:	
	Gov. Victor A. Yap / Mel Atienza	Provincial Governor	
	Landline No.	Fax No.	
	(045) 982 123 loc (045)		
	Mobile No.	Email:	

I. PROJECT DESCRIPTION

Please check project type and indicate size			
✓	Project Type	Project Size	Project Size Parameter
	Bridges and viaducts, new construction		Length
✓	Roads, new construction, widening (including RO-RO facilities)	14.6 km.	length with no critical slope, OR length with critical slope
	Elevated roads, flyover/cloverleaf/ interchanges		
	Tunnels and sub-grade roads and railways		Length
	Pedestrian passages		

Other Description Details:

Improvement of existing farm to market road
located at Brgy Capoayan, Moncada, Tarlac

I.1 PROJECT LOCATION AND AREA:

Street/Sitio/Barangay	Capoayan		
City/Municipality	Moncada		
Total Project Land Area	14.6 km.		
Zone/Classification (i.e., industrial, residential)	Agricultural		
Province	Tarlac		
Region	B		
Total Building Footprint Area	14.6 km.		

See attached vicinity map/s and photographs of the project site and site development/layout plan.

Initial Environmental Examination (IEE) Checklist, Return Form for Road and Bridge Projects

Geographic coordinates of the project area (Preferably use PRS 92 datum; otherwise, specify datum used).

Perimeter/Boundary points (based on OCT/TCT/etc.)	Longitude	Latitude

I.2 PROJECT COMPONENTS

Facilities	No. of Units	Area (sq/M)/ Capacity	Specifications/Description/ Remarks
1. Road	1	14.6 km.	Farm to Market Road (Improvement)
2. Intersections			
3. Bridge/s			
4. Access roads/Ramp			
5. Drainage facilities (i.e. Reinforced Concrete Box Culverts (RCBC); Reinforced Concrete Pipe Culverts (RCPC), others)			
6. Associated facilities (i.e. Guardrails, Traffic signs, etc.)			
7. Solid waste management facility			
8. Others, specify _____ _____			

Use additional sheets, if necessary

Initial Environmental Examination (IEE) Checklist Report Form for Road and Bridge Projects

I.3 UTILITIES/REQUIREMENTS (Operation Phase):

Utilities	Source	Estimated Demand/Consumption
Power/Electricity (Total) <i>TARLCO</i>		KWh
Power/Electricity (From Renewable Energy Sources)		KWh
Water (Total) (Fill-up table below if water is not obtained from the local water utility)		m ³ /day
Water (Rainwater Collection System)		m ³ /day

Water Source

☐ ground water ☒ well ☐ spring ☐ others: _____

☐ surface water ☐ river ☐ lake ☐ others: _____

Location of water source

Mancada, Tarlac
(Sitio/Zone, Barangay, Municipality/City, Province, Region)

Environmental Examination (EE) Checklist R Form for Road and Bridge Projects

Energy/Water Efficiency		
Utilities	Estimated Savings	Proposed Efficiency/Conservation Measures
Power/Electricity <i>Tardes</i>	KWh	
Water	m ³ /day	

I.3 MANPOWER

a. Construction Phase

Manpower Requirement	Expertise/Skills	Total
<i>20</i>	<i>2</i>	<i>22</i>

b. Operation Phase

Manpower Requirement	Expertise/Skills	Total

I.4 INDICATIVE PROJECT COST

Project Cost (PhP): *145,131,687.10*

Initial Environmental Examination (IEE) checklist Report Form for Road and Bridge Projects

II. ENVIRONMENTAL IMPACT AND MANAGEMENT PLAN

Possible Environmental/Social Impacts	Baseline Environment	Preventive/Mitigating Measures	Monitoring Parameters/Implementation	Cost of Mitigation/Monitoring
LAND <input checked="" type="checkbox"/> Consistency with land use	Current land use w/in 1km radius (as per zoning ordinance): <input type="checkbox"/> Residential <input type="checkbox"/> Commercial/ Institutional <input type="checkbox"/> Industrial <input checked="" type="checkbox"/> Agricultural/ Recreational <input type="checkbox"/> Protected Areas <input type="checkbox"/> Others, specify _____ Actual land uses w/in 1km radius: <input checked="" type="checkbox"/> Residential <input type="checkbox"/> Commercial/ Institutional <input type="checkbox"/> Industrial <input checked="" type="checkbox"/> Agricultural/ Recreational <input type="checkbox"/> Protected Areas <input type="checkbox"/> Others, specify _____	<input checked="" type="checkbox"/> See attached proof of compatibility with land use	<input checked="" type="checkbox"/> Annual inspection of area replanted/ re-vegetated	<input checked="" type="checkbox"/> Cost integrated in the construction/ operation cost
<input checked="" type="checkbox"/> Disturbance to wildlife due to vegetation clearing	Existing vegetation in the area: <input type="checkbox"/> Forestland <input type="checkbox"/> Marshland <input type="checkbox"/> Grassland <input type="checkbox"/> Mangrove <input type="checkbox"/> Wetland <input checked="" type="checkbox"/> Others, specify <i>Agricultural</i>	<input checked="" type="checkbox"/> Comply with conditions of DENR/LGU SLUP, Tree Cutting Permit, ROW, PCA Permit <input checked="" type="checkbox"/> Limit land clearing as much as possible <input checked="" type="checkbox"/> Provide temporary fencing for vegetation that will be retained <input checked="" type="checkbox"/> Promote restoration of damaged or destroyed vegetation where possible (e.g., tree planting)		

Initial Environmental Examination (IEE) Checklist Report Form for Road and Bridge Projects

Possible Environmental/Social Impacts	Baseline Environment	Preventive/Mitigating Measures	Monitoring Parameters/Implementation	Cost of Mitigation/Monitoring
<input type="checkbox"/> Change in surface landform/topography/terrain/slope <input type="checkbox"/> Soil Erosion	Slope: <input checked="" type="checkbox"/> flat (0-3%) <input type="checkbox"/> gently sloping to rolling (3-18%) <input type="checkbox"/> steep (>18%)	<input checked="" type="checkbox"/> Provide erosion control and slope protection measures <input type="checkbox"/> Designate a Spoils Storage Area, with topsoil set aside for later use and allow maximum re-use of spoils <input checked="" type="checkbox"/> Construct during dry season <input type="checkbox"/> Stabilize embankment with grasses or other soil cover <input type="checkbox"/> Others, specify _____ <input checked="" type="checkbox"/> Comply with the DENR Administrative Order No. 2010-30 and DENR Administrative Order No. 2000-28, Implementing Guidelines on Engineering Geological and Geo-Hazard Assessment (EGGA).	<input checked="" type="checkbox"/> Regular inspection of slope protection measures in erosion-prone areas <input type="checkbox"/> Regular inspection for new eroded areas near the site <input type="checkbox"/> Others, specify _____	<input type="checkbox"/> Slope/ Erosion Control Cost: <input type="checkbox"/> Others, specify _____
<input checked="" type="checkbox"/> Soil/Land contamination due to improper solid waste disposal	Existing soil type in the area: <input type="checkbox"/> sandy <input type="checkbox"/> clay <input checked="" type="checkbox"/> sandy-loam <input type="checkbox"/> Others, specify _____	<input checked="" type="checkbox"/> Implement Ecological Solid Waste Management Plan (ESWMP) <input type="checkbox"/> Set up temporary fence around the construction area <input checked="" type="checkbox"/> Implement re-use and recycling of waste materials <input checked="" type="checkbox"/> Implement proper segregation, collection and disposal of domestic wastes in designated areas <input type="checkbox"/> Implement proper collection, labeling and storage of hazardous waste <input checked="" type="checkbox"/> Provide receptacles / bins for solid wastes	<input checked="" type="checkbox"/> Daily inspection of waste/recycling bins for segregation <input checked="" type="checkbox"/> Daily inspection for presence of mixed garbage in the facility <input checked="" type="checkbox"/> Weekly inspection of waste accumulated <input type="checkbox"/> Others, specify _____	<input checked="" type="checkbox"/> Cost integrated in the construction/operation cost

Initial Environmental Examination (IEE) checklist Report Form for Road and Bridge Projects

Possible Environmental/Social Impacts	Baseline Environment	Preventive/Mitigating Measures	Monitoring Parameters/Implementation	Cost of Mitigation/Monitoring
<input checked="" type="checkbox"/> Encroachment into protected areas or ecologically-sensitive areas	Is the project area near protected areas or ecologically-sensitive areas? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Coordinate with the municipal / city waste collectors <input type="checkbox"/> Engage third party company for waste collection <input type="checkbox"/> Others, specify _____ <input checked="" type="checkbox"/> Obtain appropriate permits/clearances from concerned agencies <input type="checkbox"/> Provide adequate buffer <input type="checkbox"/> Others, specify _____	<input checked="" type="checkbox"/> Regular coordination with concerned agencies	<input checked="" type="checkbox"/> Cost integrated in the construction/operation cost
<input checked="" type="checkbox"/> Impairment of visual aesthetics <input type="checkbox"/> Devaluation of land values	Presence of visually significant landforms/landscape/structures? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Implement landscaping and other beautification measures <input type="checkbox"/> Provide adequate buffer <input checked="" type="checkbox"/> Compensate adjacent property owners <input type="checkbox"/> Others, specify _____	<input type="checkbox"/> Regular inspection of landscaping and other beautification activities <input type="checkbox"/> Regular monitoring of buffer zones <input checked="" type="checkbox"/> Regular monitoring for presence/absence of complaints from adjacent property owners	<input checked="" type="checkbox"/> Cost integrated in the construction/operation cost
WATER				
<input checked="" type="checkbox"/> Increased siltation due to project activities <input checked="" type="checkbox"/> Water quality degradation <input type="checkbox"/> Others, specify _____	Specify nearest water body: Distance to nearest water body: <input checked="" type="checkbox"/> 0 to less than 0.5 km <input type="checkbox"/> 0.5 to 1 km <input type="checkbox"/> More than 1 km If nearest water body is fresh water, specify classification:	<input checked="" type="checkbox"/> Set up proper and adequate sanitary facilities <input type="checkbox"/> Strictly require the contractor and its workers to observe proper waste disposal and proper sanitation <input checked="" type="checkbox"/> Strictly observe proper waste handling and disposal <input type="checkbox"/> Set up silt trap/Gabions, Fascines/settling ponds to minimize downstream siltation	Regular (ocular) inspection of: <input checked="" type="checkbox"/> Drainage / canal systems <input type="checkbox"/> Sanitation facilities Regular (ocular) inspection of water body for: <input type="checkbox"/> Turbidity and/or silted condition <input type="checkbox"/> Floating wastes or debris	<input checked="" type="checkbox"/> Cost integrated in the construction/operation cost

Initial Environmental Examination (IEE) Checklist Report Form for Road and Bridge Projects

Possible Environmental/Social Impacts	Baseline Environment	Preventive/Mitigating Measures	Monitoring Parameters/Implementation	Cost of Mitigation/Monitoring
	<input type="checkbox"/> AA <input type="checkbox"/> A <input type="checkbox"/> B <input checked="" type="checkbox"/> C <input type="checkbox"/> D If nearest water body is coastal or marine water, specify classification: <input type="checkbox"/> SA <input type="checkbox"/> SB <input type="checkbox"/> SC <input type="checkbox"/> SD Current Water Use: <input type="checkbox"/> Fishery <input type="checkbox"/> Tourist Zone / Park <input type="checkbox"/> Recreational <input type="checkbox"/> Industrial <input checked="" type="checkbox"/> Agricultural	<input type="checkbox"/> Others, specify _____		
	Distance of project area to the nearest well used: <input checked="" type="checkbox"/> 0 to less than 0.5 km <input type="checkbox"/> 0.5 to 1 km <input type="checkbox"/> More than 1 km Use of the nearest well: <input type="checkbox"/> Drinking/Domestic <input checked="" type="checkbox"/> Industrial <input checked="" type="checkbox"/> Agricultural Size of population using water source:			
<input checked="" type="checkbox"/> Competition in water use <input type="checkbox"/> Depletion of water		<input type="checkbox"/> Implement rainwater harvesting and similar measures as an alternative source of water	<input checked="" type="checkbox"/> Regular monitoring for presence/absence of complaints	<input checked="" type="checkbox"/> Cost integrated in the construction/operation cost

Initial Environmental Examination (IEE) checklist Report Form for Road and Bridge Projects

Possible Environmental/Social Impacts	Baseline Environment	Preventive/Mitigating Measures	Monitoring Parameters/Implementation	Cost of Mitigation/Monitoring
resources	<input checked="" type="checkbox"/> ≤ 1,000 persons <input type="checkbox"/> > 1,000 and ≤ 5,000 persons <input type="checkbox"/> > 5,000 persons Available/nearest water source: <input type="checkbox"/> Deepwell <input type="checkbox"/> Water district/LGU <input type="checkbox"/> Surface water <input type="checkbox"/> Others, specify _____	<input checked="" type="checkbox"/> Observe water conservation measures <input type="checkbox"/> Others, specify _____	<input checked="" type="checkbox"/> Regular coordination with concerned agencies <input checked="" type="checkbox"/> Regular monitoring for occurrences of water shortages <input type="checkbox"/> Others, specify _____	
<input checked="" type="checkbox"/> Increased occurrence of flooding	Is the project site located in an area identified by MGE/PAG-ASA as flood prone? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input checked="" type="checkbox"/> Use appropriate design for project facilities <input checked="" type="checkbox"/> Implement appropriate drainage system <input type="checkbox"/> Regularly remove debris and other materials that may obstruct water flow <input type="checkbox"/> Others, specify _____	<input checked="" type="checkbox"/> Regular monitoring for presence/absence of complaints <input checked="" type="checkbox"/> Regular coordination with concerned agencies <input checked="" type="checkbox"/> Regular monitoring for increased frequency of flooding <input type="checkbox"/> Others, specify _____	<input checked="" type="checkbox"/> Cost integrated in the construction/operation cost
AIR / NOISE				
Air quality degradation	Distance to nearest community: <input checked="" type="checkbox"/> 0 to less than 0.5 km <input type="checkbox"/> 0.5 to 1 km <input type="checkbox"/> More than 1 km	<input type="checkbox"/> Properly operate and maintain all emission sources (e.g. vehicles, generator, etc.) <input type="checkbox"/> Install, when applicable, the appropriate air pollution control device/s <input checked="" type="checkbox"/> Strictly enforce good housekeeping practices <input type="checkbox"/> Control vehicle speed to lessen suspension of road dust	<input checked="" type="checkbox"/> Regular monitoring for presence/absence of complaints Regular (ocular) inspection of: <input type="checkbox"/> Absence of white or black smoke from vehicles, generator, etc. <input type="checkbox"/> Presence of truck cover during deliveries	<input checked="" type="checkbox"/> Cost integrated in the construction/operation cost

Initial Environmental Examination (IEE) Checklist Report Form for Road and Bridge Projects

Possible Environmental/Social Impacts	Baseline Environment	Preventive/Mitigating Measures	Monitoring Parameters/Implementation	Cost of Mitigation/Monitoring
<input checked="" type="checkbox"/> Nuisance due to noise generation	Distance to nearest community: <input checked="" type="checkbox"/> 0 to less than 0.5 km <input type="checkbox"/> 0.5 to 1 km <input type="checkbox"/> More than 1 km	<input checked="" type="checkbox"/> Conduct water spraying to suppress dust sources and minimize discomfort to nearby residents <input type="checkbox"/> Use covered vehicles to deliver materials that may generate dust <input type="checkbox"/> Others, specify _____	<input checked="" type="checkbox"/> Regular monitoring for presence/absence of complaints <input type="checkbox"/> Regular monitoring of buffer zones	<input checked="" type="checkbox"/> Cost integrated in the construction/operation cost
PEOPLE				
<input type="checkbox"/> Displacement of residents in the project site and within its vicinity <input type="checkbox"/> Displacement of Indigenous Peoples <input checked="" type="checkbox"/> Enhanced employment and/or livelihood opportunities	Size of population of host barangay: <input checked="" type="checkbox"/> ≤ 1,000 persons <input type="checkbox"/> > 1,000 and ≤ 5,000 persons <input type="checkbox"/> > 5,000 persons Classification of host barangay: <input type="checkbox"/> Urban <input checked="" type="checkbox"/> Rural	<input type="checkbox"/> Provide relocation/disturbance compensation packages <input checked="" type="checkbox"/> Prioritize local residents for employment <input checked="" type="checkbox"/> Promptly pay local taxes and other financial obligations <input checked="" type="checkbox"/> Regularly coordinate with LGU <input type="checkbox"/> Conduct prior consultation and coordination to minimize disruption of daily domestic activities and to ensure respect	<input checked="" type="checkbox"/> Regular monitoring for presence/absence of complaints <input checked="" type="checkbox"/> Regular coordination with LGU <input type="checkbox"/> Others, specify _____	<input checked="" type="checkbox"/> Cost integrated in the construction/operation cost

Initial Environmental Examination (IEE) checklist Report Form for Road and Bridge Projects

Possible Environmental/Social Impacts	Baseline Environment	Preventive/Mitigating Measures	Monitoring Parameters/Implementation	Cost of Mitigation/Monitoring
<input type="checkbox"/> Reduced employment and/or livelihood opportunities <input checked="" type="checkbox"/> Increased revenues for LGU <input type="checkbox"/> Disruption/Competition in delivery of public services (e.g., education, peace and order, etc.) <input checked="" type="checkbox"/> Enhanced delivery of public services (e.g., education, peace and order, etc.) <input type="checkbox"/> Increase in traffic volume and worsening of traffic flow	Available services within/near the host barangay: <input type="checkbox"/> Schools (e.g., elementary, high school, college) <input type="checkbox"/> Health facilities (e.g., clinics, hospitals, etc.) <input checked="" type="checkbox"/> Peace and order (e.g., police outpost, Brgy. Tanod, etc.) <input type="checkbox"/> Recreation and sports facilities <input type="checkbox"/> Others, specify _____	for IP rights and cultural practices <input type="checkbox"/> Ensure participation of IPs in consultations and dialogues <input checked="" type="checkbox"/> Provide appropriate traffic/warning signs, lighting, etc. <input type="checkbox"/> Others, specify _____	<input checked="" type="checkbox"/> Regular monitoring for presence/absence of complaints <input checked="" type="checkbox"/> Regular coordination with LGU <input checked="" type="checkbox"/> Regular submission of reports to concerned agency <input type="checkbox"/> Others, specify _____	<input checked="" type="checkbox"/> Cost integrated in the construction/operation cost
<input type="checkbox"/> Impacts on community health and safety <input type="checkbox"/> Others, specify _____		<input checked="" type="checkbox"/> Regularly coordinate with LGU <input type="checkbox"/> Provide appropriate warning signs, lighting and barricades, whenever practicable <input checked="" type="checkbox"/> Observe proper housekeeping <input type="checkbox"/> Provide on-site medical services for any emergency. <input checked="" type="checkbox"/> Participate in public awareness programs on health and safety <input type="checkbox"/> Implement appropriate safety programs for both community and workers <input type="checkbox"/> Others, specify _____		

Initial Environmental Examination (IEE) Checklist Report Form for Road and Bridge Projects

III. ABANDONMENT / DECOMMISSIONING / REHABILITATION POLICIES AND GENERIC GUIDELINES
(if Applicable)

Project Life or Service: Lifetime years

Provide description of the Abandonment activities, such as dismantling and waste disposal.

no abandonment

IV. INSTITUTIONAL PLAN FOR EMP IMPLEMENTATION

Organization Chart:

n/a

Initial Environmental Examination (IEE) Checklist Report Form for Road and Bridge Projects

Attach design/plan/alignment of project (with dimensions and descriptions)

W/A

Project Name : *Improvement of Capuagan - Bantay - Ablang*
Project Location : *Agay Capuagan, Marikina, Pinar del Rio*
ECC Reference No. : *to market Bantay*
Proponent : *LGU Tarlac Province*
Pollution Control Officer :
Tel. No./Fax No./E-mail :
Project Type : *Road Improvement*
Project Status : *Proposed project*

I. PROJECT CONSIDERATIONS

1.1 Size and Type

1.1.1 Size based on number of employees

Specify number of employees: 10

1.1.2 Type

ECP (in either ECA or Non-ECA)

Non-ECP but in ECA

Non-ECP and Non-ECA

1.2 Waste Generation and Management

1.2.1 Enumerate Waste Type and Specify Quantity of Wastes generated in your facility. (Identify /Enumerate)

Category	Waste	Type		Quantity
		Hazardous	Non-Hazardous	
Air	Waste 1		✓	(units: MT/yr)
	Waste 2			
	Waste N			
Liquid			✓	(units: m ³ /yr)
Solid			✓	(units: tons/yr)

1.3 Pollution Control System (PCS)

1.3.1 Enumerate PCS or Waste Management Method Used in your facility. (Identify /Enumerate)

Category	PCS/Waste Management Method Used	Remarks
Air	PCS 1	<i>Watering of the Area</i>
	PCS 2	
	PCS N	
Liquid	Primary	—
	Secondary	
	Tertiary	
Solid		<i>Proper Collection and disposal</i>

II. PATHWAYS

- 2.1 Prevailing wind towards barrio or city? (mark the corresponding point) Yes ☒ No ☐
- 2.2 Rainfall (impacts surface & groundwater pathways)
- 2.2.1 Average annual net rainfall:
Specify amount: _____ (units: mm) _____
- 2.2.2 Maximum 24-hour rainfall:
Specify amount: _____ (units: mm) _____
- 2.3 Terrain (select one and mark) Flat ☒ Steep ☐
- 2.4 Is the facility located in a flood-prone area? (select one and mark) Yes ☐ No ☒
- 2.5 Ground Water
- Depth of groundwater table (meter) (select one and mark)
- 0 to less than 3 ☒
- 3 to 10 ☐
- Greater than 10 ☐

III. RECEIVING MEDIA/RECEPTORS

- 3.1 Air (Distance to nearest community) (select one and mark)
- 0 to less than 0.5 km ☒
- 0.5 to 1 km ☐
- Greater than 1 km ☐
- 3.2 Receiving Surface Water Body
- 3.2.1 Distance to receiving surface water: (select one and mark)
- 0 to less than 0.5 km ☒
- 0.5 to 1 km ☐
- Greater than 1 km ☐
- 3.2.2 Size of population using receiving surface water
Specify number: Small
- 3.2.3 Fresh Water
- 3.2.3.1 Classification of fresh water (select one and mark)
- AA ☐
- A ☐
- B ☐
- C ☒
- D ☐
- 3.2.3.2 Size of fresh water body
Specify size: _____ (units: km²) _____
- 3.2.3.3 Economic value of water use (may select more than one of the criteria below)

Drinking	<input checked="" type="checkbox"/>
Domestic	<input checked="" type="checkbox"/>
Recreational	<input type="checkbox"/>
Fishery	<input type="checkbox"/>
Industrial	<input type="checkbox"/>
Agricultural	<input checked="" type="checkbox"/>

3.2.4 Salt water

3.2.4.1 Classification of salt water (select one and mark)

SA	<input type="checkbox"/>
SB	<input type="checkbox"/>
SC	<input checked="" type="checkbox"/>
SD	<input type="checkbox"/>

3.2.4.2 Economic value of water use (may select more than one of the criteria below)

Fishery	<input type="checkbox"/>
Tourist zone or park	<input type="checkbox"/>
Recreational	<input checked="" type="checkbox"/>
Industrial	<input type="checkbox"/>

3.3 Ground Water

3.3.1 Distance to nearest recharge area (select one and mark)

0 to less than 0.5 km	<input checked="" type="checkbox"/>
0.5 to 1 km	<input type="checkbox"/>
Greater than 1 km	<input type="checkbox"/>

3.3.2 Distance to nearest well used (select one and mark)

0 to less than 0.5 km	<input checked="" type="checkbox"/>
0.5 to 1 km	<input type="checkbox"/>
Greater than 1 km	<input type="checkbox"/>

3.3.3 Groundwater use within the nearest well (may select more than one of the criteria below)

Drinking	<input checked="" type="checkbox"/>
Industrial	<input checked="" type="checkbox"/>
Agricultural	<input checked="" type="checkbox"/>

3.4 Land

3.4.1 Indicate current/actual land uses within 0.5 km radius: (may select more than one of the criteria below)

Residential	<input checked="" type="checkbox"/>
Commercial/Institutional	<input type="checkbox"/>
Industrial	<input type="checkbox"/>
Agricultural/Recreational	<input checked="" type="checkbox"/>
Protected Area	<input type="checkbox"/>

3.4.2 Potential/proposed land uses within 0.5 km (may select more than one of the criteria below)

Residential
Commercial/Institutional
Industrial
Agricultural/Recreational
Protected Area

☒
☐
☐
☒
☐

3.4.3 Number of affected Environmentally Critical Areas within 1 km:

Specify number:

5,000

3.4.4 Distance to nearest ECA

(select one and mark)

0 to less than 0.5km

0.5 to 1 km

Greater than 1 km

☐
☐
☒

IV. ENVIRONMENTAL PERFORMANCE (FOR EXISTING PROJECTS FOR EXPANSION)

3.5 Compliance (pls. take note that this will be double-checked with PCD files)

Law	Violation (check if any)	Type (pls. specify number of times committed)				Type of Admin Violation	Additional Remarks/Status of Compliance
		STANDARD					
		Emission/Effluent/ Discharge	Ambient	Human Impact	Admin/ ECC		
RA 8749							
RA 9275							
RA 6969							
PD 1586							
RA 9003							

3.6 Number of Valid Complaints

3.6.1 Citizen and NGOs

Specify number:

none

3.6.2 Others (other Govt. Agencies, Private Institutions)

Specify number:

none

(To be filled up by EMB Personnel)

RECOMMENDATION/S:

Assessed By: _____

Noted By: _____

ACCOUNTABILITY STATEMENT OF PROJECT PROPONENT

This is to certify that all information in the submitted **Project Environmental Monitoring And Audit Prioritization Scheme (PEMAPS) Questionnaire** of _____ located at _____ is true, accurate and complete. Should I learn of any information, which makes this inaccurate, I shall bring said information to the appropriate Environmental Management Bureau Regional Office.

In witness whereof, I hereby set out my hands this
JAN 07 2015 day of 200_ at CITY OF SAN FERNANDO
PROVINCE OF PAMPANGA
GOV. VICTOR A. YAP
PROJECT PROPONENT

SUBSCRIBED AND SWORN to before me this
JAN 07 2015 day of _____ 200_ at _____
Affiant exhibiting to me his/her Community Tax
Certificate No. _____ issued on _____

Doc. No. CS
Page No. 11
Book No. AP
Series of 2015

CONRADO T. DANAN
Notary Public
Until December 31, 2015
PTR No 8292992 - 1/5/15
IBP No 961921 1/5/15
Pampanga
Roll No 27347
MCLE No. IV - 0010126

Initial Environmental Examination (IEE) Checklist Report Form for Road and Bridge Projects

SWORN STATEMENT OF ACCOUNTABILITY OF THE PROPONENT

This is to certify that all the information and commitments in this Initial Environmental Examination (IEE) Checklist Report are accurate and complete to the best of my knowledge.

By the authority vested in me by the _____ (Company Name)
as _____ (Position/Designation) I hereby commit to ensure implementation of all commitments,
mitigating measures and monitoring requirements indicated in this IEE Checklist Report as well as the
following:

- Conform to pertinent provisions of applicable environmental laws e.g., R.A. No. 6969 (Toxic Substances and Hazardous and Nuclear Wastes Control Act of 1990), R.A. No. 9003 (Ecological Solid Waste Management Act of 2000), R.A. No. 9275 (Philippine Clean Water Act of 2004), and R.A. No. 8749 (Philippine Clean Air Act of 1999).
- Abide and conform to LGU development plan and guidelines.
- Promptly pay local taxes and other financial obligations.
- Regularly submit reports to concerned agencies.

I hereby bind myself to answer any penalty that may be imposed arising from any misrepresentation or failure to state material information in this IEE Checklist.

In witness whereof, I hereby set my hand this JAN 07 2015 day of _____ at _____

CITY OF SAN FERNANDO
PROVINCE OF PAMPANGA

Gov. Victor A. Yap.
NAME OF PROPONENT HEAD

Signature

Governor
Position

LGU, Tarlac Province
Company Name

JAN 07 2015
SUBSCRIBED AND SWORN TO before me this _____ day of _____, 201____, affiant exhibiting
his/her Community Tax Certificate No. _____ issued at _____ on _____

Doc No. 44
Page No. 1
Book No. 5
Series of 2021

CONRADO T. DANAN
Notary Public
Until December 31, 2015
PTR No. 111-1992 11/15
IBP No. 861021 1/5/15
Pampanga
Roll No. 27347
MCLE No. IV - 0010128

Appendix 3-C. Project Description Report Outline (Source: EMB MC 2007-002)

ANNEX 2-16

PROJECT DESCRIPTION REPORT (PDR) OUTLINE

PDR OUTLINE (maximum of about 30 pages)

PURPOSES: GRP III ENHANCEMENT/MITIGATION PROJECTS – PD REPORT REQUIRED; ALL OTHER GRP III PROJECTS – PD REPORT OPTIONAL; GRP V UNCLASSIFIED/ UNLISTED/NEW TECHNOLOGY PROJECT – PD REPORT REQUIRED

Table of Contents (1 page)

1. BASIC INFORMATION ON PROJECT and PROPONENT (1 page)

2. PROJECT DESCRIPTION (15 pages)

- 2.1. **Project Location and Area** (at the minimum, shown in an official NAMRIA topographic or nautical map (whichever type is applicable and of appropriate scale); Show title, legend, scale, project location and political boundaries (from sitio/barangay to region); indicate any known ECA category encompassing the project area)
- 2.2. **Project Rationale** – state need for & purpose of the project., particularly environmental enhancement or mitigation purpose of the project
- 2.3. **Project Development Plan, Process and Components** - Attach tentative/option of Physical Plan/Site Development Map being considered at the FS stage; briefly describe process/technology; list/describe and indicate project components (facilities/infrastructures, other single projects supporting the main project) on the topographic map
- 2.4. **Description of Project Phases** - For Group III non-covered projects: focus on activities and processes which may cause residual impacts; For Unclassified/Unlisted/New Technology Projects: focus on critical activities and processes per phase which place a demand on local resource uses and which generate emissions, effluent, hazardous waste, solid waste, other wastes)
 - 2.4.1. **Pre-Construction/ Pre-Development phase**
 - 2.4.2. **Construction/Development phase**
 - 2.4.3. **Operational phase** – For Unclassified/Unlisted/New Technology Projects: Specifically present if processes and substances to be used are listed and fall within the limits covered by Environmental Risk Assessment as enumerated in Section C of Annex 2-7a of the Revised Procedural Manual)
 - 2.4.4. **Abandonment phase**
- 2.5. **Project Emissions/Effluent/ Hazardous Waste/Solid Waste/Other Wastes** - Present integrated summary of types of wastes (residual for Group III non-covered projects) ; estimate waste generation rate; identify built-in waste management measures and facilities planned or committed to be built into the project design
- 2.6. **Manpower** - Present manpower requirements per project phase; specify expertise needed; nature & estimated number of jobs available for men; nature and number of jobs available for women; specify strategy and tentative scheme for sourcing locally from host and neighboring LGUs and those from outside
- 2.7. **Project Cost**
- 2.8. **Project Duration and Schedule**

3. OVERVIEW/GENERIC DESCRIPTION OF THE BASELINE ENVIRONMENT (4 pages – on land, water, air, people) – focus on the environmental components and factors likely to be affected by the project's impacts; only secondary data or qualitative environmental description is necessary

4. ENVIRONMENTAL MANAGEMENT PLAN (3 pages - focused only on the residual management scheme on the relevant land, water air & people module)

5. ANNEXES (3-6 pages)

- 5.1 Original Sworn Accountability Statement of Proponent (Use Annex 2-21 of RPM)
- 5.2 Photos or plates of proposed project site, cumulative/residual impact areas and surrounding communities (N, S, E, W of the project; key sectoral features - land, water, air, people)

Appendix 3-D. Environmental Performance Report and Management Plan (EPRMP) Outline (Source: EMB MC 2007-002)

(Maximum of about 150 pages)

- I. Project Fact Sheet**
- II. Table of Contents**
- III. Executive Summary**
 - a. Brief Project Description
 - b. Brief Summary of Project's EIA Process
 - c. Brief description of the existing project vis-à-vis the proposed expansion or changes
 - d. Summary on the EIA Findings on the Key Significant Impacts of the Project and corresponding EMP
 - e. highlights
 - f. Summary of the Environmental Monitoring Plan on the most significant impacts and key measures

DRAFT MAIN EPRMP

1.0 BASIC PROJECT INFORMATION

2.0 DESCRIPTION OF THE PROJECT'S EIA PROCESS

- 2.1 Terms of Reference of the EIA Study
- 2.2 EIA Team (Proponent & Preparer Team members, module of involvement, expertise)
- 2.3 EIA Study Schedule
- 2.4 EIA Study Area (project area up to extent of coverage of study)
- 2.5 EIA Methodology (per module)
- 2.6 EIA Public Participation (if any)

3.0 PROJECT DESCRIPTION

- 3.1 Basic Project Background and Information
- 3.2 Project Rationale
- 3.3 Complete project location (barangay, municipality, province, etc) with geographic coordinates.
- 3.4 Project Site Considerations
- 3.5 Description of Project Phases & Activities
- 3.6 Resource & Utility Requirements, Manpower, Cost
- 3.7 Waste Generation & Built-in Management Measures
- 3.8 Summary of Comparison of the new and old projects

4.0 BASELINE ENVIRONMENTAL CONDITIONS FOR CRITICAL ENVIRONMENTAL PARAMETERS, IMPACT ASSESSMENT & MITIGATION (limit to relevant modules)

- 4.1 The Land
- 4.2 The Water
- 4.3 The Air
- 4.4 The People

5.0 ENVIRONMENTAL PERFORMANCE BASED ON THE ORIGINAL ECC-COVERED

ENVIRONMENTAL MANAGEMENT PLAN

- 5.1. Impact(s) Mitigation Plan (IMP)
- 5.2. Environmental Monitoring Plan (EMoP) and other Monitoring Modes
- 5.3. Information, Education and Communication (IEC) and Social Development Program (SDP) or Community Assistance Program (CAP)
- 5.4. Environmental Risk Management and Emergency Response Programs (ERP)
- 5.5. Abandonment/Rehabilitation Programs
- 5.6. Institutional Set-up
- 5.7. Achievements/Awards and Outstanding Accomplishments on the Environment

6.0 ENVIRONMENTAL RISK ASSESSMENT

1.0 ENVIRONMENTAL RISK CATEGORIZATION (PEMAPS)

8.0 ENVIRONMENTAL MANAGEMENT PLAN (EMP) FOR CURRENT PROJECT & PROPOSED MODIFICATION/ EXPANSION – including EMF and EGF

9.0 BIBLIOGRAPHY

10.0 APPENDIXES

- 10.1. Commitments or Agreements
- 10.2. Accountability Statements of Preparers & Proponent
- 10.3. Photographs or plates of the project site, impact areas an affected areas and communities
- 10.4. Environmental Data

NOTE: The EIA Findings on the project's environmental impacts and management measures will advise DOH if the project will pose a public health risk to the environment. For this purpose, DOH shall provide DENR-EMB with a declaration of Health Sensitive Projects and Health Sensitive Areas. Until such time, DOH shall review EHIA independently of the EIA Process. Further, workers' HIA component of the EHIA is recommended to be coordinated by DOH with DOLE for the latter's consideration in its requirement of an Occupational Health and Safety Program from the Proponent.

Appendix 4. Labor Management Procedures



Consultancy Services for the
Due Diligence and Options Analysis
for the proposed Mindanao Transport Connectivity Improvement Project

Labor Management Procedures (LMP)

Version 3.0 | March 19, 2024

I. INTRODUCTION

This Labor Management Procedures (LMP) document is prepared for the Mindanao Transport Connectivity Improvement Project (MTCIP) of the Department of Public Works and Highways (DPWH) supported by the World Bank. It seeks to ensure that all workers involved in the project are protected and are working in safe environments. At the same time, it sets out expected behaviors from workers to ensure harmony in the communities where the project operates. This LMP is consistent with World Bank's Environment and Social Framework (ESF) particularly Environment and Social Standard 2 (ESS2) Labor and Working Conditions and the Labor Code of the Philippines. Where there are gaps between the two, this LMP proposes gap-filling measures; usually adopting the more stringent one. The overall objective of the MTCIP is to improve connectivity, climate resilience and safety of selected roads in the Mindanao region. It also intends to improve three (3) link roads located in a) Link Road 1. Sayre Highway (Patulangan) – Cawayan - Kibenton Road, b) Link Road 2. Davao City Saloy - Bantol – Fatima - Malalag Road in Panabo City, and c) Link Road 3. National Highway Jct. Poblacion Malungon to Sta. Maria Road Davao Occidental.

The MTCIP will be implemented by the DPWH-UPMO-Road Management Cluster 2 (Multilateral). The LMP will be carried out by the Environmental and Social Safeguards Unit (ESSU) of the cluster. The LMP is a living document, which is initiated early in project preparation, and is reviewed and updated through the project development and implementation. The disclosure and clearance of the LMP by the World Bank shall be observed.

A. Project Description

The proposed MTCIP has five key components:

- **Connectivity:** (*Component 1: Improvements of selected local roads ("Link Roads")*) - upgrading 116 km of selected local roads to national road standards with climate resilience and road safety measures.
- **Long-Term Road Asset Maintenance:** (*Component 2: Capacity, climate resilience and road safety enhancement of the CDO-Davao-GenSan Corridor ("Main Corridor")*) - Road safety improvement and climate resilience (whole 421.12 km) and rehabilitation (124 km of damaged sections), and an Output Performance-Based Road Contract (OPRC) of 5-7 years.
- **Capacity Building:** (*Component 3: Capacity building and Institutional Development*) - capacity enhancement of DPWH and select LGUs (e.g., training, studies, knowledge exchange, among others).
- **Project Management:** (*Component 4: Project Management*) - Support DPWH's UPMO-Road Management Cluster II in project implementation.
- **Contingency Emergency Response Component (CERC):** (*Component 5: Contingent Emergency Response Component (CERC) to support post-disaster recovery*) - a zero-dollar component within a project that allows for funds to be quickly reallocated to emergency recovery activities in the event of a disaster.

The CERC will provide the Government rapid access to financing to respond to an eligible crisis or emergency through an ex-ante mechanism. Anchored on the agreed triggers and specific operational guidelines, this allows reallocation of uncommitted project funds to immediately respond to urgent situations particularly in the event of disasters (geophysical,

climate-related, or man-made) such as typhoons, floods, earthquakes, volcanic eruptions, droughts and disease outbreaks, and public emergencies (e.g., pandemic). The utilization of funds for CERC may consider reallocation of uncommitted funds within the component and/or from one component to another. The utilization of funds will be in accordance with the eligible list of items, goods and civil works required to support the immediate response and recovery interventions, invoking the mandate of DPWH under various emergency response and contingency plans.

II. OVERVIEW OF LABOR USE ON THE PROJECT

A. Number and Characteristics of Project Workers

Direct Workers. These comprise individuals employed directly by the Department of Public Works and Highways (DPWH) both at the national and sub-national levels as well as term-personnel such as consultants, job order, etc. who will work specifically on the Project. The DPWH – Unified Project Management Office (UPMO), Roads Management Cluster – II (RMC II, Multilateral), as the Implementing Agency, will consist of Project Managers and staff that will be engaged during the Procurement, Detailed Engineering Design until project implementation. All direct workers are entitled to the existing terms and conditions and working arrangements of the Philippine government depending on their category.

Contracted Workers. The contracted workers refer to the personnel hired through third parties or entities that may include contractors, subcontractors, or their immediate intermediaries. The contracted workers shall undergo full capacity and capability appraisal, and comprehensive orientation on the requirements of WB ESS2 and the applicable GOP laws and regulations. The number of contracted workers depends on the schedule of works agreed at the regional and district offices of DPWH.

For this project, contracted workers are identified to work on the following:

- Preparatory works including setting up of the campsite, batching plant, processing of relevant permits, as-staked survey, selection of disposal sites, etc.
- Earthworks activities in which operators and spotters will be engaged to handle heavy equipment such as backhoe, bulldozer, dump trucks, etc.
- Preparation and construction of subgrade, subbase, and Portland Cement Concrete Pavement (PCCP) works
- Installation of Guardrails and other signages
- Construction of drainage and slope protection structures.

Security Personnel. The use of security personnel will be limited to the security guards or equivalent that the contractors will employ to protect the contractor's staff and assets including equipment and materials along the campsite. They fall under the category of contracted workers above. There are no known threats to security and peace on the project areas but given the general conflict context in Mindanao, the Project will be in close coordination with the concerned Philippine National Police and military as precautionary measures. In addition, the project will conduct risk assessment on security contractors to

ensure no prior history of abuse, and ensure they pass training/capacity building on safety and use of force to maintain safety for the community.

All these types of workers shall not be under the age of 18 in compliance with the Labor Code of the Philippines and the Special Protection of Children Against Child Abuse, Exploitation and Discrimination Act. Also, discrimination against disabled and women workers will be avoided as mandated under the Magna Carta for Disabled Persons (RA 7277, as amended by RA 9442) and Magna Carta of Women (RA 9710) respectively.

III. ASSESSMENT OF KEY POTENTIAL LABOR RISKS

A. Project Activities

Direct Workers. The Implementing Agency will be responsible for the procurement of consultants that will be engaged in the Detailed Engineering Design and Civil Works. It will also coordinate with the World Bank Team on the needed requirements and compliance on the agreed policies and framework. In addition, the Implementing Agency will communicate with relevant government agencies such as the National Commission on Indigenous Peoples (NCIP), Department of Environmental and Natural Resources (DENR) - Environmental Management Bureau, and Department of Labor and Employment (DOLE) in the processing of obtaining relevant permits during the design and implementation stage; coordinate with concerned Local Government Units (LGU); and oversee the day-to-day operations on the project implementation.

As the designated Implementing Agency, RMC II shall monitor the project's physical accomplishment including the compliance on the contractor's safety and health program, traffic management plan, environmental management plan and financial accomplishments.

Contracted Workers. A construction Supervision Consultant will be engaged throughout the project implementation tasked as the Engineer onsite. They will provide the overall strategic guidance and direction to the contractors in terms on project alignment, variations on the roadway or bridge design, materials quality control, environmental compliance in accordance with the government's and World Bank's policies, DOLE guidelines in terms of labor laws, project documentations, and traffic safety features. The Supervision Consultant (Engineer) will meet regularly with RMC II staff to review project progress towards the development objectives and help resolve any issues that may arise.

The construction of the proposed Link Roads and Main Corridor shall be carried out by the construction worker of the winning contractors. The contractors will submit their construction methodology with their proposed equipment and manpower in order to complete the works in the prescribed contract duration, subject to the approval of the construction supervision consultant.

The general construction works are summarized as provided below.

- a. Preparatory Works. The contractor will select the location of the campsite, quarry sites, and disposal sites and shall be approved by the Engineer on site. Permit to cut trees shall also be secured. As-staked survey will be conducted by the contractor.
- b. Earthworks activities. Trees within the construction limits shall be cut prior to clearing and grubbing activities. For road carriageway, bulldozer shall be used while the backhoe shall be used along the side ditches and/or edges of the construction limit.
- c. Removal of existing structures and any obstructions such as pavement, sidewalks, and curbs shall be broken into pieces, the size of which shall not exceed 300 mm in any dimension.
- d. Excavation Works. During the conduct of as-staked survey, actual elevations are identified. If unsuitable materials are encountered, excavate the roadway up to the stable soil. All suitable materials removed from the excavation shall be used as materials for embankment, subgrade, bedding, or backfill. Unsuitable materials will be transported to the approved disposal sites.
- e. Installation of cross drains and trenches. On the identified location of cross drains, excavation shall be done to a width provided in the design plans. In the installation of the pipes and storm drains, the beddings of the pipes shall be compacted to allow proper joining of the conduit and shall be provided with grouts for the collars.
- f. Grouted Riprap. On areas identified with soil erosion, grouted riprap is necessary to prevent the soils to collapse during rains. The bed for grouted riprap shall be excavated; stones are laid by hand and shall be firmly bedded into the slope and against adjoining stones; grout shall be placed from bottom to top of the surface swept with swift broom.
- g. Stone Masonry. The exposed side shall be stabilized in the construction of stone masonry. Excavate the trench to the required depth; pour concrete mortar on the trench before laying the first layer of stones/boulders for the foundation. All face stones shall be thoroughly cleaned of mortar stains and shall be kept clean until the work is completed.
- h. Bioengineering. To restore the stability of the exposed earth materials, one of the recommended mitigating measures is bioengineering by the installation of coco net fiber with coco logs. The coco fiber has seeds, once weathered the seeds will sprout and will grow into weeds or trees. Other exposed earth areas will be planted with vetiver grass.
- i. Embankment. During the as-staking, the actual elevations are determined as shown on the plans. Compaction trials (10m x 50m) shall be carried out by the contractor. Spread the material in horizontal layers not exceeding 200 mm (loose measurement) with appropriate crown/cross slope to ensure proper draining of surface water when it rains. Compaction shall be done by rolling using a vibratory road roller with a minimum weight of 10 tons.
- j. Subgrade Preparation shall be done after the cross drains, ditches, drains and drainage outlets, including the fully compacted backfill, shall be completed prior to the preparation of the subgrade. The succeeding structural layers shall proceed immediately after the preparation of the subgrade. Rolling/ compaction operation shall progress gradually from the sides to the center, parallel to the center of the road and shall continue until the whole surface has been rolled up.

- k. Aggregate Subbase Course. Provide blue-top at every 20 meters interval (marked staked) for vertical control reference and to be placed along the side of the roadway or permanent structures within the road traverse. Laying and spreading shall be done using a road grader on a prepared subgrade.
- l. Portland Cement Concrete Pavement (PCCP). Concrete shall be thoroughly consolidated along faces of all forms by means of vibrators inserted in the concrete in a vertical position. No spillage of fresh concrete cement should be visible on the water bodies nearby the construction site.
- m. Bridge construction. Removal of existing steel bridge and re-routing for continuous traffic. Pile driving or bored piling depending on the detailed engineering design will be done to secure the bridge foundation. The contractor will proceed to capping of the erected piles based on the design specifications. Pre-cast girders will be launch using the appropriate heavy equipment. There will be installation of formworks, rebars and pouring of the flooring of the bridge. The abutment of the bridge is in the end of bridge approach. Construction of the road approaches will commence connecting the main roadway. Slope protection and drainage structures will follow to protect from erosion and damages to the roadway foundation. Lastly, accessories of the bridge will be installed.
- n. Drainage Structures. As provided in the design plan, locations of the drainage are provided on areas prone to flooding specially on areas that are densely populated with residential houses.
- o. Slope Protection Structures. Roadside slopes are exposed to rain, wind, and other elements that can erode the soil. Erosion can weaken the slope, leading to cracks, landslides, and even complete slope failure. Construction of road slope protection structures methods like vegetation, shotcrete, or retaining walls help to hold the soil in place and prevent erosion.

During project implementation, the following key labor risks are anticipated:

Occupational Safety and Health (OSH)

- No provision of safety signages and devices along the construction areas and worker's camp which leads to lack of awareness of the workers and other persons to dangers and accidents.
- No provision of medical supplies, equipment and facilities which will be required during the setting up of the contractor's campsite. This will lead to delayed treatment of worker's injuries and worsen situations for injuries that need immediate treatment.
- No provision of qualified safety officer
- Unsanitary welfare facilities which lead to illness of workers.
- Improper or no provision of appropriate PPEs to workers exposes them to serious health and safety risk such as working in heights during excavation and installation of slope protection barriers
- Improper handling of construction wastes
- Exposure to hazardous materials
- Spread of communicable diseases

- Risks of work-related accidents or incidents (associated medical costs and salary disruptions in the absence of adequate insurance by the employer) of absent insurance
- Risks of inadequate training and information on the project's labor requirements especially by sub-contractors and workers in remote areas

Child Labor or Forced Labor

The employment of children below the age of eighteen (18) is strictly prohibited in the implementation of the project.

Labor disputes over terms and conditions of employment

For direct workers, disputes may arise due to lack of adherence to official work hours and compensation for overtime, potential discrimination in recruitment and employment and potential for lack of equal pay for equal work for men and women in violation of national law.

For contracted workers, disputes may arise due to the delay of processing of wages, disagreement with the working conditions, and health and safety concerns in the work environment. Likewise, unequal distribution of tasks and unresolved grievances of workers may lead to labor unrest. Should delay of wages occur, RMC II will send notices to the Contractor leading to a penalty should the delays be gross and incessant.

Labor influx and gender-based violence

RA 6685 prioritizes the hiring of local skilled and unskilled labor to construction projects with as much as 50 percent for the latter. As such, labor influx is unlikely to occur at a large scale. Nevertheless, there should be considerations on the possibility that the required specialized skills will be unavailable among the local work force.

Since the road construction is seen as predominantly male-employed workers, the project might be susceptible to incidents of gender-based violence (GBV). GBV awareness orientation and programs will be conducted to all contract packages to spread awareness, not only to the contractor's workforce but also to the local community along the project area. A set of Codes of Conduct (Annex A) will also be enforced.

IV. OVERVIEW OF LABOR LEGISLATION

A. Constitutional Mandates on Labor Legislation

The 1987 Constitution of the Republic of the Philippines provides the following relevant provisions as legislative framework for labor concerns, as follows:

Sec. 3, Art. XIII- The State shall afford full protection to labor, local and overseas, organized, and unorganized, and promote full employment and equality of employment opportunities for all.

It shall guarantee the right of all workers to self-organization, collective bargaining and negotiations, and peaceful concerted activities, including the right to strike in accordance with the law. They shall be entitled to security of tenure, humane conditions of work, and a living wage. They shall also participate in policy and decision-making processes affecting their rights and benefits as may be provided by law.

The State shall promote the principle of shared responsibility between workers and employers and the preferential use of voluntary modes in settling disputes, including conciliation, and shall enforce their mutual compliance therewith to foster industrial peace.

The State shall regulate the relations between workers and employers, recognizing the right of labor to its just share in the fruits of production and the right of enterprises to reasonable returns to investments, and to expansion and growth.

Sec. 11, Art. II- The State values the dignity of every human person and guarantees full respect for human rights.

Sec 13, Art. II- The State recognizes the vital role of the youth in nation-building and shall promote and protect their physical, moral, spiritual, intellectual, and social well-being. It shall inculcate in the youth patriotism and nationalism and encourage their involvement in public and civic affairs.

Sec. 14, Art. II- The State recognizes the role of women in nation-building and shall ensure the fundamental equality before the law of women and men.

Sec. 1, Art III- No person shall be deprived of life, liberty, or property without due process of law, nor shall any person be denied equal protection of the laws.

Sec. 4, Art. III- No law shall be passed abridging the freedom of speech, of expression, or of the press, or the right of the people to peaceably assemble and petition the government for redress of grievances.

Sec. 14, Art. XIII- The State shall protect working women by providing safe and healthful working conditions, taking into account their maternal functions, and such facilities and opportunities that will enhance their welfare and enable them to realize their full potential in the service of the nation.

The LMP shall adhere to all laws that support the World Bank ESS 2 on the protection of the rights of workers and ensure non-discrimination and equal opportunities. The LMP document has been prepared to fully align with WB ESS2.

The GOP regulations in sync with the ESS2 main requirements are shown in Annex B.

B. Labor Code of the Philippines

Presidential Decree No. 44, as amended by RA 6715, known as the “Labor Code of the Philippines”, governs all employment practices and relations. Provisions of the code shall be strictly implemented. Some of the provisions are as follows:

Wage and Welfare

Employees shall receive their wages by means of legal tender, at least once every two weeks or twice a month at intervals not exceeding sixteen (16) days. In a contracted work, employees of the contractor and of the latter's subcontractor, shall also be paid in accordance with the labor code. The wage paid by the employers to the workers shall not be lower than the prescribed minimum wage set by the Regional Tripartite Wages and Productivity Boards.

Working time, Rest Days and Holidays

The normal work hours for every employee shall not exceed eight (8) hours a day. If all or any part of the employee's working hours falls on 10:00 PM to 6:00 AM, he/she shall be entitled to a night shift pay in addition to the regular wage. If the worked performed exceeds the normal working hours, he/she shall be given overtime pay.

It is the right of every employee for a rest period not less than twenty-four (24) consecutive hours after every six (6) consecutive normal workdays. Compensation shall be given for work performed during holidays and Sundays.

Equal Rights

Workers shall have the right to self-organization and to form, join, or assist labor organizations of their own choosing for purposes of collective bargaining. Minimum employable age is 18 years old. Persons of age 15 to 18 can be employed given that they work in non-hazardous environment.

Gender discrimination in employment and labor relations shall be prohibited. Male and female employees are entitled to equal compensation for work of equal value and access to promotion and training opportunities.

C. Guidelines on Job Order (JO) and Contract of Service (COS) Workers

Although Article IX-B of the 1987 Constitution provides that Civil Service shall embrace all agencies of the government, the Revised Omnibus Rules on Appointments and other Personnel Actions and Civil Service Commission (CSC) Memorandum Circular No. 15, Series of 1999 provides that contracts of services need not be submitted to the Commission since the services rendered thereunder are not considered as government service. The CSC clarifies the guidelines through Joint Circular No. 1, Series of 2017, jointly issued by the CSC, Commission on Audit (COA), and the Department of Budget and Management (DBM) in order to protect JO and COS workers while recognizing the need for government agencies to hire personnel on temporary basis. Starting 01 January 2019, hiring of JO and COS workers should comply with the joint circular. Heads of agencies and/or responsible officers may be held administratively liable under existing civil service rules should they be found violating the said circular. Further, the COA is tasked to check possible irregularities in the procurement of JO and COS services.

Terms and Conditions

Below are the relevant provisions of Joint Circular No. 1, Series of 2017 with regard to the terms and conditions of work:

Individual Contract of Service (Par. 6.2)

The term of contract between the agency and the individual contractor shall be for a maximum period of one (1) year, renewable at the option of the Head of the procuring entity, but in no case shall exceed the term of the latter;

Engaging the services of individual contractor shall be subject to pertinent provisions of Republic Act No. 9184 and its implementing guidelines, as applicable, and the existing budgeting, accounting, and auditing rules and regulations.

Job Order (Par. 6.3)

The services of a JO worker are either paid according to an agreed contract amount for the piece of work or on a daily wage basis.

Contracting the service of JO workers shall be subject to pertinent budgeting, accounting, and auditing rules and regulations.

Limitations (Par. 7.0)

Hiring under COS shall be limited to consultants, learning service providers, and/or other technical experts to undertake special project or job within a specific period. The project or job is not part of the regular functions of the agency, or the expertise is not available in the agency, or it is impractical or more expensive for the government agency to directly undertake the service provided by the individual contractor;

Hiring of JO workers shall be limited to emergency or intermittent work, such as clearing debris on the roads, canals, waterways, etc. after natural/man-made disasters/occurrences; other trades and crafts, and manual tasks which are not part of the regular functions of the agency;

COS and JO workers should not, in any case, be made to perform functions which are part of the job description of the agency's existing regular employees;

The services of the COS and JO workers are not covered by the Civil Service law and rules thus, not creditable as government service. They do not enjoy the benefits enjoyed by government employees, such as leave, PERA, RATA and thirteenth month pay. However, they are covered under the Labor Code and entitled to all benefits accorded to them by law.

Payment of Services Under Individual COS (Par. 8.0)

Individuals hired through COS shall be paid by the prevailing market rates, subject to the provisions of Republic Act No. 9184 and its Implementing Rules and Regulations; Individuals hired through the COS have the option to enroll themselves in social benefit program thru the Social Security System (SSS), PhilHealth and Pag-IBIG Fund as self-employed members.

Payment of Services Under Job Order (Par. 9.0)

Individuals hired through JO shall be paid wages equivalent to the daily wages/salary of comparable positions in government and a premium of up to 20% of such wage/salary.

V. OVERVIEW OF OCCUPATIONAL SAFETY AND HEALTH

A. Republic Act No. 11058 – OSH Law

According to Chapter III of the OSH Law, the following are the duties of every employer, contractor or subcontractor, and any person who manages, controls, or supervises the work:

Equip a place of employment for workers free from hazardous conditions that are causing or are likely to cause death, illness or physical harm to the workers.

Provide complete job safety instructions and proper orientation to all workers including, but not limited to, those entering the job for the first time and to those relating to familiarization with their work environment.

Inform the workers of the hazards associated with their work, health risks involved or to which they are exposed to, preventive measures to eliminate or minimize the risks, and steps to be taken in case of emergency.

Use only approved specific industry set of standards of devices and equipment for the workplace as applicable.

Comply with OSH standards including training, medical examination, and when necessary, provisions on protective and safety devices such as PPE and machine guards. Training for workers shall include health promotion, hazards associated with their work, health risks involved or to which they are exposed to, preventive measures to eliminate or minimize risks, steps to be taken in case of emergency, and safety instructions for the jobs, activities, and tasks to be handled by workers.

Make arrangements for workers and their representatives to have the time and resource to participate actively in the processes of organizing, planning and implementation, monitoring, evaluation and action for improvement of the OSH management system.

Provide, when necessary, for measures identifying trainings and drills, evacuation plans, etc., to deal with emergencies, fires and accidents including first-aid arrangements.

To comply with the OSH standards, every employee/worker shall:

Participate in the capacity building activities on safety and health and other OSH related topics and programs.

Proper use of all safeguards and safety devices furnished for workers' protection and that of others.

Comply with instructions to prevent accidents or imminent danger situations in the workplace.

Observe prescribed steps to be taken in cases of emergency including participation in the conduct of national or local disaster drills.

Report to their immediate supervisor or any other responsible safety and health personnel any work hazard that may be discovered in the workplace.

Employed citizens, employees shall have the following common rights:

To refuse to work without threat or reprisal from the employer if an imminent danger situation exists.

To report accidents, dangerous occurrences, and hazards to the employer, to DOLE, and to other concerned competent government agencies.

To receive personal protective equipment, to be provided by their employer, contractor or subcontractor, free of charge, for any part of the body that may be exposed to hazards, and other lifeline.

To receive information on workplace conditions, risks that can impose danger to health, industrial dangerous and poisonous factors.

B. Occupational Safety and Health Standards

The Occupational Safety and Health Standards, in compliance with Article 162 of the Labor Code of the Philippines, was formulated to protect every working man against the dangers of injury, sickness or death through safe and healthful working conditions. For this project, chapters discussing standards for personal protective equipment and devices, construction safety, and hazardous materials are necessary and should be complied.

Pursuant to Section 32 of RA 11058, the DOLE Department Order No. 198, series of 2018, was issued to strengthen the compliance on OSH by providing penalties to contractors and concerned Implementing Agencies for every violation.

C. Department Issuance on Occupational Safety and Health

DPWH Department Order 56 series of 2005: Guidelines for the Implementation of Department of Labor and Employment (DOLE) No.13 series of 1998, Guidelines in the Governing Occupational Safety and Health in the Construction Industry, it is expected that the contractors should follow the said guidelines to eliminate or reduce occupational safety and health hazards in all work places, and institute new, and update existing programs to ensure safe and healthful working conditions in all places of employment.

VI. RESPONSIBLE STAFF

The MTCIP staff who is responsible for the implementation of the five key components includes the following:

Table 1. Duties and Responsibility of MTCIP Staff

Duty/Responsibility	Direct Workers		Contracted Workers
Management of Contractors and subcontractors	DPWH-Unified Management (UPMO),	Project Office Roads	DPWH UPMO RMC II and Construction Supervision Consultant (CSC)

	Management Cluster II (RMC-II)	
Management of Workers	DPWH UPMO RMC II Administrative Unit	Contractor's Project Manager & HR Department, and Project Engineer
Occupational Safety and Health	DPWH UPMO RMC II – Environmental and Social Safeguards Unit (ESSU)	Contractor's Environmental, Health and Safety Officer (EHSO) DPWH UPMO RMC II and Construction Supervision Consultant (CSC)
Orientation and Trainings	DPWH UPMO RMC II ESSU, World Bank	DPWH UPMO RMC II and Contractors (mainly HR Department), Construction Supervision Consultant (CSC)
Grievance Redress Mechanism (including orientations, publicizing, maintaining, monitoring)	DPWH UPMO RMC II – ESSU	Contractor's Environmental, Health and Safety Officer (EHSO) and CSC
Monitoring of project accomplishment (including incident and accident reporting)	DPWH UPMO RMC II Project Engineer, and Monitoring Unit	Contractor's Environmental, Health and Safety Officer (EHSO) and Construction Supervision Consultant (CSC)

The DPWH UPMO RMC II, will be composed of Project Manager, Deputy Project Manager and Technical support staff with the following roles:

- i. **Project Manager:** Oversees the day-to-day implementation of the Project, coordinates the implementation of the Project, and acts as the focal point for communication with WB and other agencies;
- ii. **Deputy Project Manager:** assist the project manager in day-to-day Project implementation and oversee technical and safeguards aspects of the project and communicate on behalf of the project manager to the WB and other agencies.
- iii. **Technical support staff** will consist of technical specialists who will be responsible for the respective aspects of project. These technical support staff includes for environmental, social/resettlement, gender, road safety, financial and planning, procurement, etc.

Part of the DPWH UPMO RMC II staff are the Core Unit under the Project Director, in which will support the project throughout the stages. Presented below is the figure of the Core Units and its functions.

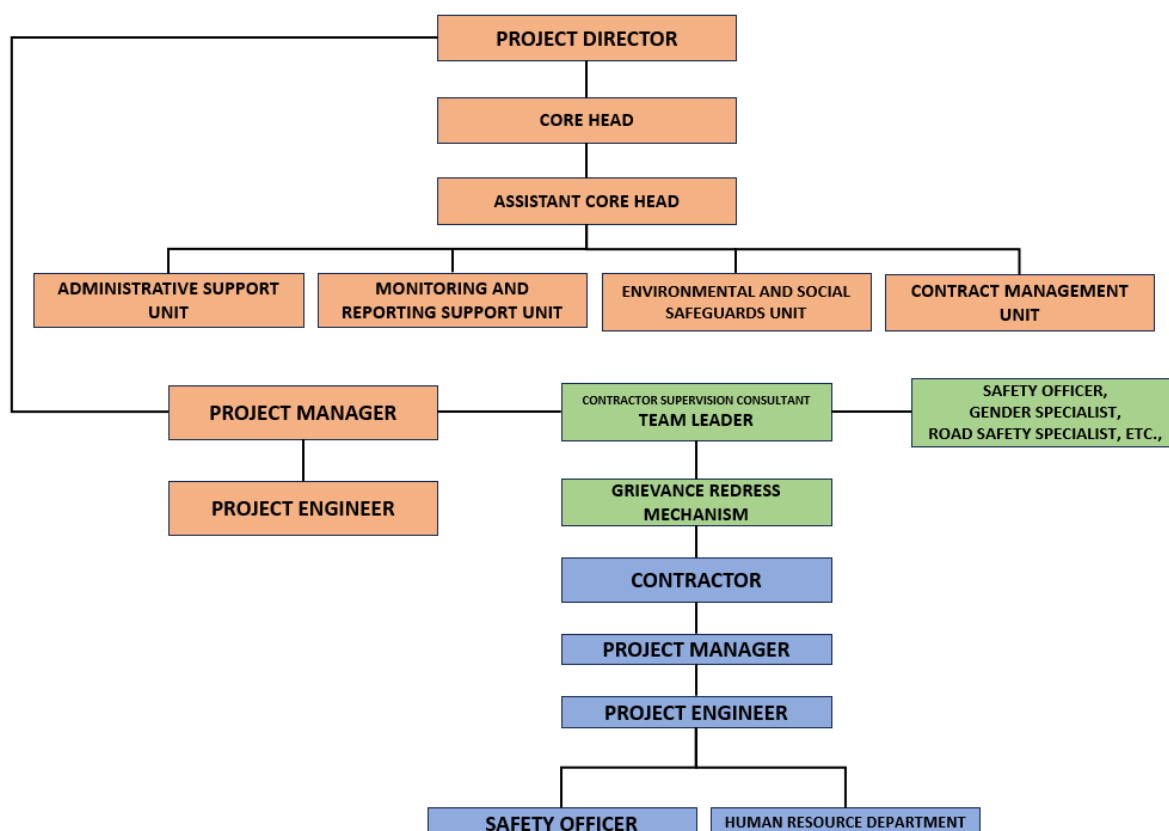


Figure 1. Diagram of DPWH UPMO RMC II Core Unit

1. Administrative Support Unit – Supervises the administrative functions pertaining to personnel, supply, records, and budgetary requirements of the Office. Enforces the proper implementation of documents and records management and provide liaison works. Ensures management of workers like signing of contract agreement, conduct orientation, monitoring of hours of work and working, etc.
2. Environmental and Social Safeguards Unit – Managing and reporting of the Grievance Redress Mechanism, monitors the contractor's compliance, including sub-contractors, with the OSH and labor conditions per ESS requirements and DOLE policies. Conduct site inspections for validation. Coordinate to the DOLE on the projects' OSH compliances.
3. Contract Management Unit – Preparation of bidding documents ensuring the OSH policies by the World Bank and DOLE are incorporated and clearly defined to be followed by the contractor. Conduct preconstruction meeting to the contractor for orientation on the OSH policies and procedures stipulated in the contract agreement for the project.
4. Monitoring and Reporting Support Unit – Reviews and updates progress reports as well as necessary technical reports of the project. Also undertakes information dissemination and manages media-related activities in matters concerning Customer's Community and Social Organization Partnership and Customers' Feedback Management. Receives and monitors accident/incident reports from the Project Engineer on site.

VII. POLICIES AND PROCEDURES

MTCIP will apply the following policies and procedures to address the key labor risks identified under Section 3.2.

Occupational Safety and Health (OSH)

The relevant international laws, national laws and administrative issuances which serve guidelines for government agencies to ensure good working conditions of the workers shall be followed. The MTCIP staff and Contractor's Environmental, Health and Safety Officer (EHSO) shall ensure that the workers are well protected against possible OSH risks through the following measures:

- Identification of potential hazards to workers within their respective area;
- Provisions of preventive and protective measures;
- Training of workers on safety measures and conduct of drills in case of calamities;
- Documentation and reporting of occupational incidents;
- Emergency preparedness;
- Remedies for occupational injuries and fatalities.

Child Labor

To prevent engagement of underage workers, the age employment scheme provided under the Age of Employment Section hereof should be strictly observed by the hiring authority. Proper procedure in the screening, with age verification, shall be undertaken in the selection of workers to ensure that no child shall be employed in the implementation of the project. Likewise, all contracts must have a provision as to the minimum age requirement and the hiring authority shall keep a labor registry of all hired workers.

Labor disputes over terms and conditions of employment

Fair, reasonable and lawful terms and conditions shall be applied in the contract provisions of all project workers to prevent labor disputes. Moreover, there will be an efficient grievance mechanism to address any issues that may arise during the existence of the contract. The guidelines provided under GRM Section hereof shall be strictly observed to resolve work-related disputes including terms and conditions of employment.

Gender-Based Violence

During procurement of the contractor, the PIU will ensure that all contractors have in place a code of conduct (see Annex A) for all its workers and subcontractors that respects women and girls and prohibits all forms of gender-based violence including verbal sexual harassment. During subproject implementation, the contractor will ensure that (i) all workers are aware of, have attended training on, and acknowledged these codes of conduct through trainings, seminars, or orientations, and (ii) signage and posters in key areas in the construction site are put up.

VIII. AGE OF EMPLOYMENT

A. Minimum Age of Employment

According to Article 137 of the Labor Code of the Philippines, no person below eighteen (18) years of age shall be allowed to be employed in an undertaking which is hazardous or deleterious in nature as determined by the Secretary of Labor and Employment. Considering the scope of the project, it is unlikely that the project would hire a person below eighteen (18) years of age.

B. Age Verification

To prevent engagement of underage workers, an age verification process is required to be undertaken by the winning contractor/consultant prior to the engagement of the project worker. All contractual provisions should comply with the minimum age requirements and the responsible staff is required to maintain a labor registry of all hired project workers.

IX. TERMS AND CONDITIONS

A. Specific Wage

Individuals hired through COS shall be paid by the prevailing market rates, subject to the provisions of Republic Act No. 9184 and its Implementing Rules and Regulations; whereas individuals hired through job order shall be paid wages equivalent to the daily wages/salary of comparable positions in government and a premium of up to 20% of such wage/salary. Workers employed by the third parties for the retrofitting works shall be paid in accordance with the Labor Code. Minimum wage rates to be applied shall be those prescribed by the Regional Tripartite Wages and Productivity Boards.

B. Hours of Work

The normal hours of work of project workers shall not exceed 8 hours a day, exclusive of time for meals. If the worked performed exceeds the normal working hours, overtime pay shall be given. According to Article 87 of the Labor Code, any employee shall be paid for overtime work at a rate not less than their regular wage plus at least 25%. For work done beyond eight hours on holidays and rest days, the rate is even higher—no less than the regular wage plus at least 30%.

C. Rest Per Week

Direct workers are entitled to a 2-day rest period during weekends (Saturday and Sundays). Contracted workers shall also be entitled to rest days depending on the terms and conditions stated in their contract. At minimum, they shall have a rest period not less than twenty-four (24) consecutive hours after every six (6) consecutive normal workdays. Both direct and contracted workers shall also be entitled to a rest day on regular holidays recognized by the State.

D. Termination of Contract

The contract of employment shall cease at the end of the period stated therein. However, the contract may be pre-terminated by the hiring authority due to failure to provide the standard of service required under the agreement, breach of any provision thereof, breach of trust, loss of confidence, and for reasons detrimental to the interest of the agency, provided that the project worker is informed in writing at least 30 days prior to the effectivity of such termination. Likewise, the project worker may pre-terminate the contract provided that a written notice is submitted to the hiring authority, stating therein the reasons for the pre-termination, at least 30 days prior to the proposed date of effectivity thereof, and the same has been received, accepted, and approved in writing by the hiring authority.

E. Deduction from Remuneration

No deductions other than those agreed upon in the contract or those prescribed by law or regulations shall be made from a worker's remuneration. The hiring authority is prohibited to demand or accept from the worker any cash payment or gifts in return for admitting such worker to employment or for any other reasons connected with the terms and conditions of employment. Contractors will provide wages as soon as services are rendered as agreed in the contract. RMC II will monitor that this is ensured and will provide notices should this be breached and may implement penalties to the contractor if gross and incessant delays occur.

F. Medical Treatment of Injured and Sick Workers

Any injury, illness or accident sustained by the worker during the work period shall be conveyed to the nearest clinic or hospital by the hiring authority or its representative. The cost for medical expenses is part in the contract of the contractor. The contractor is responsible to employ a paramedic staff to provide medical support in case of workplace incidents or disease related problems. First Aid kits and sick bay room are provided in the contractor's campsite.

X. GRIEVANCE REDRESS MECHANISM (GRM)

Grievance Redress Mechanism (GRM) is designed for MTCIP to solicit feedback from and to project stakeholders and address issues, concerns, complaints, and recommendations related to project activities and the environmental and social operation of the project.

The GRM for MTCIP will adhere to the principles and steps stipulated in Republic Act 10752 and the DPWH Right-of-Way Acquisition Manual (DRAM). The GRM levels, procedures, and expected resolution are illustrated in detail in **Figure 2**.

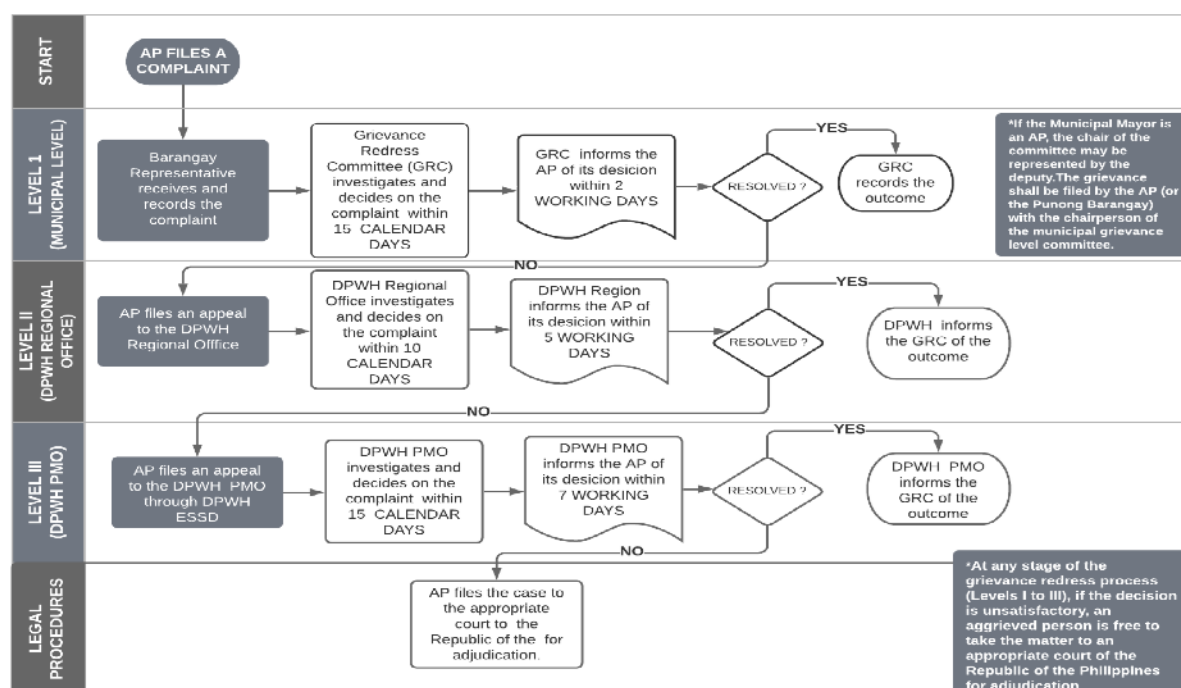


Figure 2. Detailed GRM Flowchart for MTCIP

A subproject-specific grievance redress mechanism (GRM) will be established at the DPWH District Engineering Office (DEO) before the start of construction to receive, evaluate, and facilitate the complaints and grievances of affected persons on the subproject's environmental and social performance.

A Worker's Grievance Management will also be established in all contractors of MTCIP contract packages during the first month. All workers will be oriented on the procedures of the grievances. This will be initiated by the Construction Supervision Consultant and monitored through the project.

A mechanism for handling sensitive Gender Based Violence (GBV) related complaints in a confidential manner will also be established at the project level and available/accessible to local community members and workers.

This mechanism will be disclosed to the host communities prior to the commencement of site work. Contact information on how to access the GRM will be included in project information billboards.

The District Engineer will appoint an Environment Officer and establish the Grievance Redress Committee (GRC), to be chaired by the DPWH District Engineer. Members will include the following:

- the contractor's highest official at the site, such as the construction manager or the construction superintendent;
- Barangay Chairperson; and
- Environment Specialist of the Construction Supervision Consultant.

Filing of Grievance

For the quick filing of complaints, the GRC will use the grievance intake form. The DEO's Environment Officer will be responsible for the registration of grievances and

communication with the aggrieved party. To facilitate addressing complaints, the contractor will be required to provide contact details of its representative(s) on site in its campsite offices and on project billboards that will be erected at the starting point of the project. The billboard shall likewise include the contact details of DPWH representatives in the event that complaints are not readily addressed by the contractor on-site.

The steps to be followed in filing complaints and the procedures for redress are the following:

- a. The complainant will provide the background and file the complaint directly, either verbally or in writing, with the on-site contractor representative(s) and the barangay through its officials for immediate corrective action.
- b. The contractor(s) representative is then required to act immediately on valid complaints and record such complaints in a complaints registry that must be maintained on the project office.
- c. Complaints that cannot be immediately attended to by the contractor shall be filed either verbally or in writing with the DEO or with the DEO's Environment Officer, who will assist the complainant in filling-out the grievance intake form.
- d. Within 2 working days, the Environment Officer, contractor's representative, and complainant will discuss if the complaint can be resolved without calling for a GRC meeting.
- e. Within 3 days of lodging the complaint, the DEO's Environment Officer will provide the complainant with written feedback on the process, steps, and timeframe for resolving the complaint.
- f. If the complaint cannot be resolved, a GRC meeting with the complainant will be called within 5 working days.
- g. The GRC will have 15 days to resolve the complaint.
- h. The complainant will receive feedback from the DEO's Environment Officer within 5 working days after the various steps of the GRM are done.
- i. If the complainant is unsatisfied with the decision, the existence of the GRC will not impede the complainant's access to the government's judicial and administrative remedies or through concerned government agencies (e.g., the Community Environment and Natural Resources Office, the Provincial Environment and Natural Resources Office of DENR, and the Regional Offices of Environmental Management).

The GRC will receive, follow up on, and prepare monthly reports regarding all complaints, disputes, or questions received about the project and the corresponding actions taken to resolve the issues. These reports will be included in the semi-annual environmental monitoring reports to be submitted by DPWH to WB.

XI. CONTRACTOR MANAGEMENT

With the engagement of people through third parties (contractors and consultants) in the implementation of the MTCIP, procedures for managing and monitoring their performance should be established. The Project will incorporate the requirements of ESS2 – terms and

conditions of this LMP - in the contract agreements with the third parties together with appropriate non-compliance remedies.

XII. COMMUNITY WORKERS

The project will not involve community workers for the retrofitting works. All workers to be employed by the contractor will comply with RA 6685 which states that all private contractors and subcontractors who have been awarded national and local public works projects, including foreign assisted projects, by the National Government or any local government unit, must employ 50% of the unskilled and 30% of the skilled labor requirements from the unemployed bona fide and actual residents in the province, city and municipality who are ready, willing and able as determined by the governor, city mayor or municipal mayor concerned where the projects are to be undertaken.

XIII. PRIMARY SUPPLY WORKERS

The MTCIP project does not need dedicated primary supply workers because all required supplies will be obtained through a procurement process following existing rules and regulations.

XIV. REPORTING OF ACCIDENTS AND DEATHS

Pursuant to Chapter 3 Section 7 of RA 11058, workers and their representatives shall have the right to report accidents, dangerous occurrences, and hazards to the employer, to the DOLE and to other concerned government agencies exercising jurisdiction as the competent authority in the specific industry or economic activity. In addition, the government (PIUs) with support by contractors and supervision consultants are required to report incidents and accidents within 48 hours and subsequent information on root causes and preventive actions.

Pursuant DOLE Department Order No. 198, s. 2018, all employers, contractors or subcontractors, in any, shall submit to DOLE all safety and health records, and notifications such as but not limited to annual medical report (AMR), OSH committee report, employer's work accident/injury report (WAIR), and annual work accident/injury exposure data report (AEDR)

Annex A

Sample Generic Code of Conduct for Contractors

This Code of Conduct identifies the behavior required from all personnel of _ (name of contractor's firm) _ working at the _____ subproject site.

Unsafe, offensive, abusive or violent behavior will not be tolerated, and all persons should feel comfortable raising issues or concerns without fear of retaliation.

REQUIRED CONDUCT

All (name of contractor's firm) personnel shall:

1. carry out his/her duties competently and diligently;
2. comply with this Code of Conduct and all applicable laws, regulations and other requirements, including requirements to protect the health, safety and well-being of other contractor's personnel and any other person;
3. maintain a safe working environment by:
 - a. ensuring that workplaces, machinery, equipment and processes under each person's control are safe and without risk to health;
 - b. wearing required personal protective equipment;
 - c. using appropriate measures relating to chemical, physical and biological substances and agents; and
 - d. following applicable emergency operating procedures;
4. report work situations that he/she believes are not safe or healthy and remove himself/herself from a work situation which he/she reasonably believes presents an imminent and serious danger to his/her life or health;
5. treat other people with respect, and not discriminate against specific groups such as women, people with disabilities, migrant workers, indigenous people, or children;
6. not engage in sexual harassment, i.e. unwelcome sexual advances, requests for sexual favors, and other verbal or physical conduct of a sexual nature;
7. not engage in sexual exploitation, or any actual or attempted abuse of position of vulnerability, differential power or trust, for sexual purposes, including, but not limited to: profiting monetarily, socially or politically from the sexual exploitation of another;
8. not engage in sexual abuse, which means the actual or threatened physical intrusion of a sexual nature, whether by force or under unequal or coercive conditions;
9. not engage in any form of sexual activity with individuals under the age of 18, except in case of pre-existing marriage;
10. not engage in any other form of harassment, mental or physical coercion, or verbal abuse of its employees;
11. undergo relevant training or orientation that will be provided related to the environmental and social aspects of the Contract, including on health and safety matters;
12. report violations of this Code of Conduct; and
13. not retaliate against any person who reports violations of this Code of Conduct.

RAISING OF CONCERNS

If any person observes a behavior that he/she believes may represent a violation of this Code of Conduct, or that otherwise concerns him/her, he/she should raise the issue promptly to: Name, address and contact number of person designated by contractor to handle social issues/concerns) _

This can be done either in writing, by telephone, or in person.

The person's identity will be kept confidential, unless reporting of allegations is mandated by the country law. Anonymous complaints or allegations may also be submitted and will be given all due and appropriate consideration. We take seriously all reports of possible misconduct and will investigate and take appropriate action. We will provide warm referrals to service providers that may help support the person who experienced the alleged incident, as appropriate.

Sanctions

Any employee who has breached this Individual Code of Conduct will be subject to any of the following actions:

- Informal warning
- Formal warning
- Loss of up to one week's salary
- Suspension of employment (without payment of salary), for a minimum period of ____ up to a maximum of ____.
- Termination of employment
- Reporting to the police if warranted

Project-in-Charge

(Name of Contractor's Firm)

Annex B

Table 2. GOP Labor Laws and Regulations, International Conventions and the ESS2 Main Requirements

ESS2 Main Requirements	Philippines Laws and Regulations and General Description	Binding International Conventions	Responsible Institutions and Regulations
<p>1. Labor Terms and Conditions.</p> <p>Workers shall receive information and documentation, establishing their rights under national labor laws, including rights related to hours of work, wages, overtime, pay and benefits.</p>	<p><u><i>Labor Code of the Philippines (amended), and its IRR</i></u> Prescribes the terms and conditions of employment and other requirements, including rights of workers.</p> <p><u><i>EO 292, s 1987 and its IRR</i></u> The terms and conditions of employment of all government employees, shall be fixed by law. Those that are not fixed by law may be the subject of negotiation between duly recognized employees' organizations and appropriate government authorities.</p> <p><u><i>RA 11058 and DO 198, S 2018</i></u> Information dissemination of Occupational Safety and Hazard (OSH) for both private and public sector is mandated.</p>		<p>a. Department of Labor and Employment (DOLE)</p> <p>b. Civil Service Commission (CSC)</p> <p>c. Heads of Agency</p> <p><i>*The terms and conditions of employment and rights of workers are fixed by law, hence, employers are no longer require to inform and document the terms and conditions of employment, including the rights of workers</i></p>
<p>2. Labor Terms and Conditions</p> <p>Workers shall receive their payment in regular form.</p>	<p><u><i>Labor Code of the Philippines (amended), and its IRR</i></u> Provided the rules on wages for private sectors, including setting the minimum wage, forms, time and place of payment</p> <p><u><i>RA 11466</i></u> Modifies the salary schedule for civilian government personnel and authorities</p> <p><u><i>EO 292, s 1987</i></u> Congress shall provide for the standardization of compensation of government officials and employees.</p> <p><u><i>CSC-COA-DBM Joint Circular No. 1, s 2017</i></u> Individual COS shall be paid the prevailing market rates; individual hires as JO shall be paid wages equivalent to the daily/wages/salary of comparable positions in government a <i>premium</i> of up to 20% of such wages/salary</p>	<p>ILO Convention No.100 on Equal remuneration</p>	<p>a. DOLE</p> <p>b. Department of Budget and Management (DBM)</p> <p>c. Commission on Audit (COA)</p> <p><i>*National regulations address aspects of ESS2 remuneration requirement</i></p>
<p>3. Labor Terms and Conditions</p> <p>Workers shall have adequate rest periods, annual vacations, and sick, maternity or family leave, as required by national law and labor management procedures</p>	<p><u><i>Labor Code of the Philippines (amended), and its IRR</i></u> Provided the rules on working conditions and rest periods, holidays and service incentive leaves</p> <p><u><i>RA 11210</i></u> Provides for 105 days expanded maternity leave</p> <p><u><i>RA 8187</i></u> Provides for paternity leave benefits</p> <p><u><i>RA 8972</i></u> Grants parental leave of not more than 7 days, and additional 15 days maternity leave for solo parent female worker</p>	<p>ILO Convention No. 183 on the protection of maternity</p>	<p>a. Department of Labor and Employment (DOLE)</p> <p>b. Civil Service Commission (CSC)</p> <p><i>*National regulations address working conditions on ESS2 breaks, except for JO and COS workers because they are not considered employees of the government</i></p>

ESS2 Main Requirements	Philippines Laws and Regulations and General Description	Binding International Conventions	Responsible Institutions and Regulations
	<p><u>EO 292, S 1987 and Omnibus Rules Implementing Book V of EO 292</u> Provides for rules on leaves for the government personnel</p> <p><u>CSC-COA-DBM Joint Circular No. 1, s 2017</u> Services of COS and JO are not covered by CSC law; hence they do not enjoy the benefits such as leave and 13th month pay</p>		
<p>4. Labor Terms and Conditions</p> <p>When required by national laws and labor management procedures workers in the project shall receive timely notification of termination of employment and details of severance payments.</p>	<p><u>Labor Code of the Philippines (amended), and its IRR</u> There is no dismissal without just cause for regular employees. Notice of termination is required and details of benefits to be received are prescribed.</p> <p><u>EO 292, S 1987 and Omnibus Rules Implementing Book V of EO 292</u> No officer or employees of the civil service shall be removed or suspended except for cause as provided by law and after due process</p>		<p>a. Department of Labor and Employment (DOLE)</p> <p><u>*National regulations address aspects of ESS2 termination of employment</u></p>
<p>5. Non-discrimination and equal opportunity.</p> <p>The hiring of workers shall be based on the principle of equal opportunities and fair treatment, and there shall be no discrimination in any of the aspects of the employment relationship, such as search and hiring, remuneration (including wages and benefits), working conditions and terms of employment, access to training, job assignment, promotion, termination of employment or retirement, or disciplinary practices</p>	<p><u>Philippine Constitution, 1987</u> State shall afford full protection to labor, local and overseas, organized and unorganized, and promote full employment and equality of employment opportunities for all.</p> <p><u>Labor Code of the Philippines (amended), and its IRR</u> It is a State Policy to encourage hiring of workers based on their qualifications, skills and knowledge instead of their age; and support equal rights and treatments for all with regards to compensation, benefits, and other employment opportunities; prohibited discrimination against women employees with respect to terms and conditions of employment solely on account of her sex.</p> <p><u>EO 292, S 1987 and Omnibus Rules Implementing Book V of EO 292</u> Appointment in the Civil Service shall be made only according to merit and fitness; government employees shall not be discriminated against with respect of their employment by reason of their membership in employees' organizations or participation in the normal activities of the organization.</p> <p><u>CSC Memorandum Circular NO. 3., s. 2001</u> Provides for the revised policies on the merit promotion plan, which mandates that appointment in the government services is open to all qualified men and women according to the principle of merit and fitness</p> <p><u>RA 9710</u></p>	<p>Convention No. 111 on discrimination</p>	<p>a. Department of Labor and Employment (DOLE) b. Civil Service Commission (CSC)</p> <p><u>*National regulations address aspects of ESS2 equality and discrimination in employment</u></p>

ESS2 Main Requirements	Philippines Laws and Regulations and General Description	Binding International Conventions	Responsible Institutions and Regulations
	State condemns discrimination against women in all forms. Sanctions will be posed on violators.		
	<u>RA 8371</u> State mandates to extend to indigenous cultural communities (ICCs)/indigenous peoples (IPs) the same employment rights, opportunities, basic services, educational and other rights available to every member of the society; force and coercion against them are punishable by law.		
6. Union In countries where national laws recognize the rights of workers to form organizations, join organizations of their choice and to negotiate collectively without interference, the project shall be carried out in accordance with those national laws	<u>Philippine Constitution, 1987</u> Guarantees rights of all workers to self-organization, collective bargaining and negotiations, and peaceful concerted activities, including the right to strike in accordance with the law <u>Labor Code of the Philippines (amended), and its IRR</u> It is unlawful to restrain, coerce, discriminate against or unduly interfere with employees and workers in their exercise of the rights to self-organization. All employees have the rights to self-organization and to form, join or assist labor organization of their own choosing for collective bargaining, including government employees. <u>EO 292, S 1987 and Omnibus Rules Implementing Book V of EO 292</u> All government employees including those in government owned or controlled corporations with original charters, can form, join or assist employees' organizations of their own choosing for the furtherance and protection of their interests.	ILO Convention Nos. 87, 89 and 151	a. DOLE b. CSC <u>*National regulations address aspects of ESS2 on unions.</u>
7. Forced Labor Forced labor shall not be used.	<u>RA 10364</u> Prohibits any act that introduce match for money, profit, or material, economic or other consideration any person for purpose of forced labor, slavery, involuntary servitude or debt bondage.	ILO Force Labor Convention	a. DOLE <u>*National regulations address aspects of ESS2 on forced labor</u>
8. Occupational Health and Safety (OSH) All parties hiring workers shall develop and implement procedures to maintain a safe work environment, including verifying that workplaces, machinery, equipment, and processes under their control	<u>RA 11058</u> State guarantee safety and healthy working environment for employees by providing protection from all possible dangers in the workplace. It applies to all organization, project, sites or any place where work is being done. <u>DOLE DO 198, S 2018</u> Implements the provisions of RA 11058 and requires covered places to have OSH Program to ensure safe environment. <u>CSC-DOH-DOLE Joint Memorandum Circular No. 1, s 2020</u> Provides the OSH standards for the public sector		a. DOLE b. CSC c. Head of Agency <u>*National regulations address occupational health and safety aspects of ESS2</u>

ESS2 Main Requirements	Philippines Laws and Regulations and General Description	Binding International Conventions	Responsible Institutions and Regulations
are safe and do not present health risks, with inclusion of the use of appropriate measures related to chemical, physical and biological agents and substances. Project workers shall be offered facilities appropriate to the circumstances of their work, including access to dining room, facilities, and appropriate rest areas.			
9. Complaints and grievances management system Processes shall be established in the workplace for workers to report work situations that they consider unsafe or unhealthy, and so that they can withdraw from a work situation that they consider, with reasonable justification, to present an imminent or serious danger to their life or their health	<p><u><i>Labor Code of the Philippines (amended), and its IRR</i></u> All issues arising from labor and employment shall be subject to mandatory conciliation mediation; allows voluntary arbitration between parties for unresolved issues; parties to a collective bargaining agreement shall establish a machinery to resolve grievances arising from the interpretation or implementation of their collective bargaining agreement and from the interpretation or enforcement of company personnel policies; provides for labor arbiters to hear cases involving workers</p> <p><u><i>RA 10396 and DOLE DO 151-16</i></u> Provides a speedy, impartial, inexpensive and accessible settlement of labor issues arising from employer employee relations, including issues on OSH Standards, to prevent them from ripening into full blown labor dispute or actual labor case, or the Single Entry Approach (SeNA)</p> <p><u><i>EO 292, s 1987</i></u> Each department or agency shall promulgate rules and regulations governing expeditious, fair and equitable adjustment of employees' complaints or grievances</p> <p><u><i>CSC MC 2, s 2001</i></u> All agencies must establish grievance machinery. The CSC issued policies on grievances in the public sector.</p>		<p>a. DOLE b. CSC c. Head of Agency</p> <p><u><i>*National regulations address aspects of mechanisms for handling complaints and grievance of the ESS2</i></u></p>
10. Community Workers Projects may involve the use	<p><u><i>Labor Code of the Philippines (amended), and its IRR</i></u> If community workers are hired as contractual workers by the community or political entity, all Labor laws and regulations shall be applied.</p>		<p>a. DOLE</p> <p><u><i>*National regulations address aspects on community workers of the ESS2.</i></u></p>

ESS2 Main Requirements	Philippines Laws and Regulations and General Description	Binding International Conventions	Responsible Institutions and Regulations
of community workers in various circumstances, such as when labor is provided by the community as a contribution to the project or when projects are designed and carried out in order to foster community-driven development, and provide a social safety net or specific assistance in fragile and conflict-affected situations	<u>RA 66859 and its IRR (DPWH Department Order No. 51 Series of 1990).</u> All private contractors, including subcontractors, to whom awards are made for the undertaking of national and local public works projects funded by either the National Government or any local government unit including foreign-assisted projects must hire at least fifty percent (50%) of the unskilled and thirty percent (30%) of the skilled labor requirements from the unemployed bona fide and actual residents in the province, city and municipality who are ready, willing and able as determined by the governor, city mayor or municipal mayor concerned where the projects are to be undertaken		<u>However, there is need for further clarity as regards volunteer workers from the community as the applicability of the labor laws, rules and regulations.</u>
11. Child Labor The Borrower shall assess whether there are risks of child or forced labor The minimum age for employment or recruitment shall be specified, which shall be 14, unless national laws stipulate a higher age.	<u>DOLE DO 65-04</u> Children below 15 years old who works must secure work permit; employers, workers and their organizations, professional organizations or business federations are encouraged to establish or adopt mechanisms to monitor their ranks and take corrective action against erring members.	ILO Conventions Nos 29, 138 and 182.	a. DOLE <u>*National regulations address aspects on child labor of the ESS2.</u> <u>The work of minors under 14 years of age shall not be allowed for World Bank project, as ESS2 prevails.</u>

Appendix 5. Resettlement Policy Framework



**Consultancy Services for the
Due Diligence and Options Analysis**
for the proposed Mindanao Transport Connectivity Improvement Project

Resettlement Policy Framework (RPF)

Version 3.4 | May 24, 2024

Table of Contents

1. Project Description	483
1.1 Project Background	483
1.2 Project Objectives	484
1.3 Project Components	484
1.4 Project Implementation Arrangements	486
1.5. Project Location	486
2. Objectives of the Resettlement Policy Framework	489
2.1 Development Context	489
2.2 Objective of the RPF	489
2.3 RPF as the Policy Framework for the Resettlement Action Plan	490
3. Philippine Land Acquisition and Resettlement Regulations, comparison with WB Policy, and Gap Analysis	491
3.1 Philippine laws on land acquisition and resettlement	491
3.2 WB ESS5: Land Acquisition, Restrictions on Land Use, and Involuntary Resettlement	492
3.3 Comparison and Gap Analysis of Philippine Government Regulations and World Bank Policies on Land Acquisition and Resettlement	493
4. Land Acquisition and Involuntary Resettlement Risks and Impacts	495
4.1 Right-of-way acquisition	495
4.2 Project-affected structures and households	495
4.3 Affected Indigenous Peoples	496
4.4 Affected informal settler families	497
4.5 Other Risks	497
5. MTCIP Resettlement Policies	500
5.1 Resettlement Policies	500
5.2 Hierarchy of Mitigation Measures	500
The conduct of detailed engineering design (DED) presents another opportunity for minimizing involuntary resettlement impacts. The DED will be done in parallel with RAP preparation activities to ensure that technical design and involuntary resettlement impacts inform each other. Where resettlement impacts are unavoidable or have reached the minimum impacts, mitigating measures using the provisions of this RPF will be carried out.	
5.3 Eligibility criteria for defining project-affected persons	501
5.4 Compensation and entitlements of project-affected persons	501
5.5 Compensation for agricultural land	501
5.6 Compensation for commercial and residential land	501
5.7 Compensation for structures	502

5.8 Compensation for crops and trees	502
5.9 Compensation for damaged or lost crops.....	503
5.10 Compensation for temporary loss of land	503
5.11 Other types of assistance and entitlements	503
5.12 Verification of ownership documents	504
5.13 Modes of acquiring land and other assets	504
5.14 Valuation of affected land and other assets	505
6. Entitlements Matrix	507
7. Resettlement Planning.....	510
8. Grievance Redress Mechanism.....	515
9. Institutional arrangements to deliver project entitlements	517
10. Timing of resettlement, land development and civil works	518
11. Information Disclosure	519
12. Monitoring and Evaluation	521
12.1 Internal Monitoring Agent and External Monitoring Agent.....	521
12.2 Updating of RAP information	522

List of Tables

Table 1. Comparison and gap analysis of Philippine regulations and WB policies on land acquisition, resettlement, and entitlements, and measures to bridge policy gaps	493
Table 2. Summary of project-affected structures	496
Table 3. Summary of project-affected households.....	496
Table 4. MTCIP Entitlements Matrix	507
Table 5. Agencies and Institutions Involved in the Implementation of MTCIP Resettlement Activities	517

List of Figure

Figure 1. Location Map of the MTCIP	488
Figure 2. DPWH Grievance Redress Mechanism Process Flow.....	515

List of Annexes

Annex 1. MTCIP Proposed Contract Packaging for LTPBM Contract	524
Annex 2. Contents of the Resettlement Action Plan.....	525
Annex 3. Summary of Public Consultation Results Related to Land Acquisition and Involuntary Resettlement	527
Annex 4. Summary of Land Acquisition and Involuntary Resettlement Issues Raised in Focus Group Discussions.....	531

Annex 5. Public Consultation Brochure	532
--	------------

Acronyms Used

CERC	Contingency Emergency Response Component
DDOA	Due Diligence and Options Analysis
DMS	Detailed Measurement Survey
DPWH	Department of Public Works and Highways
EMA	External Monitoring Agent
ESMF	Environmental & Social Management Framework
ESF	Environment and Social Framework
ESS	Environment and Social Standards
FGD	Focused Group Discussion
GFI	Government Financial Institution
GRM	Grievance Redress Mechanism
IMA	Internal Monitoring Agent
IPA	Independent Property Appraiser
ISF	Informal Settler Family
LGU	Local Government Unit
LR	Link Road
LTPBM	Long-Term Performance-Based Maintenance
MC	Main Corridor
MTCIP	Mindanao Transport Connectivity Improvement Project
OPRC	Output Performance-based Road Contract
PAPs	Project-Affected Persons
PCCP	Portland Cement Concrete Pavement
PCM	Public Consultation Meeting
RAP	Resettlement Action Plan
RCS	Replacement Cost Survey
ROW	Right-of-Way
ROWA	Right-of-Way Acquisition
RPF	Resettlement Policy Framework
SES	Socio-Economic Survey
UDHA	Urban Development and Housing Act
WB	World Bank

Glossary of Terms

BIR Zonal Value - An approved zonal schedule of fair market values on real property set by the Bureau of Internal Revenue (BIR) as basis for computation of internal revenue taxes. This is usually lower than the market price and the replacement cost.

Disadvantaged or vulnerable persons - Refers to those who may be more likely to be adversely affected by the project impacts and/or more limited than others in their ability to take advantage of a project's benefits. Such an individual/group is also more likely to be excluded from/unable to participate fully in the mainstream consultation process and as such may require specific measures and/or assistance to do so. For this project, vulnerable groups/persons refer to indigenous people, persons with disability, informal settlers, older persons, women and children, solo parents, female-headed households and poor families living below poverty threshold level.

Forced eviction - The permanent or temporary removal against the will of individuals, families, and/or communities from the homes and/or land which they occupy without the provision of, and access to, appropriate forms of legal and other protection, including all applicable procedures and principles in ESS 5.

Government Financial Institution (GFI) - Refers to a national government owned or controlled corporation that the Implementing Office may engage to provide property appraisal services, including estimates of the market values of the property, affected by the ROW for a project.

Independent Property Appraiser (IPA) - Refers to an individual or firm that may be engaged by the Implementing Agency to provide property appraisal services, including estimates of the market values of the property, affected by the ROW for a project.

Informal settler - Refers to an individual or family that has no legally recognized right to the land which it and its structure occupies.

Involuntary resettlement – Project-related land acquisition or restrictions on land use may cause **physical displacement** (relocation, loss of residential land or loss of shelter), **economic displacement** (loss of land, assets or access to assets, including those that lead to loss of income sources or other means of livelihood), or both. Resettlement is considered involuntary when affected persons or communities do not have the right to refuse land acquisition or restrictions on land use that result in displacement.

Land acquisition - Refers to all methods of obtaining land for project purposes, which may include outright purchase, expropriation of property, and acquisition of access rights, such as easements or rights of way. Land acquisition may also include: (a) acquisition of unoccupied or unutilized land whether or not the landholder relies upon such land for income or livelihood purposes; (b) repossession of public land that is used or occupied by individuals or households; and (c) project impacts that result in land being submerged or otherwise rendered unusable or inaccessible. "Land" includes anything growing on or permanently affixed to land, such as crops, buildings and other improvements, and appurtenant water bodies.

Livelihood - refers to the full range of means that individuals, families, and communities utilize to make a living, such as wage-based income, agriculture, fishing, foraging, other natural resource-based livelihoods, petty trade, and bartering.

Parcellary survey - Refers to the activities undertaken as part of the Detailed Engineering Design of a project to define the proposed ROW alignment and limits, the affected lots showing the name of the owners/claimants, lot numbers, and areas, and technical descriptions, and all improvements within the ROW limits.

Project-Affected Persons – Persons affected by the project, covering persons: (a) Who have formal legal rights to land or assets; (b) Who do not have formal legal rights to land or assets, but have a claim to land or assets that is recognized or recognizable under national law;¹⁴ or (c) Who have no recognizable legal right or claim to the land or assets they occupy or use.

Replacement cost - A method of valuation yielding compensation sufficient to replace assets, plus necessary transaction costs associated with asset replacement. Where functioning markets exist, replacement cost is the market value as established through independent and competent real estate valuation, plus transaction costs. Where functioning markets do not exist, replacement cost may be determined through alternative means, such as calculation of output value for land or productive assets, or the undepreciated value of replacement material and labor for construction of structures or other fixed assets, plus transaction costs. In all instances where physical displacement results in loss of shelter, replacement cost must at least be sufficient to enable purchase or construction of housing that meets acceptable minimum community standards of quality and safety. The valuation method for determining replacement cost should be documented and included in relevant resettlement planning documents. Transaction costs include administrative charges, registration or title fees, reasonable moving expenses, and any similar costs imposed on affected persons.

Restrictions on land use - Refers to limitations or prohibitions on the use of agricultural, residential, commercial, or other land that is directly introduced and put into effect as part of the project. These may include restrictions on access to legally designated parks and protected areas, restrictions on access to other common property resources, restrictions on land use within utility easements, or safety zones.

Right-of-Way (ROW) - A part or the entirety of a property, site or location, with defined physical boundaries, used or required by a government infrastructure project.

Security of tenure - Resettled individuals or communities are resettled to a site that they can legally occupy, where they are protected from the risk of eviction and where the tenure rights provided to them are socially and culturally appropriate.

Stakeholder – Refers to individuals or groups who: (a) are affected or likely to be affected by the project (project-affected parties); and (b) may have an interest in the project (other interested parties)

Subproject – In the context of MTCIP, subproject refers to the segmentation of the road alignment based on criteria defined by DPWH to aid in efficient project implementation including procurement and construction

Project Description

1.1 Project Background

This Resettlement Policy Framework (RPF) is prepared as part of the set of environment and social instruments of the Mindanao Transport Connectivity Improvement Project (MTCIP) which aim to protect the environment and people where the Project operates. This RPF seeks to identify project-affected people, and avoid, minimize, and mitigate resettlement impacts of the Project. It also aims to provide guidance on other forms of land acquisition aside from involuntary land taking including donations, usufruct, etc.

The Mindanao Transport Connectivity Improvement Project (MTCIP) is a comprehensive initiative aimed at enhancing road infrastructure in the Main Corridor, a vital national highway network linking the cities of Cagayan De Oro, Davao, and General Santos. This project, with a total project cost of \$661.21 million jointly financed by the World Bank and the Government of the Philippines will be implemented over a span of seven years. The Department of Public Works and Highways (DPWH) is the implementing agency for this project. MTCIP seeks to bolster transportation connectivity, particularly benefiting the agricultural sector by facilitating product movement and enhancing access to rural areas.

Growth and poverty reduction in Mindanao will require making agriculture more productive, particularly smallholder farmers. Furthermore, because Mindanao is the food basket of the country, enhancing food production and reducing food and input prices in this region will support the overall improvement welfare and the country's competitiveness. The potential impact of agriculture development in Mindanao is widely recognized as one-third of Mindanao's land area is devoted to agriculture, contributing about 23 percent of the region's economy and employing about four million people. Unfortunately, even though Mindanao's comparative advantage is agriculture, many of its farmers and fisherfolks still live in or are vulnerable to poverty. Connecting rural, remote areas to urban areas where there is demand for agricultural produce is one of the key interventions to support growth in the agricultural sector particularly the smallholder farmers. Better rural roads would reduce transportation costs and product losses for poor farmers and could make a major contribution to reducing poverty. Many roads are either non-existent, deteriorated or congested; as a result the quality of agricultural produce at the point of sale is reduced and are often rejected, especially perishable commodities. Aside from the lack of farm-to-market roads (FMRs), there is a need to relieve congestion on roads accessing ports to improve connectivity beyond Mindanao.

The region's underdevelopment is largely due to civil conflict and low economic growth. The country's main peacebuilding challenges involve a limited geographic area in Western Mindanao that has spillover effects on the broader Mindanao region and the Philippines overall. While the core conflict in Mindanao has been between Muslim armed groups and the government, this is not primarily religious. The broad drivers of endemic violence in the region include: (i) social injustice, alienation, and exclusion of Muslims and indigenous people (IPs); (ii) displacement of Indigenous Peoples from their ancestral domains (ADs); (iii) inter-ethnic conflicts; (iv) rido (clan war and revenge killing); (v) land tenure and ownership disputes; (vi) competition for scarce natural and mineral resources; (vii) local election disputes; (viii) ineffective governance and the lack of rule of law and service delivery; and (ix) widespread

poverty and scarcity of job opportunities.³ Protracted land disputes and conflict in particular have deterred investments in agriculture thereby slowing job creation, growth, and poverty reduction. Aside from addressing the causes of conflict, providing jobs and access to economic opportunities are central to stabilization and normalization in conflict areas as they present alternatives to violence.⁴ Addressing transport connectivity bottlenecks is crucial in the strategy to promote jobs and access to economic opportunities in the Mindanao region.

The MTCIP is fully aligned with the Philippine Development Plan 2023-2028 as it supports the agricultural sector and contributes to the goal of expanding and upgrading infrastructure through the improvement of transport connectivity. The MTCIP aims to embed climate resilience in road design and asset management, and strengthen road safety measures along one of the important transport corridors in Mindanao.

Land acquisition is necessary for the road upgrading and improvement components of the project. The expected land acquisition for MTCIP and the possible involuntary resettlement of project-affected persons renders the World Bank's Environmental and Social Framework (ESF) applicable, particularly **Environment and Social Standard (ESS) 5: Land Acquisition, Restrictions on Land Use, and Involuntary Resettlement**.

The MTCIP Resettlement Policy Framework is prepared in accordance with WB ESS5 and applicable regulations of the Philippine government on land acquisition and the resettlement of persons affected by a government infrastructure project.

1.2 Project Objectives

The Project supports the agriculture sector of Mindanao by providing and enabling a more efficient movement of agriculture products from hinterlands to markets, and to make the mountainous and isolated rural areas more accessible so that these can be reached with ease, convenience, and safety.

MTCIP aims to implement better-quality maintenance practices through the Long Term Performance-Based Maintenance (LTPBM) Concept in improving and preserving the overall condition and value of road assets during the contract period, resulting in a more economical approach to routine and periodic maintenance in succeeding years.

1.3 Project Components

Component 1: Improvements of selected local roads (“Link Roads”) (Total: \$138 million; of which IBRD loan \$82 million, GOP \$57 million). This component will support upgrade (e.g., road widening and paving) of three local roads with a total length of 130 km to national road standards with climate resilience and road safety measures, connecting to the main corridor and thereby improving all-season road access for remote communities and farmers. The roads were jointly selected by DPWH, Mindanao Development Authority (MinDA) and Local Government Units (LGUs) based on multiple criteria: poverty index, proximity to agricultural productions points and markets, and service facilities, e.g., schools, health facilities and government facilities. This component will also finance the detailed engineering design and

³ Sources: World Bank Group. 2019. Systematic Country Diagnostic of the Philippines: Realizing the Filipino Dream for 2040. World Bank, Washington, DC., and the Mindanao Peace Lens Handbook, and the Mindanao Inclusive Agriculture Development Project PAD.

⁴ World Bank. 2017. Mindanao Jobs Report.

construction supervision consultant services of the civil works. The government counterpart will be responsible for land acquisition and resettlement. All local roads upgraded under MTCIP will be converted to national roads and DPWH will be responsible for operation and maintenance.

Component 2: Capacity, climate resilience and road safety enhancement of the CDO-Davao-GenSan Corridor (“Main Corridor”) (Total: \$368 million; of which IBRD loan \$274 million, GOP \$94 million). The Main Corridor has a total length of 421.12 km with four parts: the Sayre Highway, the Bukidnon-Davao, the Digos-Makar and the Davao-Cotabato Rd (Davao City-Jct Digos Sect). The project scope includes rehabilitation of selected (124 km) road sections categorized as ‘bad or poor’ according to DPWH’s Road and Bridges Asset Inventory Application, which will include repair of damaged sections, upgrading to uniform cross section of carriageway, climate resilience and road safety enhancements. Following the improvement works, a new Road Asset Management (Asset Preservation and Preventive Maintenance) regime will be introduced for the whole stretch of the Main Corridor, such as Output & Performance-Based Road Contract (OPRC) to ensure a year-round satisfactory level of service.

Component 3: Capacity building and Institutional Development (Total: \$18 million; of which IBRD loan \$14 million, GOP \$4 million). The implementation of post-Mandanas ruling will provide LGUs with more resources for infrastructure development and maintenance. Given the weak capacity of LGUs in terms of transport network planning and asset management, this component will support capacity enhancement of DPWH and select LGUs. Specific activities under this component will include: (a) set up transport asset management systems in selected LGUs building on what has been achieved under the World Bank-funded Philippine Rural Development Project (PRDP) and Department of Interior and Local Government (DILG) initiatives under its provincial roads program, and through cross-learning between LGUs and relevant government agencies, (b) study on institutional strengthening initiatives to enhance coordination and planning arrangements between DPWH and LGUs to improve transport connectivity, (c) implementation of the recommended actions by the on-going WB Technical Assistance (TA) to mainstream climate resilience in road asset management process of DPWH, which will include Mapping/digitalization of primary, secondary and tertiary road network in Regions X, XI and XII (d) training key stakeholders on the OPRC concept including on their respective role in the enforcement or supervision of the contract, (e) training local communities including female residents of road maintenance practice, and (f) technical, pre-feasibility or feasibility studies (to be identified) for priority interventions to improve local road connectivity and access to major ports in Cagayan de Oro, Davao, and General Santos, and options of involving the private sector in ports improvement.

Component 4: Project Management (Total: \$47 million; of which IBRD loan \$36 million, GOP \$10 million). DPWH will be leading the project implementation. This component will support DPWH’s Unified Project Management Office (UPMO)- Road Management Cluster- II (RMC-II), the Project Implementing Unit (PIU) in project implementation. It will finance trainings and technical advisors on key project implementation issues including OPRC contract design and management, road safety interventions, climate resilience improvement. The Detailed Engineering Design Consultants for project roads will be financed, and in addition, the component will provide support to the PIU for WB technical, fiduciary and safeguards compliance through Technical Support Consultants and Specialists, Road User Satisfaction

Survey Consultants, Road Safety Audit Consultants, Results Monitoring Consultants and External Monitoring Agent (EMA); other operational support including office equipment, vehicles to facilitate the PIU to manage project implementation will be included.

Component 5: Contingent Emergency Response Component (CERC) to support post-disaster recovery. (Total: \$0). The CERC is designed to mitigate situations of urgent need or capacity constraints and allows for the rapid reallocation of funding in the event of a natural disaster or crisis that has caused, or is likely to imminently cause, a major adverse economic and/or social impact. A CERC Annex in the Project Operations Manual (POM) will consider risks from climate change mitigation and adaptation to demonstrate alignment.

1.4 Project Implementation Arrangements

The Department of Public Works and Highways (DPWH) is the main implementing agency for this project. The DPWH is the executive department of the Philippine government solely vested with the mandate to “be the State’s engineering and construction arm.” DPWH’s Unified Project Management Office (UPMO) Roads Management Cluster-II (RMC-II) will be the Project Implementation Unit (PIU). The RMC-II, under UPMO, will be responsible for daily management of project. The fiduciary function will be carried out by respective procurement and financial management related units in DPWH, while the RMC-II will be responsible for contracts management including preparing all the needed procurement documents. RMC II shall also provide support in terms of initial processing/review of billings from contractors and preparation and submission of Statement of Expenditures and Withdrawal Applications to the World Bank.

The DPWH Regional Offices (RO) or District Engineering Offices (DEO) shall serve as the Implementing Office (IO) for the project components. The Mindanao Development Authority (MinDA), as the lead agency for Mindanao’s development, is the key government office that the DPWH will be coordinating in the approval of the proposed MTCIP. The LGUs in the project area will be supporting the RMC-II during project implementation.

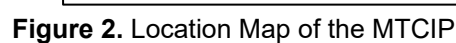
1.5. Project Location

The proposed MTCIP will improve the Main Corridor, connecting key areas across Mindanao, including six cities and thirteen municipalities in eight provinces: Misamis Oriental, Bukidnon, Davao del Sur, Davao Occidental, Davao del Norte, Cotabato, Sarangani, and South Cotabato. These regions fall under the jurisdiction of Northern Mindanao (Region X), Davao Region (Region XI), and Sarangani (Region XII).

Starting from Cagayan de Oro in the north and ending in General Santos City in the south, the Main Corridor passes through various municipalities and cities, including Manolo Fortich, Sumilao, Impasug-ong, Malaybalay City, Valencia City, Maramag, Quezon, and Kitaotao in Bukidnon. It then moves through Arakan in North Cotabato before entering Davao City, and continues through Sta. Cruz, Digos City, Hagonoy, Padada, Sulop, and Malalag in Davao del Sur, finally reaching Malungon and General Santos City in South Cotabato Province.

Additionally, the three Link Roads branch off from the Main Corridor, located in the northern, central, and southern regions. Link Road 1 is entirely within Impasug-ong, Bukidnon in Region X. Link Road 2 starts at Panabo City, Davao del Norte, and extends into Davao City in Region XI and terminates at the intersection with the MC of Bantol Road. Link Road 3 in the south connects Malungon, Sarangani of Region XII to Sta. Maria, Davao Occidental of Region XI.

The entire MTCIP route, including the Main Corridor and three Link Roads, passes through a total of 189 barangays as seen in F. The Main Corridor is accessible to private and passenger cars, motorcycle, tricycle, buses, goods utility vehicles, agricultural and construction vehicles, and specialized vehicles like rigid trucks and truck trailer. The Link Roads is accessed mainly via passenger cars, motorcycle, tricycle, jeepneys, agricultural vehicles, rigid and trailer trucks, and goods utility vehicles.



Version 2.3 | ESMF - List of Appendices | 03 July 2024

Objectives of the Resettlement Policy Framework

During project preparation, an environmental and social impact assessment (ESIA) of the entire MTCIP corridor was conducted which provided relatively detailed information on environmental impacts. However, the short duration of project preparation was insufficient for all the activities of resettlement planning including surveys of all PAPs, census-tagging of affected properties etc. As such, this RPF has been prepared to ensure that all such activities are carried out during project implementation through the preparation of subproject Resettlement Action Plans (RAPs). The RPF provides guidance to DPWH UPMO and other partner institutions to identify project-affected persons, avoid or minimize the adverse impacts of involuntary resettlement that may result from the implementation of the MTCIP, and mitigate such impacts using ESS 5 and relevant Philippine legislation. The RPF presents guidelines for other forms of land acquisition aside from involuntary taking including donation, usufruct, etc. It also provides for the avoidance of forced eviction.

2.1 Development Context

The preparation of the RPF considers the context of the MTCIP regions in Mindanao where project activities pose risks of physical and economic displacement, especially involuntary resettlement of vulnerable groups such as Indigenous Peoples. For the affected vulnerable populations in the MTCIP project regions of Northern Mindanao, Southern Mindanao and SOCCSKSARGEN, ancestral domains and resources are linked to their cultural identity, history and way of life.

Without proper consultation among the communities, restrictions posed by the project on the use of land and its resources can cause resentment and perception of political exclusion, social discrimination, and economic marginalization. Given the history of conflict in these Mindanao regions, involuntary resettlement and restrictions on land use can be a powder keg of further tensions and conflict.

The RPF is a policy framework intended to mitigate the adverse impacts of the project among disadvantaged populations in a context where there are existing grievances and conflicts over land and resources. This RPF seeks to ensure that land acquisition and involuntary resettlement will not exacerbate the existing conflict in the Project areas. It will also try to look for opportunities to contribute to peace building in the project regions through stakeholder engagement, particularly following a participatory, transparent, consultative resettlement process.

2.2 Objective of the RPF

The general objective of the RPF is to ensure that all involuntary losses (whether lands, structures, crops or other properties) of project-affected persons (PAPs) are properly accounted and paid at replacement cost and all those who are physically or economically displaced, whether permanent or temporary, are resettled and/or provided with assistance to improve, or at least maintain, their pre-project living standards and income earning capacity. The RPF provides the policy framework for MTCIP to fully comply with World Bank ESS 5, which strictly prohibits forced eviction and requires that any resettlement activities are properly planned and implemented with appropriate disclosure of information, meaningful consultation, and informed participation of those affected.

2.3 RPF as the Policy Framework for the Resettlement Action Plan

To strike a balance between administrative efficiency and the benefits of smaller contracts, such as local participation and competition, the MTCIP is divided into 13 contract packages (See **Annex 1**): five (5) packages for Link Roads 1, 2, and 3 and seven (8) packages for the Main Corridor. These contract packages, while still under consideration and may change during project implementation, nonetheless define the scope of and inform the preparation of subproject plans, such as the RAP, Stakeholder Engagement Plan, and the Indigenous Peoples Plan. Environment and social safeguards will be implemented in each subproject.

The Resettlement Policy Framework is the basis of the Resettlement Action Plan (RAP), which will be prepared for each of the 13 sub-projects of the MTCIP. The configuration of the subprojects may change during project implementation but the formulation of each sub-project RAP will entail a Census and Tagging of affected persons, Socio-Economic Survey, Inventory of Losses, Land Appraisal, Estimation of Replacement Cost of Structures and Improvements, and Estimation of the Value of Crops and Trees.

The subproject RAP details the right-of-way acquisition process described in the Pre-Feasibility Study or Feasibility Study of the project. The plan contains the description and extent of the lands, structures, improvements, crops, and trees to be acquired for the ROW, the estimated costs and compensation due to the property owners and Project-Affected Persons (PAPs), the budget for all ROW costs including provision for inflation and contingencies, and the schedule of implementation and annual funding requirements.⁵

Overall, the RPF provides guidance in the formulation of the RAP such that the plan complies with the policies, processes, and procedures for mitigating the impacts of involuntary resettlement brought about by the MTCIP.

⁵ Section 2.1.2 DPWH Right-of-Way Acquisition Manual. DO 152 S 2017. IRR of RA 10752

Philippine Land Acquisition and Resettlement Regulations, comparison with WB Policy, and Gap Analysis

Land acquisition for MTCIP shall be in accordance with applicable Philippine laws and local ordinances, department and administrative orders of DPWH as the Implementing Agency, and the World Bank ESS5 principles.

3.1 Philippine laws on land acquisition and resettlement

1987 Constitution of the Republic of the Philippines

- Basic legal foundation for land acquisition; protects the right of affected persons to just and humane resettlement.
- Private property shall not be taken for public use without just compensation.
- Urban or rural poor dwellers shall not be evicted nor their dwellings demolished, except in accordance with the law and in a just and humane manner. No resettlement of urban or rural dwellers shall be undertaken without adequate consultation with them and the communities where they are to be relocated.

Republic Act 7279 s. 1992- Urban Development and Housing Act of 1992

- To the extent feasible, socialized housing and resettlement projects shall be located in new areas where employment opportunities are available. Priority shall be given to areas where basic services and facilities are existing.
- LGUs to provide housing program beneficiaries an opportunity to be heard and to participate in the decision-making process over matters involving the promotion of their legitimate collective interest, which shall include appropriate documentation and feedback mechanisms.
- Evictions or demolitions are discouraged, but may be allowed when government infrastructure projects with available funding are about to be implemented.

RA 10752 s. 2015 - An Act to Facilitate the Acquisition of Right-Of-Way (ROW), Site or Location for National Government Infrastructure Projects

- Expansion in scope of national government projects
- Government may acquire real property needed for right-of-way, site or relocation for any national government infrastructure project. The modes of acquisition may be through donation, negotiated sale, expropriation or any other mode of acquisition as provided by law.
- Compensation based on replacement cost for land, structures and improvements
- Changes in the guidelines for expropriation proceedings.

Republic Act 7160 s. 1991- Local Government Code

- A city or municipality may authorize the reclassification of agricultural lands and provide for the manner of their utilization or disposition.
- No project or program shall be implemented by government authorities unless the consultations are complied with, and prior approval of the Sanggunian concerned is obtained. Occupants in affected areas shall not be evicted unless appropriate relocation sites have been provided.

Commonwealth Act 141 (Public Land Act)

- Prescribes a twenty (20) meter strip of land reserved by the government for public use, with damages being paid for improvements only. Presidential Decree 635 increased the width of the reserved strip from twenty (20) meters to sixty (60) meters.
- If the government decides to exercise its right to use the ROW strip reserved for public use within the land acquired under CA No. 141, the owner is required to execute a quit claim. Only improvements will be compensated.

Republic Act 6685 (December 1988)

- National and local public works projects funded by either the national government or local government as well as foreign-assisted projects must hire at least 50% of the unskilled and 30% of the skilled labor requirements from bona fide and actual residents in the province, city and municipality. Residents who are ready, willing and able are eligible applicants for the projects, as determined by the governor, city or municipal mayor concerned.

DPWH Right-of-Way Acquisition Manual, December 2017

- Provides guidelines on (a) Project Feasibility Study with Environmental Impact Assessment and preparation of Preliminary ROW Action Plan (RAP) with property appraisal, (b) inclusion of the Project in the Medium-Term Infrastructure Program, (d) provision of appropriations in the General Appropriations Act, (e) Fund Release, (g) Detailed Engineering Design, including Parcellary Surveys and preparation of Final RAP, (h) RAP Validation, (i) Actual ROW Acquisition through Donation, Negotiation, Expropriation, and Other Modes, (j) Payments, (k) Transfer of Title to the Republic, (l) Clearance of ROW, and (m) Management of ROW.

3.2 WB ESS5: Land Acquisition, Restrictions on Land Use, and Involuntary Resettlement

Involuntary resettlement is avoided or minimized by exploring project design alternatives. Forced eviction should be avoided. The unavoidable adverse impacts from land acquisition or restrictions on land use must be mitigated through timely compensation for loss of assets at replacement cost and assisting displaced persons in their efforts to improve, or at least restore, livelihoods and living standards, in real terms, to pre-displacement levels or to levels prevailing prior to the beginning of project implementation, whichever is higher.

ESS5 aims to improve living conditions of poor or vulnerable persons who are physically displaced, through the provision of adequate housing, access to services and facilities, and security of tenure. It ensures that resettlement activities are planned and implemented with appropriate disclosure of information, meaningful consultation, and informed participation.⁶

⁶ Source: <https://thedocs.worldbank.org/en/doc/796881511809516397-0290022017/original/EnvironmentalSocialStandardESS5FactSheetWBESF.pdf>

3.3 Comparison and Gap Analysis of Philippine Government Regulations and World Bank Policies on Land Acquisition and Resettlement

A comparison is made between Philippine regulations and World Bank policies on land acquisition, resettlement, and entitlements. Measures are subsequently proposed to fill any policy gaps. The issues refer in particular to the definition of project-affected persons, compensation for loss of income or source of livelihood, treatment of informal settlers, taxes and transaction costs involved in the transfer of real property, valuation of affected land, and treatment of residential and business renters.

The comparison is summarized in **Table 1**.

Table 3. Comparison and gap analysis of Philippine regulations and WB policies on land acquisition, resettlement, and entitlements, and measures to bridge policy gaps

KEY ISSUES	PHILIPPINE POLICY	WORLD BANK POLICY	MEASURES TO FILL GAPS
Persons considered Project-Affected Persons (PAPs)	PAPs consist of all members of a household who will be adversely affected by the project because their real property will be acquired for government infrastructure projects	Persons impacted by involuntary taking of land resulting in (i) relocation or loss of shelter; (ii) loss of assets or access to assets; (iii) loss of income sources or means of livelihood, whether or not the affected persons must move to another location.	All persons occupying land or structure and those that conduct livelihood activities at cut-off date within the ROW limits shall be identified and properly recorded, including their socio-economic status. Each identified person shall be considered PAP and shall be classified accordingly to determine eligibility for any compensation and other entitlements.
Loss of income or sources of livelihood	No stated regulation on compensation for loss of income directly resulting from land acquisition.	Compensation for loss of income and transfer costs to a new site will be part of the entitlement of project affected persons.	The project will pay for any loss of income and transfer costs directly resulting from project-related or induced land acquisition.
Treatment of informal settlers	Republic Act 7279 states that eligible homeless and poor informal settlers in urban areas are entitled to resettlement if they are affected by development projects. However, R.A. 7279 limits this to residential informal settlers and does not cover informal structures on public or private land used for commercial purposes.	Lack of formal ownership of land is not a bar for receiving entitlements; As informal settlers are usually very poor, resettlement housing is recommended instead of replacement cost of lost assets.	MTCIP shall at least cover the replacement cost of affected structures of informal settlers, as well as the transfer costs and costs of rehabilitation in the new site. The project will implement a beneficiary award criteria system which prioritizes the award of lots and replacement housing to informal settlers who are actual occupants of affected land/structures. The project should announce a cut-off date and if necessary, secure the site, to prevent further entry into the project area. Payment at replacement cost or relocation to a resettlement site needs to happen before construction.
Taxes and transaction costs involved in the transfer of real property	Current practice is to deduct capital gains tax, documentary stamp tax, transfer tax, registration fees, and administrative expenses from the compensation of affected land and structures.	Taxes, administrative fees, and other transaction costs are not to be deducted from the total compensation of the affected person/s	Since this is not a willing seller-willing buyer transaction type, the project will cover the cost of taxes, administrative fees, and other transaction costs.

KEY ISSUES	PHILIPPINE POLICY	WORLD BANK POLICY	MEASURES TO FILL GAPS
Valuation of affected land due to expropriation	The Philippine Constitution states that private lands expropriated or taken for the public interest shall be paid just compensation. The Supreme Court defines just compensation as current market value less the cost of any future benefits the landowner may derive from residual land. For land subjected to expropriation proceedings, Section 7 (a) of the IRR of RA 10752 directs the implementing agency to deposit to the court in favor of the owner the amount equivalent to the sum of one hundred percent (100%) of the value of the land based on the current zonal valuation of the BIR, issued not more than three (3) years prior the filing of the expropriation complaint.	ESS 5 indicates that the valuation of the affected land must be based on replacement cost, which is the method of valuing assets to replace the loss at current market value. ESS 5 requires that compensation is fully paid before the start of construction.	Replacement cost of expropriated assets in favor of the PAP needs to be deposited in an escrow account - prior to the start of construction.
Treatment of residential and business renters	Fixed improvements introduced by renters on the land or structures automatically belong to the landowner, unless there is a specific provision that the owner will compensate the renter for any fixed improvements introduced by the latter. The practice is to ask the landowner to sign a waiver, allowing the renter to be paid compensation for any fixed improvements.	(i) compensation at full replacement cost for loss of structures/assets other than land; (ii) resettlement assistance; and (iii) other assistance as may be necessary	Compensation for fixed improvements introduced by the renter will be paid to the renter. Renter will be provided compensation for transfer costs and disturbance compensation for temporary closure of the business establishment or rental accommodation while transfer is ongoing.

Land Acquisition and Involuntary Resettlement Risks and Impacts

The MTCIP supports the agriculture sector of Mindanao by providing road infrastructure that will enable a more efficient movement of agricultural products from the hinterlands to the markets. The project intends to contribute to the national goal of promoting inclusive growth and shared prosperity in the region.

The project is expected to expand and upgrade infrastructure through the improvement of transport connectivity, embedding climate resilience in road design and asset management, and strengthening road safety measures along one of the important transport corridors in Mindanao.

The project will benefit 1,374,289 members of the community along its alignment and as well as the surrounding regions. Residents within the 189 barangays along the alignment are expected to benefit from the increased access to goods and transportation as well as positive effects on economic activities in the area.

In the long term, the project is also expected to contribute to poverty alleviation in the affected communities. The current poverty incidence is 38% along the Main Corridor, 40% on Link Road 1, 40% on Link Road 2, and 45% on Link Road 3.

However, the MTCIP presents social risks and impacts related to land acquisition and involuntary resettlement as follows:

4.1 Right-of-way acquisition

The MTCIP will entail right-of-way acquisition for the road upgrading and improvement component. The estimated land area required for the selected option per road⁷ is summarized below:

Main corridor: No right-of-way acquisition due to established road

Link Road 1: 237,990 square meters

Link Road 2: 357,920 square meters

Link Road 3: 740,138 square meters

4.2 Project-affected structures and households

The preliminary data collected during the DDOA on the project-affected population and affected structures need to be validated in a socio-economic survey for each sub-project of the MTCIP during project implementation.

Table 2 presents the estimated number of the project-affected structures along the Main Corridor and Link Roads 1,2 and 3. The data collected during project preparation shows a total of about 8,341 structures that will be affected by the project.

⁷ Source: MTCIP Environment and Social Impact Assessment, March 2024

Table 4. Summary of project-affected structures⁸

MTCIP Road	Number of project-affected structures
Main Corridor	5,013
Link Road 1	814
Link Road 2	1,708
Link Road 3	806
Total	8,341

Table 5. Summary of project-affected households⁹

MTCIP Road	Number of project-affected households
Main Corridor	1,002
Link Road 1	707
Link Road 2	1,217
Link Road 3	757
Total	3,683

Table 3 presents an estimated summary of the project-affected households, which is derived from the structure count. Some 3,683 households are projected to be affected by the project. Strips of land would be required for right-of-way and structures are likely to be affected in whole or in part.

Nearly a third of these households (1,217 households) reside along Link Road 2. Additionally, some 1,002 households along the Main Corridor will be affected by the project. On Link Road 1, it is expected that 707 households will be at risk of resettlement, while on Link Road 3, the project will affect 757 households.

4.3 Affected Indigenous Peoples

Within the MTCIP communities, the presence of Indigenous Peoples was recognized, especially in the area traversed by the link roads. Indigenous Peoples account for 30% Higa-onon on Link Road 1; 98% composed of Matigsalog and Islamized Ethnic Group (Kagan/Kalagan) on Link Road 2; and 98% Tagakaolo on Link Road 3.

Link Road 1 is predominantly inhabited by the Higa-onon tribal community, representing 30% of the total population in the three barangays the road traverses. Notably, this road lies outside the recognized ancestral domain of the Higa-onon community, with houses situated within municipal or barangay zoned built-up areas.

Link Road 2 passes through the ancestral domain of the Matigsalog communities in the Marilog and Paquibato districts of Davao City. Additionally, Kagan/Kalagan communities have opted to settle in vacant land spaces alongside this road, categorizing them as informal settler families (ISF), with over 200 families constructing structures along this link road.

Link Road 3 passes through barangays within the recognized ancestral lands of the Tagakaolo cultural communities, covering a distance exceeding 50 kilometers and traversing residential and agricultural areas of the Tagakaolo indigenous people. Maguindanaons also constitute informal settler families along this road. The barangay government in Link Road 3 permits

⁸ Source: Structure count - Environment and Social Team; Google Earth approximation - Engineering Team, Galerio Environmental Consultancy Inc.

⁹ The number of project-affected households is derived from the structure count.

Kagan/Kalagan to occupy public lands used as built-up areas, while some act as tenants on agricultural lands owned by medium to commercial-scale agricultural producers.

For IPs occupying land that will be acquired for the MTCIP RROW, **physical and economic displacement** is a risk as a result of involuntary acquisition of their land and involuntary restrictions on land use. Such displacement can be full or partial, permanent or temporary. The actual magnitude and details of such impacts will be determined during project implementation.

The **MTCIP Indigenous Peoples Policy Framework** details the approach when involuntary resettlement involves Indigenous Peoples including screening for Indigenous Peoples, meaningful consultation, and free, prior and informed consent.

4.4 Affected informal settler families

The number of informal settler households among the project-affected population was estimated using secondary data from the barangay profile of all barangays along the three link roads. The secondary information was corroborated with key informants, particularly through key informant interviews with barangay officials.

Of the total project-affected households, an estimated 305 households can be considered informal settler families. These ISFs reside within the 20-meter width of Link Road 2 and Link Road 3 (92 ISFs in Link Road 2 and 213 ISFs in Link Road 3). No ISFs occupy the 20-meter within Link Road 1 and along the Main Corridor. This preliminary information on the housing tenure of the PAPs needs to be validated for each sub-project during the implementation of the MTCIP.

The lack of housing and land tenure of these families makes them a part of the vulnerable population.

4.5 Other Risks

Security and conflict issues in MTCIP project areas, which span the conflict-affected regions of Northern Mindanao, Southern Mindanao, and SOCCSKSARGEN, emanate from ethnic differences, reported armed conflict between alleged terrorist groups and government military forces, overlapping and unreconciled tenurial instruments within the project area, denial of fair compensation for affected assets, some forms of gender-based violence, as well as grinding poverty.

The development of a new project poses risk when it comes to land speculation. First, the rise of land prices due to the anticipated rise in demand due to new opportunities brought on by the project. Second, the locals might be priced out in the future as the project introduces changes that will elevate the quality of living thereby driving up the prices of their daily living. Lastly, it can introduce conflict as investors might want to force the land owners to sell their property.

In terms of inter-family issues, there are some risks that might come in to play. Foremost is the issue of land inheritance among family members. As the land increases in value, the monetary aspect of this benefit might entice the people to resort to conflict such as lawsuits and complaints against other family members. Second, the issue regarding boundary of properties. As there will be lands that will be affected by the project development, the issue of boundary comes into surface as the people might not want their property to be affected by the

project construction. Finally, the division of land area amongs the family unit might be affected. As land area as mostly divided amongs family members, the allotted area of one might be the only one affected thus inducing conflict within the family.

During the Public Consultations conducted for MTCIP-DDOA in September-October 2023, the issue of fair compensation for affected lands was raised by the barangay officials. According to the local leaders, previous DPWH Right-of-way acquisition has remained unpaid and the landowners worry that for the MTCIP, the **delayed payment** may recur. It was not clarified if these instances are within the project scope or in other DPWH projects. Nevertheless, this raises the risk of DPWH being denied entry by the affected households to the proposed alignment. In order to avoid this risk, MTCIP will provide fair and prompt compensation for affected lands. MTCIP will also ensure that land titles and related documents are updated once properties have been acquired. This is to ensure that PAPs will pay the only the real property taxes for their remaining lots. In addition, the Project will assess legacy issues during RAP preparation and ensure that appropriate mitigating measures in accordance with ESS 5 and this RPF be put in place.

The project will comply with established procedures for ROW acquisition as well as the MTCIP Resettlement Policy. Compensation, entitlements, and other forms of assistance shall be provided to PAPs before displacement as a part of MTCIP Resettlement Policy.

Inter-ethnic conflict may arise due to the different cultural laws, practices, and traditions of the affected populations. Some ethnic groups in Davao City, Davao Occidental, and Saranggani have embraced Islam. On the other hand, IP groups such as Matigsalogs and Higa-onon in Davao City and Bukidnon observe their own cultural practices and live in a communally-owned ancestral domain, which may exclude other ethnic groups, such as Islamized ethnic communities.

Reported ambushes and **skirmishes** in remote areas in Region X (particularly Misamis Oriental and Bukidnon) raise threats to local populations. Moreover, the MTCIP may be stopped or significantly delayed due to these security concerns, or may worsen the conflict because of competing interests or access to resources.

Resettlement may expose these groups to increased vulnerability as the resettlement process already put people in a uncertain conditions which, in the presence of conflict, can increase their susceptibility to violence, exploitation and coercion. Moreover, areas with apparent security risks may experience disruptions in the resettlement process which may affect the distribution of compensation, construction of new dwellings or implementation of social services that will ultimately inhibit rebuilding progresses. Conflict also poses risks to physical access to new sites which could further hinder resettlement. Establishing social cohesion among resettlers as well as their new neighbors could also be challenging in an environment with high tension and mistrust common in conflict areas. Finally, land rights and tenure security may be an issue in conflict areas as possible disputes may arise over land ownership and use if land rights for resettlement is not properly acquired.

Tenurial instruments in the MTCIP project area include Certificate of Land Ownership Agreement under the Comprehensive Agrarian Reform Program (CARP), Community-based Forest Management Agreement (CBFMA) under the Department of Environment and Natural

Resources (DENR), Certificate of Ancestral Domain Title (CADT) from the National Commission for Indigenous Peoples (NCIP), Protected Areas under the National Integrated Protected Areas System (NIPAS), private land titles, and public estate. Each tenurial instrument is governed by specific laws and guidelines which may have different interpretations and which may not be reconciled. The differences will necessitate harmonization of the laws governing ownership as well as the development and management of land. For example, the proposed Link Road 1 traverses CBFMA, CARP, private lands and public lands, which all require compliance to the governing regulations on land ownership. The lack of harmonization of tenurial instruments covering one site will affect or delay road right-of-way acquisition. The MTCIP needs to engage with tenure holders and enter a Memorandum of Agreement in cases where the land is communally-owned.

The MTCIP will facilitate raw claims involving ancestral domains owned by ICCs and IPs recognized under IPRA, which will be affected by the implementation of national government infrastructure projects.

In the acquisition of RROW involving lands covered by Certificate of Ancestral Domain Title (CADT) or NCIP- confirmed Ancestral Domain, a ROW Easement Agreement shall be executed by and between the NCIP Accredited or Certified Tribal Council and DPWH UPMO, where the former will grant the latter the absolute and unimpeded right to use the affected portion of their ancestral domain as RROW for as long as the public requirement subsists, but the IPs/ICCs retain ownership of that portion of the lot. The agreement shall be in accordance with the procedure and requirements set forth in the Department Order No. 43, Series of 2020 and with the requirements for free, prior, and informed consent under the Indigenous Peoples Rights Act (IPRA).

MTCIP Resettlement Policies

The MTCIP Resettlement Policy Framework adopts the principles of the World Bank ESS 5: Land Acquisition, Restrictions on Land Use and Involuntary Resettlement.

In consonance with WB ESS 5, the MTCIP RPF abides by the following resettlement policies:

5.1 Resettlement Policies

- i. Avoid involuntary resettlement or, when unavoidable, minimize involuntary resettlement by exploring project design alternatives.
- ii. Avoid forced eviction.
- iii. Mitigate unavoidable adverse social and economic impacts from land acquisition or restrictions on land use by: (a) providing timely compensation for loss of assets at replacement cost and (b) assisting displaced persons in their efforts to improve, or at least restore, their livelihoods and living standards, in real terms, to pre-displacement levels or to levels prevailing prior to the beginning of project implementation, whichever is higher.
- iv. Improve the living conditions of poor or vulnerable persons who are physically displaced, through provision of adequate housing, access to services and facilities, and security of tenure.
- v. Conceive and execute resettlement activities as sustainable development programs, providing sufficient investment resources to enable displaced persons to benefit directly from the project, as the nature of the project may warrant.
- vi. Ensure that resettlement activities are planned and implemented with appropriate disclosure of information, meaningful consultation, and the informed participation of those affected.

5.2 Hierarchy of Mitigation Measures

The WB hierarchy of mitigation measures prescribes that land acquisition and involuntary resettlement will be avoided where feasible, or minimized, by identifying possible alternative project designs that have the least adverse impact on the communities.

During MTCIP project preparation, alternative project alignments and designs were considered to avoid or minimize land acquisition or restrictions on land use, especially where this would result in physical or economic displacement, while balancing environmental, social, and financial costs and benefits. Particular attention was made on gender impacts and impacts on the poor and vulnerable.

While risks of involuntary resettlement cannot be completely avoided in MTCIP, the Due Diligence and Options Analysis (DDOA) done during project preparation presented opportunities to **minimize or reduce the risks and impacts** to acceptable levels. The findings of the DDOA are presented in various reports including the ESMF and ESIA.

The conduct of detailed engineering design (DED) presents another opportunity for minimizing involuntary resettlement impacts. The DED will be done in parallel with RAP preparation activities to ensure that technical design and involuntary resettlement impacts inform each other. Where resettlement impacts are unavoidable or have reached the minimum impacts, mitigating measures using the provisions of this RPF will be carried out.

5.3 Eligibility criteria for defining project-affected persons

Project-affected persons (PAPs) may be classified as persons:

- (a) Who have formal legal rights to land or assets;
- (b) Who do not have formal legal rights to land or assets, but have a claim to land or assets that is recognized or recognizable under national law; or
- (c) Who have no recognizable legal right or claim to the land or assets they occupy or use.

5.4 Compensation and entitlements of project-affected persons

When land acquisition or restrictions on land use (whether permanent or temporary) cannot be avoided, MTCIP will offer affected persons compensation at replacement cost, and other assistance as may be necessary to help them improve or at least restore their standards of living or livelihood.

PAPs losing more than 20 percent or all of their productive assets (agricultural land, house, or business), or in cases when the remaining assets are not economically viable, are entitled to:

- a) Full compensation at replacement cost of the entire asset or at direct land/asset replacement; and
- b) Rehabilitation assistance that allows them to enhance or at least maintain their standard of living.

PAPs losing less than 20 percent of their productive assets, and where the remaining assets remain viable for continued use, are entitled to cash compensation at replacement cost for the affected asset.

5.5 Compensation for agricultural land

Agricultural land will be replaced by:

- a) Land of equal productive capacity, which is acceptable to the PAP; or
- b) Full compensation at replacement cost, where land is not available.

5.6 Compensation for commercial and residential land

Commercial/residential land (or other real property) will be replaced by:

- a) Land of equal market value or business potential acceptable to the PAP; or

- b) Full compensation at current market value, where suitable replacement land is not available or at the informed request of the PAP.

5.7 Compensation for structures

The options for compensation of structures are (1) compensation in cash at replacement cost or (2) dwelling reconstruction. Replacement cost compensation for the affected portion of the structure includes the cost of restoring the remaining structure, as determined by an accredited appraiser. No deduction for salvaged building materials and depreciation shall be made.

Dwelling reconstruction, if this option exists, or cash compensation will be offered. Dwelling reconstruction will be at the same values of the part lost/or taken by the project only.

The cost of reconnecting the facilities such as water, power and telephone will be covered by DPWH, using the normal inter-governmental procedures and practices.

Consistent with Section 5 (b) of RA 10752 and Section 6.8 of its IRR, the replacement cost of structures and improvements also apply to those who do not have legally recognized rights to the land, and who meet the following criteria:

- (i) Must be a Filipino citizen;
- (ii) Must not own any real property or any other housing facility, whether in urban or rural areas;
- (iii) Must not be a professional squatter or a member of a squatting syndicate, as defined in RA 7279 Urban Development and Housing Act of 1992; and
- (iv) Must not occupy an existing government ROW.

5.8 Compensation for crops and trees

Cash compensation for perennials of commercial value as determined by the DENR or an accredited appraiser shall be provided. PAPs will be given sufficient time to harvest crops on the affected land. Compensation at market value at the time of taking for damaged crops will be given. The compensation will be based on the cost of production per hectare.

Entitlement for fruit-bearing trees will be based on the assessment of the LGU where the project is located. The assessment will be based on the price of the produce times its quantity, plus one year of yield times a period of 5 years.

Young trees will be compensated at a replacement cost for tree loss. For timber trees, cash compensation will be provided based on value of wood volume times the market value of the wood.

DPWH UPMO will be responsible for obtaining appropriate licenses and permits and covering the tax fees for removal of the trees from the various respective authorities.

For coconut trees, the authorization for cutting and compensation is handled by the Philippine Coconut Authority.

5.9 Compensation for damaged or lost crops

Replacement of damaged or lost crops will be based on full market value for one year's harvest and will be paid in cash.

5.10 Compensation for temporary loss of land

PAPs whose land is temporarily taken will be compensated at full replacement cost for their net loss of income and/or damaged assets, including a reasonable amount for opportunity cost/s.

5.11 Other types of assistance and entitlements

Disturbance compensation. For agricultural land, affected lessees are entitled to disturbance compensation equivalent to five times the average of gross harvest for the past 3 years but not less than PhP 15,000.

Income loss. Temporary losses of business will be compensated with a lump sum equal to the value of income loss based upon the previous yearly income. Permanent loss of business will be compensated based on the replacement cost of the structure and land.

Transitional allowance. For severely affected structures which require relocation and new construction, a transitional sum for three (3) months temporary rental and relocation expenses shall be given to the affected persons.

Rehabilitation assistance. Skills training and other development activities will be provided in coordination with other government agencies if the present means of livelihood will no longer viable for individual PAPs.

Rental subsidy. This subsidy is provided to PAPs who need to rent a housing facility during the period of the reconstruction of their lost house. The rental subsidy will be provided under the following circumstances:

- i. The affected properties are for residential use only;
- ii. The PAPs were physically residing in the affected structures and land at the time of the cut-off date; and
- iii. The amount given will be for the period between the delivery of house compensation and the delivery of land compensation.

Transportation allowance. Transportation allowance will be provided to displaced PAPs during the transition period (between displacement and livelihood restoration). The transportation allowance is provided along with other types of assistance to enable displaced PAPs to restore their pre-project standards of living.

Assistance to vulnerable groups. Affected poor, elderly, PWD, solo parents, female-headed households, and those whose impacts will induce them to fall on or below the poverty line as defined by the National Economic Development Authority (NEDA) and projected to be worse off after resettlement, shall be provided an additional allowance. Specific support will be determined together with the Department of Social Work and Development (DSWD) through the municipal social workers.

5.12 Verification of ownership documents

Verification of titles and tax payments shall be undertaken before land replacement or cash compensation to determine who owns the land and who will be entitled to what. Non-payment of taxes will not be a bar to receiving entitlements.

5.13 Modes of acquiring land and other assets

Consistent with the provisions of the RA 10752 (Right-of-Way Acquisition Act), DPWH may acquire real property needed as right-of-way for MTCIP through donation, negotiated sale, usufruct, expropriation, or any other mode of acquisition as provided by law.

In case of lands granted through **Commonwealth Act No. 141** (Public Land Act), the implementing agency shall:

- (a) Follow the other modes of acquisition enumerated in this Act, if the landowner is not the original patent holder and any previous acquisition of said land is not through a gratuitous title; or
- (b) Follow the provisions under Commonwealth Act No. 141, as amended, regarding acquisition of right-of-way on patent lands, if the landowner is the original patent holder or the acquisition of the land from the original patent holder is through a gratuitous title.

The DPWH UPMO may explore the mode of **donation** of the needed portion or whole of the affected property, i.e., lots with or without improvements, by the property owner concerned, which may be a private individual or corporation, or a government agency or corporation.

The property owner may willfully make a donation of his property or any part thereof that may be affected by the sub-project activities, provided that he has been informed of his entitlements first. A part or all of the land to be used by the project may be donated on a voluntary basis without payment of full compensation. This is acceptable only when the following criteria have been met and verified by DPWH-UPMO directly with the affected persons: (a) the potential donor has been appropriately informed and consulted about the project and the choices available to him/her; (b) the potential donor is aware that refusal is an option, and have confirmed in writing his/her willingness to proceed with the donation; (c) the amount of land being donated is minor and will not reduce the donor's remaining land area below that required to maintain the donor's livelihood at current levels; (d) no household relocation is involved; (e) the donor is expected to benefit directly from the project; and (f) for community or collective land, donation can only occur with the consent of individuals using or occupying the land.

If the property owner agrees to donate the property to be acquired by the DPWH UPMO for ROW, a deed of donation shall immediately be prepared. The deed of donation shall be simple and unconditional, and contain clauses to the effect that the donation is made not to defraud the donor's creditors, and that the donor has, if necessary, reserved for himself enough property for his family's subsistence, sustenance and support, in cases where the donor is a private individual.

The donation must be accepted by DPWH UPMO, which shall be indicated in the deed. DPWH UPMO shall pay the documentary stamp tax, transfer tax and registration fees, while the donor shall pay any unpaid real property tax.

Another mode to secure the use of land is through a **usufruct**, in which the property owner retains the ownership of the land while allowing the project proponent to use the land. A usufruct may be secured in the case of government-owned land or property to be used as a subproject site. The land owner and DPWH UPMO will execute a usufruct agreement which covers the rights and responsibilities of the two parties, including the duration of the usufruct which should not be shorter than the subproject life.

In a **negotiated sale**, DPWH UPMO shall offer to the property owner concerned, as compensation price, the sum of:

- (1) The current market value of the land,
- (2) The replacement cost of structures and improvements therein; and
- (3) The current market value of crops and trees therein.

If the property owner does not accept the price offer, the implementing agency shall initiate **expropriation** proceedings pursuant to Section 6 of RA 10752. However, MTCIP will only resort to expropriation as a last resort of land acquisition and it will be consistent with ESS 5 in terms of payment at replacement cost prior to construction.

5.14 Valuation of affected land and other assets

Assets to be compensated are categorized as: land, structures, other improvements and crops, trees and perennials.

Alienable and disposable land (residential/ commercial/ industrial/ institutional/ agricultural land)

Eligible landowner PAPs shall be compensated at replacement cost at the time of the RAP preparation with the expectation that land taking will immediately ensue. Should there be significant project delays (e.g., 2 years), the RAP will be revisited and replacement costs will need to be adjusted.

In the case of PAPs with liabilities for land tax in arrears, these arrears are payable by the PAP as these are not an impact caused by the project. Payment of tax arrears is required under Philippine law. In compliance with Philippine law and WB social safeguards to ensure that PAPs are not worse-off after land acquisition and resettlement, the following will apply:

- i. PAPs are liable for any tax in arrears;
- ii. PAPs who cannot afford to pay land tax in arrears, and would likely be worse off after compensation and project implementation, should be identified and eligible under the “Vulnerability” definition of PAPs of the project;
- iii. If the PAP is relocated to another piece of land (replacement land), they will still be liable for land tax in arrears, on the property taken, but only for the first quarter of land tax for the host site; and
- iv. The grievance system, internal and external monitoring described under this RPF, an effective census/and inventory of losses, and a consultation process should enable the identification of those made worse off by the land tax payment. If monitoring notes a PAP as worse off, WB requires that the

implementing unit must make provisions, even during project implementation, to mitigate the situation.

Entitlements Matrix

Project-affected persons shall be given the entitlements according to the Entitlements Matrix of MTCIP, presented in the following table.

Table 6. MTCIP Entitlements Matrix

Type of Loss	Magnitude and Type	Eligible persons	Entitlement
A. Land	Full	Owner	Full cash compensation at replacement cost without deduction for capital gains, documentary stamp, transfer taxes, and other directly related transaction costs
	Partial	Owner	Full cash compensation at replacement cost for the affected portion without deduction for capital gains, documentary stamp, transfer taxes, survey costs, cost of new subdivision plan, and other transaction costs. If remaining land is no longer viable for use, PAP will have the same entitlements as PAPs who lost their entire property (see above)
B. Structure	Full	Owner-Occupant	Full cash compensation at replacement cost for the affected structure without deduction for salvaged/salvageable materials and depreciation. Replacement cost includes not only the cost of materials but also the cost of (i) architectural services; (ii) hauling cost of materials; (iii) labor cost; (iv) cost of reinstalling utilities; (v) contractor's profits; and (vi) cost of processing or securing the necessary government permits. Cost of transferring to the new structure, including any loss of wages or income incurred in the process.
		Renters	Full cash compensation at replacement cost for any fixed improvements introduced. Cost of transferring to the new structure, including any loss of wages or income incurred in the process.
	Partial	Owner-Occupant	Full cash compensation at replacement cost for the affected portion of the structure without deduction for salvaged/salvageable materials and depreciation. Replacement cost includes not only the cost of materials but also the cost of (i) architectural services; (ii) hauling cost of materials; (iii) labor cost; (iv) cost of reinstalling utilities; (v) contractor's profits; and (vi) cost of processing or securing the necessary government permits. If owner occupant requires a separate dwelling while repair is ongoing, a rental subsidy will be provided equivalent to the estimated time it will take to repair the structure. The cost of transferring to the provisional structure and returning to the repaired structure, including any loss of wages or income incurred in the process, will be covered. If the remaining structure is no longer viable for use, PAP will have the same entitlements as PAPs who lost entire structure (see above)
		Renter	Full cash compensation at replacement cost for the fixed improvements introduced by the renter. In consultation with the owner, guarantee to continue renting the facility upon completion of repair. Rental period will be equivalent to the unutilized portion of the contract and same rental rates will apply. If renter requires a separate dwelling, while repair is ongoing, a rental subsidy equivalent to the estimated time it will take to repair the structure. Cost of transferring to the provisional structure and returning to the repaired structure, including any loss of wages or income incurred in the process. If renter does not opt to return, the project will shoulder the cost of transferring to the new structure, including any loss of wages or income incurred in the process.

Type of Loss	Magnitude and Type	Eligible persons	Entitlement
	Informal settler (commercial land)	Encroachers on public ROW	(i) compensation at full replacement cost for loss of structures/assets other than land; (ii) resettlement assistance; and (iii) other assistance, as may be necessary
	Informal settler (residential and mixed residential-commercial land)	Owner-occupants	(i) compensation at full replacement cost for loss of structures/assets other than land; (ii) resettlement assistance; and (iii) other assistance, as may be necessary First priority to receive a house and lot with security of tenure in a government relocation site; Free transportation to the relocation site; Free food or food allowance; Retention of ownership of salvaged materials; Loss of business income during the transfer capped at a maximum of five (5) days.
		Renters	Second priority to receive house and lot with security of tenure in government relocation. If not awarded, explore moving in with original household. If moving in is impossible, cost of transferring to new rental housing. Food allowance. (i) compensation at full replacement cost for loss of structures/assets other than land; (ii) resettlement assistance; and (iii) other assistance, as may be necessary
		Sharers	Third priority to receive house and lot with security of tenure in a government relocation site. If not awarded, explore moving in with original household. If moving in is impossible, cost of transferring to new rental housing. Food allowance. (i) compensation at full replacement cost for loss of structures/assets other than land; (ii) resettlement assistance; and (iii) other assistance, as may be necessary
		Absentee structure owners	(i) compensation at full replacement cost for loss of structures/assets other than land; (ii) resettlement assistance; and (iii) other assistance, as may be necessary
	Utilities	Private utility company	If facilities are located in public ROW, utility company pays for the cost of relocation to a new site or reconstruction in the new site. If facilities are located in private land, the project covers the cost of transferring or reconstruction, if the facility needs to be demolished.
C. Income	Temporary closure as business is relocated off-site.	Workers	Lost wages for days without work due to closure and/or transfer of the enterprise to new site.
		Enterprise owners-renters	Lost net income for days of business due to closure and/or transfer of the enterprise to the new site.
		Land and/or structure -owner	Rental contracts usually stipulate forfeiture of deposit (1 or two months) if contract is pre-terminated; therefore, no compensation for lost rental income is given.
	Permanent closure	Workers (temporary; daily wage)	Compensation for lost wages equivalent to the remaining days in the contract (usually less than six months).
		Workers (permanent or tenured)	The entitlements for permanent workers stated in the Labor Code or the Collective Bargaining Agreement (if the establishment has one) will be provided
D. Crops and Trees	Full	Project-affected Persons (PAPs) with or without full title to the land, who own compensable trees.	Cash compensation for trees and crops at current market value as determined by DENR or PCA. Non-landowners shall secure confirmation from the rightful landowner The assessment for trees and crops will be based on the price of the produce times its quantity, plus one year of yield times a period of 5 years.

Resettlement Planning

The preliminary information on social impacts and risks obtained during project preparation needs to be validated in each sub-project through established methods during project implementation. The validation methods include site-specific assessments and surveys for right-of-way acquisition.

Resettlement planning in each sub-project encompasses project ROWA information disclosure, establishment of the Cut-Off-Date of Eligibility and issuance of the Notice of Taking, survey activities, collaborative selection and development of resettlement sites, and participatory preparation of the RAP.

7.1 Project ROWA information disclosure

For each sub-project of the MTCIP, DPWH UPMO will disclose relevant project information, potential environmental and social risks, and expected development impact. The results of the Environment and Social Impact Assessment prepared by DPWH UPMO are shared and validated in each sub-project site.

Sub-project information related to ROWA and involuntary resettlement is disclosed in consultation meetings with local government officials, especially the concerned Governor, Provincial Engineer, Provincial Planning and Development Officer/Coordinator, Provincial Assessor, Mayors, City/ Municipal Engineers, City/Municipal Planning and Development Coordinators, and City/Municipal Assessors.

A series of public consultation meetings (PCMs) is conducted among PAPs in each barangay that will be traversed by the sub-project, normally held in neutral grounds such as barangay halls to encourage open and fair discussions.

The following topics are considered mandatory during the PCMs¹⁰:

1. Brief project description and alternative designs considered
2. Reiteration of concept of RAP as a tool for socio-economic development. The RAP preparer must ensure that the RAP concept is clearly understood by the PAPs.
3. Tagging and taking of photographs of owner and structures
4. In the case of informal settlers, specify the **Cut-Off Date for Eligibility**, which is reckoned as the start of the census for PAPs and tagging for improvements
5. Importance of honesty and accuracy of responses in the census and socio-economic survey to be carried out
6. Explanation of eligibility, entitlements, and valuation methods
7. Description of the grievance and redress mechanism
8. Explanation on the project process, timelines, and responsibilities
9. Open Forum to allow the PAPs to express their ideas, apprehensions, concerns and even objections regarding the proposed project

7.2 Establishment of the Cut-Off Date of Eligibility and Issuance of the Notice of Taking

¹⁰ Section 2.4, DPWH Right-of-Way Acquisition Manual 2017

The Cut-Off Date of Eligibility refers to the date prior to which the occupation or use of the project area categorizes residents as PAPs who are eligible to project entitlements, i.e., the beginning of the census-tagging. Individuals taking up residence in, or use of, the project area after the cut-off date are not eligible for compensation or resettlement assistance.

Moreover, the loss of fixed assets (such as built structures, trees, crops) built or planted after the cut-off date is not compensated, except where it can be demonstrated that such post-cut-off date improvements were needed to maintain the livelihood of the affected person during the period between the cut-off date and displacement. If there is a significant time lag between the completion of the census and implementation of the resettlement or livelihood restoration plan (two years or more), a repeat census and inventory and evaluation of assets are undertaken, and the RAP updated accordingly.

The cut-off date must be well communicated, documented, and disseminated to the affected communities, including providing clear demarcation of the affected areas.

For informal settlers, the cut-off date is the start date of the census of PAPs and tagging of structures and improvements. The cut-off date is disclosed to each affected barangay by the relevant LGUs, and the barangays will disclose them to their populations. The establishment of the eligibility cut-off date is intended to prevent encroachment by opportunistic settlers who might take advantage of MTCIP project entitlements.

For formal settlers (i.e., property owners), the date of the Notice of Taking applies, which is the date of the letter issued by DPWH UPMO to the concerned landowners informing them of the intent of DPWH to acquire their lands for the ROW. Once the Notice of Taking is issued, no development or construction, or issuance of any building, construction, development, or business permit that is contrary to the approved plans and purposes of the project within the right-of-way is allowed within two years from the date of the Notice of Taking unless explicitly authorized by the head of the implementing agency for justifiable reasons.

7.3 Survey activities

Resettlement planning includes the **identification of the impacts** of the project and the **populations that will be affected**. The impact assessment identifies the full range of people affected by the project, whether directly or indirectly, full or partial, temporary or permanent. The impacts of project land acquisition are described and **mitigation measures** are proposed. Where land acquisition cannot be avoided, the impact analysis includes a justification of their displacement after a consideration of alternatives that would avoid or minimize displacement, or mitigate its adverse impacts.

Following the environment and social assessment, delineation of the right-of-way, and estimation of the number of project-affected structures and households, a **Detailed Measurement Survey (DMS)** is conducted. The DMS measures all fixed assets such as land, structures, crops, and communal facilities, and identifies their owners. The DMS also includes an assessment of the severity of impacts on income or source of livelihood due to loss of fixed assets.

Concurrently, a **Census and Tagging of affected households** is implemented. During census and tagging, trained enumerators obtain information on the following:

- i. Summary data on the household, by ethnicity; gender of household head; whether the household is headed by a woman, elderly, ethnic minority, person with disability; household size, primary and secondary source of livelihood, income level;
- ii. Tenurial status and duration of tenure; ownership of occupied structure;
- iii. Whether the affected land or affected livelihood is a primary source of income; and
- iv. Knowledge of PAPs on the project, preference for compensation, relocations sites, and rehabilitation assistance.

Following the census, a tag sticker – containing the control number, date when the interview was conducted, and the name of enumerator – will be affixed to the affected structure. A photograph of the household and owners, wherever possible, will also be taken.

Beyond conducting cadastral surveys or inventories of affected assets, resettlement planning requires an examination of the social, economic and environmental conditions of the PAPs. A **Socio-Economic Survey (SES)** is administered among PAPs at the household level to obtain baseline information on the demography, income and expenditures, occupation and livelihood (including formal and informal economic activities), resource use patterns, social organization and community participation, and cultural and ethnic characteristics of the households affected by the MTCIP.

Depending on the size of the project-affected population, 100% of the households may be included in the SES. If complete enumeration is too costly or impractical, a sample can be taken, as long as the sample size is not less than 20% of the project-affected population.

The identity of landowners and structure owners in the SES must be validated and cross-referenced using documents such as titles and tax declarations. There may be PAPs who have undeclared structures and occupants, including renters, sharers, rent-free occupants, illegal occupants, and caretakers. In the absence of these data, SES results must be validated on the ground by the DPWH UPMO Resettlement Team through interviews and inspection. The team then recommends who would qualify for rental and relocation assistance.

Land Market Appraisal can be conducted by an independent appraiser as mandated by RA 10752. According to ESS 5, where functioning markets exist, replacement cost is the market value as established through independent and competent real estate valuation, plus transaction costs.

A **Replacement Cost Survey (RCS)** is done to collect information on replacement costs through interviews with people living within the project area, material suppliers, developers, and the PAPs. The results are used to estimate the replacement cost of affected structures and other improvements. A Quantity Surveyor is engaged to conduct the RCS.

Along with the RCS is the **Estimation of the Value of Crops and Trees** affected by the project. DPWH may estimate this using data from the Department of Agriculture, Philippine Coconut Authority, Department of Environment and Natural Resources, Department of Finance, and the local government units.

Census and asset inventory enumerators are usually the first project-related personnel that PAPs will encounter. Enumerators must be thoroughly briefed on the objectives and timetable of the project and what is being planned in terms of physical resettlement, compensation for lost assets, and restoration of livelihood.

7.4 Selection and development of resettlement sites

The provision of a resettlement site or a resettlement package is mandated for informal settler PAPs who are poor and homeless and who are affected by a government infrastructure project¹¹.

For PAPs that will be relocated to a new site, the selection of the resettlement site must prioritize in-barangay or near-barangay locations, or in the case of ancestral domains, within the same ancestral land. In all cases, these sites must be accessible to their sources of income and livelihood.

Additionally, the selection of resettlement sites must comply with established resettlement planning criteria, including the following:

1. Compliant with residential zoning classification (general residential zone or socialized housing zone as appropriate)
2. Settlers have access to social services (education and health), water and electricity utilities, sanitation and waste management facilities
3. Site is located outside hazard prone areas and danger zones, following a Climate and Disaster Risk Assessment

DPWH UPMO needs to coordinate with LGUs and the National Housing Authority (in cases where NHA is the landowner) in the provision and development of resettlement sites. The role of LGUs in resettlement planning is defined in the Urban Development and Housing Act (RA 7279), which requires city and municipal governments to conduct an inventory of all lands within their locality and identify lands for socialized housing and resettlement areas. LGUs can also collaborate with DPWH in site development, particularly in the development or rehabilitation of local roads leading to the resettlement site as well as drainage construction.

Consultation with officials of local government, community leaders, and other representatives of the affected population is essential. Host communities should be informed and consulted as part of the resettlement planning process. Consultation involving representatives of both host communities and the communities to be resettled helps to build familiarity and to resolve disputes that inevitably arise during and after resettlement. Any payment due to host communities for land or other assets that will be provided to new settlers should be agreed on and rendered promptly.

The information from the various surveys is analyzed and used to establish compensation parameters, especially the project Entitlements Matrix, and to design appropriate income restoration and sustainable development initiatives. The baseline information is further used for monitoring indicators, which provide some measurement of the impact of the project on the PAPs and their community.

¹¹ Pursuant to RA 7279 **Urban Development and Housing Act** in accordance with Sec. 14 of the IRR of RA 10752 **An Act Facilitating the Acquisition of Right-of-Way, Site or Location for National Government Infrastructure Projects**

7.5 Formulation of the RAP

DPWH UPMO shall formulate a Resettlement Action Plan based on the results of the social assessment and surveys. The RAP shall contain the description and extent of the lands, structures/ improvements, and crops/trees to be acquired as ROW, the estimated costs and compensation due to the property owners and PAPs, the budget for all ROW costs including provision for inflation and contingencies, and the schedule of implementation and annual funding requirements¹².

A Resettlement Action Plan will be prepared for each sub-project, which covers, at a minimum, the applicable requirements of WB ESS5 regardless of the number of people affected. The RAP is designed to mitigate the negative impacts of displacement and, as warranted, to identify development opportunities.

The RAP is based on up-to-date and reliable information about (a) the proposed project and its potential impacts on the displaced persons and other adversely affected groups, (b) appropriate and feasible mitigation measures, and (c) the legal and institutional arrangements required for effective implementation of resettlement measures.

The RAP covers IP and non-IP households. If a member of the IP community will have either their land, crops, homes, structures or other properties adversely affected by the subproject, they must be informed of their rights to just compensation from the Project as well as their right to partake of the benefits resulting from the subproject. The compensation for affected land, crops, homes and other assets of individual IP members will follow the DPWH Department Order No. 43, Series of 2020 Guidelines for Right-of-Way Acquisition and Payment of Ancestral Domain Affected by the Implementation of National Government Infrastructure Projects, consistent with the MTCIP RPF and WB ESS 5.

In the acquisition of RROW involving lands covered by Certificate of Ancestral Domain Title (CADT) or NCIP- confirmed Ancestral Domain, a ROW Easement Agreement shall be executed by and between the NCIP Accredited or Certified Tribal Council and the Implementing Office. The former will grant the latter the absolute and unimpeded right to use the affected portion of their ancestral domain as RROW for as long as the public requirement subsists, but the IPs/ICCs retain ownership of that portion of the lot.

The specific assistance to affected IP households will be stipulated in the agreement which may be a community-initiated program under their Ancestral Domain Sustainable Development and Protection Plan (ADSDPP). It can also be an infrastructure project that conserves or protects their natural resources.

Annex 2 lists the minimum elements of the RAP.

¹² Source: DPWH Right-of-Way Acquisition Manual 2017

Grievance Redress Mechanism

The Project will set up a grievance redress mechanism to ensure that PAPs' concerns and complaints are heard and resolved.

The DPWH Grievance Mechanism Process Flow, illustrated in **Figure 2**, will be the general reference for the hearing and resolution of any issues. All costs incurred in meetings, consultations, communication, and reporting/ information dissemination will be borne by DPWH. There are no costs for the complainant at any stage of the GRM. Cost estimates for grievance redress are included in the resettlement cost estimates under administration cost. The complainant will not have to pay any fee for his/her case (official or unofficial).

DPWH shall coordinate with DOLE and CSC in the public hearing, arbitration and resolution of every labor issue forwarded to DPWH-UPMO-RMC II, regional and district offices.

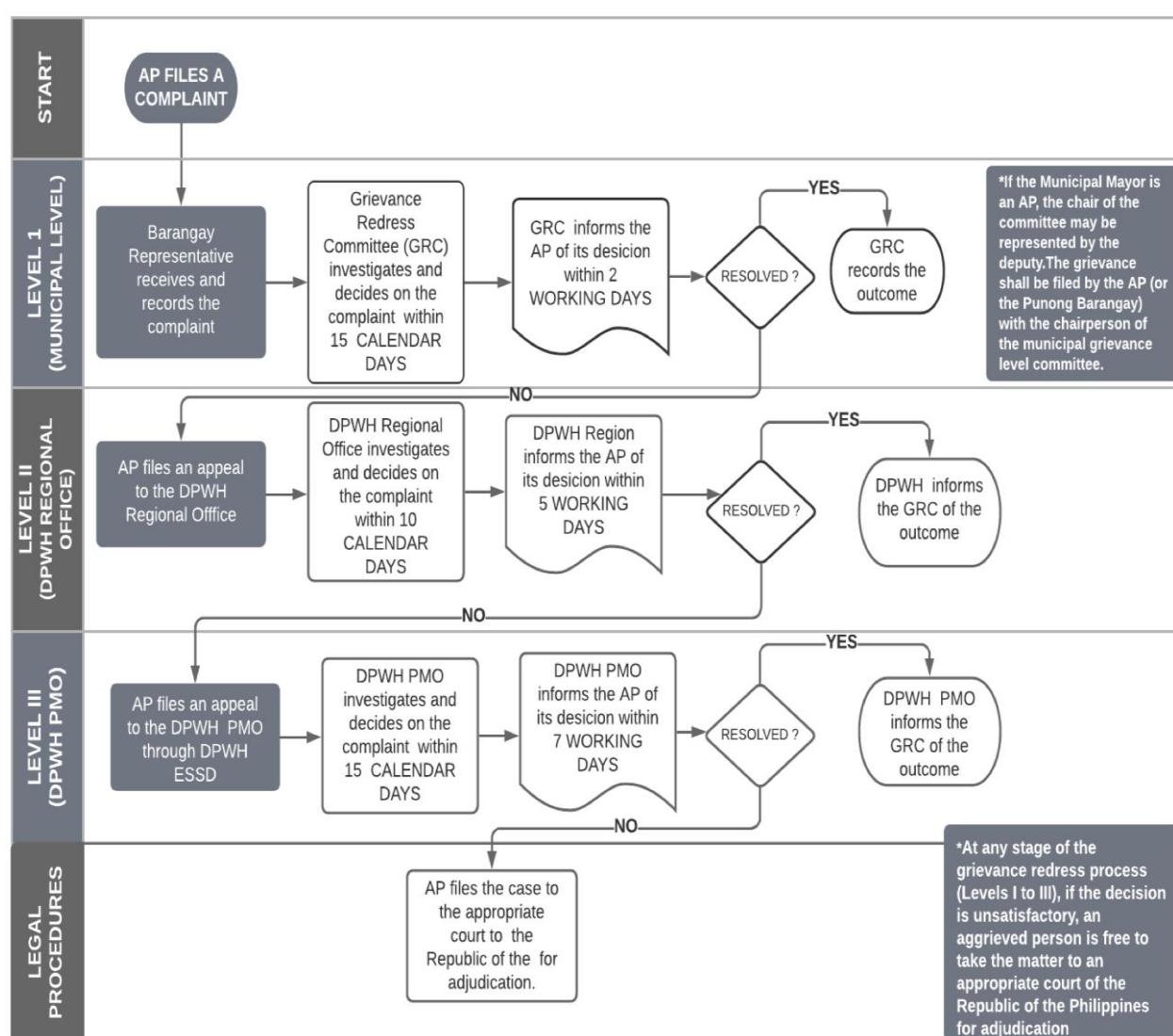


Figure 3. DPWH Grievance Redress Mechanism Process Flow

The creation of the Grievance Redress Mechanism and its operationalization shall be included in appropriate sections of the civil works contract of MTCIP.

A Grievance Desk shall also be established at the project site to ensure timely conveyance of any grievance filed by the complainant/s to the GO/GRC.

PAPs will be exempted from all administrative and legal fees incurred pursuant to the grievance redress procedures. All complaints received in writing (or written when received verbally) from PAPs will be documented and acted upon immediately according to the above outlined procedures.

DPWH UPMO shall disclose the proposed GRM during public consultations.

During stakeholder engagement activities such as public consultation meetings, small group or focused group discussions with affected stakeholders, grievance redress shall be discussed and presented. Leaflets and brochures will also be distributed widely within project communities and among PAPs containing information regarding grievance redress. When available, the project website will also contain links to grievance redress information and complaint forms. Names and contact numbers of responsible persons in this grievance mechanism shall be included in the publicly disseminated information and in the RAP report.

Aggrieved parties or complainants may also submit their complaints to DENR-EMB. The EMB is mandated by PD 1586 to act on complaints about environmental and social performance of projects issued environmental compliance certificates.

9. Institutional arrangements to deliver project entitlements

Table 5 lists the Philippine agencies and institutions involved in the implementation of resettlement activities for the project. DPWH UPMO is responsible for compliance with WB ESS5 and this RPF. As the implementing agency, DPWH UPMO will liaise with the various government agencies and institutions, and, if necessary, prepare a formal agreement with the agencies such that they will provide services in a timely manner according to the implementation schedule provided in the resettlement plan.

Table 7. Agencies and Institutions Involved in the Implementation of MTCIP Resettlement Activities

Agency	Resettlement Function
DPWH-Technical Working Committee (TWC) for Land Acquisition	Responsible for the site/land acquisition necessary for the MTCIP. Responsible for implementation, management, and procurement of budget allocation from the National Government for payment of land acquisition. Review and approve RAP and associated budgets on behalf of the Philippine Government.
DPWH UPMO Road Cluster II	Ensure that resettlement activities are implemented in accordance with the RPF and the RAP. Directly manage and supervise the project, including land acquisition and resettlement activities with the direction for the DPWH TWC for Land Acquisition. Implement resettlement activities in coordination with the LGUs. Ensure that funds for the timely implementation of the RAP are available and that expenses are properly accounted for.
The World Bank	The potential source of financing for MTCIP. Provide project appraisal ensuring that social safeguards are complied with during project implementation.
Independent Property Appraiser	To be commissioned by the DPWH UPMO to undertake appraisal of the affected assets and to provide estimates of appropriate compensation values to PAPs based on the RPF.
Project Consultant (Resettlement Specialist)	In coordination with the DPWH UPMO, the Project Consultant has the following functions: 1. Prepare the RAP; 2. Assist the UPMO in identifying affected persons and assets; 3. Conduct necessary surveys to gather information on the PAPs and affected assets; 4. Assist the UPMO and other relevant agencies in community meetings and other related disclosure activities; and 5. Provide the UPMO with updated information on resettlement and related activities.
Barangay/LGUs	Provide assistance to the UPMO during public consultation meetings Identify resettlement sites for PAPs, when necessary.
Presidential Commission for the Urban Poor (PCUP)	Issue clearances for demolition and eviction activities in national government projects; and Monitor all evictions and demolitions involving homeless and underprivileged citizens.
Bureau of Internal Revenue (BIR)	Provide zonal valuation as basis for determination of just compensation
National Housing Authority	Acquire, develop, and establish relocation sites in anticipation of informal settlers' potential displacement in future projects (RA 10752 IRR Sec. 14)
Courts	1. Issue Writ of Demolition to informal settlers (RA 8974 IRR Sec. 17); 2. Issue Writ of Possession of expropriated lands (RA 974); and 3. Determine "just compensation" to land/property owners (RA 10752 IRR Sec 14).
DILG	Extend full cooperation and assistance to the Implementing Agency (RA 10752 IRR Sec. 14)
PNP	Extend full cooperation and assistance to the Implementing Agency (RA 10752 IRR Sec. 14)
DHSUD	Overall coordination of agencies in the resettlement of informal settlers (RA 10752 IRR Sec. 14) Provide development permits and regulate private housing developers
LGU Register of Deeds	Record any ROW agreement, grant, sale, or expropriation decisions on the property (RA 10752 IRR Sec. 12)
Government Banks	Depository of initial payments of just compensation Undertake appraisal of affected properties at the request of DPWH

Agency	Resettlement Function
	Accredit private sector appraisers which government agencies can tap to value affected properties.

To ensure that project entitlements are delivered to informal PAPs that will be resettled, the project will manage the potential issue of professional squatting and squatting syndicates. DPWH UPMO will coordinate with the concerned local government units, Philippine National Police, the Presidential Commission for the Urban Poor (PCUP), and the PCUP-accredited urban poor organization in the area to identify, prevent, and curtail the nefarious and illegal activities of professional squatters and squatting syndicates.

DPWH District Offices will be responsible and accountable for the proper management of all acquired ROW and ensure that encroachments, structures, and professional squatters are not allowed within the ROW limits. All District Engineers, through the respective Regional Director, will submit monthly reports on the status of ROW to the ROW and Resettlement PMO.

10. Timing of resettlement, land development and civil works

Each subproject RAP will need to be disclosed, consulted, and the final versions re-disclosed with public consultation minutes. RAP implementation will not begin before final RAP has been approved by the World Bank. MTCIP shall not allow any land development activities on privately owned or used lands to commence until compensation has been paid and entitlements provided and resettlement activities are completed. The World Bank needs to issue a notice to proceed for civil works to commence. Resettlement must be implemented in accordance with the MTCIP RPF and the sub-project RAP, and to the satisfaction of the PAPs. Payments of compensation and provision of other entitlements (in cash or in-kind) must be satisfactorily completed prior to the World Bank issuance of “no objection” for award of contract for civil works.

Similarly, in cases where PAPs voluntarily contribute any part of their lands and/or assets for the project, all deeds of donations and other relevant legal documents must be satisfactorily completed prior to the World Bank issuance of “no objection” for award of contract for civil works.

11. Information Disclosure

During the MTCIP project preparation, stakeholder engagement was conducted in various levels of government as well as among sectoral representatives, particularly the indigenous peoples, older persons, youth, women, and persons with disability, mainly through public consultations and focus group discussions. The public consultations in September 2023 and the focus group discussions in October 2023 provided opportunities not only for DPWH UPMO to introduce MTCIP but also generated information on the perceived risks and impacts and suggested mitigation measures. Follow up key informant interviews with LGU officials in October and November 2023 were made to validate these inputs.

The stakeholder consultations for MTCIP apply WB ESS10: open engagement with stakeholders and providing opportunities for stakeholder views to be considered in the project design and during implementation. Even at the DDOA phase, they initiate the implementation of the MTCIP Stakeholder Engagement Framework.

The feedback from stakeholders was an integral consideration in the formulation of the MTCIP RPF. (Please refer to **Annex 3** for a summary of the public consultations and **Annex 4** Focus Group Discussion Reports).

An MTCIP project brochure was also created and distributed during the public consultations (see **Annex 5**. MTCIP brochure).

Upon the invitation of the governor of Bukidnon, DPWH UPMO presented the MTCIP in the regular meeting of the Bukidnon Provincial Council on September 27, 2023.

For the project implementation phase, MTCIP will continue to engage with affected communities, including host communities, through the process of stakeholder engagement described in WB ESS10. Decision-making processes related to resettlement and livelihood restoration will include options and alternatives from which affected persons may choose. PAPs and stakeholders will be consulted in all phases of the resettlement planning and implementation processes.

Community meetings will be organized in accessible locations and at convenient times to allow the participation of all PAPs. Separate discussions with vulnerable groups will be held to ensure that their specific needs and views are obtained and acted upon through the RPF and the subproject RAP. If necessary, DPWH will provide the PAPs a transportation allowance.

Disclosure of relevant MTCIP information will continue throughout the planning, implementation, monitoring, and evaluation of the compensation process, livelihood restoration activities, and relocation process.

The MTCIP RPF as well as the sub-project RAP will be disclosed to the PAPs through the LGUs to which they belong. Public consultations will be held with LGU officials, PAPs, and other stakeholders. Minutes of Meetings or other evidence of public consultations will be recorded. The following topics will be discussed during the public consultations:

- i. Brief project description
- ii. Entitlement and compensation policies adapted by the project

- iii. Succeeding resettlement planning activities such as census validation, tagging, and socioeconomic survey
- iv. Detailed measurement survey (inventory of affected assets)
- v. Establishing the cut-off date

The cut-off date will be announced in public consultations.

Additional provisions apply to consultations with displaced Indigenous Peoples, in accordance with WB ESS7, as stated in the Indigenous Peoples Policy Framework.

12. Monitoring and Evaluation

Arrangements for the monitoring of resettlement activities will be made by the DPWH UPMO, supplemented by third-party monitors. Monitoring ensures that complete and objective information is gathered on the implementation of the RPF and the RAP, especially on land acquisition, payment of compensation, resettlement of persons severely impacted by the project, and release of project funds.

12.1 Internal Monitoring Agent and External Monitoring Agent

DPWH UPMO will organize an **Internal Monitoring Agent (IMA)** to undertake internal monitoring and evaluation of the subproject RAP.

The tasks and obligations of the IMA are to:

- i. Supervise and monitor the implementation of the RAP, on a regular basis, in coordination with the concerned Local Housing Boards/LIAC. The findings will be documented by IMA in the quarterly report to be submitted to the UPMO, for eventual submission to the World Bank.
- ii. Verify the baseline information of all PAPs. Confirm whether the provision of compensation and other entitlements has been carried out in accordance with the WB ESS5 and applicable Philippine laws.
- iii. Ensure that the RAP is implemented as designed and planned.
- iv. Verify that funds provided for the implementation of the RAP are given in a timely manner and the amount is sufficient for each activity and used for the intended purpose.
- v. Record all grievances, their nature, and the corresponding resolution, and ensure that complaints are handled in a prompt manner.

DPWH UPMO will commission an **External Monitoring Agent (EMA)** to undertake independent external monitoring and evaluation. The EMA is either a qualified individual or a consultancy firm with qualified and experienced staff.

The Terms of Reference of the engagement of the EMA will be prepared by DPWH UPMO. The TOR should be acceptable to the World Bank prior to the engagement.

The tasks of the EMA are the following:

- i. Verify the results of the internal monitoring done by the IMA;
- ii. Verify and assess the results of the information disclosure on the rights and entitlements of PAPs;
- iii. Verify that the compensation process has been implemented according to established procedures and that these are properly communicated to the PAPs during consultation meetings;
- vi. Assess whether the resettlement objectives have been met, especially the restoration or enhancement of livelihood and living standards;
- vii. Assess the efficiency, effectiveness, impact and sustainability of the implemented

resettlement plan and draw lessons from the RAP to serve as guide for future resettlement;

- viii. Ascertain whether the resettlement was appropriate to meet the development objectives of MTCIP, and whether the objectives were suited to PAP conditions;
- ix. Suggest modification in the implementation procedures of the RAP, if necessary, to achieve the principles and objectives of the Resettlement Policy Framework;
- x. Review how compensation rates were evaluated; and
- xi. Review the handling of compliance and grievance cases.

External monitoring and evaluation will be of two types: (i) random observation visits and (ii) consultation with PAFs, both at their current residence area and at their relocation site.

12.2 Updating of RAP information

If during subproject implementation or in case of changes in subproject design or alignment, additional adverse social impacts are identified and/or additional affected households are found, the PAPs are entitled to receive project entitlements as provided for in this RPF and the corresponding subproject RAP, and associated legal instruments.

Updating of RAP information and costs should be undertaken in the following cases: the implementation is delayed by twelve months; there is a significant change in the project scope; and/or there is material evidence of inflation significant enough to increase the resettlement budget.

In case there are variations made in the World Bank ESF and the Philippine legislation related to land acquisition and resettlement, a review of and amendments in the RPF and subproject RAP may be triggered.

Annexes

Annex 1. MTCIP Proposed Contract Packaging for LTPBM Contract

MTCIP Proposed Contract Packaging for Long Term Performance-Based Maintenance Contract (CDO-Davao-General Santos)				
Contract Packages	Length (km)	Proposed Project Length	Municipality/City	DPWH District Engineering Office (DEO), Regional Office
Main Corridor (422 km)				
1	10.245	50.575	Cagayan de Oro City	Cagayan de Oro 2nd DEO, Region X
	29.9		Manolo Fortich	Bukidnon 3rd DEO, Region X
	10.43		Sumilao	
a2	15.9	64.683	Impasug-ong	Bukidnon 1st DEO, Region X
	32.383		Malaybalay City	Bukidnon Sub DEO, Region X
	16.4		Valencia City	
3	22.611	80.991	Maramag	Bukidnon 2nd DEO, Region X
	58.38		Quezon	
4	30.7	50.2	Arakan/Davao City	Davao City 2nd DEO, Region XI
	19.5		Davao City	
5	26.493	53.761	Davao City	Davao City 2nd DEO, Region XI
	14.236			Davao City DEO
	13.032			Davao City 2nd DEO, Region XI
6	21.721	58.458	Sta. Cruz	Davao del Sur 1st DEO, Region XI
	8.779		Digos City	
	11.061		Hagonoy	
	4.3		Padada	
	2.397		Sulop	
	10.2		Malalag	
7	38.95	63.583	Malungon	Sarangani DEO, Region XII
	24.633		General Santos City	South Cotabato DEO, Region XII
Total	422.25	422.25		
Link Road				
1	LR1 = 25.03	25.03	Sayre-Kibenton-Kawayan-Sayre	Bukidnon 1st DEO, Region X
2	LR2 = 59.4	41.2	Bantol-Saloy-Malabog-Fatima-Panabo City	Davao City DEO, Davao City Sub DEO, Region XI
3		18.2		Davao del Norte Sub DEO, Region XI
4	LR3 = 44.03	18	Malungon-Sta. Maria	Davao Occidental DEO, Region XII
5		26.03		Sarangani DEO, Region XII
Total	128.46	128.46		

Annex 2. Contents of the Resettlement Action Plan

- 1) Description of the project
- 2) Identification of potential project impacts
 - (a) the project components or activities that give rise to displacement, explaining why the selected land must be acquired for use within the timeframe of the project;
 - (b) the zone of impact of such components or activities;
 - (c) the scope and scale of land acquisition and impacts on structures and other fixed assets;
 - (d) any project-imposed restrictions on use of, or access to, land or natural resources;
 - (e) alternatives considered to avoid or minimize displacement and why those were rejected; and
 - (f) the mechanisms established to minimize displacement, to the extent possible, during project implementation.
- 3) Objectives of the MTCIP subproject resettlement program
- 4) Census survey and baseline socioeconomic studies. A household-level census identifies and enumerates affected persons, and, with the involvement of affected persons, surveys land, structures and other fixed assets to be affected by the project. The census is also used in the following:
 - (a) identify characteristics of displaced households, including a description of production systems, labor, and household organization; and baseline information on livelihoods (including, as relevant, production levels and income derived from both formal and informal economic activities) and standards of living (including health status) of the displaced population;
 - (b) yield information on vulnerable groups or persons for whom special provisions may have to be made;
 - (c) identify public or community infrastructure, property or services that may be affected;
 - (d) provide a basis for the design of, and budgeting for, the resettlement program;
 - (e) in conjunction with establishment of a cutoff date, provide a basis for excluding ineligible people from compensation and resettlement assistance; and
 - (f) establish baseline conditions for monitoring and evaluation purposes.
- 5) Legal framework
 - (a) the scope of the power of compulsory acquisition and imposition of land use restriction and the nature of compensation associated with it, in terms of both the valuation methodology and the timing of payment;
 - (b) the applicable legal and administrative procedures, including a description of the remedies available to displaced persons in the judicial process and the normal timeframe for such procedures, and any available grievance redress mechanisms that may be relevant to the project;
 - (c) laws and regulations relating to the agencies responsible for implementing resettlement activities; and

- (d) gaps, if any, between local laws and practices covering compulsory acquisition, imposition of land use restrictions and provision of resettlement measures and ESS5, and the mechanisms to bridge such gaps.
- 6) Institutional framework
 - (a) the identification of agencies responsible for resettlement activities and NGOs/CSOs that may have a role in project implementation, including providing support for displaced persons;
 - (b) an assessment of the institutional capacity of such agencies and NGOs/CSOs; and
 - (c) any steps that are proposed to enhance the institutional capacity of agencies and NGOs/CSOs responsible for resettlement implementation.
- 7) Eligibility criteria
- 8) Valuation of and compensation for losses
- 9) Community participation
- 10) Implementation schedule
- 11) Costs and budget
- 12) Grievance redress mechanism
- 13) Monitoring and evaluation
- 14) Arrangements for adaptive management

Land acquisition that entails resettlement must be supported by the following documentary requirements:

- a) Resettlement Action Plan;
- b) Master list of project-affected persons
- c) Summary of affected lands and Improvements and
- d) Legal documents signed by all affected persons.

Annex 3. Summary of Public Consultation Results Related to Land Acquisition and Involuntary Resettlement

Activity	Date	Venue	Total Number of Participants			Office/Agency	Key Issues discussed	Response of Project team/ Next steps
			Male	Female	LGBT	MinDA LGU, DPWH Other sectoral representative		
Public Consultation 2	Sep 26, 2023	Region X Northern Mindanao Province of Bukidnon PDO Auditorium, Provincial Capitol, Malaybalay City	22	17	1	DPWH-DEO 1 st District LGUs and other sectoral groups	<ol style="list-style-type: none"> 1. RROW process in widening. 2. Reminded that RROW acquisition in Kitaotao area is a primary challenge to DPWH road improvement projects. know the final design of the road. 3. Bantol LGU reminded of different types of land ownership in the affected areas (e.g. ancestral domain, A&D, and CADT issued land). Inquiry on the mode of acquisition that will be used. Asked on the RROW width. 4. Saloy LGU reminded that affected households by previous DPWH road projects have not been paid yet. And, inquired when will they know the final road alignment. 5. Suggestions from Barangay LGUs: <ol style="list-style-type: none"> a. Discuss and present the final design to the Barangay Councils. b. Barangay Councils can suggest areas that will not be greatly affected by the project. c. Sitio Cabonbon has lot of residents that will be affected by the project. 	<ol style="list-style-type: none"> 1. DPWH-UPMO follows R 10752. 2. DPWH-UPMO replied that MTCIP is still in FS phase, and for presentation to NEDA-ICC. Prior to it, PDC and RDC endorsement are needed. 3. DPWH-UPMO replied that improvement will be a complete package. 4. DPWH-UPMO said that replacement cost will be applied to affected structures, crops and trees. For land acquisition, RA10752 and other guidelines will be applied. RRWO will be 20 meters. 5. DPWH-RO explained that for MTCIP, affected households will be paid by DPWH first, not by barnagy LGUs.

Activity	Date	Venue	Total Number of Participants			Office/Agency MinDA LGU, DPWH Other sectoral representative	Key Issues discussed	Response of Project team/ Next steps
			Male	Female	LGBT			
Public Consultation 3	Sep 27, 2023	Region XI Davao Region Province of Davao del Norte Provincial Capitol Conference Hall, Tagum City (9-11am)	18	16		DPWH-RO and DEO LGUs and other sectoral groups	<ol style="list-style-type: none"> 1. It was suggested that social and Environmental factors must be included in the study, and inquired about how it will be done. 2. Provincial LGU reminded DPWH that affected households of previous road projects are not yet compensated. Further inquired, if the MTCIP will affect other or additional households. Suggested that the Barangay LGUs must. 3. DPWH-DEO recommended rerouting of the proposed Link Road 3 to avoid passing through landslide-prone slope, narrow ridges and avoided loss of assets along ancestral lands: 	<ol style="list-style-type: none"> 1. GECl responded that the study conforms to the E&S mandate of the World Bank, and will submit an ESMF for the project. 2. DPWH-UPMO and GECl explained that compensation will be due to affected lands and other assets in current market values. Cost will be part of the project valuation. 5. DPWH-UPMO responded that the suggestions and observations will be included in the design phase of the project.
Public Consultation 4	Sep 27, 2023	Region XI Davao Region Davao City DPWH Regional Office Conference Hall, Davao City (2-4pm)	17	13		DPWH-RO and DEO LGUs and other sectoral groups	<ol style="list-style-type: none"> 1. Inquiry on the compensation for Cutting of trees, including coconut. Other effects of the project to the community based on study. Informed that there is an existing road project from Demoloc to Malungon but interrupted due to boundary conflict. Inquired if Demoloc is included in the MTCIP. 2. The National Commission on Indigenous Peoples should be informed on 	<ol style="list-style-type: none"> 1. DPWH-UPMO replied that the project is still in FS phase; technical options analysis is still being conducted by GECl; land acquisition and compensation will be based on RA 10752; RROW will be determined after the FS. Information is needed from to be included in the option analysis

Activity	Date	Venue	Total Number of Participants			Office/Agency	Key Issues discussed	Response of Project team/ Next steps
			Male	Female	LGBT			
						MinDA LGU, DPWH Other sectoral representative	account of Ancestral Domain, in order to invite IPs during consultation.	and/or final design of the road. 2. DPWH-UPMO said that replacement cost will be applied to affected structures, crops and trees. For land acquisition, RA10752 and other guidelines will be applied. RRWO will be 20 meters. 3. DPWH-RO explained that for MTCIP, affected households will be paid by DPWH first, not by barangay LGUs.
Public Consultation 5	Sep 28, 2023	Region XI Davao Region Province of Davao del Sur Digos City Gymnasium Hall (9-11am)	21	25		DPWH-RO and DEO LGUs and other sectoral groups	1. Provincial LGU requested GECI to determine all the affected barangays of the project. 2. Municipal LGU of Sta Cruz inquired if due diligence is really implemented, and relocation sites for affected households. 3. IP representative inquired the project plans for the remote barangays of Binaton, Kapatagan, Goma and Balabag.	1. DPWH-UPMO replied that the focus is on connecting farms to roads to provide easier access. DPWH-UPMO collaborates closely with MINDA and various LGUs to assess the needs of each town. The LGUs were urged to provide the necessary data to identify problem areas in the region. 2. GECI explained that due diligence follows WB ES standards. Selected barangays are along the main corridor road; and

Activity	Date	Venue	Total Number of Participants			Office/Agency MinDA LGU, DPWH Other sectoral representative	Key Issues discussed	Response of Project team/ Next steps
			Male	Female	LGBT			
								the LGU is responsible in relocation/ resettlement in coordination with DPWH and other relevant agencies.
Public Consultation 6	Sep 28, 2023	Region XII SOSCSK SARGEN General Santos City City Hall of General Santos (2-4 pm)	14	-p		DPWH-RO and DEO LGUs and other sectoral groups MinDA	1. Inquiries if the ROWA is included, the estimated budget for the project and the environmental impacts.	1. DPWH-UPMO announced that ROWA is included, due diligence is being done for the estimated budget and ECC will be secured.
Public Consultation 7	Sep 29, 2023	Region XII SOCCSKSARGEN Province of Sarangani City Hall of General Santos City (2-4pm)	10	17		DPWH-RO and DEO LGUs and other sectoral groups MinDA	1. Barangay LGU official concerns on the compensation of affected families.	1. DPWH-UPMO said that RA10752 will be followed for the compensation of affected families.
Public Consultation 8	Sep 29, 2023	Region XI Davao Region Province of Davao Occidental Davao Occidental Provincial Capitol Conference Hall, Sta. Maria (2-4pm)	11	16		DPWH-RO and DEO LGUs and other sectoral groups	1. Inquiry on the compensation for cutting of trees, including coconut. 2. The National Commission on Indigenous Peoples should be informed on account of Ancestral Domain, in order to invite IPs during consultation. 3. Road 3 to avoid loss of assets along ancestral lands, Kidadan as a potential rerouting option while maintaining the same exit route.	1. DPWH-UPMO replied an existing law to compensate for the cutting of trees and houses affected and that the Philippine Coconut Authority is responsible for covering the cost associated with compensating coconut trees. 2. DPWH-UPMO that the recommendations by DEO will be considered in the FS and DED phase.

Annex 4. Summary of Land Acquisition and Involuntary Resettlement Issues Raised in Focus Group Discussions

Activity	Date	Venue	Total Number of Participants			Type of stakeholders	Key Issues discussed	Response of Project team/ Next steps
			Male	Female	LGBT	Women, Senior, People, Sector Youth, Indigenous Business		
Focus Group Discussion 1	Oct 17, 2023	CPDO Conference Room, Cagayan Davao de Oro City, Misamis Oriental	5	8		CPDO, Women Sector, ORO-TIPS, CEO	<p>1. Are there any other concerns aside about the project from what was mentioned?</p> <p>2. What are your suggestions on how the road improvement project can be implemented to address these concerns, manage risks, or mitigate possible adverse effects?</p>	<p>1. The ROW problem does not only affect the residents. There are cases where they experience utility problem in which the project was done but the equipment used stays in the area which causes trouble.</p> <p>2. Suggested that the DPWH to apply permit of cutting trees by whole not only by section.</p>
Focus Group Discussion 2	Oct 18, 2023	Tourism Hall, Municipality of Impasug-ong, Province of Bukidnon	6	19		Senior, IPs, LGU,	1. What are your current experiences, are there any other concerns aside about the project from what was mentioned?	1. Representative from senior: Raise her concern of the affected houses and buildings, and asked what this project will do?
Focus Group Discussion 3	Oct 20, 2023	Third Floor, Function Hall, Panabo City, Davao del Norte	1	3	1	CMO Housing, CPDO, CEO	1. What are your current experiences, are there any other concerns aside about the project from what was mentioned?	1. An increase in land value, changes in land use, possibility of attracting additional migrants to the area.

Annex 5. Public Consultation Brochure

PUBLIC CONSULTATION STAKEHOLDERS

Hon. Peter M. Unabia Governor, Province of Misamis Oriental
Hon. Rogelio Neil P. Roque Governor, Province of Bukidnon
Hon. Edwin I. Jubahib Governor, Province of Davao del Norte
Hon. Yvonne R. Cagas Governor, Province of Davao del Sur
Hon. Sebastian Z. Duterte City Mayor, Davao City
Hon. Franklin P. Bautista Governor, Province of Davao Occidental
Hon. Rogelio D. Pacquiao Governor, Province of Sarangani
Hon. Lorelie G. Pacquiao City Mayor, General Santos City



**MINDANAO TRANSPORT
CONNECTIVITY
IMPROVEMENT
PROJECT**

Cagayan de Oro - Davao - General Santos City Corridor

PUBLIC CONSULTATION

September 26-29, 2023

PROGRAM:
Opening Remarks
Introduction of the Project
Open Forum
Closing Remarks

To be funded by:



DDOA Consultant:
Galeria Environmental
Consultancy Inc.



Appendix 6. Indigenous Peoples Policy Framework

Republic of the Philippines

Department of Public Works and Highways



Mindanao Transport Connectivity Improvement Project (MTCIP) (P177017)

Indigenous Peoples Policy Framework (IPPF)

DRAFT

As of May 24, 2024

Table of Contents

List of Acronyms	535
Definition of Terms	536
I. Project Description	538
1. Project Background	538
2. Project Development Objective	539
3. Project Components	539
4. Implementation Arrangements	540
5. Project Location	541
II. Legal Framework	543
III. IPPF Principles and Objectives	544
IV. Indigenous Peoples Defined	545
V. Social Assessment	546
1. Introduction	546
2. Methodology	546
3. Indigenous Peoples in the Project Sites	547
4. Project Sites within and traversing Ancestral Domains/Lands	548
5. Involuntary Resettlement and Affected Properties	550
6. Restricted Land Use	553
7. Significant impacts to Cultural Heritage and Damage to Cultural Properties or Resources	553
VI. Requirements for the Project	554
1. Meaningful consultations and participation of Indigenous Peoples	554
2. Screening and Social Assessment	555
3. Free Prior and Informed Consent (FPIC)	555
4. Indigenous Peoples Plan (IPP)	557
VII. Land Acquisition and Affected Assets	558
VIII. Grievances Redress Mechanism	559
IX. Institutional Arrangements and Capacity	560
X. Supervision, Monitoring and Evaluation	561
XI. Cost and Financing	561
Annex 1: Guidelines for the preparation of Indigenous Peoples Plan and Recommended Outline	562

Annex 2: MTCIP Environmental and Social Screening Form for Subprojects: ESS 7 Indigenous Peoples	563
---	-----

List of Acronyms

AD/L	- Ancestral Domains/Lands
ADSDPP	- Ancestral Domain Sustainable Development Protection Plan
CADT	- Certificate of Ancestral Domain Title
CARP	- Comprehensive Agrarian Reform Program
CERC	- Contingent Emergency Response Component
CLOA	- Certificate of Land Ownership Agreement
CP	- Certificate of Pre-condition
DEO	- District Engineering Office
DPWH	- Department of Public Works and Highways
EMA	- External Monitoring Agent
ESS	- Environmental and Social Standards
ESF	- Environmental and Social Framework
ESMF	- Environmental and Social Management Framework
ESMP	- Environmental and Social Management Plan
ESRA	- Environmental and Social Risk Assessment
ESIA	- Environmental and Social Impact Assessment
ESSU	- Environmental and Social Service Unit
FPIC	- Free Prior and Informed Consent
GECI	- Galerio Environmental Consultancy Inc.
GRM	- Grievance Redress Mechanism
HPBS	- Human Performance Behavior System
IKSPs	- Indigenous Knowledge Systems and Practices
IO	- Implementing Office (DPWH Regional or District Engineering Office)
IP/ICC	- Indigenous Peoples/Indigenous Cultural Communities
IPP	- Indigenous Peoples Plan
IPPF	- Indigenous Peoples Policy Framework
IPRA	- Indigenous Peoples Rights Act
IPS	- Indigenous Political Structure
LGUs	- Local Government Units
MinDA	- Mindanao Development Authority
MTCIP	- Mindanao Transport Connectivity Improvement Project
NCCA	- National Commission for Culture and the Arts
NCIP	- National Commission on Indigenous Peoples
OPRC	- Output & Performance-Based Road Contract
PIU	- Project Implementing Unit
PDO	- Project Development Objective
RIMC	- Regional Interim Monitoring Committee
RROW	- Road Right of Way
RPF	- Resettlement Policy Framework
SEF	- Stakeholder Engagement Framework
UPMO-RMC II	- Unified Project Management Office - Roads Management Cluster-II
WB	- World Bank

Definition of Terms

Ancestral Domain (AD) - The 1997 IPRA Law defines ancestral domains as “all areas generally belonging to ICCs/IPs comprising lands, inland waters, coastal areas, and natural resources therein, held under a claim of ownership, occupied or possessed by ICCs/IPs, by themselves or through their ancestors, communally or individually since time immemorial, continuously to the present except when interrupted by war, force majeure or displacement by force, deceit, stealth or as a consequence of government projects or any other voluntary dealings entered into by government and private individuals/corporations, and which are necessary to ensure their economic, social and cultural welfare. It shall include ancestral lands, forests, pasture, residential, agricultural, and other lands individually owned whether alienable and disposable or otherwise, hunting grounds, burial grounds, worship areas, bodies of water, mineral and other natural resources, and lands which may no longer be exclusively occupied by ICCs/IPs but from which they traditionally had access to for their subsistence and traditional activities, particularly the home ranges of ICCs/IPs who are still nomadic and/or shifting cultivators”

Ancestral Domain Sustainable Development Protection Plan (ADSDPP) - Ancestral Domains Sustainable Development and Protection Plan (ADSDPP) refers to the consolidation of the plans of ICCs/IPs within an ancestral domain for the sustainable management and development of their land and natural resources as well as the development of human and cultural resources based on their indigenous knowledge, systems and practices. Such plan shall be the basis of the Five-Year Master Plan for ICCs/IPs. (as per NCIP AO No. 02 Series of 2018)

Intergenerational well-being – the term “intergenerational” means involving or affecting several generations. Intergenerational well-being values the concept of intergenerational equity which focuses on the rights of future generations - emphasizing the need for thinking about how human actions directly or indirectly degrade the environment in the present will affect future generations of humans and other life forms. Each generation has the right to inherit the same diversity in natural and cultural resources enjoyed by previous generations and to equitable access to the use and benefits of these resources. The present generation is a custodian of the planet for future generations, obliged to conserve this legacy so that future generations may also enjoy these same rights.

Indigenous Knowledge Systems and Practices (IKSPs) - refer to systems, institutions, mechanisms, and technologies comprising a unique body of collective wisdom evolved through time that embody patterns of relationships between and among peoples and between peoples, their lands and resource environment, including social, political, cultural, economic and spiritual dimensions, consisting as well of adaptive mechanisms which have allowed indigenous peoples to survive and thrive within their given socio-cultural and biophysical conditions. IKSPs consist of a body of knowledge and traditional methods of land and natural resources utilization and management such as knowledge of the properties of flora and fauna, the seasons, soils, climate, land and water. It includes knowledge and practice of traditional medicine, science and health practices, vital medicinal plants, animals and minerals. It also

includes knowledge and practices of traditional arts and crafts, ritual, family and community life relations.

Cultural heritage - is defined as resources with which people identify as a reflection and expression of their constantly evolving values, beliefs, knowledge and traditions.

Disadvantaged or vulnerable - refers to those who may be more likely to be adversely affected by the project impacts and/or more limited than others in their ability to take advantage of a project's benefits. Such an individual/group is also more likely to be excluded from/unable to participate fully in the mainstream consultation process and as such may require specific measures and/or assistance to do so.

Free, Prior, and Informed Consent (FPIC) - The Indigenous Peoples Rights Act (IPRA) the IPRA defines FPIC as “the consensus of all members of the ICCs/IPs to be determined in accordance with their respective customary laws and practices, free from any external manipulation, interference and coercion, and obtained after fully disclosing the intent and scope of the activity, in a language and process understandable to the community.” World Bank's ESS 7 states that “*FPIC does not require unanimity and may be achieved even when individuals or groups within or among affected Indigenous Peoples disagree*” and requires FPIC only under 3 circumstances: (i) will have adverse impacts on land and natural resources subject to traditional ownership or under customary use or occupation; (ii) cause relocation of IPs; and (iii) have significant impacts on IPs' cultural heritage that is material to the identity and/or cultural, ceremonial, or spiritual aspects of the affected IPs.

Meaningful Consultation - a process that (i) begins early in the project preparation stage and is carried out on an on-going basis throughout the project cycle; (ii) provides timely disclosure of relevant and adequate information that is understandable and readily accessible to affected people; (iii) is undertaken in an atmosphere free of intimidation or coercion; (iv) is gender inclusive and responsive, and tailored to the needs of disadvantaged and vulnerable groups; and (v) enables the incorporation of all relevant views of affected people and other stakeholders into decision making, such as project design, mitigation measures, the sharing of development benefits and opportunities, and implementation issues.

Subproject – In the context of MTCIP, subproject refers to the segmentation of the road alignment based on criteria defined by DPWH to aid in efficient project implementation including procurement and construction

I. Project Description

1. Project Background

The Mindanao Transport Connectivity Improvement Project (MTCIP) is a comprehensive initiative aimed at enhancing road infrastructure in the Main Corridor, a vital national highway network linking the cities of Cagayan De Oro, Davao, and General Santos. This project, with a total project cost of \$661.21 million jointly financed by the World Bank and the Government of the Philippines will be implemented over a span of seven (7) years. The Department of Public Works and Highways (DPWH) is the implementing agency for this project. MTCIP seeks to bolster transportation connectivity, particularly benefiting the agricultural sector by facilitating product movement and enhancing access to rural areas.

Growth and poverty reduction in Mindanao will require making agriculture more productive, particularly smallholder farmers. Furthermore, because Mindanao is the food basket of the country, enhancing food production and reducing food and input prices in this region will support the overall improvement welfare and the country's competitiveness. The potential impact of agriculture development in Mindanao is widely recognized as one-third of Mindanao's land area is devoted to agriculture, contributing about 23 percent of the region's economy and employing about four million people. Unfortunately, even though Mindanao's comparative advantage is agriculture, many of its farmers and fisherfolks still live in or are vulnerable to poverty. Connecting rural, remote areas to urban areas where there is demand for agricultural produce is one of the key interventions to support growth in the agricultural sector particularly the smallholder farmers. Better rural roads would reduce transportation costs and product losses for poor farmers and could make a major contribution to reducing poverty. Many roads are either non-existent, deteriorated or congested; as a result the quality of agricultural produce at the point of sale is reduced and are often rejected, especially perishable commodities. Aside from the lack of farm-to-market roads (FMRs), there is a need to relieve congestion on roads accessing ports to improve connectivity beyond Mindanao.

The region's underdevelopment is largely due to civil conflict and low economic growth. The country's main peacebuilding challenges involve a limited geographic area in Western Mindanao that has spillover effects on the broader Mindanao region and the Philippines overall. While the core conflict in Mindanao has been between Muslim armed groups and the government, this is not primarily religious. The broad drivers of endemic violence in the region include: (i) social injustice, alienation, and exclusion of Muslims and indigenous people (IPs); (ii) displacement of Indigenous Peoples from their ancestral domains (ADs); (iii) inter-ethnic conflicts; (iv) rido (clan war and revenge killing); (v) land tenure and ownership disputes; (vi) competition for scarce natural and mineral resources; (vii) local election disputes; (viii) ineffective governance and the lack of rule of law and service delivery; and (ix) widespread

poverty and scarcity of job opportunities.¹³ Protracted land disputes and conflict in particular have deterred investments in agriculture thereby slowing job creation, growth, and poverty reduction. Aside from addressing the causes of conflict, providing jobs and access to economic opportunities are central to stabilization and normalization in conflict areas as they present alternatives to violence.¹⁴ Addressing transport connectivity bottlenecks is crucial in the strategy to promote jobs and access to economic opportunities in the Mindanao region.

2. Project Development Objective

The Project Development Objective (PDO) is to improve connectivity, climate resilience and safety of selected roads in the Mindanao region.

3. Project Components

Component 1: Improvements of selected local roads (“Link Roads”) (Total: \$138 million; of which IBRD loan \$82 million, GOP \$57 million). This component will support upgrade (e.g., road widening and paving) of three local roads with a total length of 130 km to national road standards with climate resilience and road safety measures, connecting to the main corridor and thereby improving all-season road access for remote communities and farmers. The roads were jointly selected by DPWH, Mindanao Development Authority (MinDA) and Local Government Units (LGUs) based on multiple criteria: poverty index, proximity to agricultural productions points and markets, and service facilities, e.g., schools, health facilities and government facilities. This component will also finance the detailed engineering design and construction supervision consultant services of the civil works. The government counterpart will be responsible for land acquisition and resettlement. All local roads upgraded under MTCIP will be converted to national roads and DPWH will be responsible for operation and maintenance.

Component 2: Capacity, climate resilience and road safety enhancement of the CDO-Davao-GenSan Corridor (“Main Corridor”) (Total: \$368 million; of which IBRD loan \$274 million, GOP \$94 million). The Main Corridor has a total length of 428.2 km with four parts: the Sayre Highway, the Bukidnon-Davao, the Digos-Makar and the Davao-Cotabato Rd (Davao City-Jct Digos Sect). The project scope includes rehabilitation of selected (124 km) road sections categorized as ‘bad or poor’ according to DPWH’s Road and Bridges Asset Inventory Application, which will include repair of damaged sections, upgrading to uniform cross section of carriageway, climate resilience and road safety enhancements. Following the improvement works, a new Road Asset Management (Asset Preservation and Preventive Maintenance) regime will be introduced for the whole stretch of the Main Corridor, such as Output & Performance-Based Road Contract (OPRC) to ensure a year-round satisfactory level of service.

Component 3: Capacity building and Institutional Development (Total: \$18 million; of which IBRD loan \$14 million, GOP \$4 million). The implementation of post-Mandanas ruling will provide LGUs with more resources for infrastructure development and maintenance. Given the weak capacity of LGUs in terms of transport network planning and asset management, this component will support capacity enhancement of DPWH and select LGUs. Specific activities under this component will include: (a) set up transport asset management systems in selected LGUs building on what has been achieved under the World Bank-funded Philippine

¹³ Sources: World Bank Group. 2019. Systematic Country Diagnostic of the Philippines: Realizing the Filipino Dream for 2040. World Bank, Washington, DC., and the Mindanao Peace Lens Handbook, and the Mindanao Inclusive Agriculture Development Project PAD.

¹⁴ World Bank. 2017. Mindanao Jobs Report.

Rural Development Project (PRDP) and Department of Interior and Local Government (DILG) initiatives under its provincial roads program, and through cross-learning between LGUs and relevant government agencies, (b) study on institutional strengthening initiatives to enhance coordination and planning arrangements between DPWH and LGUs to improve transport connectivity, (c) implementation of the recommended actions by the on-going WB Technical Assistance (TA) to mainstream climate resilience in road asset management process of DPWH, which will include Mapping/digitalization of primary, secondary and tertiary road network in Regions X, XI and XII (d) training key stakeholders on the OPRC concept including on their respective role in the enforcement or supervision of the contract, (e) training local communities including female residents of road maintenance practice, and (f) technical, pre-feasibility or feasibility studies (to be identified) for priority interventions to improve local road connectivity and access to major ports in Cagayan de Oro, Davao, and General Santos, and options of involving private sectors in ports improvement.

Component 4: Project Management (Total: \$47 million; of which IBRD loan \$36 million, GOP \$10 million). DPWH will be leading the project implementation. This component will support DPWH's Unified Project Management Office (UPMO)- Road Management Cluster- II (RMC-II), the Project Implementing Unit (PIU) in project implementation. It will finance trainings and technical advisors on key project implementation issues including OPRC contract design and management, road safety interventions, climate resilience improvement. The Detailed Engineering Design Consultants for project roads will be financed, and in addition, the component will provide support to the PIU for WB technical, fiduciary and safeguards compliance through Technical Support Consultants and Specialists, Road User Satisfaction Survey Consultants, Road Safety Audit Consultants, Results Monitoring Consultants and External Monitoring Agent (EMA); other operational support including office equipment, vehicles to facilitate the PIU to manage project implementation will be included.

Component 5: Contingent Emergency Response Component (CERC) to support post-disaster recovery. (Total: \$0). The CERC is designed to mitigate situations of urgent need or capacity constraints and allows for the rapid reallocation of funding in the event of a natural disaster or crisis that has caused, or is likely to imminently cause, a major adverse economic and/or social impact. A CERC Annex in the Project Operations Manual (POM) will consider risks from climate change mitigation and adaptation to demonstrate alignment.

4. Implementation Arrangements

The Department of Public Works and Highways (DPWH) is the main implementing agency for this project. The DPWH is the executive department of the Philippine government solely vested with the mandate to “be the State's engineering and construction arm.” DPWH's Unified Project Management Office (UPMO) Roads Management Cluster-II (RMC-II) will be the Project Implementation Unit (PIU). The RMC-II, under UPMO, will be responsible for daily management of project. The fiduciary function will be carried out by respective procurement and financial management related units in DPWH, while the RMC-II will be responsible for contracts management including preparing all the needed procurement documents. RMC II shall also provide support in terms of initial processing/review of billings from contractors and preparation and submission of Statement of Expenditures and Withdrawal Applications to the World Bank. The DPWH Regional Offices (RO) or District Engineering Offices (DEO) shall serve as the Implementing Office (IO) for the project components. The Mindanao Development Authority (MinDA), as the lead agency for Mindanao's development, is the key government office that the DPWH will be coordinating in the approval of the proposed MTCIP. The LGUs in the project area will be supporting the RMC-II of project implementation.

5. Project Location

The proposed MTCIP will improve the Main Corridor, connecting key areas across Mindanao, including six cities and thirteen municipalities in eight provinces: Misamis Oriental, Bukidnon, Davao del Sur, Davao Occidental, Davao del Norte, Cotabato, Sarangani, and South Cotabato. These regions fall under the jurisdiction of Northern Mindanao (Region X), Davao Region (Region XI), and Sarangani (Region XII).

Starting from Cagayan de Oro in the north and ending in General Santos City in the south, the Main Corridor passes through various municipalities and cities, including Manolo Fortich, Sumilao, Impasug-ong, Malaybalay City, Valencia City, Maramag, Quezon, and Kitaotao in Bukidnon. It then moves through Arakan in North Cotabato before entering Davao City, and continues through Sta. Cruz, Digos City, Hagonoy, Padada, Sulop, and Malalag in Davao del Sur, finally reaching Malungon and General Santos City in South Cotabato Province.

Additionally, the three Link Roads branch off from the Main Corridor, located in the northern, central, and southern regions. Link Road 1 is entirely within Impasug-ong, Bukidnon in Region X. Link Road 2 starts at Panabo City, Davao del Norte, and extends into Davao City in Region XI and terminates at the intersection with the MC of Bantol Road. Link Road 3 in the south connects Malungon, Sarangani of Region XII to Sta. Maria, Davao Occidental of Region XI. The entire MTCIP route, including the Main Corridor and three Link Roads, passes through a total of 186 barangays as seen in Figure 4. The Main Corridor is accessible to private and passenger cars, motorcycle, tricycle, buses, goods utility vehicles, agricultural and construction vehicles, and specialized vehicles like rigid trucks and truck trailer. The Link Roads is accessed mainly via passenger cars, motorcycle, tricycle, jeepneys, agricultural vehicles, rigid and trailer trucks, and goods utility vehicle.

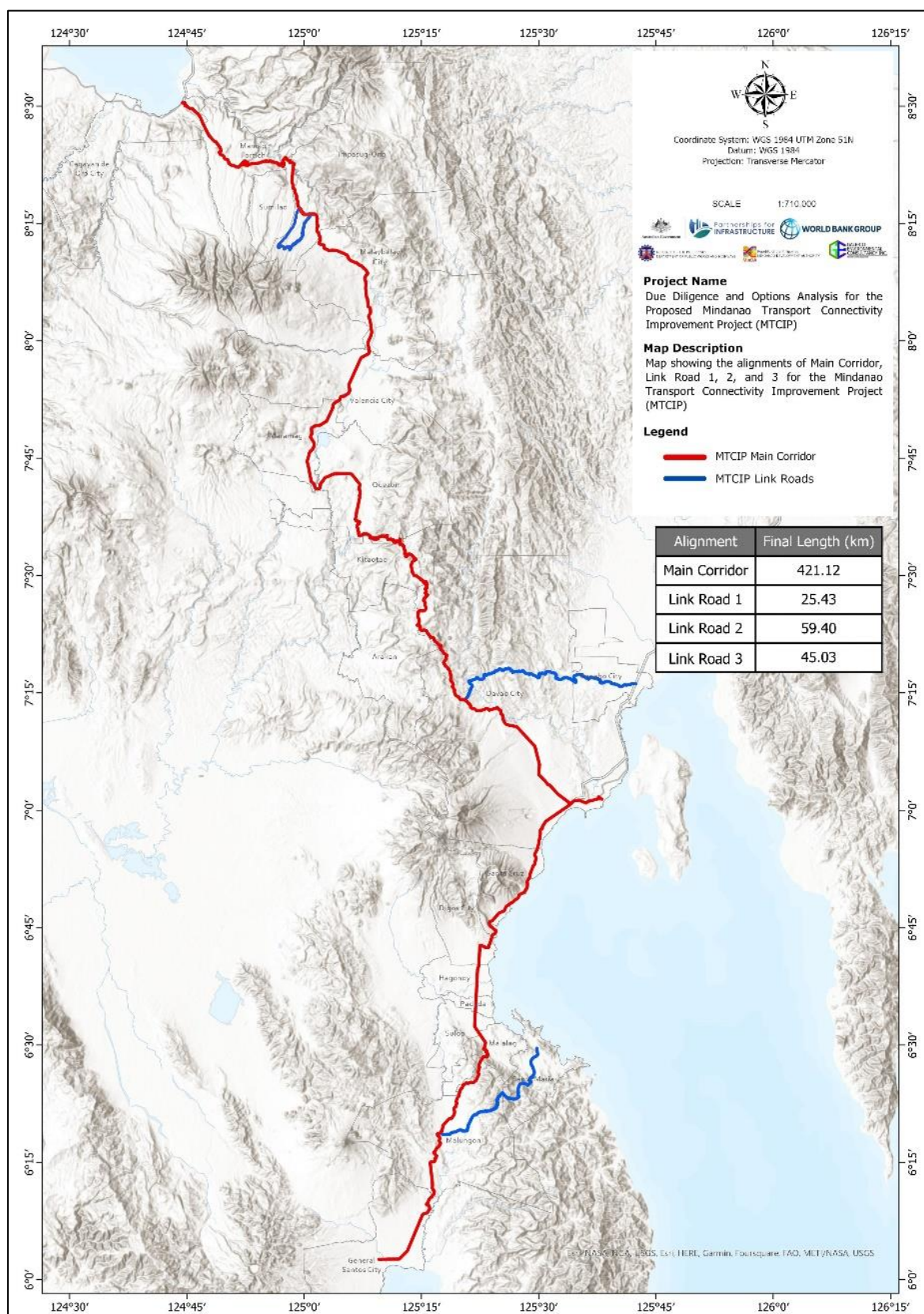


Figure 4. Location Map of MTCIP. Source: GEBCO

II. Legal Framework

The Environment and Social Framework (ESF) of the World Bank (WB) particularly Environmental and Social Standard 7 (ESS 7) on Indigenous Peoples (IPs) is intended to ensure that any WB-funded project fosters full respect for human rights, dignity, aspirations, identity, culture, and natural resource-based livelihoods of Indigenous Peoples (IPs) through promotion of sustainable development benefits and opportunities in a manner that is accessible, culturally appropriate, and inclusive. It also aims to avoid, minimize, mitigate, and/or compensate adverse impacts of projects on IPs. ESS 7 requires the Free, Prior, and Informed Consent (FPIC) of affected IPs in instances when a project (i) will have adverse impacts on land and natural resources subject to traditional ownership or under customary use or occupation; (ii) cause relocation of IPs; and (iii) have significant impacts on IPs' cultural heritage that is material to the identity and/or cultural, ceremonial, or spiritual aspects of the affected IPs.

The Indigenous Peoples Rights Act (IPRA) of 1997 is consistent with requirements of ESS 7. The law contains elements of fostering full respect for the rights, dignity, aspirations, identity, culture, and natural resource-based livelihoods of IPs as well as mechanisms for development initiatives to avoid adverse impacts of projects on IPs, or when avoidance is not possible, to minimize, mitigate and/or compensate for such impacts. Meaningful consultations, FPIC, and grievance redress mechanisms are observed across the development stages. Meaningful consultations are also provided for IPs outside Ancestral Domains/Lands (AD/L) under IPRA and other Philippine laws though procedures are less rigid compared to IPs within AD/L.

It is to be noted that the ESS 7 and IPRA are consistent except on (i) when FPIC applies and (ii) who determines consent. On the first item, ESS 7 requires FPIC under 3 conditions only as previously stated. In contrast, IPRA requires FPIC when subprojects are located in ancestral domains. The Project will undergo and secure FPIC if either the conditions of ESS 7 or IPRA are encountered. WB ESS 7 states that *"FPIC does not require unanimity and may be achieved even when individuals or groups within or among affected Indigenous Peoples disagree"* while the IPRA defines FPIC as *"the consensus of all members of the ICCs/IPs to be determined in accordance with their respective customary laws and practices, free from any external manipulation, interference and coercion, and obtained after fully disclosing the intent and scope of the activity, in a language and process understandable to the community"*. WB ESS 7 does not require unanimity however IPRA requires a consensus decision among all members of the ICCs/IPs. As a rule, the more stringent policy will prevail over the less stringent. In this case, the Project shall adopt the definition of FPIC as per RA 8371 (IPRA).

The FPIC processes shall be further guided by NCIP Administrative Order No. 3 s. 2012 "The Revised Guidelines on Free Prior and Informed Consent (FPIC) and Related Process of 2012" and the Commission En Banc Resolution No. 08-083-2021 Series of 2021 "Resolution approving the guidelines on the validation and assessment process of government projects for the delivery of basic service to be undertaken within or affecting ancestral domain/s" and any succeeding policy issuances that is deemed consistent with the ESS 7.

III. IPPF Principles and Objectives

This Indigenous Peoples Policy Framework (IPPF) complies with the Philippines Indigenous Peoples Rights Act (RA 8371) and ESS 7 of the World Bank's ESF. It shall uphold the main principle that the development processes of MTCIP foster full respect for the rights, dignity, aspirations, identity, culture, indigenous knowledge systems and practices (IKSPs), natural resource-based livelihoods of Indigenous Peoples and intergenerational well-being of IP communities, that is involving or affecting several generations.

The main objective of this IPPF is to ensure that the interests, needs and concerns of IPs are taken into consideration in the design and implementation of the MTCIP near or within their communities and/or territories. More specifically, this Framework has the following objectives:

- To ensure that the preparation and implementation of the MTCIP will be undertaken with the involvement and participation of the IP communities in the project location areas in partnership with the National Commission on Indigenous Peoples (NCIP); Mindanao Development Authority (MinDA) and the concerned Local Government Units (LGUs) of Regions X, XI and XII such that:
 - When the subproject site is located within or will directly impact on any declared or proposed IP Ancestral Domain, the requirements for government-sponsored development projects under IPRA as stipulated in the Free and Prior Informed Consent (FPIC) Guidelines are complied with; otherwise,
 - If the project site is situated outside any declared or proposed Ancestral Domain and does not meet the 3 criteria for FPIC under ESS 7 but nevertheless will directly affect and/or benefit any extant IP community or communities, meaningful consultation is undertaken for the subproject in coordination with NCIP
- To avoid adverse impacts of the MTCIP on Indigenous Peoples or when avoidance is not possible, to minimize, mitigate, and/or compensate for such impacts;
- To improve project design and promote local support by establishing and maintaining a continuing engagement based on meaningful consultations with the Indigenous Peoples affected by the MTCIP throughout the project's life cycle;
- To promote sustainable development benefits and opportunities for Indigenous Peoples in a manner that is accessible, culturally appropriate, and inclusive;
- To recognize, respect, and preserve the culture, knowledge, and practices of Indigenous Peoples and to provide them with an opportunity to adapt to changing conditions in a manner and in a time frame acceptable to them.

IV. Indigenous Peoples Defined

ESS 7 of the World Bank's ESF defines "Indigenous Peoples" as a distinct, social, and cultural group possessing the following characteristics in varying degrees:

- a. Self-identification as members of a distinct indigenous cultural group and recognition of this identity by others;
- b. Collective attachment to geographically distinct habitats or ancestral territories in the project area and to the natural resources in these habitats and territories;
- c. Customary cultural, economic, social, or political institutions that are separate from those of the dominant society and culture; and
- d. A distinct language, often different from the official language or languages of the country or region in which they reside.

This IPPF also applies to communities or groups of Indigenous Peoples who, during the lifetime of members of the community or group, have lost collective attachment to distinct habitats or ancestral territories in the project area because of forced severance, conflict, government resettlement programs, dispossession of their land, natural disasters, or incorporation of such territories into an urban area. However, generally, the IPPF does not apply to individuals or small groups migrating to urban areas in search of economic opportunity. It may apply, however, where Indigenous Peoples communities have established distinct communities in or near urban areas but still possess the characteristics (a) to (d) as stated above.

These characteristics are consistent with the definition of Indigenous Peoples under the Republic Act No. 8371, otherwise known as the Indigenous Peoples Rights Act of 1997 (IPRA):

- A group of people or homogenous societies identified by self-ascription and ascription by others, who have continuously lived as organized community on communally bounded and defined territory, and who have, under claims of ownership since time immemorial, occupied, possessed and utilized such territories, sharing common bonds of language, customs, traditions, and other distinctive cultural traits, or who have, through resistance to political, social, and cultural inroads of colonization, non-indigenous religions and cultures, become historically differentiated from the majority of Filipinos.
- Peoples who are regarded as indigenous on account of their descent from the populations which inhabited the country at the time of conquest or colonization or the establishment of present state boundaries, who retain some or all of their social, economic, cultural, and political institutions, but who may have been displaced from their traditional domains or who may have resettled outside their ancestral domain.

V. Social Assessment

1. Introduction

Indigenous Peoples who are traditionally farmers, hunters and fishers, have great knowledge about their environment. Indigenous Peoples communities are generally situated in areas that are rich repositories of high biodiversity. In the Philippines, about 75 percent of areas with forest cover are within ancestral domains.¹⁵ This is largely due to their sustainable practices in natural resource management which have conserved the natural wealth of the land. Through generations, Indigenous Peoples have established systems and coping mechanisms, to at times very harsh conditions, rooted in their traditional knowledge, customs, and practices to different circumstances affecting their communities.

However, IPs in the Philippines have been historically marginalized and sadly still continue to face multiple layers of social discrimination, economic marginalization, degradation of resource bases, armed conflict, land shrinking with a slow approval process of CADTs, and political disempowerment that must be addressed at the institutional and legislative levels. The IPs' socio-economic, cultural, and spiritual lives revolve around their close affinity with their ancestral domains. IPs sees their right to ancestral domains continuously threatened and disregarded even with the enactment of the Indigenous Peoples Rights Act (IPRA) of 1997. These are especially true in the Mindanao regions. Mindanao are the home of the Lumads. "Lumad" is the generic term used to refer to the indigenous peoples of Mindanao. They are considered to comprise the largest number of indigenous peoples in the country. The 18 groups that compose the Lumad include the following: Subanen, B'laan, T'boli, Mandaya, Mansaka, Tiruray, Higaonon, Manobo, Bagobo, Bukidnon, Tagakaolo, Ubo, Banwaon, Kalagan, Dibabawon, Talaandig, Mamanwa and Manguangan.¹⁶

The IP population for the first time has been reflected in the Philippine Statistics Authority (PSA) census data on "Ethnicity in the Philippines - 2020 Census of Population and Housing" released July 04, 2023. Based on the PSA 2020 Census, IPs identified by NCIP comprised 9.84 million or 9.1 percent of the 108.67 million household population. The top 10 IP groups in the Philippines accounted for about 48.3 percent of the total IPs. Subanens/Subanons ranked first with 758,499 persons (7.7%), followed by Manobos with 644,904 persons (6.6%), and Mandayas with 523,475 persons (5.3%), all of whom are IP communities found in Mindanao. Muslim groups identified by NCMF, including the groups that were also identified as IPs by the NCIP, accounted for 7.11 million or 6.5 percent of the 108.67 million household population in 2020¹⁷.

2. Methodology

The Project-level Social Assessment was based on the various documents prepared for the Project during project preparation, namely the Environmental and Social Risk Assessment (ESRA), Environmental and Social Impact Assessment (ESIA) and Environmental and Social Management Framework (ESMF). Data gathering methods employed to formulate the documents were: review of secondary data; primary data was gathered through public

¹⁵ The Philippine ICCA Consortium. 2021. The Philippines: A national analysis on the status of territories of life <https://report.territoriesoflife.org/national-and-regional-analysis/philippines/>

¹⁶ DLSU Social Development Research Center. 2016. Teaching Philippine Indigenous Cultures: Modules for Higher Educational Institutions

¹⁷ Philippine Statistics Authority (PSA). 2023. Retrieved from <https://psa.gov.ph/content/ethnicity-philippines-2020-census-population-and-housing>

consultations, focus group discussions, key informant interviews and conduct of field assessments in the project sites.

3. Indigenous Peoples in the Project Sites

The presence of Indigenous Peoples/Indigenous Cultural Communities (IPs/ICCs) is observed, especially within the area traversed by the link roads. The IPs/ICCs account for 30% Higa-onon on Link Road 1, 98% composed of Ata and Islamized Ethnic Group (Kagan/Kalagan) on Link Road 2, and 98% Tagakaulo on Link Road 3.

Link Road 1 is predominantly inhabited by the Higa-onon tribal community, representing 30% of the total population in the three barangays traversed by Link Road 1. Notably, this road lies outside the recognized ancestral domain of the Higa-onon community, with houses situated within municipal or barangay zoned built-up areas.

Link Road 2 passes through the ancestral domain of the Ata communities in the Marilog and Paquibato districts of Davao City. Additionally, Kagan/Kalagan communities have opted to settle in vacant land spaces alongside this road, categorizing them as informal settlers' families (ISF), with over 200 families constructing structures along this link road.

Link Road 3 cuts through barangays within the recognized ancestral lands of the Tagakaolo cultural communities, covering a distance exceeding 50 kilometers and traversing residential and agricultural areas of the Tagakaolo indigenous people. Maguindanaons also constitute informal settlers' families along this road. The barangay government in Link Road 3 permits Kagan/Kalagan to occupy public lands used as built-up areas, while some act as tenants on agricultural lands owned by medium to commercial-scale agricultural producers.

Ethnic Household Population of Region X

Table 1. Ethnic household population (Main Corridor and Link Roads)

Ethnic group	Population			
	Region X	Bukidnon	Misamis Oriental	Cagayan del Oro City
Bukidnon	62,815	61,475	427	428
Higaonon	409,357	241,691	143,494	66,466
Maguindanao	11,510	10,709	75	174
Manobo	41,632	39,291	1,132	815
Manobo-Pulangiuhon	9,504	9,497	2	1
Maranao	397,810	7,640	6,920	15,791
Matigsalog	29,299	29,256	13	14
Talaandig	100,455	99,700	345	364
Tigwahanon	14,595	14,564	13	14
Umayamnon	7,238	7,140	18	10

Source: Ethnicity Statistical Table PSA 2020, Region X

Ethnic Household Population of Region XI

Table 2. Ethnic household population (Main Corridor and Link Roads)

Ethnic group	Population				
	Region XI	Davao City	Davao del Sur	Davao del Norte	Davao Occidental
Ata	25,875	17,285	65	8,176	7
Ata-Manobo	31,200	1,430	16	29,502	1
Blaan	113,167	7,606	33,675	2,068	68,451
Bagobo	51,160	21,064	20,069	5,813	218
Bagobo-Klata	17,932	17,693	104	77	7
Bagobo-Tagabawa	32,162	12,417	19,421	231	28
Kagan/Kalagan	84,488	16,799	9,928	14,481	1,955
Mandaya	412,150	37,021	2,854	51,066	317
Mansaka	75,879	1,774	307	10,415	13
Manobo	137,723	13,668	3,941	15,084	78,806
Obu-Manuvu	16,416	16,355	22	28	None
Maranao	33,818	18,545	4,288	5,910	672
Matigsalog	11,557	10,889	38	296	13
Sama/Samal	36,122	4,474	2,251	28,299	167
Tagakaulo	108,532	5,784	13,695	1,575	86,318
Tausug	40,410	18,906	5,382	4,660	4,487

Source: Ethnicity Statistical Table PSA 2020, Region XI

Ethnic Household Population of Region XII

Table 3. Ethnic household population (Main Corridor and Link Roads)

Ethnic group	Population		
	Region XII	Sarangani	General Santos City
B'laan	257,971	138,087	35,874
Maguindanaoan	580,770	41,516	40,073
Manobo	91,189	6,788	6,144
Maranao	25,959	996	10,065
Sangir/Sangil	10,898	7,073	3,558
Tagakaulo	42,462	31,149	4,321
Tausug	17,871	3,427	6,877
Tboli	176,555	37,254	3,195

Source: Ethnicity Statistical Table PSA 2020, Region XII.

4. Project Sites within and traversing Ancestral Domains/Lands

Main Corridor: Within three (3) CADTs: Matigsalog-Manobo, Obu-Manuvu and Blaan-Tagakaulo CADTs. For the Main Corridor, a portion in the Municipalities of Quezon and Kitaotao in Bukidnon, Region X as well as Arakan, Cotabato is within the Certificate of Ancestral Domain Title (CADT) area of the Matigsalog-Manobo with CADT Number R10-KIT-0703-00110. Within the northern part of Davao City in Region XI, the CADT area of the Obu-Manuvu with CADT Number R11-DAV-1108-091 is traversed by the Main Corridor alignment. Meanwhile the Main Corridor alignment traversing Region XII is within the Blaan-Tagakaulo CADT area with CADT number R12-MAL-0408-072.

Link Road 1: Not within any ancestral domain or CADT area. In Link Road 1, the alignment traverses Barangays Capitan Bayong, Cawayan and Kibenton in the Municipality of Impasug-

ong. The lands are covered by the Comprehensive Agrarian Reform Program (CARP), which awarded a Certificate of Land Ownership Agreement (CLOA) to members of farmer's cooperatives. Hence, land ownership in Link Road 1 is mainly by agrarian reform beneficiaries. Link Road 1 is not within any ancestral domain or CADT area.

Lind Road 2: Ancestral Lands of Ata. In Link Road 2, Barangays Salay, Malamba, Bantol, Paquibato, Malabog and Mabuhay in Davao City side of Link Road 2 are within recognized ancestral lands of the Ata cultural communities. The Ata is the recognized claimant of the ancestral lands. It is legally equivalent to “ownership” of the lands, as provided for by the Indigenous Peoples Rights Act (IPRA).

Lind Road 3: Tagakaulo CADT. In Link Road 3, Barangay Poblacion, Upper Mainit, San Miguel, San Roque, and Kinabalan in the Municipality of Malungon, Sarangani Province and Barangays Sta. Maria Poblacion, San Isidro, Pongpong, San Antonio and Datu Intan in Sta. Maria Municipality, Davao Occidental Province are recognized ancestral domain of the Tagakaulo cultural communities by virtue of a CADT in the name of the community with CADT number number R11-STM-1217-218.

The Table 4 and the map below shows the CADT/Ancestral Domain areas traversed by Main Corridor and Link Roads of MTCIP:

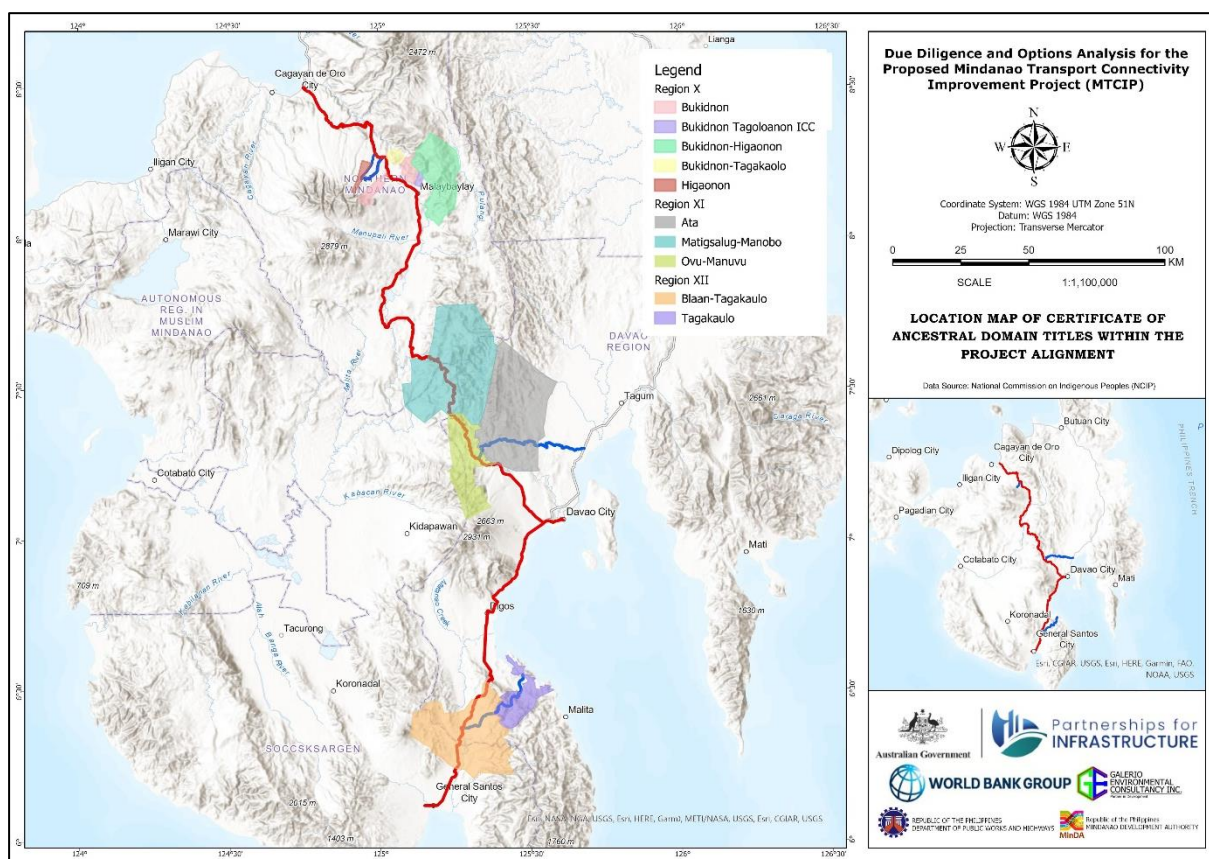


Figure 2. Map Overlay of CADTs/Ancestral Domains Source: GECl

Table 4: IP groups/Ancestral Domains in the Project Sites

Project Component	Regions	IP group/Ancestral Domains
Main Corridor	Regions X, XI, and XII	Matigsalug-Manobo (CADT R10-KIT-0703-00110.) Obu-Manuvu (CADT R11-DAV-1108-091) Blaan-Tagakaulo (CADT R12-MAL-0408-072)
Main Corridor and Link Road 1	Region X	Bukidnon Bukidnon Tagobanon Bukidnon-Higaonon Bukidnon-Tagakaolo Higaonon
Link Road 1	Region X	Higaonon
Link Road 2	Region XI	Ata (CADT R11-DAY-0213-160)
Link Road 3	Region XII	Tagakaulo Blaan-Tagakaulo (CADT R12-MAL-0408-072)

5. Involuntary Resettlement and Affected Properties

MTCIP will cut across recognized ancestral lands and impact on indigenous cultural communities (ICCs) in the area. The ICCs account for 30% Higa-onon on Link Road 1, 98% composed of Matigsalog and Islamized Ethnic Group (Kagan/Kalagan) on Link Road 2, and 98% Tagakaulo on Link Road 3. The project poses a risk of physical and economic displacement of IPs affected by the road widening. The bases of the entitlements of affected persons are the census and tagging of project affected persons, socio-economic survey and inventory of losses during the Preliminary Feasibility study or Feasibility study stages of the MTCIP (refer to the Resettlement Policy Framework or RPF).

The analysis of options for MTCIP includes assessment on the impact of project to the vulnerable groups (i.e. women, children, elderly, person with physical disability and indigenous peoples. Field study, public consultations, focus group discussions (FGDs), key informant interviews (KII) and on-site observations pointed to the considerable presence of IPs and their sizeable ancestral lands in the Main Corridor and Link Roads 1,2, 3 areas. The activity complies to WB ESS7 and the implementation of national laws and regulations for the promotion of IP rights and protection of their ancestral domain.

In the options analysis, the criteria on impact to IPs is weighed against the technical aspects (opening of new road and unstable slopes), and scope of engineering works (road widening, earthworks and bridgeworks) of the project. The parameters help gauge the level of vulnerabilities of the IPs/ICCs due to the project. Opening of new roads and unstable slopes are physical factors that impact on the lives and lands of IPs/ICCs. Proposed engineering works put at risk the safety and health of the IPs in the project areas. The exchange among stakeholders during the public consultations and focus-group discussions (FGDs) confirm the possible risks and impact, some recommendations were given to minimize them.

Main Corridor

The analysis of the technical criteria for the Main Corridor indicated that there will be no opening of new roads (NA), and a rating of 7 (highly positive) for the unstable slopes. The recommended improvement will be in already existing and heavily used road alignment. The proposed new bridge construction and widening will still be along the existing road alignment. The works will not displace any members of the IPs/ICCs living in the areas. The main corridor spans 185 barangays with a total population of 1,233,966 people. The proposed road improvements will positively impact on their access to market, education center, health facilities and other services. Risks to lives will be associated with the installation of appropriate road safety schemes in some segments of the Main Corridor.

Link Road 1

In the three (3) options, new road construction is proposed with paving limited to the first 9 kilometers of the alignment, with no unstable slopes. No bridgeworks in Option 1, a new bridge in Option 2 and rehabilitation in Option 3. Options 2 & 3 connect 4 barangays (13,347 population) while Option 1 links 3 barangay (11,403 population). The rating summary is shown in **Table 8**. IP households living outside their ancestral domain are among the residents of the barangays. It is estimated that at least 30% of the population are IPs. They either occupy built-up areas (public domain), private residential lot or an awarded agrarian reform farm lots. Some of them will be physically and economically displaced due to the proposed new road construction and bridgeworks. In the field assessment and FGD, the barangay LGUs and the residents are already aware of the risks of losing houses, relocation and temporary livelihood displacement. However, the consensus is that the new and paved roads bring long-term benefits to the social integration and economic development in their area.

Table 8. Summary of Options Analysis of Link Road 1

Criteria	Option 1	Option 2	Option 3
Opening of new road	3 (Minor or slightly negative)	1 (Major / highly negative)	3 (Minor or slightly negative)
Unstable slopes	NA		
Bridgeworks	4 (Not significant / neutral)	1 (Major/ highly negative)	1 (Major/ highly negative)
Impact to Vulnerable Groups (IPs)	2 (Moderately negative)	2 (Moderately negative)	2 (Moderately negative)

Link Road 2

The option analysis indicated that opening of new road, unstable slopes and bridgeworks will have major and highly negatively impact on the IPs/ICCs living in the areas. The proposed works are located inside a recognized ancestral domain of Ata in Marilog and Paquibato District of Davao City. The Ata tribal community is homogenous, and the risk of involuntary resettlement fragments kinship and affinity of the IPs to their ancestral lands. Relocation will be within their ancestral lands.

Some segment (easement) of the link road are occupied by 200 households that belongs to Kagan/Kalagan ethnic group. The settlement is outside the ancestral domain and allowed by

the barangay LGUs. The two tribal groups will be at risks of involuntary resettlement under all options proposed for Link Road 2. During field assessment, key informant interviews and FGDs, the tribal communities pinned high hopes in the construction of new road, as it will facilitate access to basic services, agri-product marketing and trading. The new road and bridges will speed-up mobility for community integration and development. Option 3 is a recommended scheme by the municipal LGU for consideration.

Table summary of Option Analysis of Link Road 2.

Table 6. Summary of Options Analysis of Link Road 2

Criteria	Option 1	Option 2	Option 3
Opening of new road	1 (Major/ highly negative)	1 (Major/ highly negative)	1 (Major/ highly negative)
Unstable slopes	6 (Moderately positive)	5 (Moderately negative)	3 (Minor or slightly negative)
Bridgeworks	1 (Major/ highly negative)	3 (Minor or slightly negative)	3 (Minor or slightly negative)
Impact to Vulnerable Groups (IPs)	2 (Moderately negative)	2 (Moderately negative)	1 (Major/highly negative)

Link Road 3

The length of new road construction for Options 2 and 3 the same (34.56 kilometers), while Option 2 has 34.03 kilometers. Ten (10) new bridges are proposed for Options 2 and 3, and 14 new bridges in Option 1. Option 1 has least identified unstable slopes than Options 2 and 3. Option 1 was recommended DPWH-District Engineer's Office of Davao Occidental. Options 2 and 3 were based on the Feasibility Study of DPWH Regional Office XII with some modifications. All the proposed options are located inside a recognized ancestral domain of Tagakaulo communities, a homogenous tribal community. Link Road 3 connects 8 to 9 barangays where 98% of the population are Tagakaulos. Some members of Maguindanaws and Kagan/Kalagan ethnic groups are settled in the built-up areas of the barangays. Members of the three (3) tribal groups are of risk of involuntary resettlement due to the project. **Table** summarizes the Option Analysis for Link Road 3.

Table 7. Summary of Options Analysis of Link Road 3

Criteria	Option 1	Option 2	Option 3
Opening of new road	3 (Minor or slightly negative)	2 (Moderately negative)	2 (Moderately negative)
Unstable slopes	6 (Moderately positive)	5 (Minor or slightly positive)	5 (Minor or slightly positive)
Bridgeworks	1	2	3

	(Major/ highly negative)	(Moderately negative)	(Minor or slightly negative)
Impact to Vulnerable Groups (IPs)	6 (Moderately negative)	5 (Minor or slightly positive)	5 (Minor or slightly positive)

The identified risk creating activities in Link Roads 1, 2, and 3, under all the options, can be avoided and minimized. It starts with meaningful engagement of IPs/ICCs in the project areas. High level of appreciation to the proposed Link Roads through consultation among themselves to support the road improvements. Barangay LGU in Link Road 2 and 3 have prepared resettlement site within their ancestral domains for IPs/ICCs that are willing to be relocated. The Provincial and Municipal LGUs have given funding support to the barangays LGUs for public assemblies and repair of some road segments. FGDs, key informant interview and on-site assessment reveals the said information. The interaction during the field visits also draw attention to their knowledge on IPRA law and FPIC process. They know it will be done prior to the project implementation.

6. Restricted Land Use

MTCIP is expected to restrict the use of land by the farmers for agricultural production, agricultural workers to their source of livelihood, and by the IP groups to their forest and natural resources due to the conversion of lands from the non-road uses (agricultural, utilities, residential, commercial) to road and easement use. The restriction on land use emanates from new road opening that reduces land areas for agricultural production. It also re-routed road users from their areas of production, cultural monuments, and place of work.

7. Significant impacts to Cultural Heritage and Damage to Cultural Properties or Resources

Cultural heritage includes both the tangible and intangible aspects. Tangible cultural heritage includes movable or immovable objects, sites, structures, groups of structures, and natural features and landscapes that have cultural significance. Intangible cultural heritage includes practices, representations, expressions, knowledge, and skills, as well as the associated instruments, objects, artifacts, and cultural spaces that communities and groups recognize as part of their cultural heritage.

Where MTCIP may significantly impact cultural heritage that is material to the identity and/ or cultural, ceremonial, or spiritual aspects of the affected Indigenous Peoples communities' lives, priority will be given to the avoidance of such impacts. Where significant project impacts are unavoidable, the project will obtain the FPIC of affected Indigenous Peoples and implement any mitigation measures agreed as part of the FPIC process.

The following are the results of the initial risk assessment conducted for the project components that will involve construction works¹⁸:

Component 1: Improvements of selected local roads (“Link Roads”). The proposed scope of works (i.e., road widening, re-blocking, asphalt overlay, side ditching, new bridge construction, bridge widening, slope protection, road shoulder and turn-outs) to improve connectivity in the Main Corridor and Link Roads 1, 2, 3 will possibly disturb ancient grounds linked to the cultural values of the local and indigenous peoples’ communities. The possibility of disruption of ancient grounds is likely to be higher in Link Roads 2 and 3, as the proposed roads will cut across ancestral domains/lands of indigenous cultural communities. Some archeological finds might be immovable, which must remain intact or preserved in its place.

Component 2: Capacity, climate resilience and road safety enhancement of the CDO-Davao-GenSan Corridor (“Main Corridor”). Sourcing of volume of river mix aggregates and boulders/cobbles from two (2) river sources in Misamis Oriental, ten (10) river sources located in Bukidnon, and Davao River in Marilog District could unearth tangible relics valuable to local communities and indigenous peoples in the mountain areas. All Bukidnon rivers, and Davao River, are revered and ritual grounds of the indigenous cultural communities. Loss of cultural grounds that sustain indigenous knowledge, system and practices could be at risk.

To minimize the risks to cultural heritage, information about location of cultural monuments, sacred grounds, ritual places and/or graveyards, as well as cultural practices, were gathered during on-site assessment and interviews with members of the local communities. The community interactions revealed that cultural monuments are far from the proposed roads. Local communities restrict quarrying, fishing and use of surface water in ritual grounds along the river. LGUs regulations provide that no disturbance or damages to ritual grounds of indigenous peoples located in the river during quarry operation.

The Project shall strictly comply with the restrictions implemented by the local communities and LGUs within ritual grounds of indigenous peoples. The Project must ensure that it will not damage irreplaceable cultural property of the IP. Setting guidelines for all project sites shall include strict avoidance of cultural resources particularly structures of cultural and/or historical significance and known archaeological sites. In case of chance finds or discovery of archaeological artefacts during construction, all activities in the affected sites must be suspended while MTCIP management reports the finds to and coordinates with the National Commission for Culture and the Arts (NCCA) and the National Museum or the proper government authority as per RA 10066 or the National Cultural Heritage Act of 2009. All project sites across the three (3) Regions should display a Chance Archaeological/Paleontological Finds Procedure.

VI. Requirements for the Project

1. Meaningful consultations and participation of Indigenous Peoples

The Project shall conduct meaningful consultation with Indigenous Peoples communities throughout the project cycle in a manner that is culturally appropriate and gender and intergenerationally inclusive. The conduct of consultation will seek to identify and address any economic or social constraints faced by the IP communities, including those relating to gender, that may limit opportunities to benefit from, or participate in, the project.

¹⁸ Based on ESRA Version 1.0 dated Feb. 6, 2024

The engagement processes that the Project shall undertake with Indigenous Peoples communities are further detailed in the Stakeholder Engagement Framework (SEF) compliant to ESS 10 which include stakeholder analysis and engagement planning, disclosure of information, and meaningful consultation in a culturally appropriate and gender and intergenerationally inclusive manner. In particular, the process of meaningful consultations with Indigenous Peoples should:

- make use of existing indigenous structures and mechanisms such as but not limited to, their Indigenous Knowledge Systems and Practices (IKSPs) and Indigenous Political Structure (IPS) making sure the participation of representative bodies and organizations (e.g. councils of elders or chieftains) and, where appropriate, other community members;
- Use the language of the Indigenous Peoples during consultation processes;
- Provide sufficient time for Indigenous Peoples Communities' decision-making processes;
- Allow for Indigenous Peoples Communities' effective participation in the design of subproject activities or mitigation measures that could potentially affect them either positively or negatively.

2. Screening and Social Assessment

All subprojects shall undergo screening for environmental and social risks (see Annex 2). If screening reveals that Indigenous Peoples are present in the subproject area, social assessment will need to be a part of the subproject Feasibility Studies and DED preparation. A targeted social assessment on Indigenous Peoples is conducted to determine the relative vulnerabilities of the affected IP community and how the subproject may affect them. The assessment is proportionate to the nature and scale of the proposed subproject's potential risks to, and impacts on, as well as the vulnerability of, the IP community. The assessment should consider differentiated gender and intergenerational impacts of subproject activities as well as impacts on potentially disadvantaged or vulnerable groups within the community of Indigenous Peoples. Input from qualified specialists and accompanying meaningful consultation with IP communities are important to inform and support the assessment.

The subproject specific social assessment will also determine whether there are any potential significant impacts on the cultural heritage of IPs and whether the cultural heritage is material to the identity and/or cultural, ceremonial, or spiritual aspects of their lives. Mitigation measures to address identified impacts to Indigenous Peoples communities should be reflected in the subproject's ESMP.

3. Free Prior and Informed Consent (FPIC)

This Framework shall adopt the definition of FPIC as stipulated in the RA 8371, which shall mean "the consensus of all members of the ICCs/IPs to be determined in accordance with their respective customary laws and practices, free from any external manipulation,

interference and coercion, and obtained after fully disclosing the intent and scope of the activity, in a language and process understandable to the community”.

Compliant to ESS 7 and the RA 8371, the following subprojects require FPIC:

- i. Subprojects that overlap or are located inside any declared or proposed IP Ancestral Domain or those that, while not located inside, will directly affect any declared or proposed IP Ancestral Domain.
- ii. Subprojects that cause relocation of Indigenous Peoples from land and natural resources subject to traditional ownership or under customary use or occupation or those that are referred to as Ancestral Domains;
- iii. Subprojects that have significant impacts on Indigenous Peoples’ cultural heritage that is material to the identity and/or cultural, ceremonial, or spiritual aspects of the affected Indigenous Peoples;
- iv. Subprojects that locate or commercially develop natural resources on land traditionally owned by, or under the customary use or occupation of Indigenous Peoples or those that are referred to as Ancestral Domains;
- v. Subprojects that propose to use for commercial purposes the cultural heritage and Indigenous Knowledge Systems and Practices (IKSPs) of Indigenous Peoples communities, whether tangible or intangible or both.

In these circumstances needing FPIC, subproject proponents need to secure the Certificate of Precondition (CP) issued by the NCIP. The FPIC processes shall be further guided by:

- NCIP Administrative Order No. 3 s. 2012 “The Revised Guidelines on Free and Prior Informed Consent (FPIC) and Related Process of 2012”;
- Memorandum of Agreement (MOA) signed between DPWH and NCIP on April 5, 2018;
- Commission En Banc Resolution No. 08-083-2021 Series of 2021 “Resolution approving the guidelines on the validation and assessment process of government projects for the delivery of basic service to be undertaken within or affecting ancestral domain/s”; and
- any succeeding policy issuances that are deemed consistent with the ESS 7.

Meanwhile, subprojects located outside any declared or proposed ancestral domains but are situated within or will affect any extant IP community or communities and does not meet the 3 criteria for FPIC under ESS 7 are required to undergo meaningful consultations. Consultations should occur freely and voluntarily, without any external manipulation, interference, or coercion, for which the parties consulted have prior access to information on the intent and scope of the proposed project in a culturally appropriate manner, form, and language.

Local patterns of social organization, religious beliefs, and resource use should be taken into account in the consultation/participation process as well as in the design of subprojects. Existing tribal councils recognized by the NCIP and the LGU shall be

tapped as the liaison between DPWH and the IP/ICC community in all activities relating to MTCIP. The entire consultation process shall be undertaken and documented by the DPWH supported by the LGU in coordination with NCIP.

The following should be observed in the conduct of meaningful consultations:

- Prior to consultation, the DPWH must ensure that IP members have access to information about the project in general and the subproject in particular. Information campaign shall be conducted in local language or in language that is widely understood by the IP community. This could be done through the local tribal council and in culturally appropriate and effective manner. Aside from providing information about the objectives and scope of the proposed subproject, the information campaign should inform the IP community of their rights to participate in changing the subproject design if it violates any rights or is contrary to the traditions and cultural practices of their community; their rights to compensation if any of their properties are affected; and, their rights to partake of the benefits resulting from the subproject.
- The IP community should be given adequate lead time between the conduct of information campaign and the actual consultation. The consultation shall be conducted early in the subproject preparation and shall, if necessary or if required by the IPs, allow for an iterative process to arrive at consensus.
- Direct dialogues and focused group discussions, if these are not in conflict with local customs and traditional ways should be the preferred consultation tool. Attendance by IP member to dialogues and meetings should however be strictly voluntary. The DPWH shall ensure that the IPs are not coerced to attend meetings.
- IP communities shall be assured of access to a Grievance Redress Mechanism that is culturally appropriate utilizing and respecting existing systems of resolving conflict.

4. Indigenous Peoples Plan (IPP)

If IPs/ICCs were identified as present during the subproject screening, the IPPF will be triggered and an Indigenous Peoples Plan (IPP) will be formulated based on the result of the social assessment, consultation and/or agreement among the IP community, NCIP, and DPWH. A social assessment, in coordination with NCIP and IPs/ICCs, will be conducted by DPWH-UPMO-RMC for the IPP. The scope and type of analysis in the social assessment is proportional to the nature and scale of the proposed project potential impact on the IPs/ICCs. Refer to Annex 1 for the Guidelines for the Formulation of the IPP and Recommended Outline.

The steps for the formulation of the IPP are as follows:

1. Screening of subprojects with Road Right of Way (RROW) footprint to initially determine the scope of impact of the project in terms of number of IP households, crops, trees and livelihood.

2. Census, socio-economic survey, inventory of losses, and parcellary survey of all affected assets in RROW within the ancestral domain.
3. Household ownership of economic and productive assets.
4. Gathering of economic information of community (i.e. brief information on economic and natural resources, production and livelihood systems)
5. Gathering of social information of community (kinship, cultural laws and practices, value system and self-governance)
6. Identification of potential impact of the proposed project activities on basic social services (water supply, education, health, cultural laws & governance, cultural practices and traditions)
7. Determination of the detailed cost of mitigation measures and other rehabilitation entitlements for IPs/ICCs in the affected areas.
8. Determination of the administrative, training, consultation, monitoring and evaluation during implementation.
9. Review of Ancestral Domain/Lands boundaries and maps, including the Ancestral Domain Sustainable Development and Protection Plan (ADSDPP), if any.
10. Adoption of the IPP by the IPs/ICCs by the tribal members through General Assembly meeting.

VII. Land Acquisition and Affected Assets

If a member of the IP community will have either of their land, crops, homes, structures and/or other properties adversely affected by the subproject, they must be informed of their rights to just compensation from the Project as well as their rights to partake of the benefits resulting from the subproject. The compensation for affected land, crops, homes and other assets of individual IP members will follow the DPWH Department Order No. 43, Series of 2020 Guidelines for Right-of-Way (ROW) Acquisition and Payment of Ancestral Domain Affected by the Implementation of National Government Infrastructure Projects consistent with the Resettlement Policy Framework (RPF) of the Project and WB ESS 5 and this Indigenous Peoples Policy Framework including provisions for FPIC as outlined in earlier sections.'

The intent of the Department Order is to facilitate ROW claims involving ancestral domain owned by indigenous cultural communities (ICCs) and IPs, recognized under IPRA, affected by the implementation of national government infrastructure projects. The following provisions is adopted and incorporated in the DPWH ROW Acquisition Manual (DRAM): *Section 2.16. A. ROW Acquisition by Easement of ROW (Minimal Area); and Section 2.16- B, ROW Acquisition by Easement of ROW (Ancestral Domain: Objective: To acquire RROW involving lands covered by Certificate of Ancestral Domain Title (CADT) or NCIP- confirmed Ancestral Domain. Under the procedure, a ROW Easement Agreement shall be executed by and between the NCIP Accredited or Certified Tribal Council and the Implementing Office (IO), where the former will grant the latter the absolute and unimpeded right to use the affected portion of their ancestral domain as RROW for as long as the public requirement subsists, but the IPs/ICCs retain ownership of that portion of the lot. The agreement shall be in accordance with the procedure and requirements set forth in the Department Order No. 43, Series of 2020.*

VIII. Grievances Redress Mechanism

A Grievance Redress Mechanism (GRM) for MTCIP shall be set-up by DPWH, as the main implementing agency, to solicit feedback from project stakeholders and ensure the efficient resolution of project-related grievances. Specific to this IPPF, the Project will ensure that the GRM is culturally appropriate and accessible to Indigenous Peoples communities. As such, IP elders or Chieftains are part of the uptake points and GRM process for projects sites within Ancestral Domains/Lands and/or with Indigenous Peoples communities. The GRM shall respect the cultural attributes of the IP communities and their existing traditional mechanisms for raising and resolving issues. It shall take into account the availability of judicial recourse and customary dispute settlement mechanisms among IP communities. The Project shall use structures and mechanisms in resolving conflict already existing in the IP community.

Joint DPWH and NCIP grievance procedures for IP will be followed, in steps enumerated below:

- a) Conflicts within the affected IP community will be addressed within the community itself in the context of its customary law and customary dispute resolution process and mechanisms, in the presence of the relevant staff of the NCIP office with jurisdiction over the area, and if so invited, project-related staff and other stakeholders, e.g., formal local leadership in the barangay
- b) Intercommunity conflicts will be addressed between the communities themselves, according to their customary or agreed upon dispute resolution processes and mechanisms. If an outside facilitator, mediator, or arbiter is required or requested for, DPWH-PIU and LGU, together with its monitoring units in the field will seek the intervention of the NCIP to act as facilitator, mediator, or arbiter. This guideline applies to conflicts or disputes between the IP community and any of the project units and implementers.
- c) The social safeguards focal person at the Regional Interim Monitoring Committee (RIMC) and sub-committee levels shall document the proceedings of the discussion or negotiations. This is in addition to the documentation done by the IP community themselves and by the NCIP. If no satisfactory result or impasse results, the IP communities shall be allowed to elevate their complaints and grievances to the Local Human Performance Behavior System (HPBS) Grievance Team. The grievance procedure established herein in no way substitutes for or replaces the grievance procedure set forth in The FPIC Guidelines of 2012. At their choosing, the IPs may avail of the grievance procedure and mechanisms spelled out in The FPIC Guidelines of 2012.
- d) NCIP/IP/Ethnic Group membership in all Grievance Teams/Levels shall be ensured by the DPWH/LGU.
- e) DPWH's GRM Process Flow as illustrated in Figure 3 will be the general reference for the hearing and resolution of any issues within ancestral domain and IPs/ICCs. All costs incurred in meetings, consultations, communication, and reporting/

information dissemination will be borne by DPWH. There are no costs for the complainant at any stage of the GRM. Cost estimates for grievance redress are included in the resettlement cost estimates under administration cost. The complainant will not have to pay any fee for his/her case (official or unofficial).

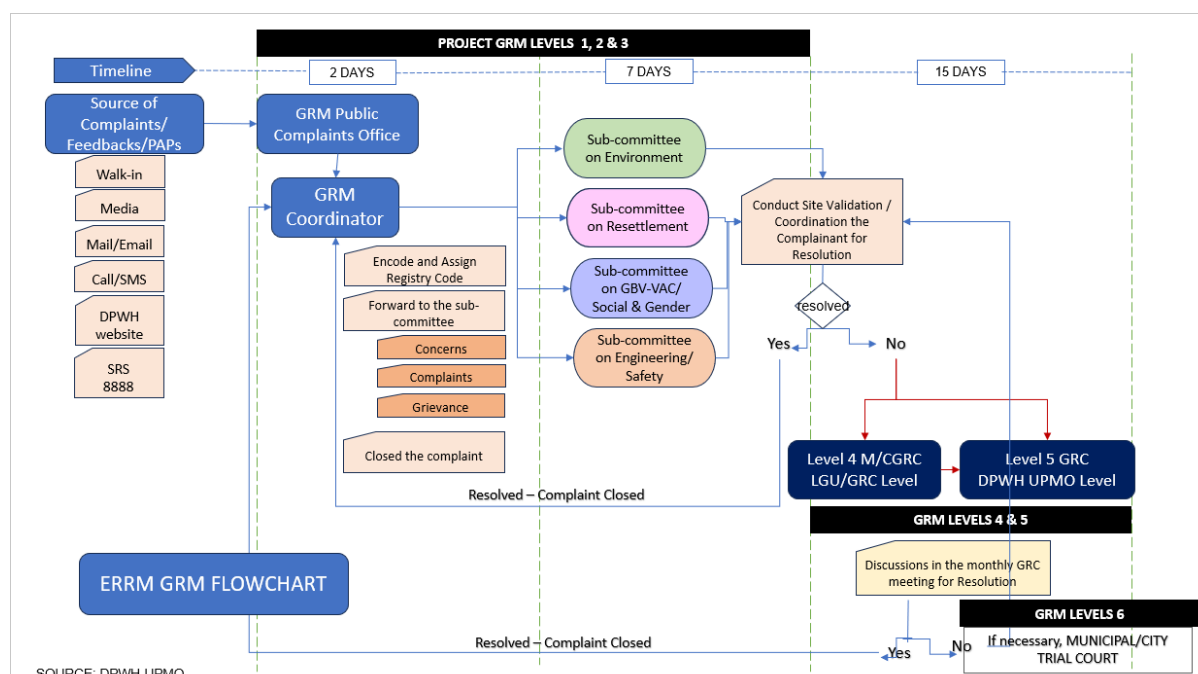


Figure 5. Detailed GRM Flowchart for MTCIP Source: DPWH-UPMO

IX. Institutional Arrangements and Capacity

The project will be implemented by the DPWH-UPMO-RMC II. The IPPF will be carried out by the Environmental and Social Service Unit (ESSU) of the Cluster. The DPWH (Central, Regional and District Offices), its hired-Project staff/consultants as well as the partner Local Government Units from Regions X, XI, and XII will be capacitated in order to meaningfully engage with the IP communities and deliver the required services to IP communities. The Project shall ensure that project staff are culture sensitive, imbibe values that respect cultural differences and have high respect for Indigenous Peoples.

The NCIP is the government agency responsible for the formulation and implementation of policies, plans and programs to promote and protect the rights and well-being of the Indigenous Cultural Communities/Indigenous Peoples (ICCs/IPs). NCIP is a key partner of the Project as it was identified that project sites will traverse or are located within ancestral domains/lands with Indigenous Peoples as beneficiaries and/or as project affected stakeholders. Collaboration with the NCIP is needed for the conduct of Free Prior Informed Consent (FPIC) as stipulated in the RA 8371 or the IPRA law.

The Project shall continuously coordinate and engage with the NCIP to ensure that project staff are assisted when engaging with the IP communities by personnel who have cultural

knowledge which would mean familiarization with the cultural characteristics, history, values, belief systems, and behaviors of the members of the IP community. When feasible, the Project along with the LGUs, may partner with CSOs/NGOs who have long time been working with the IP communities in the project sites to assist in consultation activities during project preparation and implementation.

X. Supervision, Monitoring and Evaluation

The DPWH-PIU ESSU shall provide direct supervision and monitoring of the implementation of and compliance with this Framework. The Implementing Offices (IO) of DPWH, either the Regional or the District Engineering Office (DEO) shall submit quarterly reports that include the status of IP Plan implementation among others.

XI. Cost and Financing

The cost areas of IPPF are the implementation of the activities under FPIC. All the cost will be shouldered by the DPWH. It will be based on the Work and Financial Plan (WFP) agreed between NCIP and DPWH. All other cost of project compliance to this Framework such as regular monitoring and evaluation of the implementation of the IPPF, conduct of needed capacity building activities to comply with the IPPF and mitigation measures that are part of the subproject design shall be funded as part of the Project financing.

Annex 1: Guidelines for the preparation of Indigenous Peoples Plan and Recommended Outline

The IP Plan includes the following elements:

- a. A summary of the Targeted Social Assessment, including the applicable legal and institutional framework and baseline data.
- b. A summary of the results of the meaningful consultation tailored to IP, and if the project involves the FPIC process, then the outcome of the process of FPIC carried out with the affected IP during project preparation.
- c. A framework for meaningful consultation tailored to IP during project implementation.
- d. Measures for ensuring IPs receive social and economic benefits that are culturally appropriate and gender sensitive and steps for implementing them. If necessary, this may call for measures to enhance the capacity of the project implementing agencies.
- e. Measures to avoid, minimize, mitigate, or compensate IP for any potential adverse impacts that were identified in the social assessment, and steps for implementing them.
- f. The cost estimates, financing plan, schedule, and roles and responsibilities for implementing the IP Plan.
- g. Accessible procedures appropriate to the project to address grievances by the affected IP arising from project implementation, as described in the Project SEF.
- h. Mechanisms and benchmarks appropriate to the project for monitoring, evaluating, and reporting on the implementation of the IP Plan, including ways to consider input from project-affected IP in such mechanisms.

Below is the recommended outline for the Indigenous Peoples Plan:

- I. Executive Summary
- II. Description of the Project
- III. Social Impact Assessment
- IV. Information Disclosure, Consultation and Participation
- V. Beneficial Measures
- VI. Identified Risks and Mitigation Measures
- VII. Capacity-Building
- VIII. Feedback and Grievance Redress Mechanism
- IX. Reporting, Monitoring and Evaluation
- X. Institutional Arrangements
- XI. Budget and Financing

Annex 2: MTCIP Environmental and Social Screening Form for Subprojects: ESS 7 Indigenous Peoples

MTCIP Environmental and Social Screening Form for Subprojects ESS 7 Indigenous Peoples

Instructions:

- (i) The screening form should form part of the Subproject Feasibility Study.
- (iii) Use ✓ mark in answering the questions (Yes or No columns).
- (iv) Use the “remarks” section to discuss the eligibility or requirements for evaluation.

Subproject details			
Contract Package	Length	Municipality/City	DPWH District Engineering Office (DEO), Regional Office

Screening Question	Yes	No	Remarks
ESS 7 Indigenous Peoples			
1. Are there IP communities within the subproject sites?			<p>If YES, Indigenous Peoples Policy Framework (IPPF) IPPF is triggered.</p> <p>Conduct Social Assessment as part of the subproject Feasibility Studies and Detailed Engineering Design (DED) preparation.</p> <p>Mitigation measures to address identified impacts to Indigenous Peoples communities should be reflected in the subproject's Environmental and Social Management Plan (ESMP).</p>
2. Is the subproject an identified situation in the IPPF, as follows: <ul style="list-style-type: none"> • overlap or are located inside any declared or proposed IP Ancestral Domain or those that, while not located inside, will directly affect any declared or proposed IP Ancestral Domain • cause relocation of Indigenous Peoples from land and natural resources subject to traditional ownership or under customary use or occupation or those that are referred to as Ancestral Domains; • have significant impacts on Indigenous Peoples' cultural 			<p>If YES, the subproject needs to undertake the FPIC process and secure the Certificate of Precondition (CP) from NCIP.</p> <p>Prepare an Indigenous Peoples Plan (IPP).</p>

Screening Question	Yes	No	Remarks
<p>heritage that is material to the identity and/or cultural, ceremonial, or spiritual aspects of the affected Indigenous Peoples</p> <ul style="list-style-type: none"> locate or commercially develop natural resources on land traditionally owned by, or under the customary use or occupation of Indigenous Peoples or those that are referred to as Ancestral Domains; propose to use for commercial purposes the cultural heritage and Indigenous Knowledge Systems and Practices (IKSPs) of Indigenous Peoples communities, whether tangible or intangible or both 			
<p>3. If the subproject is not within any ancestral domain, are there any IP community/ies in the subproject site to be affected (either positively or adversely) by the subproject and does not meet the 3 criteria for FPIC under ESS 7?</p>			<p>If YES, the subproject must undergo meaningful consultations with the IP community/ies. The entire consultation process shall be undertaken and documented by the DPWH supported by the LGU in coordination with NCIP.</p> <p>Documents required are as follows:</p> <ul style="list-style-type: none"> Dated information campaign materials in local language or in language widely understood by the IP community; Dated gender disaggregated attendance sheets of consultation dialogues and Photographs of actual consultation sessions undertaken; Dated minutes of meetings and matrix of clarifications, issues and concerns raised and how they were explained or addressed by the DPWH. <p>Prepare an Indigenous Peoples Plan (IPP).</p>

Based on the above screening, the applicable ESF instruments to be developed for the subproject are (Check applicable instruments):

- ☐ Indigenous Peoples Social Assessment as part of subproject FS and DED
- ☐ Environmental and Social Management Plan (ESMP)
- ☐ Certificate of Pre-condition (CP) from NCIP
- ☐ Indigenous Peoples Plan (IPP)
- ☐ Documentation of consultations

Name and signature of Screening Officer:

Date completed:

Approved by/Date:

Appendix 8. Stakeholder Engagement Framework

Republic of the Philippines
Department of Public Works and Highways



Mindanao Transport Connectivity
Improvement Project (MTCIP)
(P177017)

Stakeholder Engagement Framework (SEF)
DRAFT

As of March 26, 2024

Table of Contents

1. Project Description	572
1.1 Project Background	572
1.2 Project Development Objective	573
1.3 Project Components	573
1.3 Implementation Arrangements	574
1.4 Project Location	575
2. SEF Principles and Objectives	577
3. Stakeholder Identification and Analysis	578
4. Stakeholder Engagement Program.....	582
4.1 Project-Level Engagement at Project Preparation.....	582
4.2 Project-level Consultation Strategies.....	584
4.3 Subproject-level Stakeholder Engagement Plan (SEP)	586
4.4 Ways to incorporate the views of vulnerable groups.	586
4.5 Ways to incorporate the views of Indigenous Peoples.....	592
4.6 Proposed strategy for stakeholder engagement in conflict areas	592
5. Information Disclosure	594
6. Institutional Arrangement and Resources for implementing stakeholder engagement	596
7. Grievance Redress Mechanism (GRM)	597
7.1 Objectives and Core Principles	597
7.2 GRM Structure	598
7.3 Grievance Filing	599
7.4 Publicly Advertised Procedures.....	600
7.5 Gender-Based Violence (GBV), Sexual Exploitation and Abuse-Sexual Harassment (SEA-SH), and Sexual Orientation, Gender Identity, and Expression (SOGIE)-related complaints.....	600
8. Monitoring and Reporting	601
8.1 Summary of how SEF will be monitored and reported upon.....	601
8.2 Reporting back to stakeholder groups	602
Annex 1. Public Consultations documentation	604
Annex 2. Focus Group Discussions (FGDs).....	653
Annex 3. Key Informant Interviews (KIIs) documentation	678
Annex 4. Grievance Submission Form	683

Annex 5. Outline and Guide for the Subproject-level Stakeholder Engagement Plan (SEP)	684
Annex 6. SEF Budget Table	688

List of Acronyms

AD/L	- Ancestral Domains/Lands
ADSDPP	- Ancestral Domain Sustainable Development Protection Plan
BMB	- Biodiversity Management Bureau
CERC	- Contingent Emergency Response Component
CoCs	- Codes of Conducts
CoDI	- Committee on Decorum and Investigation
CP	- Certificate of Pre-condition
CSOs	- Civil Society Organizations
DED	- Detailed Engineering Design
DENR	- Department of Environment and Natural Resources
DEO	- District Engineering Office
DILG	- Department of Interior and Local Government
DOLE-BWC	- Department of Labor and Employment-Bureau of Working Conditions
DPWH	- Department of Public Works and Highways
DRAM	- DPWH Right-of-Way Acquisition Manual
ECC	- Environmental Compliance Certificate
EMA	- External Monitoring Agent
EMB	- Environmental Management Bureau
ESS	- Environmental and Social Standards
ESSU	- Environmental and Social Service Unit
ESF	- Environmental and Social Framework
ESCP	- Environmental and Social Commitment Plan
ESMF	- Environmental and Social Management Framework
ESMP	- Environmental and Social Management Plan
FGDs	- Focus Group Discussions
FMRB	- Forest Management Bureau
FMR	- Farm-to-Market Road
FPIC	- Free Prior and Informed Consent
GBV	- Gender-based Violence
GECI	- Galerio Environmental Consultancy Inc.
GIDA	- Geographically Isolated and Disadvantaged Areas
GRM	- Grievance Redress Mechanism
IDPs	- Internally Displaced Persons
IKSPs	- Indigenous Knowledge Systems and Practices
IO	- Implementing Office (DPWH Regional or District Engineering Office)
IP/ICC	- Indigenous Peoples/Indigenous Cultural Communities
IPPF	- Indigenous Peoples Policy Framework
IPRA	- Indigenous Peoples Rights Act
ISFs	- Informal Settler Families
LGBTQI	- Lesbian, Gay, Bisexual, Transgender, Queer or Questioning, Intersex
LGUs	- Local Government Units
LMB	- Land Management Bureau
LMP	- Labor Management Procedures
M&E	- Monitoring and Evaluation
MGB	- Mines and Geosciences Bureau

MinDA	- Mindanao Development Authority
MTCIP	- Mindanao Transport Connectivity Improvement Project
NCIP	- National Commission on Indigenous Peoples
NGOs	- Non-Government Organizations
PIU	- Project Implementing Unit
PDO	- Project Development Objective
PRDP	- Philippine Rural Development Project
POM	- Project Operations Manual
PWD	- Persons with Disabilities
RO	- Regional Offices
RPF	- Resettlement Policy Framework
SAPA	- Special Use Agreement in Protected Areas
SE	- Stakeholder Engagement
SEA	- Sexual Exploitation and Abuse
SEF	- Stakeholder Engagement Framework
SEP	- Stakeholder Engagement Plan
SGM	- Sexual and Gender Minorities
SH	- Sexual Harassment
SOGIE	- Sexual Orientation, Gender Identity and Expression
OPRC	- Output & Performance-Based Road Contract
UPMO-RMC II	- Unified Project Management Office - Roads Management Cluster-II
WB	- World Bank

Definition of Terms

Ancestral Domains (AD) - The 1997 IPRA Law defines ancestral domains as “all areas generally belonging to ICCs/IPs comprising lands, inland waters, coastal areas, and natural resources therein, held under a claim of ownership, occupied or possessed by ICCs/IPs, by themselves or through their ancestors, communally or individually since time immemorial, continuously to the present except when interrupted by war, force majeure or displacement by force, deceit, stealth or as a consequence of government projects or any other voluntary dealings entered into by government and private individuals/corporations, and which are necessary to ensure their economic, social and cultural welfare. It shall include ancestral lands, forests, pasture, residential, agricultural, and other lands individually owned whether alienable and disposable or otherwise, hunting grounds, burial grounds, worship areas, bodies of water, mineral and other natural resources, and lands which may no longer be exclusively occupied by ICCs/IPs but from which they traditionally had access to for their subsistence and traditional activities, particularly the home ranges of ICCs/IPs who are still nomadic and/or shifting cultivators”

Disadvantaged or vulnerable - refers to those who may be more likely to be adversely affected by the project impacts and/or more limited than others in their ability to take advantage of a project's benefits. Such an individual/group is also more likely to be excluded from/unable to participate fully in the mainstream consultation process and as such may require specific measures and/or assistance to do so.

Indigenous Peoples (IPs) – a distinct, social, and cultural group possessing the following characteristics in varying degrees: a) Self-identification as members of a distinct indigenous cultural group and recognition of this identity by others; b) Collective attachment to geographically distinct habitats or ancestral territories in the project area and to the natural resources in these habitats and territories; c) Customary cultural, economic, social, or political institutions that are separate from those of the dominant society and culture; and d) A distinct language, often different from the official language or languages of the country or region in which they reside.

Gender-based violence (GBV) - is an umbrella term for any harmful act that is perpetrated against a person's will and that is based on socially-ascribed (i.e., gender) differences between males and females. It includes acts that inflict physical, sexual or mental harm or suffering, threats of such acts, coercion, and other deprivations of liberty. These acts can occur in public or in private.

Gender Identity - Each person's deeply felt internal and individual experience of gender (e.g. of being a man, a woman, in-between, neither or something else), which may or may not correspond with the sex they were assigned at birth or the gender attributed to them by society. Note that this sense of self is not related to sexual orientation. Gender identity is internal; it is not necessarily visible to others.

Gender Expression - The way we show our gender to the world around us, through things such as clothing, hairstyles, and mannerisms, to name a few.

Meaningful Consultation - a process that (i) begins early in the project preparation stage and is carried out on an on-going basis throughout the project cycle; (ii) provides timely disclosure of relevant and adequate information that is understandable and readily accessible to affected people; (iii) is undertaken in an atmosphere free of intimidation or coercion; (iv) is gender inclusive and responsive, and tailored to the needs of disadvantaged and vulnerable groups; and (v) enables the incorporation of all relevant views of affected people and other stakeholders into decision making, such as project design, mitigation measures, the sharing of development benefits and opportunities, and implementation issues.

Sexual Exploitation and Abuse (SEA) - Sexual exploitation is any actual or attempted abuse of a position of vulnerability, differential power or trust for sexual purposes, including, but not limited to, profiting monetarily, socially or politically from the sexual exploitation of another (UN Glossary on Sexual Exploitation and Abuse 2017) Sexual abuse is the actual or threatened physical intrusion of a sexual nature, whether by force or under unequal or coercive conditions (UN Glossary on Sexual Exploitation and Abuse 2017)

Sexual Harassment (SH) is any unwelcome sexual advances, request for sexual favors, and other verbal or physical conduct of a sexual nature.

Sexual Orientation - Each person's enduring capacity for profound romantic, emotional and/or physical feelings for, or attraction to, person(s) of a particular sex or gender. It encompasses hetero-, homo- and bi-sexuality and a wide range of other expressions of sexual orientation.

Subproject – In the context of MTCIP, subproject refers to the segmentation of the road alignment based on criteria defined by DPWH to aid in efficient project implementation including procurement and construction

Project Description

1.1 Project Background

The Mindanao Transport Connectivity Improvement Project (MTCIP) is a comprehensive initiative aimed at enhancing road infrastructure in the Main Corridor, a vital national highway network linking the cities of Cagayan De Oro, Davao, and General Santos. This project, with a total project cost of \$661.21 million jointly financed by the World Bank and the Government of the Philippines will be implemented over a span of seven (7) years. The Department of Public Works and Highways (DPWH) is the implementing agency for this project. MTCIP seeks to bolster transportation connectivity, particularly benefiting the agricultural sector by facilitating product movement and enhancing access to rural areas.

Growth and poverty reduction in Mindanao will require making agriculture more productive, particularly smallholder farmers. Furthermore, because Mindanao is the food basket of the country, enhancing food production and reducing food and input prices in this region will support the overall improvement welfare and the country's competitiveness. The potential impact of agriculture development in Mindanao is widely recognized as one-third of Mindanao's land area is devoted to agriculture, contributing about 23 percent of the region's economy and employing about four million people. Unfortunately, even though Mindanao's comparative advantage is agriculture, many of its farmers and fisherfolks still live in or are vulnerable to poverty. Connecting rural, remote areas to urban areas where there is demand for agricultural produce is one of the key interventions to support growth in the agricultural sector particularly the smallholder farmers. Better rural roads would reduce transportation costs and product losses for poor farmers and could make a major contribution to reducing poverty. Many roads are either non-existent, deteriorated or congested; as a result the quality of agricultural produce at the point of sale is reduced and are often rejected, especially perishable commodities. Aside from the lack of farm-to-market roads (FMRs), there is a need to relieve congestion on roads accessing ports to improve connectivity beyond Mindanao.

The region's underdevelopment is largely due to civil conflict and low economic growth. The country's main peacebuilding challenges involve a limited geographic area in Western Mindanao that has spillover effects on the broader Mindanao region and the Philippines overall. While the core conflict in Mindanao has been between Muslim armed groups and the government, this is not primarily religious. The broad drivers of endemic violence in the region include: (i) social injustice, alienation, and exclusion of Muslims and indigenous people (IPs); (ii) displacement of Indigenous Peoples from their ancestral domains (ADs); (iii) inter-ethnic

conflicts; (iv) rido (clan war and revenge killing); (v) land tenure and ownership disputes; (vi) competition for scarce natural and mineral resources; (vii) local election disputes; (viii) ineffective governance and the lack of rule of law and service delivery; and (ix) widespread poverty and scarcity of job opportunities.¹⁹ Protracted land disputes and conflict in particular have deterred investments in agriculture thereby slowing job creation, growth, and poverty reduction. Aside from addressing the causes of conflict, providing jobs and access to economic opportunities are central to stabilization and normalization in conflict areas as they present alternatives to violence.²⁰ Addressing transport connectivity bottlenecks is crucial in the strategy to promote jobs and access to economic opportunities in the Mindanao region.

1.2 Project Development Objective

The Project Development Objective (PDO) is to improve connectivity, climate resilience and safety of selected roads in the Mindanao region.

1.3 Project Components

Component 1: Improvements of selected local roads (“Link Roads”) (Total: \$138 million; of which IBRD loan \$82 million, GOP \$57 million). This component will support upgrade (e.g., road widening and paving) of three local roads with a total length of 130 km to national road standards with climate resilience and road safety measures, connecting to the main corridor and thereby improving all-season road access for remote communities and farmers. The roads were jointly selected by DPWH, Mindanao Development Authority (MinDA) and Local Government Units (LGUs) based on multiple criteria: poverty index, proximity to agricultural productions points and markets, and service facilities, e.g., schools, health facilities and government facilities. This component will also finance the detailed engineering design and construction supervision consultant services of the civil works. The government counterpart will be responsible for land acquisition and resettlement. All local roads upgraded under MTCIP will be converted to national roads and DPWH will be responsible for operation and maintenance.

Component 2: Capacity, climate resilience and road safety enhancement of the CDO-Davao-GenSan Corridor (“Main Corridor”) (Total: \$368 million; of which IBRD loan \$274 million, GOP \$94 million). The Main Corridor has a total length of 428.2 km with four parts: the Sayre Highway, the Bukidnon-Davao, the Digos-Makar and the Davao-Cotabato Rd (Davao City-Jct Digos Sect). The project scope includes rehabilitation of selected (124 km) road sections categorized as ‘bad or poor’ according to DPWH’s Road and Bridges Asset Inventory Application, which will include repair of damaged sections, upgrading to uniform cross section of carriageway, climate resilience and road safety enhancements. Following the improvement works, a new Road Asset Management (Asset Preservation and Preventive Maintenance) regime will be introduced for the whole stretch of the Main Corridor, such as Output & Performance-Based Road Contract (OPRC) to ensure a year-round satisfactory level of service.

¹⁹ Sources: World Bank Group. 2019. Systematic Country Diagnostic of the Philippines: Realizing the Filipino Dream for 2040. World Bank, Washington, DC., and the Mindanao Peace Lens Handbook, and the Mindanao Inclusive Agriculture Development Project PAD.

²⁰ World Bank. 2017. Mindanao Jobs Report.

Component 3: Capacity building and Institutional Development (Total: \$18 million; of which IBRD loan \$14 million, GOP \$4 million). The implementation of post-Mandanas ruling will provide LGUs with more resources for infrastructure development and maintenance. Given the weak capacity of LGUs in terms of transport network planning and asset management, this component will support capacity enhancement of DPWH and select LGUs. Specific activities under this component will include: (a) set up transport asset management systems in selected LGUs building on what has been achieved under the World Bank-funded Philippine Rural Development Project (PRDP) and Department of Interior and Local Government (DILG) initiatives under its provincial roads program, and through cross-learning between LGUs and relevant government agencies, (b) study on institutional strengthening initiatives to enhance coordination and planning arrangements between DPWH and LGUs to improve transport connectivity, (c) implementation of the recommended actions by the on-going WB Technical Assistance (TA) to mainstream climate resilience in road asset management process of DPWH, which will include Mapping/digitalization of primary, secondary and tertiary road network in Regions X, XI and XII (d) training key stakeholders on the OPRC concept including on their respective role in the enforcement or supervision of the contract, (e) training local communities including female residents of road maintenance practice, and (f) technical, pre-feasibility or feasibility studies (to be identified) for priority interventions to improve local road connectivity and access to major ports in Cagayan de Oro, Davao, and General Santos, and options of involving private sectors in ports improvement.

Component 4: Project Management (Total: \$47 million; of which IBRD loan \$36 million, GOP \$10 million). DPWH will be leading the project implementation. This component will support DPWH's Unified Project Management Office (UPMO)- Road Management Cluster- II (RMC-II), the Project Implementing Unit (PIU) in project implementation. It will finance trainings and technical advisors on key project implementation issues including OPRC contract design and management, road safety interventions, climate resilience improvement. The Detailed Engineering Design Consultants for project roads will be financed, and in addition, the component will provide support to the PIU for WB technical, fiduciary and safeguards compliance through Technical Support Consultants and Specialists, Road User Satisfaction Survey Consultants, Road Safety Audit Consultants, Results Monitoring Consultants and External Monitoring Agent (EMA); other operational support including office equipment, vehicles to facilitate the PIU to manage project implementation will be included.

Component 5: Contingent Emergency Response Component (CERC) to support post-disaster recovery. (Total: \$0). The CERC is designed to mitigate situations of urgent need or capacity constraints and allows for the rapid reallocation of funding in the event of a natural disaster or crisis that has caused, or is likely to imminently cause, a major adverse economic and/or social impact. A CERC Annex in the Project Operations Manual (POM) will consider risks from climate change mitigation and adaptation to demonstrate alignment.

1.3 Implementation Arrangements

The Department of Public Works and Highways (DPWH) is the main implementing agency for this project. The DPWH is the executive department of the Philippine government solely vested with the mandate to “be the State's engineering and construction arm.” DPWH's Unified Project Management Office (UPMO) Roads Management Cluster-II (RMC-II) will be the Project Implementation Unit (PIU). The RMC-II, under UPMO, will be responsible for daily management of project. The fiduciary function will be carried out by respective procurement and financial management related units in DPWH, while the RMC-II will be responsible for contracts management including preparing all the needed procurement documents. RMC II shall also provide support in terms of initial processing/review of billings from contractors and preparation and submission of Statement of Expenditures and Withdrawal Applications to the World Bank. The DPWH Regional Offices (RO) or District Engineering Offices (DEO) shall

serve as the Implementing Office (IO) for the project components. The Mindanao Development Authority (MinDA), as the lead agency for Mindanao's development, is the key government office that the DPWH will be coordinating in the approval of the proposed MTCIP. The LGUs in the project area will be supporting the RMC-II during project implementation.

1.4 Project Location

The proposed MTCIP will improve the Main Corridor, connecting key areas across Mindanao, including six cities and thirteen municipalities in eight provinces: Misamis Oriental, Bukidnon, Davao del Sur, Davao Occidental, Davao del Norte, Cotabato, Sarangani, and South Cotabato. These regions fall under the jurisdiction of Northern Mindanao (Region X), Davao Region (Region XI), and Sarangani (Region XII).

Starting from Cagayan de Oro in the north and ending in General Santos City in the south, the Main Corridor passes through various municipalities and cities, including Manolo Fortich, Sumilao, Impasug-ong, Malaybalay City, Valencia City, Maramag, Quezon, and Kitaotao in Bukidnon. It then moves through Arakan in North Cotabato before entering Davao City, and continues through Sta. Cruz, Digos City, Hagonoy, Padada, Sulop, and Malalag in Davao del Sur, finally reaching Malungon and General Santos City in South Cotabato Province.

Additionally, the three Link Roads branch off from the Main Corridor, located in the northern, central, and southern regions. Link Road 1 is entirely within Impasug-ong, Bukidnon in Region X. Link Road 2 starts at Panabo City, Davao del Norte, and extends into Davao City in Region XI and terminates at the intersection with the MC of Bantol Road. Link Road 3 in the south connects Malungon, Sarangani of Region XII to Sta. Maria, Davao Occidental of Region XI. The entire MTCIP route, including the Main Corridor and three Link Roads, passes through a total of 186 barangays as seen in **Figure 4**. The Main Corridor is accessible to private and passenger cars, motorcycle, tricycle, buses, goods utility vehicles, agricultural and construction vehicles, and specialized vehicles like rigid trucks and truck trailer. The Link Roads is accessed mainly via passenger cars, motorcycle, tricycle, jeepneys, agricultural vehicles, rigid and trailer trucks, and goods utility vehicle.

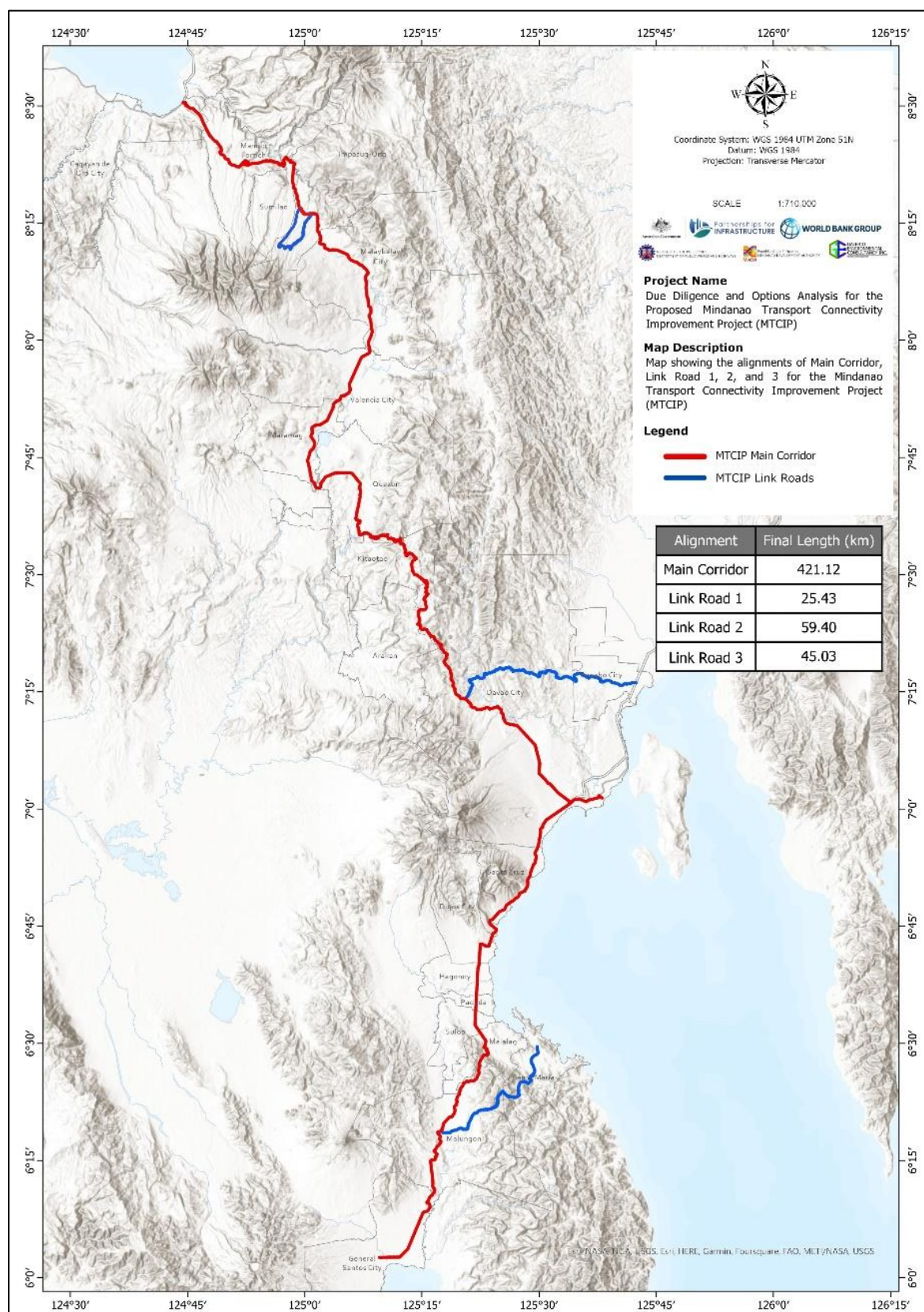


Figure 6. Location Map of MTCIP Source: GECl

SEF Principles and Objectives

Stakeholder Engagement (SE) is an ongoing, organized, and iterative process. The Project recognizes the importance of an inclusive stakeholder engagement process that is implemented throughout the project cycle. An effective stakeholder engagement significantly contributes to successful project design and implementation, ensures environmental and social sustainability of subprojects, includes vulnerable groups, and enhances project acceptance.

The overall objective of this SEF is to define a program and set of guidelines for stakeholder engagement, including public information disclosure and consultation throughout the entire project cycle in careful consideration of the Mindanao context where the project will operate. The SEF outlines the ways in which the DPWH will communicate with stakeholders and will set down guidelines on how to prepare the subproject-level Stakeholder Engagement Plans (SEPs). The SEF includes a Grievance Redress Mechanism (GRM) by which people can raise concerns, provide feedback, or make complaints about the project and any activities related to the project. The SEF specifically emphasizes methods to engage groups considered most vulnerable and that are at risk of being left out of project benefits. To enable effective engagement with key stakeholders, capacity-building programs will be developed including for conflict sensitivity and conflict assessment and if needed, SE specialists will be recruited to assist in the implementation of this SEF.

This SEF is prepared by the Project with the following objectives:

- To establish a systematic approach to stakeholder engagement that will help MTCIP to identify stakeholders and build and maintain a constructive relationship with them;
- To assess the level of stakeholder interest and support for the project and to enable stakeholders' views to be taken into account in the whole project implementation and environmental and social performance;
- To promote and provide means for effective and inclusive engagement with project-affected parties, paying special attention to identified disadvantaged or vulnerable individuals or groups, throughout the project life cycle on issues that could potentially affect them;
- To ensure that appropriate project information on environmental and social risks and impacts are disclosed to stakeholders in a timely, understandable, accessible, and appropriate manner and format;
- To provide project-affected parties with accessible and inclusive means to raise issues and grievances, and allow the Project to respond to and manage such grievances.;
- To provide guidelines in the preparation of subproject-level Stakeholder Engagement Plans (SEP) which takes into consideration the conflict context in the subproject areas to ensure that project activities do not exacerbate existing conflict

The Project shall ensure that the engagement strategies with project stakeholders outlined in this SEF are conducted as a two-way communication process. This SEF will adhere to the following stakeholder engagement guiding principles:

- ***TIMELINESS.*** Begins early in the project planning process to gather initial views on the project proposal and inform project design and is conducted on an ongoing basis as risks and impacts arise;
- ***INCLUSIVITY.*** Culture and gender inclusive and responsive, and tailored to the needs of disadvantaged and vulnerable groups especially the project-affected parties;
- ***TRANSPARENCY.*** Based on the prior disclosure and dissemination of relevant, transparent, objective, meaningful, and easily accessible information in a time frame that enables meaningful consultations with stakeholders in a gender and culturally appropriate format, in relevant local language(s), settings, and understandable to stakeholders;
- ***PARTICIPATIVE.*** Enables the incorporation of all relevant views of affected parties and other stakeholders into decision making, such as project design, mitigation measures, the sharing of development benefits and opportunities, and implementation issues;
- ***FREEDOM FROM COERCION.*** Undertaken in an atmosphere free of external manipulation, interference, coercion, discrimination, and intimidation.
- ***CONFLICT-SENSITIVITY.*** Applies a conflict-sensitive approach including the conduct of conflict assessment to ensure that project activities do not exacerbate existing conflict

Stakeholder Identification and Analysis

Project stakeholders are defined as individuals, formal or informal groups and organizations, and/or governmental entities whose interests or rights will be affected, directly or indirectly by the Project, both positively and negatively, who may have an interest, and who have the potential to influence the Project outcomes in any way. Stakeholders thus include both those who affect and those who are affected by the Project.

In accordance with the ESS10, this SEF categorizes the stakeholders into three groups in order to ensure a more efficient and effective stakeholder engagement:

- **affected parties** - are individuals, groups, local communities, and other stakeholders whose interests or rights will be affected, directly or indirectly by the Project, positively or negatively, who may have an interest, and who have the potential to influence the Project outcomes in any way.
- **vulnerable/ disadvantaged groups** - refers to groups or individuals among the affected parties who may be more likely to be adversely affected by the project impacts and/or more limited than others in their ability to take advantage of a project's benefits.

Vulnerable groups are placed at a disadvantaged position as a result of the barriers they experience to social, economic, political and environmental resources, as well as limitations due to illness or disability. Such an individual/group is also more likely to be excluded from/unable to participate fully in the mainstream consultation process and as such may require specific measures and/or assistance to do so.

- **other interested parties** – are stakeholders who may be interested in the project because of its location, its proximity to natural or other resources, or because of the sector or parties involved in the project. These may be national agencies, local government officials, community leaders, and civil society organizations, particularly those who work in or with the affected communities.

A Stakeholder Identification and Analysis Matrix is presented in Table 1 showing the degree of influence and interest on the project for each identified stakeholder based on the role or potential role of the stakeholder in the Project.

Table 9. Project-level Stakeholder Identification and Analysis Matrix

No.	Stakeholder	Role/Potential Role in the Project	Interest on the project	Degree of influence on the Project
			(High, Medium, Low)	
1.	DPWH (Central Office, Regional Offices and District Engineering Offices)	Main Implementing Agency	High	High
2.	Local Government Units (LGUs) – Provincial, Municipal/City and Barangay	To provide support to the DPWH in the implementation of the project	High	High
Affected Parties				
3.	Private sector users of the roads to be upgraded (Big business owners such as the transport groups, plantation owners, traders, consolidators)	Beneficiaries / their businesses may be disrupted due to the construction activities	High	High
4.	Micro to small scale private companies/enterprises	Beneficiaries / their enterprises may be disrupted due to the construction activities	High	Low
5.	Big Landowners	Beneficiaries/ landowners of subproject site/s	High	High
6.	Warring clans	Beneficiaries/ landowners of subproject site/s	High	High
7.	Contractors	Contractors and subcontractors will be chosen based on the process stipulated in the procurement plan of this project to construct the main corridor and link roads. It is crucial for the Project to engage with the contractors and subcontractors to ensure they abide by the project policies in accordance to the Environmental and Social Framework (ESF) of the World Bank, and national and international regulations applicable to the Project.	High	High
8.	Subcontractors		High	Low
9.	Local communities where the subprojects are located (the Main Corridor and Link Roads 1, 2 & 3)	Beneficiaries / affected local communities may face community, health and safety risks such as: exposure to construction associated risks, such as risks of injuries, gender-based violence (GBV); activity disruption due to noises, dusts,	High	Low

No.	Stakeholder	Role/Potential Role in the Project	Interest on the project	Degree of influence on the Project
			(High, Medium, Low)	
		operationalization of heavy vehicles within and/or near facility premises; and accessibility of the facilities in the case that facilities need to be relocate		
Disadvantaged/ Vulnerable individuals or groups				
10.	Indigenous Peoples Muslim Ethnic groups Persons with Disabilities Women Children especially in conflict areas Pregnant women Solo-parents/single-headed households Informal Settler Families Small farmers Landless farmers Income Poor Refugees/Internally Displaced Persons	Beneficiaries/ affected households	High	Low
Other interested parties				
11.	Mindanao Development Authority (MinDA)	Approval of the Project	High	High
12.	National Commission on Indigenous Peoples (NCIP)	NCIP is a key partner of the Project as it is anticipated that subprojects may have Indigenous Peoples as beneficiaries and/or as project affected stakeholders. Collaboration with the NCIP is needed for the conduct of Free Prior Informed Consent (FPIC) and issuance of Certificate of Precondition (CP).	Medium	High
13.	Department of Environment and Natural Resources (DENR) and its various Bureaus: <ul style="list-style-type: none"> Environmental Management Bureau (EMB) Forest Management Bureau (FMB) Biodiversity Management Bureau (BMB) Land Management Bureau (LMB) Mines and Geosciences Bureau (MGB) 	<p>The DENR is the primary agency responsible for the conservation, management, development, and proper use of the country's environment and natural resources, specifically forest and grazing lands, mineral resources, including those in reservation and watershed areas, and land of public domain, as well as in the licensing and regulation of all natural resources as may be provided for by law in order to ensure equitable sharing of the benefits derived therefrom for the welfare of the present and future generations of Filipinos.</p> <p>The various Bureaus will need to issue various permits and clearances as applicable to ensure compliance to national laws and the social and environmental standards set by the Project.</p> <p>The EMB is the one who issues the Environmental Compliance Certificate (ECC).</p> <p>Timberlands are managed by the Forest Management Bureau (FMB). FMR issues tree cutting permits.</p> <p>Protected Areas falls under the management of Biodiversity Management Bureau (BMB). BMB</p>	Medium	High

No.	Stakeholder	Role/Potential Role in the Project	Interest on the project	Degree of influence on the Project
			(High, Medium, Low)	
		<p>issues the necessary clearances such as the Special Use Agreement in Protected Areas (SAPA).</p> <p>The Land Management Bureau (LMB) is responsible for administering, surveying, managing, and disposing Alienable and Disposable lands and other government lands not placed under the jurisdiction of other government agencies.</p> <p>The Mines and Geosciences Bureau (MGB) is mandated of taking direct charge in the administration and disposition of mineral lands and mineral resources; promulgate rules and regulations, policies and programs relating to mineral resources management and geosciences developments.</p>		
14.	Philippine Coconut Authority	Issuance of Cutting Permit for coconuts	Medium	Medium
15.	Department of Labor and Employment-Bureau of Working Conditions (DOLE-BWC)	Department of Labor and Employment-Bureau of Working Conditions (DOLE-BWC) shall issue the necessary permits and clearances as mandated by law.	Medium	High
16.	Civil Society Organizations (CSOs) and Non-Government Organizations (NGOs)	Provide support and assistance to DPWH and LGUs in stakeholder engagement, implementation of resettlement plans, indigenous peoples plans, gender-based violence action plans and project monitoring and evaluation	High	Medium
17.	Host communities of relocatees	Community's acceptance to host the relocatees is essential to ensure integration and to sustain the resettlement	Medium	Medium
18.	Armed groups/terrorist groups	Could potentially disrupt project implementation and exacerbate existing conflict in the area	Low	High

Based on the results of the Stakeholder Identification and Analysis Matrix, a Framework for Stakeholder Mapping is presented in **Figure 7** as basis to determine the stakeholder engagement activities and methods of engagement best suited for each stakeholder category during the project preparation and implementation. A stakeholder map is a visual representation with four-quadrants used to identify stakeholders and categorize them in terms of their influence and interest in the project. Stakeholders are plotted on this map depending on how they fall on these two parameters.

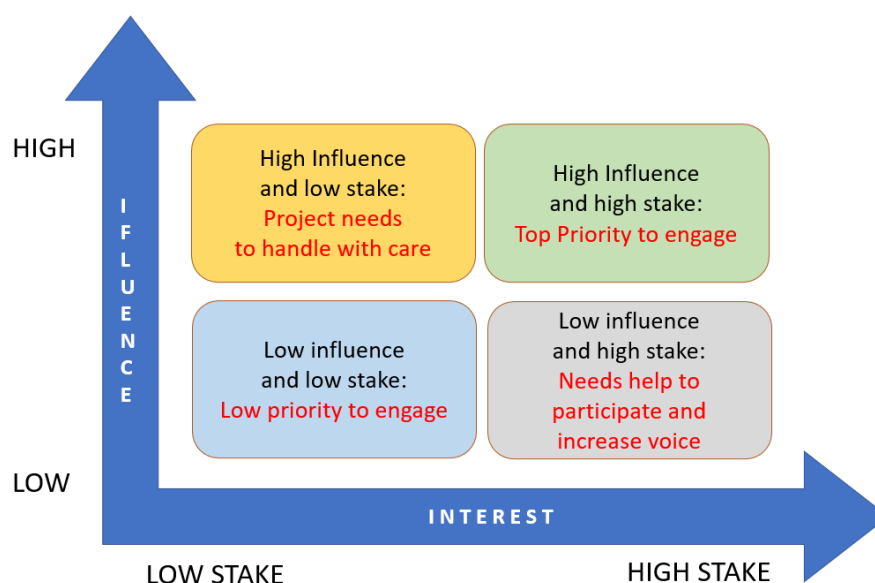


Figure 2: Framework for determining stakeholder engagement activities²¹

As an illustration, the vulnerable groups fall under the quadrant low influence but have high stake. Their participation is important to the project but have low influence, hence the project would need to adopt specific methods of engagement to enable them to take part in the project processes and raise their voices so as to be heard. While the stakeholders under high influence and high stake quadrant are considered top priority such as the MinDA, LGUs, Contractors, big landowners, private sector who are users of the road with big businesses among others. Specific methods of engagement shall be implemented to ensure their participation. Armed groups/terrorist groups were identified under high influence but they have low stake in the project. Such groups may cause disruption or suspension of works hence the project needs to handle with care such stakeholders. The project needs to involve technical experts in such cases.

Stakeholder Engagement Program

The Stakeholder Engagement Program for MTCIP consists of two levels: first at the project level during project preparation and then at the subproject-level to be done during project implementation.

4.1 Project-Level Engagement at Project Preparation

The Project has conducted a series of stakeholder engagement activities such as public consultations, focus group discussions (FGDs) and key informant interviews (KIIs) from September to October 2023 (see Table 2). The stakeholder engagement activities covered

²¹ Based on the following references: World Bank. (2003). Social Analysis Sourcebook. Washington, DC. And International Atomic Energy Agency. (2023). Stakeholder Analysis. Retrieved from [Stakeholder Analysis | IAEA](#).

MTCIP areas, i.e. Cagayan de Oro City, Bukidnon, Davao City, Davao del Norte, Davao Occidental, Davao del Sur, and General Santos City – with a total of 290 participants with 135 male, 152 female and 3 LGBT coming from DPWH RO/DEO, MinDA, LGUs and sectoral representatives such as women, youth, IPs, senior citizens, business sector, peace and security sector.

Table 10. Summary of MTCIP Stakeholder Engagement Activities during project preparation

Activities	Date/s	Participants		
		Male	Female	LGBT
Public Consultations	September 26 to 29, 2023	116	124	2
Key Informant Interviews (KII)	October 16 and 19, 2023	7	1	
Focus Group Discussion (FGD)	October 17, 18, and 20, 2023	12	27	1

DPWH-UPMO spearheaded eight (8) public consultations attended by representatives from DPWH regional and district offices, LGUS (barangay, municipal/city, province), sectoral groups (youth, women, elderly and religious). DPWH-UPMO responded to stakeholder's concerns on a) RROW process, replacement costs and compensation, b) design or plan for the road improvements in the main corridor and link roads, c) process for the social and environmental assessment and the WB ESSs compliance, d) coordination with NCIP for IPs/ICCs and conduct of FPIC, and e) inclusion of the recommendations in the option analysis for main corridor and link roads.

A paper-based questionnaire with 12 major inquiries guided the FGD sessions, and was accomplished through the facilitation of GECl Consultants. Three (3) half-day FGD sessions were conducted, and involved a total of 12 males, 27 females and 1 LGBT officials from the LGUs planning and development offices, barangay executive and legislative councils, senior citizen associations, women federations, farmers cooperatives, tribal council of elders, and business chambers. The FGD sessions elicited the past experiences and current challenges in using the main corridor and link roads, suggestions on how MTCIP project can address their identified concerns and issues, and their preferred involvement in the project. The participants shared insights about MTCIP project objectives, phases and proposed options for the main corridor and link roads improvement, RROW, compensation, conduct of environmental and impact assessment, local conflict situation, presence and development plan for IPs/ICCs, and local government road development plans.

The FGD questionnaire was also used in the KIIs to seek opinion of the ranking officers from the military and army offices of the Philippine government. A total of 1 female and 7 male officers were interviewed, whom stationed in military camps with jurisdiction over Bukidnon, Davao and Sarangani Provinces. The officers expressed support to MTCIP, and count upon its objectives to compliment the military program on peace and security in the project areas. The officers shared insights on the peace and order situation in the remote areas, and how their current initiatives are gaining the confidence of the communities for better government services and livelihood opportunities.

Key issues and concerns raised during the various stakeholder engagement activities include the following:

- compensation for land acquisition, road right of way acquisition, affected structures, crops and trees considering the different types of land ownership in the subproject sites;
- relocation of displaced households;
- road design specifications such as road width and road safety measures;
- provisions for addressing drainage system, flood prone areas, landslide prone areas, sharp curves, narrow ridges;
- reduction of environmental impacts such as avoiding traversing mountains and landslide-prone slopes;
- policy for preferential hiring of laborers from the community
- community health and safety concerns during construction such as road access, materials stockpile area, proximity to residential community, religious places, and economic enterprises, presence of cultural/historical sites, and trees/crops, that may be affected by the project;
- avoidance of loss of assets in ancestral lands by re-routing;
- proper observance of the FPIC in ancestral domain areas;
- lifespan and durability of road averting incomplete road projects by DPWH and recurring road repairs despite concrete pavement with 20-30 years lifespan;

Participants in the various stakeholder engagement activities were assured by DPWH, as implementing agency, that aforementioned concerns and issues will all be taken into consideration during the subproject Feasibility Study and Detailed Engineering Design stages as well as in the formulation of appropriate mitigation measures to address identified possible social and environmental risks and impacts. (see Annexes 1 to 3 for the documentations)

4.2 Project-level Consultation Strategies

The results of the identification, analysis, mapping and categorization of the stakeholders are used to identify the appropriate consultation strategies during the various stages of the Project as presented in Table 3. The DPWH, with support from the LGUs, is responsible for communicating to specific stakeholders the modality of consultation, date, time, location and purpose of consultations to be conducted ensuring participation and inclusion of vulnerable groups.

Table 11. Project-level Summary Table of Consultation Strategies

Target Stakeholders	Topic/ consultation message	Method used	Responsible Unit/Entity	Frequency/ Timeline
Project Preparation				
Mindanao Development Authority (MinDA)	Project design and detailed site-specific activities and locations	Coordination meetings	DPWH – UPMO – RMC – II PIU	Prior to loan effectiveness
Local Government Units (LGUs)	Project design and detailed site-specific activities and locations	Coordination meetings	DPWH – UPMO – RMC – II PIU and IO (Regional or District Engineering Office)	Prior to loan effectiveness

Target Stakeholders	Topic/ consultation message	Method used	Responsible Unit/Entity	Frequency/ Timeline
Relevant government agencies (i.e. NCIP, DENR)	Project design and permits/ clearances that need to be secured; data on indigenous peoples, protected areas and other relevant data	Coordination meetings	DPWH – UPMO – RMC - II PIU	Prior to loan effectiveness
Potential Project Affected Persons (PAPs)	Project design and detailed site-specific activities and locations, including preliminary land due diligence	Focus group discussion, survey, and/or interviews	DPWH and LGU	Prior to loan effectiveness or during RAP preparation
Local communities	Project design, possible risks and impacts of the project to the community, Discuss about initial DED for finalization of ESMP, GRM, project, benefits	Community assemblies	DPWH and LGU	Prior to the finalization of DED and site-specific ESMPs
Indigenous Peoples communities	Project design, possible risks and impacts of the project to the community Discuss about initial DED for finalization of ESMP; risks and impacts of the project, GRM, project, benefits	Community assemblies Focus Group Discussions Interviews/ house-to-house	DPWH and LGU and NCIP	Prior to the finalization of DED and site-specific ESMPs
Project Implementation				
MinDA	Project updates	Coordination meeting	DPWH	Quarterly
LGUs	Project implementation activities, preparation of municipal/city-level SEPs, RAPs (if applicable)	meeting	DPWH	Ongoing throughout the project cycle
Relevant government agencies (i.e. NCIP, DENR)	Relevant permits/ clearance	Meetings	DPWH	As needed
Local communities	Compliance of Contractors to the site-specific ESMP; concerns and issues arising during construction Monitoring the effectiveness of mitigating measures and addressing grievances on the community health Impacts	Public consultations, focus group discussions, coordination with community leaders	DPWH and LGUs	Ongoing throughout the project cycle
Indigenous Peoples communities	Risks and mitigation measures, Free Prior and Informed consent processes, formulation of Indigenous Peoples Plan (IPP)	Community assemblies Focus Group Discussions Interviews/ house-to-house	DPWH / LGUs / NCIP	Ongoing throughout the project cycle
Project Affected Persons (PAPs)	Impact and mitigation measures, Resettlement Action Plan (RAP), entitlement survey, right to compensation	Survey Interview	DPWH and LGUs	Ongoing throughout the project cycle
Host communities	Families to be resettled in their community	Focus group discussion/ community assembly	DPWH and LGUs	Ongoing throughout the project cycle
Contractors	Progress updates, compliance to environmental and social standards, implementation of site-specific ESMPs, quality of works	Coordination meetings	DPWH – UPMO – RMC - II PIU and IO (Regional or District Engineering Office)	Ongoing throughout the project cycle
Vulnerable groups	Compliance of Contractors to the site-specific ESMP; concerns and	Focus Group Discussions	DPWH and LGUs	Ongoing throughout the project cycle

Target Stakeholders	Topic/ consultation message	Method used	Responsible Unit/Entity	Frequency/ Timeline
	issues arising during construction; Monitoring the effectiveness of mitigating measures and addressing grievances on the community health impacts	Interviews/ house-to-house		
Project Completion				
MinDA, LGUs, national government agencies, community representatives, NGOs/CSOs	Project completion, quality of works, monitoring and evaluation	Workshops, meeting and FGDs, site-inspection	DPWH	Periodic inspection

4.3 Subproject-level Stakeholder Engagement Plan (SEP)

The DPWH Implementing Offices (Regional Office and DEO) with the Local Government Units (City or Municipal) who are involved in the Project must develop subproject-level stakeholder engagement plans prior to project implementation, preferably within the first year, and should be continuously updated throughout the project cycle as needed. The subproject-level stakeholder engagement plans (SEP) should be guided by this SEF, ensuring that their preparation and implementation adhere to the principles stated in this SEF including promoting participatory, inclusive, and transparent processes. The subproject-level stakeholder engagement plans (SEP) shall take into consideration the strategies stated in this SEF including the conduct of a stakeholder identification and analysis similar to Section 3 and the incorporation of views of vulnerable groups, Indigenous Peoples and in projects sites with a history of conflict or are conflict-affected areas as outlined below. Annex 5 provides a recommended outline and guidelines in developing the subproject-level SEP.

4.4 Ways to incorporate the views of vulnerable groups.

The project will seek the views of Indigenous Peoples, PWDs, Sexual and gender minority, senior citizens, and people with existing medical conditions, and all the other vulnerable groups identified through public consultations, focused group discussions, surveys, etc. To address the need for a differentiated approach in terms of gender and sexual orientation as well as PWDs, the following measures are recommended to be adopted during the conduct of consultations and engagement activities:

- **Gender-sensitive and person-first language.** Language used and texts referring to or addressing both women and men must make women and men equally visible. This applies to, amongst others, forms, documents, posters and language used during consultations. Attention must also be paid to a gender-sensitive choice of images when preparing information and education materials related to the project. Language that is respectful to LGBTQI individuals/SGM groups also needs to be used. For persons with disabilities (PWDs), derogatory forms of addressing and referring will be avoided, with the use of person-first language adopted in official communication and engagement activities.
- **Disaggregated data collection and analysis.** Data must be collected, analyzed and disaggregated by gender to enable gender-sensitive data analysis as a basis for decision-

making. When applicable, data should also be disaggregated to determine representation of indigenous peoples, PWDs, and/or senior citizens.

- **Equal access to project benefits and utilization of services from the subprojects.** Social assessments and consultations during subproject preparation and implementation must assess the different needs and effects on women and men so that benefits could be equally accessed by both men and women.
- **Balanced gender ratio.** Balanced gender ratio in critical subproject activities such as decision-making processes, consultations, meetings among others. Gender balance is defined as an approximately equal number of men and women referring to participation and input into activities and decision-making to ensure that both male and female interests are considered and protected.

Further, the following methods of engagement and measures will be taken in order to remove obstacles to full and enabling participation / access to information as presented in **Table 12**.

Table 12. Methods of engagement among vulnerable groups

No.	Disadvantaged or Vulnerable Groups	Characteristics	Limitation	Issues of interest or Concern	Methods of Engagement (aside from those identified in Table 4: SEP Summary Table)
1.	Indigenous Peoples (IPs)	IPs in the Philippines have unique cultures and way of life different from the mainstream society. They have a symbiotic relationship with their environment where land is closely connected to their lives. IPs have been historically and continue to be marginalized.	Language barrier Cultural barrier Often faced with discrimination	Right to their ancestral domains/lands, possible displacement, risks to their cultural heritage, encroachment to their ancestral domains/lands, depletion of their natural resources	Make use of existing indigenous structures and mechanisms when engaging Use IP language Venue of consultations should preferably be within their community area
2.	Muslim ethnic groups	In the Mindanao region, decades of fighting between government and Moro-Muslim separatist groups have resulted in mass displacements affecting mostly Muslim communities.	Language barrier Cultural barrier Often faced with discrimination	Some of the muslim ethnic groups are informal settlers in the project areas. They may potentially be physically and/or economically displaced.	Make use of existing/recognized leadership structures and mechanisms when engaging Use local language Venue of consultations should preferably within their community area
3.	Persons with disabilities (PWDs)	PWDs include those who have long term physical, mental, intellectual or sensory impairments which in interaction with various barriers may hinder their full and effective participation in society in equal basis with others.	Limited capabilities may result in them not being able to participate in group meetings, and may also not be able to read emails/infographics about the project; fear of discrimination	Access to project information and benefits	Venue of meetings and consultations should be accessible to PWDs to ensure inclusion and participation Provide information in accessible formats, like braille, large print; offer multiple forms of communication, such as text captioning or signed videos, text captioning for hearing impaired, online materials for people who use assistive technology
4.	Sexual and Gender Minorities such as LGBTQI	People who are often prone to sexual harassment, abuse, bullying, and discrimination from public consultations	At risk to be victims of discrimination from public and gender-based violence	Due to the current cultural norms in the Philippines, male dominance is still prevalent among the local construction industry; LGBTQI population may be subjected to discrimination and harassment	Use gender-sensitive language applied to project forms, documents, posters, infographics and language used during consultations. Conduct seminar for the Sexual and Gender Minority groups for them to be informed about what they can do and where they can go for help when they experience harassment and/or abuse
5.	Senior citizens and people with existing medical conditions	60 years old and above, those who suffer from chronic diseases and are immunocompromised	Mobility and participation in consultations	Access to project information and benefits	Invite senior citizens and their guardian/s to the stakeholders' meeting.

No.	Disadvantaged or Vulnerable Groups	Characteristics	Limitation	Issues of interest or Concern	Methods of Engagement (aside from those identified in Table 4: SEP Summary Table)
					Provide visible/clear flyers/tarpaulins in project sites for proper information about the safety measures that should be observed while construction is on-going.
6.	Women	Women are often stereotyped with preconceived attributes or roles that perpetuate inequalities.	Gender norms often limit participation of women especially in leadership roles and decision-making processes.	Access to project information and benefits; safety of women and children during construction activities	Take into consideration that women will bring their children during consultation meetings, ensure venue is conducive for children Time of consultations should consider the schedules of women who often do both productive and reproductive work.
7.	Children especially those in conflict areas	Most vulnerable especially in conflict areas as children are dependent on adults such as their parents and/or guardians, could be orphaned, at risk of SEA/SH, stop attending school, could be malnourished	Needs to be accompanied by parents and/or guardians during consultations	Access to project information and benefits; safety of during construction activities; child labor	Conduct meetings with the Parents/guardians about the possible risks of the project to their children and how will the Project avoid and/or mitigate the possible risks and impacts. Design information and communication materials in a child-friendly manner, including testing of advocacy materials with children and young adults as respondents to get their perspective and ensure these materials are age-appropriate. Provide parents with skills to gather and promote children's voices, best interest, perspectives and participation during community assemblies. mobilize capacity as needed to be able to safely engage children Conduct focus group discussion for children and teenagers using child friendly techniques/methods.
8.	Pregnant women	Sensitive health conditions at various stages of the pregnancy	Mobility and sensitive to the environment (dust, noise)	Susceptible to air, water, and land pollution that may be caused by the construction. Construction hazards could cause accidents that will place pregnant women and their unborn child more at risk	Provide face masks during consultations Develop educational materials for basic hygiene, infectious diseases, and hotlines for emergencies.

No.	Disadvantaged or Vulnerable Groups	Characteristics	Limitation	Issues of interest or Concern	Methods of Engagement (aside from those identified in Table 4: SEP Summary Table)
				compared to the rest of the population	Ensure consultations and meetings are accessible and conducive for pregnant women.
9.	Informal Settler Families	Households living in a lot, whether private or public, without the consent of the property owner; or those without legal claim over the property they are occupying	Limitation in participating in consultation activities due to work/have to earn for their daily needs	Right to be relocated with due process; relocation site should be near their sources of livelihood and other basic services	<p>Ensure venue is accessible</p> <p>Time of consultation takes into consideration that they have to earn for their daily needs, house-to-house interview should be considered</p> <p>Use language that is understandable and manner of facilitation encourages participation and should not be intimidating</p>
10.	Smallholders and family farmers	Produce relatively small volumes on relatively small plots of land, generally less well-resourced than commercial-scale farmers; uses mainly family labor for production and using part of the produce for family consumption.	Limitation in participating in consultation activities due to work/have to earn for their daily needs	Restrictions in land use and/or displacement from their farm lots	<p>Ensure venue is accessible</p> <p>Time of consultation takes into consideration that they have to earn for their daily living, house-to-house interview should be considered</p> <p>Use language that is understandable and manner of facilitation encourages participation and should not be intimidating</p>
11.	Landless farmers	Farmers who do not own the land they cultivate and thus often live below the poverty threshold, are often those who could be eligible as agrarian reform beneficiaries	Limitation in participating in consultation activities due to work/have to earn for their daily needs	Access to project information and benefits	<p>Ensure venue is accessible</p> <p>Time of consultation takes into consideration that they have to earn for their daily needs, house-to-house interview should be considered</p> <p>Use language that is understandable and manner of facilitation encourages participation and should not be intimidating</p>
12.	Income poor households	Households whose income is below the poverty threshold	Limitation in participating in consultation activities due to work/have to earn for their daily needs	Access to project information and benefits	<p>Ensure venue is accessible</p> <p>Time of consultation takes into consideration that they have to earn for their daily needs</p> <p>Use language that is understandable and manner of facilitation encourages participation and should not be intimidating</p>

No.	Disadvantaged or Vulnerable Groups	Characteristics	Limitation	Issues of interest or Concern	Methods of Engagement (aside from those identified in Table 4: SEP Summary Table)
13.	Solo parent/Single-headed household	A parent or any legal guardian, adoptive or foster parent who provides sole parental care and support of the child or children or as defined in RA 11861 of 2022.	Limitation in participating in consultation activities due to work and household duties	Access to project information and benefits	<p>Ensure venue is accessible</p> <p>Time of consultation takes into consideration that they have to earn for their daily living, house-to-house interview should be considered</p> <p>Take into consideration that solo-parents will bring their child/children during consultation meetings, ensure venue is conducive for children</p>
14.	Refugees and/or internally displaced persons (IDPs)	IDPs are those forced to leave their home but who remain within their country's borders while refugees are forced to leave their country in order to escape war, persecution or natural disaster.	Limitation in participating in consultation activities due to discrimination	Security of land and housing tenure, livelihood, safety and their well-being, access to project benefits	<p>Provide a safe environment during conduct of consultations.</p> <p>Ensure venue is accessible</p> <p>Time of consultation takes into consideration that they have to earn for their daily needs, consider house-to-house interviews</p> <p>Use language that is understandable and manner of facilitation encourages participation and should not be intimidating</p>

4.5 Ways to incorporate the views of Indigenous Peoples

The project shall undertake meaningful consultations with Indigenous Peoples communities that are culturally appropriate and gender and intergenerationally inclusive manner as described in the project's IPPF. The key engagement strategies and processes that the Project shall employ are as follows:

- a. make use of existing indigenous structures and mechanisms such as but not limited to, their Indigenous Knowledge Systems and Practices (IKSPs) and Indigenous Political Structure (IPS) making sure the participation of representative bodies and organizations (e.g. councils of elders or chieftains) and, where appropriate, other community members
- b. Use the language of the Indigenous Peoples during consultation processes
- c. Provide sufficient time for Indigenous Peoples Communities' decision-making processes
- d. Allow for Indigenous Peoples Communities' effective participation in the design of the roads and/or mitigation measures that could potentially affect them either positively or negatively.

4.6 Proposed strategy for stakeholder engagement in conflict areas

To better understand the needed strategies for stakeholder engagement in conflict areas, below is a brief conflict context in Mindanao specifically in the MTCIP project areas.

The Philippines faces multiple security concerns, ranging from the existence of lawless armed groups, armed revolutionary groups, terrorist and violent extremist. Conflict has been a long-standing feature in the Philippines especially in the regions of Mindanao, with one of the longest-running communist insurgencies in the world, and a number of other types of conflict and violence. Currently the main types of violence and conflict include: inter-clan violence, violence by state actors against civilians, a communist-inspired guerilla campaign in the northeastern section of Mindanao, violent extremist and criminal groups, violence around elections, and local conflicts over land, resource and community rights. Domestic and gender-based violence also tends to be higher in Mindanao. Land dispossession and loss of ancestral homelands of indigenous Muslims by Christian migrant settlers in Mindanao is a core grievance. It is framed as the “colonial and neo-colonial occupation of Mindanao” by the Spanish, Americans, Japanese and Philippines Republic, which has resulted in historical injustices, political disenfranchisement, economic marginalization, social disintegration, and cultural alienation. “Imperial Manila” is also blamed for sponsoring the Christians' mass migration into Mindanao.

The degree and magnitude of conflict in Mindanao vary depending on the geographic location with Bangsamoro Autonomous Region in Muslim Mindanao (BARMM) particularly being a more sensitive area. MTCIP covers Regions X, XI and XII and will not enter areas with deep conflict.

Inter-ethnic conflict may arise due to the different customary laws, practices, and traditions of the affected populations. Some ethnic groups in Davao City, Davao Occidental, and Saranggani have embraced Islam. On the other hand, IP groups such as Matigsalogs and Higa-onon in Davao City and Bukidnon observe their own cultural practices and live in a communally-owned ancestral domain, which may exclude other ethnic groups, such as Islamized ethnic communities.

Reported ambushes and skirmishes in remote areas in Region X (particularly Misamis Oriental and Bukidnon) raise threats to local populations. The MTCIP may be stopped or significantly delayed due to these security concerns, or may worsen the conflict because of competing interests or access to resources.

MTCIP project regions' current poverty incidence is 38% along the Main Corridor, 40% on Link Road 1, 40% on Link Road 2, and 45% on Link Road 3. A high poverty incidence among the three regions in the MTCIP lead to competition for scarce resources among populations who have basic needs such as food, education, health and shelter. Conducting meaningful consultations will be critical in avoiding conflict over issues of inequitable distribution of benefits and unjust compensation for affected properties.

Conflict drivers include 1) poverty, lack of opportunities, and further marginalization, 2) a weak justice system, impunity and lack of accountability, lack of transitional justice; 3) human rights violations, killings and harassments of civil society representatives, human rights defenders, and the lack of implementation of indigenous peoples rights; 4) political competitions, the dominance of patronage networks; 5) land dispossession, lack of land recognition, and unequal land tenure system, 6) poor or exploitative models of natural resources management; and 7) the on-going communist insurgency and the unlikelihood of a peace negotiation on this front in the near future.

The MTCIP shall be mindful of the conflict drivers identified, specifically, of causing land dispossession when undergoing land acquisition for activities. For the implementation of activities, it is important to engage barangays, particularly the local peace and order committees, as they are tasked to monitor the peace and security situation in the villages. Of particular importance are the Geographically Isolated and Disadvantaged Areas (GIDA) and IP communities (which often overlap), as they are vulnerable to disinformation and exploitation by scrupulous individuals provoking conflict to advance economic and political gain. It is also important to respect IP decision-making processes by collaborating with the IP Mandatory Representative at the municipal/city level, and the Tribal Councils at the barangay levels. A functional Grievance Redress Mechanism (GRM), where complaints can be lodged and settled at the lowest level possible is important.

The following are the proposed strategies for stakeholder engagement in conflict areas:

- Screening for conflict as part of the FS and DED preparations shall include an assessment of the presence or absence of conflict in the area. It shall further determine if project activities could trigger and/or exacerbate the identified conflict in the area
- Conduct a conflict assessment including a conflict-sensitive stakeholder identification and analysis to determine the key actors as well as vulnerable groups. This conflict assessment will then be used to ensure that risks related to exacerbating the conflict are identified, addressed and mitigated through the conduct of social preparation and continuous dialogue with relevant parties as identified in the stakeholder analysis. Social preparation activities shall be undertaken by the LGU with DPWH IOs (Region or DEO) with guidance from the DPWH PIU.
- As a matter of protocol, conduct consultations that are timely and properly coordinated with the local government and local community leaders; strictly follow safety protocols such as curfew set by the LGU;
- For far flung areas that may have no internet connectivity or even mobile phone signal, the Project may consider using 2-way radios which is already a practice during times of disaster and calamities to ensure communicate at all times. Some LGUs may already have such devices/equipment that can be used during the project implementation.

- Hire conflict specialists and deploy project staff/consultants who are familiar with the dynamics in the areas; trainings related to conflict sensitivity and conflict assessment may need to be conducted among project staff first

Information Disclosure

The DPWH shall ensure proper disclosure of relevant information about the project in a timely manner. Information disclosure promotes transparency, accountability, accessibility to information, public dialogue and engagement with stakeholders. Consistent with ESS10, information disclosure supports decision making by the Project by allowing the public access to information on environmental and social aspects of the project. The means by which the Project complies with the disclosure policy would include the following: conduct of meaningful consultation processes; disclosure of pertinent project documents at the DPWH and World Bank websites; posting of project information at the subproject sites.

Information should be presented in the most accessible format and language possible, adapted to literacy levels within each group. It should also be adapted for those who are sight or hearing impaired. The Project shall disclose project information to allow stakeholders to understand the risks and impacts of the subprojects, and potential opportunities. The Project will provide stakeholders with access to the following minimum information as early as possible and in a time frame that enables meaningful consultations with stakeholders. The information disclosure strategies are presented in **Table 13**.

- The purpose, nature, and scale of the project;
- The duration of proposed project activities;
- Potential risks and impacts of the project on the school, local communities, and the proposals for mitigating these risks and impacts, highlighting potential risks and impacts that might disproportionately affect vulnerable and disadvantaged groups, and describing the differentiated measures taken to avoid and minimize these;
- The proposed stakeholder engagement process highlighting the ways in which stakeholders can participate;
- The time and venue of consultation meetings, and the process by which meetings will be notified, summarized, and reported; and

The process and means by which grievances can be raised and will be addressed.

Table 13. Information Disclosure Strategies

Project Stage	Topic/ consultation message	Target Stakeholder	Method used	Responsible Unit/Entity	Frequency/ Timeline
Project preparation	Proposed project design Environmental and Social Commitment Plan (ESCP) Environmental and Social Management Framework (ESMF) and other E&S instruments (i.e. IPPF, LMP, RPF)	Identified project stakeholders (listed in Table 1)	Conduct of meaningful consultations especially for the vulnerable groups Disclosure of document at the DPWH and WB website. Stakeholders can submit their feedback and comments thru the following link: https://www.dpwh.gov.ph/dpwh/contact	DPWH PIU	Prior to project appraisal

Project Stage	Topic/ consultation message	Target Stakeholder	Method used	Responsible Unit/Entity	Frequency/ Timeline
	SEF (including GRM)				
Project Implementation	Subproject-level SEPs Project-level GRM Site-specific ESMPs covering the following topics among others: <ul style="list-style-type: none"> Construction schedule Demolition works temporary disruption of businesses, enterprises, utilities, road traffic Road safety measures Siting of workers' camps Road right of way acquisition Physical and/or economic displacement 	Identified subproject stakeholders (listed in Table 1)	Conduct of meaningful consultations and meetings; Focus group discussion for vulnerable groups (i.e. PWDs, Seniors) and for IP communities Infographics/ flyers in local languages GRM tarpaulin containing necessary information in local language Disclosure at DPWH website	DPWH PIU IOs (Regional and DEO) with LGUs	All throughout project implementation
	Detailed Engineering Designs (DEDs)	Identified project stakeholders (listed in Table 1)	Conduct of meaningful consultations and meetings; Focus group discussion for vulnerable groups (i.e. PWDs, Seniors) and for IP communities Disclosure at DPWH website	DPWH PIU IOs (Regional and DEO)	All throughout project implementation
	Progress of construction	Identified project stakeholders (listed in Table 1)	Barangay/community assemblies Barangay information boards Project Billboard Announcements through roving vehicles with loudspeaker Infographics/ flyers in local languages	DPWH PIU IOs (Regional and DEO)	All throughout project implementation
	Monitoring and evaluation	Identified project affected parties (see table 1)	Conduct of meaningful consultations and meetings; Focus group discussion for vulnerable groups (PWDs, Seniors) and for IP communities Satisfaction surveys Community assemblies	DPWH with an External Monitoring Agent (EMA)	Baseline (start of project), Mid-term, and end-stage
Project Completion	Project completion date, quality of works, monitoring and	Identified project stakeholders (listed in Table 1) and	Disclosure of project completion details in DPWH website Disclosure of M&E results at DPWH website	DPWH with an External Monitoring Agent (EMA)	End-stage

Project Stage	Topic/ consultation message	Target Stakeholder	Method used	Responsible Unit/Entity	Frequency/ Timeline
	evaluation (M&E) results	the general public	Community assemblies		

Institutional Arrangement and Resources for implementing stakeholder engagement

The DPWH PIU Environmental and Social Service Unit (ESSU) will be in charge of stakeholder engagement activities. The overall responsibility for SEF implementation lies with the MTCIP Project Implementing Unit (PIU) Project Director. The entities responsible for carrying out stakeholder engagement activities are DPWH PIU and Implementing Offices (Regional or District Engineering Offices) with support from the LGUs. To enable effective engagement with key stakeholders, capacity building of DPWH staff involved in the Project and recruitment of Stakeholder Engagement specialist/s will be deployed in assisting implementation of this SEF and in the formulation of the subproject-level SEPs.

The stakeholder engagement activities will be documented through a documentation in the form of minutes of the meeting. This shall include at the very least, the following information:

- Date, time, place/venue of the consultation
- Gender-disaggregated data on the attendees/participants (positions, and functions will be disclosed depending on the level of confidentiality, complexity of the issue, context/security)
- discussion points including concerns raised, appreciation/commendation, agreements and ways forward.

The budget estimate for the preparation and implementation of the SEF is around 39 million pesos. The budget breakdown can be found in Annex 6.

Grievance Redress Mechanism (GRM)

7.1 Objectives and Core Principles

7.2

The project's Grievance Redress Mechanism (GRM) will address stakeholders' feedback, concerns and complaints promptly, using a transparent process that is responsive, culturally appropriate, and readily accessible to all project stakeholders at no cost and without retribution. The GRM will be communicated to the various identified stakeholders of the project. A separate grievance redress mechanism for the workers is established to address their complaints and is described in the Labor Management Procedures (LMP).

The Project shall uphold the following core principles in establishing and implementing a functional and effective Grievance Redress Mechanism (GRM):

1) Fairness and Objectivity. Grievances received shall be treated confidentially, assessed impartially, and handled transparently. The GRM shall operate independently of all interested parties to guarantee fair, objective and impartial treatment of each case.

2) Simplicity and accessibility. The Project shall ensure that the procedure to file grievances and seek action are simple enough that project stakeholders can easily understand and follow the procedures. The GRM shall be made known to the public and accessible to all stakeholders, irrespective of the remoteness of the area they live, language they speak and education or income they have. Special attention is given to ensure that disadvantaged or vulnerable groups and Indigenous Peoples communities including those with special needs, are able to access the GRM.

3) Responsiveness and efficiency. The GRM shall be designed to be responsive to the needs of all complainants. The Project shall ensure that officials and personnel handling grievances are trained to take effective action upon and respond quickly to grievances and suggestions. All grievances, simple or complex, are addressed and resolved as quickly as possible. Actions to be taken on grievance or suggestion shall be swift, decisive and constructive.

4) Participatory and Inclusive. The GRM of the Project shall ensure that a wide range of project stakeholders are encouraged to bring their grievances and comments to the attention of the Project Management. The Project shall create an environment where project stakeholders feel secure to participate without fear of intimidation or retribution. The GRM shall be designed to take into account culturally appropriate ways of handling community concerns in a form and language(s) understandable to the concerned person. The GRM shall offer a variety of approaches to ensure social and cultural appropriateness especially in handling sensitive cases such as gender-based violence (GBV) and Sexual exploitation and abuse and sexual harassment risks (SEA-SH) incidents and SOGIE-related complaints.

5) Proportionality. The scope, form, and level of complexity of a project grievance mechanism should be proportionate to the potential adverse impacts on and interaction with the local communities. The Project shall ensure that the proportionality of the GRM matches the scale of the identified risk and adverse impact on affected communities. The grievance mechanism design features as well as the nature and amount of resources needed for implementation shall be determined through an analysis of the results of the social and environmental assessment to understand who will be affected and what the impacts on them are likely to be.

7.2 GRM Structure

The DPWH, as the lead implementing agency will be responsible for the project's Grievance Redress Mechanism (GRM). DPWH will also initiate the formation of the GRM committees and ensure that the posts are filled up and functioning. The GRM levels, procedures and expected resolution are illustrated in Table 7 and **Error! Reference source not found.**

Table 14. Project Level GRM Hierarchy

Project Level GRM Hierarchy	
Level 5	DPWH Unified Project Management Office (UPMO) level. A venue for any appeal against a decision or inability of GRC to reach a suitable conclusion. The complainant may refer their grievance to Level 5 only after the other levels are agreed upon and do not reach an acceptable conclusion.
Level 4	Municipal or City Grievance Redress Committee level. With authorization of the Team Leader (TL) and/or the Deputy Team Leader (DTL) or the LGU, may refer the grievance to the GRC if the complaint cannot be resolved at level 3
Level 3	Barangay LGU level. The complainant may go straight to Level 3, and this is likely, if the complaint cannot be resolved at level 2. The Level 3 recipient of grievances shall be requested to furnish details to the GRM Coordinator, assist in Level 1 or Level 2 resolution, and track activity.
Level 2	Construction Supervision Consultant (CSC) level by GRMC. If the complaint cannot be resolved in level 1. These includes grievances identified on-site or from social media that needs the CSC decision.
Level 1	Contractor's or RTF level. Direct or referred complaint to the Contractor or DPWH Right-of-Way Task Force (RTF).

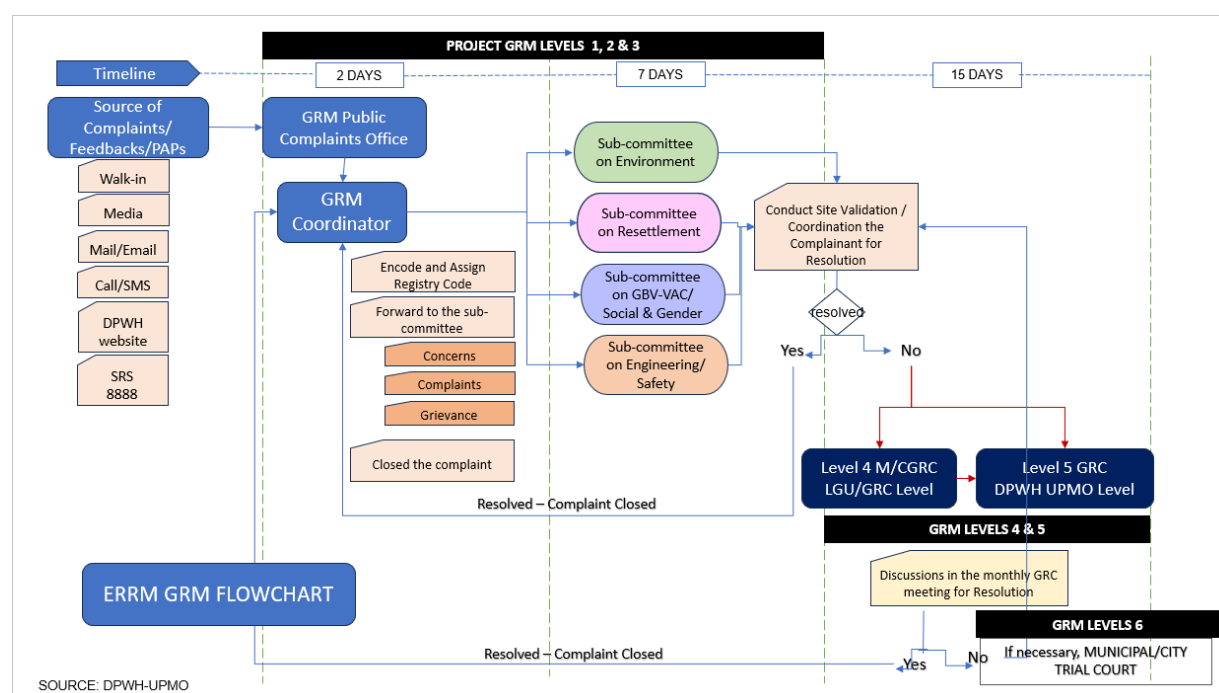


Figure 7. Detailed GRM Flowchart for MTCIP

Grievance Redress Mechanism for Subproject. A subproject-specific grievance redress mechanism (GRM) will be established at the DPWH District Engineering Office (DEO) before the start of construction, to receive, evaluate and facilitate the complaints/grievances of affected persons on the sub-project's environmental performance. This mechanism will be disclosed to the host communities prior to commencement of site works. Contact information on how to access the GRM will be included in project information billboards.

The District Engineer will appoint an Environmental Officer and will establish the Grievance Redress Committee (GRC) to be chaired by the DPWH District Engineer. Members will include the following: the contractor's highest official at the site such as the Construction Manager or the Construction Superintendent; Barangay Chairperson; and Environmental Specialist of the Construction Supervision Consultant.

7.3 Grievance Filing

For the quick filing of complaints, the Grievance Redress Committee (DGRC) will use the grievance intake form appended in the Initial Environmental Examination (IEE). The DEO's Environmental Officer will be responsible for the registration of grievances and communication with the aggrieved party. To facilitate addressing complaints, the contractor will be required to provide contact details of its representative(s) on site in its campsite offices and in project billboards that will be erected at the starting point of the project. The billboard shall likewise include the contact details of DPWH representatives in the event complaints are not readily addressed by the contractor on-site.

The steps to be followed in filing complaints and the procedures for redress are the following:

- a) complainant will provide the background and file the complaint directly either verbally or in writing to the on-site contractor representative(s), and Barangay through its officials for immediate corrective action;
- b) the contractor(s) representative is then required to act immediately on valid complaints and record such complaints in a complaints registry that must be maintained on site.
- c) complaints that cannot be immediately attended to by the Contractor shall be filed either verbally or writing to the DEO, and or the DEO's Environmental Officer who will assist the complainant in filling-up the grievance intake form;
- d) within 2 working days, the Environmental Officer, contractor's representative, and complainant will discuss if the complaint can be resolved without calling for a GRC meeting;
- e) within 3 days of lodging the complaint, the DEO's Environmental Officer will provide the complainant written feedback on the process, steps and timeframe for resolving the complaint.
- f) if the complaint cannot be resolved, a GRC meeting with the complainant will be called within 5 working days;
- g) the GRC will have 15 days to resolve the complaint;
- h) the complainant will receive feedback from the DEO's Environmental Officer within 5 working days after the various steps of the GRM are completed.
- i) if unsatisfied with the decision, the existence of the GRC will not impede the complainant's access to the Government's judicial, administrative remedies or through concerned government agencies (e.g., Community Environment and Natural Resources Office and Provincial Environment and Natural Resources Office of DENR, Regional offices of the Environmental Management Bureau).

The GRC will receive, follow-up and prepare monthly reports regarding all complaints, disputes or questions received about the Project and corresponding actions taken to resolve the issues. These reports will be included in the semi-annual environmental monitoring reports to be submitted by DPWH to WB.

7.4 Publicly Advertised Procedures

The procedure to file a grievance will be disseminated internally and externally. Internally, this procedure will be made known to all levels of DPWH that will be involved in the Project and to contractors, so as to disseminate the details of the GRM to all project stakeholders. The Project GRM will set up designated contact points at various levels where all stakeholders most especially the vulnerable groups can freely express their concerns and complaints.

Externally, the information on the GRM shall be well disseminated as well among the local communities where the project is located. Flyers with infographics about the GRM procedures will be distributed to various project stakeholders. The infographics will include information on the various channels to file grievances, the GRM structure and the indicative period in which the aggrieved person will receive a response or can expect a resolution. Community leaders shall play an important role in encouraging timely report of grievances that should be perceived as a means to help improve project implementation.

DPWH undertakes to implement and disseminate the mechanism for handling complaints and grievances for Project workers, which will be a transparent and timely procedure and will allow workers to raise complaints, claims, labor inquiries, or suggestions even anonymously. The grievance mechanism shall be made easily accessible to all Project workers. Regular meetings with the project workers to discuss any work-related issues and concerns will be conducted. Every grievance raised by a worker will be documented including the actions undertaken by the office to address such grievance. This mechanism will be replicated in contractor and subcontractor companies. Details of the Labor GM is described and discussed in the Labor Management Procedures (LMP).

7.5 Gender-Based Violence (GBV), Sexual Exploitation and Abuse-Sexual Harassment (SEA-SH), and Sexual Orientation, Gender Identity, and Expression (SOGIE)-related complaints

To address project-related complaints, particularly those involving Gender-Based Violence (GBV), Sexual Exploitation and Abuse-Sexual Harassment (SEA-SH), and Sexual Orientation, Gender Identity, and Expression (SOGIE), these types of complaints are reported to the GRM committee/focal person but the grievances follow a different resolution process. The following strategies shall be applied to ensure a survivor-centered approach prioritizing survivors' safety, well-being, and dignity in all procedures:

- **Specialized Committees:** Establish specialized grievance committees at all levels (DPWH IOs – Region or DEO and at the Central Office) to handle GBV, SEA-SH, and SOGIE-related cases.
- **Referral pathways:** The Project's GRM shall ensure effective coordination with partners and national authorities to establish standard operating procedures and referral pathways. The GRM shall establish a clear referral system where victims feel safe reporting their cases of gender-based violence (GBV) and Sexual exploitation and abuse and sexual harassment risks

(SEA-SH). For example, referral to the Committee on Decorum and Investigation (CoDI) to exclusively investigate and address cases of sexual harassment. As required by the Anti-Sexual Harassment Act as amended, the DPWH shall hold the CoDI in high esteem for their probity, integrity, and most importantly, commitment. GBV cases shall follow a different resolution process in accordance with relevant laws such as the RA 9262 or known as the Act Defining Violence against women and their children, providing for protective measures for victims, prescribing penalties therefore and for other purposes. For example, when the Project GRM receives a GBV or SEA-SH incident, it may refer the case to the LGU especially when a protection order is crucial to the SEA-SH survivor.

- **Training and Sensitization:** Provide specific training to grievance committees/focal persons handling GBV, SOGIE, SEA/SO related cases to ensure sensitivity, empathy, and trauma-informed techniques in resolving such cases.
- **Privacy and Confidentiality:** All grievance recipients and anyone handling the GBV, SOGIE, and SEA/SO-related grievances must maintain absolute confidentiality regarding the case and in a survivor-centered manner. Maintaining confidentiality means not disclosing any information at any time to any party without the informed consent of the person concerned. There are exceptions under distinct circumstances, for example a) if the survivor is an adult who threatens his or her own life or who is directly threatening the safety of others, in which case referrals to lifesaving services should be sought; b) if the survivor is a child and there are concerns for the child's health and safety. The survivors need to be informed about these exceptions.
- **Informed Consent:** The survivor can only give approval to the processing of a case when he or she has been fully informed about all relevant facts. The survivor must fully understand the consequences of actions when providing informed consent for a case to be taken up. Asking for consent means asking the permission of the survivor to share information about him/her with others (for instance, with referral services and/or PIU), and/or to undertake any action (for instance investigation of the case). Under no circumstances should the survivor be pressured to consent to any conversation, assessment, investigation or other intervention with which she does not feel comfortable. A survivor can also at any time decide to stop consent. If a survivor does not consent to sharing information, then only non-identifying information can be released or reported on. In the case of children, informed consent is normally requested from a parent or legal guardian and the children.
- **Awareness Raising:** General awareness raising among staff with regards to GBV, SOGIE and SEA/SO will be conducted and all staff is expected to sign Codes of Conducts (CoCs) with reference to SEA/SO.

Monitoring and Reporting

8.1 Summary of how SEF will be monitored and reported upon

The SEF will be monitored based on both qualitative reporting (based on progress reports) and quantitative reporting linked to results indicators on stakeholder engagement and grievance performance based on the DPWH Social and Environmental Management System (SEMS).

SEF reporting will include the following:

- (i) Progress reporting on the ESS10-Stakeholder Engagement commitments under the Environmental and Social Commitment Plan (ESCP)
- (ii) Cumulative qualitative reporting on the feedback received during SEF and Municipal/City-level SEP activities, in particular (a) issues that have been raised that can be addressed through changes in project scope and design, and reflected

in the basic documentation such as the Project Appraisal Document, Environmental and Social Assessment, Resettlement Plan, Indigenous Peoples Plan, or SEA/SH Action Plan, if needed; (b) issues that have been raised and can be addressed during project implementation; (c) issues that have been raised that are beyond the scope of the project and are better addressed through alternative projects, programs or initiatives; and (d) issues that cannot be addressed by the project due to technical, jurisdictional or excessive cost-associated reasons. Minutes of meetings summarizing the views of the attendees can also be annexed to the monitoring reports.

- (iii) Quantitative reporting based on the indicators included in the SEF.



8.2 Reporting back to stakeholder groups

The SEF and Municipal/City-level SEPs will be revised and updated as necessary during project implementation. Quarterly summaries and internal reports on public grievances, enquiries, and related incidents, together with the status of implementation of associated corrective/preventative actions will be collated by responsible staff and referred to the project managers. DPWH will be in charge of overall database management, reporting, and compilation of reports.

The Project's Environmental and Social management instruments will be disclosed in its draft version open for comments and suggestions during consultations. After the consultations with stakeholders, the revised version will be disclosed again. In all project activities, stakeholders will be reminded on how they can access and utilize the GRM for feedback. The channels to receive feedback from interested parties on the reports presented may include email responses, filing of feedback through GRM, direct personal responses during community level meetings. Specific mechanisms to report back to the stakeholders are through the conduct of focus group discussion, and meetings. This reporting back to the stakeholders will be done quarterly.

ANNEXES

Annex 1. Public Consultations documentation

Date, time and place of the meeting:		26 September 2023	9:00 A.M to 11:00 AM	Provincial Capitol, Misamis Oriental
Attendees:				
	Lilibeth B. Rico	DPWH RMC II, UPMO	PM III	
	Evangeline Carabal	DPWH RMC II, UPMO	PM I	
	Olivia M. Baguio	DPWH RMC II, UPMO	PM I	
	Bryna Nolleth Lazaro	DPWH RMC II, UPMO	Engr.II	
	Rejan Mala	DPWH RMC II, UPMO	Engr.II	
	Armand A. Perez	GECI	a.perez@galerioenvi.com	
	Julia W. Echavez	GECI	j.echavez@galerioenvi.com	
	Oda S. Beltran	GECI	o.beltran@galerioenvi.com	
	Carmeli Marie C. Chaves	GECI	c.chaves@galerioenvi.com	
	Vanessa Pallarco	GECI	v.pallarco@galerioenvi.com	
	Leonila P. Galerio	GECI	gec@galerioenvi.com	
	Maricel D. Lloren	GECI	m.lloren@galerioenvi.com	
	Jecar Dela Cerna	GECI	j.delacerna@galerioenvi.com	
	Robeen John Gerodiaz	GECI	r.gerodiaz@galerioenvi.com	
	Agnes Cabanayan	GECI	a.cabanayan@galerioenvi.com	
Participants	John Vanie Lody	POO	0905-285-8909	
	Rene B. Guingguisa	PENRO	0912-706-4441	
	Ron R. Salva	PPDO - MISOR	0917-727-1303	
	Lordilie Enjambre	MINDA	0917-631-8048	
	Florante C. Jipus	PEO - MISOR	0927-552-3987	

NO.	Subjects	Status/ Actions
1.	Open Forum	
	Mr. Ron Salva explained that the Cagayan de Oro is highly urbanized, and the province of Misamis Oriental has no jurisdiction over Cagayan de Oro City.	<p>Ms. Olivia Baguio from DPWH RMC II, UPMO</p> <p>replied that they have taken that into consideration and made note of it.</p> <p>Carmeli Chaves from GECI explained the importance of the infrastructure project in Misamis Oriental, emphasizing its significance for transportation. If the project extends to other provinces and barangays, such as Puerto, it can significantly impact the province of MisOr.</p> <p>She also mentioned that the farmers of Misamis Oriental can benefit from this proposed infrastructure in terms of impact. It can make it easier, faster, cheaper, and safer for them to transport agricultural products to the market and bring commodities to the inland areas.</p>
	Lordilie Enjambre asked for the project timeline	<p>Ms. Olivia Baguio presented the timeline and mentioned that they are on a tight schedule.</p> <p>Vanessa Pallarco emphasized that this is a long-term development project that will benefit the communities.</p>

Photodocumentation

Registration

(September 26, 2023)



Singing of National Anthem

(September 26, 2023)



Presentation of the proposed project

(September 26, 2023)



Ron Salva informed that the province of MisOr is independent to Cagayan de Oro City.

(September 26, 2023)

Date, time and place of the meeting:		26 September 2023	2:00 P.M. to 4:00 PM	PPDO Conference Room, Malaybalay City, Bukidnon
Attendees:				
	Lilibeth B. Rico	DPWH RMC II, UPMO	PM III	
	Evangeline Carabal	DPWH RMC II, UPMO	PM I	
	Olivia M. Baguio	DPWH RMC II, UPMO	PM I	
	Bryna Nolletth Lazaro	DPWH RMC II, UPMO	Engr.II	
	Rejan Mala	DPWH RMC II, UPMO	Engr.II	
	Armand A. Perez	GECI	a.perez@galerioenvi.com	
	Julia W. Echavez	GECI	j.echavez@galerioenvi.com	
	Oda S. Beltran	GECI	o.beltran@galerioenvi.com	
	Carmeli Marie C. Chaves	GECI	c.chaves@galerioenvi.com	
	Vanessa Pallarco	GECI	v.pallarco@galerioenvi.com	
	Leonila P. Galerio	GECI	gec@galerioenvi.com	
	Maricel D. Lloren	GECI	m.lloren@galerioenvi.com	
	Jecar I. Dela Cerna	GECI	j.delacerna@galerioenvi.com	
	Robeen John Gerodiaz	GECI	r.gerodiaz@galerioenvi.com	
	Agnes Cabanayan	GECI	a.cabanayan@galerioenvi.com	
Participants	Rosemarie A. Paderanga	MEO - Kitaotao	0917-514-4907	
	Flordelis C. Enriquez, CESE	DPWH Bukidnon 1st District	0917-718-4013	
	Jan Paulo C. Lisondra	DPWH Bukidnon 1st District	0917-707-2996	
	Sarah Jane B. Lacrama	DPWH Bukidnon 1st District	0917-203-5908	
	Rowena S. Himarangan	J.O - Brgy. Casisang	0970-583-4352	
	Lucille O. Turque	J.O - Brgy. Casisang	0905-101-0703	
	Wennie S. Angit	MPDO - Kitaotao	0917-544-5260	
	Joemar M. Sario	Brgy. Kagawad - Kalasungay	0916-300-3803	
	Ma. Marryl B. Aranggo	J.O - Brgy. Diklum	0997-433-7457	
	Albert B. de Mesa	Brgy. Captain - Kisolon	0917-634-0808	
	Ronald E. Baslan	MENRO - Manolo Fortich	0945-028-1528	
	Ronald John R. Cabilla	MEO - Manolo Fortich	0967-871-9141	
	Eduardo E. Nezo	MPDO - Manolo Fortich	0965-611-4929	
	Loreto T. Realda Jr.	Brgy. Captain - Bayabason	0935-747-9739	
	Romaldo Abello Jr.	Brgy. Kagawad - Dologon	0917-599-1334	
	Miguel G. Ceballos	Brgy. Captain - Dologon	0917-718-4593	
	Kevin Loyd B. Carcueva	LGU Valencia	0917-873-3387	
	Francisco D. Guinayna	LGU Impasug-ong	0917-149-4972	

	Noel R. Rojas	Brgy. Captain - Kibenton	0926-104-6694
	Rodrigo O. Lumba	Brgy. Captain - San Jose	0912-960-9723
	Romeo V. Segarino	Brgy. Captain - Puntian	0909-228-4194
	Loreto T. Realda Jr.	Brgy. Captain - Bayabason	0935-747-9737
	Rizza O. Igcalinos	BS - San Jose	0946-847-5555
	Jomarie D. Cabisay	DPWH Bukidnon 2nd District	0995-709-6618
	Genevive R. Buyante	DPWH Bukidnon 2nd District	0917-708-4549
	Rosalinda R. Lopez	Brgy. Captain - Salawagan	0936-333-9005
	Epasmo Cesar A. Ramirez	Brgy. Captain - Alae	0967-570-3910
	Jose I. Ilair	MPDO - Quezon	0998-986-0531
	Floramae D. Penosa	Brgy. Captain - Darilig	0915-595-1772
	Ramir M. Linohon	Brgy. Captain - Maluko	0967-671-9435
	Rustan Dela Cerna	CEO - Malaybalay City	0917-889-1532
	Jesrel B. Mangubat	PPDO - Malaybalay City	0917-319-2637
	Mitchell Talatala	CMO - Malaybalay City	

NO.	Subjects	Status/ Actions
Open Forum		
	Engr. Flordelis C. Enriquez requested the consideration of constructing two lanes along the Impasug-ong section and mentioned that they have proposed this twice for the Kitatao bridge, suggesting a box culvert.	Ms. Olivia Baguio from DPWH RMC II, UPMO, mentioned that it could be considered that is also recommended for replacement. She also requested additional data from their office to support the study team
	Engr. Florante Jipus inquired about the project's Right of Way (ROW).	Ms. Olivia Baguio responded regarding the acquisition of Right-of-Way (ROW) as mandated by RA 10752, including the replacement of the affected structure. She also discuss the replacement cost and the current market value for land acquisition from financing institutions such as DBP and Land Bank.
	Ms. Lordilie Ejambre suggested the possibility of connecting the bridge from Dologon and brgy. She also recommended considering the potential for tourism development, particularly near the Pulangi bridge.	Ms. Olivia Baguio explained that this project focused solely on the main corridor. She also added that they will inform the DPWH district about these suggestions and assured everyone that road maintenance will continue. Ms. Lordilie Ejambre added that the area is a submerged road and impassable.

NO.	Subjects	Status/ Actions
	<p>Ms. Wennie S. Angit suggested constructing a new parallel bridge near Maloos area. They mentioned that the sharp curve design of the current bridge has caused harm and even death to residents, and recommended the design improvement to prevent such events. Additionally, one of the primary challenges in the Kitaotao area is Right of Way (ROW), especially in accident-prone areas.</p>	<p>Ms. Olivia Baguio requested LGU Kitaotao to submit incident reports for documentation of incidents near the area. These reports will help consider the LGU Kitaotao's suggestions for road improvements and support future feasibility studies. She also mentioned that there is an expected loan by 2024 that could be used to conduct an engineering design study, taking road safety interventions and possible bridge construction into consideration.</p>
	<p>The presence of the Governor was acknowledged.</p>	<p>Ms. Olivia Baguio briefed the Governor Rogelio Roque on the topics covered prior to his arrival, including the Mindanao Transport Connectivity Project's conceptualization and its purpose of supporting the agricultural sector in Mindanao. Also, discussed road design improvements in accident-prone areas. Additionally, Ms. Olive Baguio outlined target dates for initial steps in securing a loan from the World Bank.</p>
	<p>Governor Roque shared his thoughts on the proposed project and asked if a construction of a new road is included in the Proposal.</p> <p>Governor Roque asked if the Sayre Highway would be improved into a six-lane road.</p> <p>Governor Roque expressed his concern about the DPWH's budget constraints for highway protection. He also inquired about how the LGU could assist in the project's implementation.</p> <p>Governor Roque suggested that most parts of the Sayre highway should have an island to avoid illegal U-turns of vehicles and improve movement along the highway. He also added that there should be an extra lane for U-</p>	<p>Ms. Olivia Baguio replied that there is a proposed construction of a new road in Giginto.</p> <p>Ms. Olivia Baguio explained the project concepts as a long-term performance-based program with the goal of improving mobility and safety. She highlighted sections that have degraded and cannot be maintained due to budget constraints. With this project, these damaged sections will undergo rehabilitation, and contractors will be compensated based on their level of service.</p> <p>Ms. Lilibeth B. Rico, from DPWH RMC II, UPMO replied that in order to submit the Feasibility Study to NEDA, they need the provincial endorsement to conduct the said study. Through this, it will help the loan approval for the project to commence.</p> <p>Ms. Olivia Baguio replied that as of the moment, the project is still in the feasibility study phase. When the loan is secured next year, road design consultants will be procured, and another round of public consultations will be conducted.</p> <p>Ms. Olivia Baguio replied that a high standard highway will be constructed by JICA. She also added a brief route for the highway and made sure that no overlapping between the two projects will happen.</p>

NO.	Subjects	Status/ Actions
	turns, and asked about the planned expressway whether it will be continued or not.	
	Jesrel B. Mangubat from PPDO Malaybalay stated that there will be a Provincial Development Council and Peace and Order joint meeting the next day and suggested that any representative from the DPWH or GECI should be present in the meeting.	Ms. Olivia Baguio stated that they will be attending the joint meeting between the PDC and Peace and Order department.
	Jose I. Ilair, MPDO from Quezon expressed his concern regarding the safety especially in the overview section due to its sharp turns and slope.	Engr. Armand Perez from GECI added that it is important for the LGU's to submit incident reports so that it will be taken into consideration in the design process. Through this, it will help the project facilitators to determine the exact black spots around the area.
	<p>Governor Roque also added the following points:</p> <ol style="list-style-type: none"> 1. If possible, a tunnel should be built. 2. Road design should be standardized. 3. Incident reports are not essential in the design process. 4. He stated that even with a properly drafted design, considering all design aspects, accidents still occur. 5. He also emphasized that the government should enforce preventive measures to protect the roads to maximize the money spent on these projects. 	<p>Ms. Olivia Baguio stated that it is still in the Feasibility Study phase and still awaiting for the loan. She also explained the details of the proposals. Furthermore, she mentioned that they are actively working on preventive measures to address the impact of climate change and protect these roads from degrading faster than expected.</p> <p>Flordelis C. Enriquez clarified why the loan will be first secured before the engineering side of the project. She also mentioned the Governor's earlier suggestion earlier to construct tunnels and stated that there have been initial communications with JICA.</p>
2.	Adjournment	
	PM Lilibeth B. Rico shared her final thoughts on the meeting and subsequently thanked the Governor for his insights.	

Photodocumentation



Presentation of the
proposed project

(September 26, 2023)



Wennie S. Angit
recommended the design
improvement to prevent
incidents.

(September 26, 2023)



Jose I. Ilair
expressed his concern
regarding the safety.

(September 26, 2023)



Engr. Armand Perez



requested the LGU's for secondary data of incidents of reports as part of a baseline for report writing.

(September 26, 2023)



Governor Rogelio Neil Roque requested the endorsement to the Provincial Development Council (PDC)

(September 26, 2023)

Date, time and place of the meeting:		27 September 2023	2:00 P.M. to 4:00 PM	DPWH Conference Room, Davao City
Attendees:				
	Lilibeth B. Rico	DPWH RMC II, UPMO	PM III	
	Evangeline Carabal	DPWH RMC II, UPMO	PM I	
	Olivia M. Baguio	DPWH RMC II, UPMO	PM I	
	Bryna Nolleth Lazaro	DPWH RMC II, UPMO	Engr.II	
	Rejan Mala	DPWH RMC II, UPMO	Engr.II	
	Armand A. Perez	GECI	a.perez@galerioenvi.com	
	Julia W. Echavez	GECI	j.echavez@galerioenvi.com	
	Oda S. Beltran	GECI	o.beltran@galerioenvi.com	
	Carmeli Marie C. Chaves	GECI	c.chaves@galerioenvi.com	
	Vanessa Pallarco	GECI	v.pallarco@galerioenvi.com	
	Leonila P. Galerio	GECI	gec@galerioenvi.com	
	Maricel D. Lloren	GECI	m.lloren@galerioenvi.com	
	Jecar Dela Cerna	GECI	j.delacerna@galerioenvi.com	
	Robeen John Gerodiaz	GECI	r.gerodiaz@galerioenvi.com	
	Agnes Cabanayan	GECI	a.cabanayan@galerioenvi.com	
Participants	Austria Cillich	CEC		
	Almario M. Monton		0949-363-2842	
	Jordan Samantha		0905-441-9702	
	Claudave Talungon	DPWH - DCDEO	0999-951-3784	
	Jocelyn Magnave	DPWH - DCDEO	0932-497-2834	
	Jonnel P. Mata	DPWH RO XI	0906-900-2818	
	Richard A. Pagasa	DCDEO	0917-561-5890	
	Lilibeth M. Sarmiento	DCDEO	0977-843-7030	
	Edgar D. Al-ag	TORIL	0930-636-9210	
	Edwin B. Fiel	BANTOL	0939-238-4756	
	Allan P. Saimo-Ag	LIGA	0917335	
	Ronnie John T. Riano	LIGA	0938-195-3388	
	Elvielyn T. Westauno	CPDO	0943-140-3093	
	Aileen S. Fudader	CPDO	0949-180-1290	
	Ferdinand B. Dallo	DAVAO CITY 2nd DEO	0948-802-7134	
	Crusil E. Guyot	CENRO	0942-079-7148	
	Aicelavinia T. Monce	CENRO	0948-430-2911	
	Jonary Salfoza P. Panggaga	CENRO	0948-199-6667	
	Purificacion S. Sayko	MARILOG PROPER	0919-336-9967	

Attendees:			
	Leonardo Camelotes	CALINAN	0981-375-1944
	Jessielito C. Areja	MALABOG	0910-334-3974
	Christopher B. Asibal	CENRO	0998-535-3475
	Alberto L. Etorma	MALITA	0912-469-8220
	Melody S. Dagusok	CEO	
	Garry	SALOY	0909209471

NO.	Subjects	Status/ Actions
Open Forum		
	<p>Barangay Captain Jessielito C. Areja asks if there will be payment for the affected houses.</p> <p>Barangay Captain Jessielito C. Areja when we assisted the galerio, many sitios were affected and they needed to be moved because they were close to the cliff. I hope we can find out here so at least they can find a relocation area.</p> <p>Barangay Captain Jessielito C. Areja stated the majority of the identified roads have no development yet. We would like to know when we can know the final route of the project so that we can already inform the affected residents and we can assist them to look for another location.</p>	<p>Carmeli Marie C. Chaves - All structures affected directly will be compensated according to right of way sites and acquisition. She also added that they will assist and look for location or some package to safeguard their rights to fair compensation to those entitled for resettlement.</p> <p>Lilibeth Rico - At least the stage is under feasibility studies. We have identified some technical option analysis. Here we are comparing what is the feasible road that everyone is considering.</p> <p>Joey Tulaylay - With regards to the acquisition (RA 10752) during the process we identify the right of way then we do finalization of right of way so we can account for those who are affected. It is part of the requirement in acquiring ECC.</p> <p>Lilibeth Rico - Also added that during the feasibility study, it was studied that the resettlement action plan has a preliminary route to determine the just compensation, including the cost in the project cost when we submit to NEDA. Although the right of way is paid by the Philippine government it is already part of the project cost when we submitted.</p>
	<p>CEO - Clarification with regards to the proposed road the whole stretch, do we have a drainage system established?</p> <p>Follow Up Question - Is the drainage system included in drainage right of way, is there a budget?</p>	Unknown - Complete Package
	Barangay Bantol Captain Edwin B. Fiel - Stated that they have different types of land ownership in their barangay, there is ancestral domain, alienable and disposable land and also they have CADT areas. He is asking what are the ways to be used for acquisition.	Unknown - The non-compensable land will not be paid, but the replacement of the structure will get paid. This includes the improvements, structure and trees.

NO.	Subjects	Status/ Actions
	Barangay Saloy - Raised concern with regard to the land that can't be budgeted by the DPWH base from this previous experience.	Joey - Explaining the process of issuing permits to enter. stating that they should not issue permits to enter when the DPWH has not paid the affected owner. and so that the residents won't blame the barangay.
	Barangay Bantol Captain Edwin B. Fiel - If we need to ask for a right of way for this project, we will ask for it. If not, we will not ask for the right of way. Follow up question - base in the design I saw is 6 to 7m wide. whatever we can do to implement the project we will do Yes, we have here the barangay profile.	Lilibeth Rico - The project needed is 20 meters. What we are talking about here is the national road standard, so the right of way acquisition here is 20m. Lilibeth Rico - Maybe sir that's all we'll ask you to allow our consultant to do a survey for feasibility studies Carmeli Marie C. Chaves - Asking for barangay profile.
	Barangay Captain Jessielito C. Areja - When can we know the final road/alignment?	Lilibeth Rico - We are in the process of identifying the road. That is why we need this information so we can include it for submission. Carmeli Marie C. Chaves - If we look at the timeline, the ICC submission is in November 2023 so we will know if it will be approved on April 18 2024. As of now this is not the final alignment.
	Barangay Bantol Captain Edwin B. Fiel - How about the traverse alignment? Is this final? Follow up question - When will we know the final option?	Carmeli Marie C. Chaves - That is one of the options. We have Option 1, 2, and 3. Only DPWH can tell. Lilibeth Rico - We have criteria to follow. Carmeli Marie C. Chaves - We have criterias to follow. The criteria is the least adverse impact. Julia Echavez explains the criteria for the environmental side. For the environment, our criteria is the number of trees that will be affected. the water quality, the steep slopes, and the flood prone areas so that's the criteria for environmental.
	Barangay Saloy - Asking for final alignment.	Arman A. Perez - We are still doing option analysis. We are still studying the areas that are not that affected by residents and crops. We are still coming up with options 1, 2, and 3 where it costs less. We will submit that to the world bank. when it comes back to us that will be the time we will know the final alignment and we will show it to you and that will be the time we talk to you again.

NO.	Subjects	Status/ Actions
	Suggestion - before you submit the final report. I suggest that you proceed to the barangay council so we can help. We can suggest areas that will not be greatly affected by this project.	Lilibeth Rico - Actually this project is still being studied until we submit it to NEDA to comply with the requirements of economic internal rate of return, that's why we have criteria. So after it is approved, it will be recommended by NEDA with the world bank to finance the project, then the detailed engineering design will be done to study what the actual arrangement will be.
	Barangay Malabog - Raised in sitio Cabonbon where there are a lot of residents in the area.	Lilibeth Rico - We will present you a map showing the existing road.



(September 27, 2023)



(September 27, 2023)



(September 27, 2023)

Date, time and place of the meeting:		27 September 2023	9:00 A.M. to 11:00 AM	Provincial Capitol of Davao del Norte
Attendees:				
	Lilibeth B. Rico	DPWH RMC II, UPMO	PM III	
	Evangeline Carabal	DPWH RMC II, UPMO	PM I	
	Olivia M. Baguio	DPWH RMC II, UPMO	PM I	
	Bryna Nolleth Lazaro	DPWH RMC II, UPMO	Engr.II	
	Rejan Mala	DPWH RMC II, UPMO	Engr.II	
	Armand A. Perez	GECI	a.perez@galerioenvi.com	
	Julia W. Echavez	GECI	j.echavez@galerioenvi.com	
	Oda S. Beltran	GECI	o.beltran@galerioenvi.com	
	Carmeli Marie C. Chaves	GECI	c.chaves@galerioenvi.com	
	Vanessa Pallarco	GECI	v.pallarco@galerioenvi.com	
	Leonila P. Galerio	GECI	gec@galerioenvi.com	
	Maricel D. Lloren	GECI	m.lloren@galerioenvi.com	
	Jecar Dela Cerna	GECI	j.delacerna@galerioenvi.com	
	Robeen John Gerodiaz	GECI	r.gerodiaz@galerioenvi.com	
	Agnes Cabanayan	GECI	a.cabanayan@galerioenvi.com	
Participants	Germa G. Navarro	BLGU	0985599681	
	Anselmo Junio	PGO-DAVNOR	0956-054-6924	
	Reynante Monares	PGO	0917-630-3940	
	Tessie G. Ababon	PEO	0968-853-5468	
	Jonar P. Francisco	PENRO - LGU	0921-617-2991	
	Almario M. Monton	DPWH XI	0949-363-2842	
	Samantha Jordan	DPWH XI	0905-441-9702	
	Summaya Sukaino	DPWH XI	0906-422-7196	
	Norhanifan Disuma	DPWH XI	0907-274-7827	
	Hazel Zafrá	PLGU - PPDO	0925-500-4670	
	Romcel Duro-on	PPDO Davao Del Norte	0933-323-4485	
	Thalian A. Sarico	DPWH DDN	0998426996	
	Dave A. Agron	DPWH - SUB - DEO	0927-395-2690	
	Chirwen P. Nazarevo	DPWH - DDN	0921-683-9315	
	Myrene D. Dumayongan	SK - Pandapan	0997-322-7036	
	John Mark a. Lemosnero	SK - Pandapan	0953-209-2197	
	Manolito D. Alcober		0948-146-6460	
	Gemma C. Montegrande	PPDO-DDN	0946-738-5923	
	Jonnel P. Mata	DPWH RO XI	0906-900-2818	

Attendees:			
	Lito S. Sanani	Beunavista	0991-814-4857
	Joseph Raymund Sumusal	LGU Panabo	0917-310-8863
	Felix Jonases P. Sengaon	CPDO	0917-637-0912
	Eric R. Aduawan	CEO	0948-963-0444

NO.	Subjects	Status/ Actions
Open Forum		
	Ms. Hazel Zafra from PPDO shared that project alignment was included in their provincial development plan of 2014. She also addressed the question of ongoing projects, both city and provincial, and shared that they have already conducted hazard assessments in the alignment area. They have identified major decision areas regarding hazards, and their sources for this information are the MGB and Phivolcs.	Camille Chavez from GECI said that she's happy that davao del norte is updating their PDPFT. She also commented that they want to connect the urban areas where the markets are to make it safer, cheaper, and faster to bring their commodities to where they are supposed to be. However, she's eager to obtain the information that she shares on the ongoing projects from the LGU, Provinces, City, and DPWH.
	Tessie Ababon - shared that the alignment will pass through to the existing road.	Lilibeth Rico from UPMO said that they are also considering the connectivity of Panabo and Bunawan area.
	Joey from DPWH XI suggested that during the verification of the site, a section well be included detailing the condition of the road and its coverage. He emphasized the need for a sectional approach, reiterating the condition of the existing road must be taken into consideration.	Armand Perez from GECI stated that this is part of the TOR of the world bank. He also added that some roads are under construction that's the reason why they are in the process of option analysis. Julia Echavez added that the purpose of introducing the project is to provide essential details. While we cannot give you all the specifics at this moment, we and the other consultant are working on it. The GECI has been preparing the straight-line diagram indicating which sections have been completed and which ones are still ongoing. The goal is to simplify the project. Carmeli Chaves also added that this is just an introductory part of the project, and the DPWH will conduct again another consultation with the consultant to present the final road alignment. Lilibeth Rico inserted that the end goal of this project is securing provincial endorsement which is one of the requirements of RDC and

NO.	Subjects	Status/ Actions
		to secure the approval of NEDA.
	Tessie Ababon from CPDO suggested considering social and environmental factors and inquired about the process of this study?	<p>Julia Echavez said that what they are doing right now is conforming to the requirements, and as part of the mandate from the world bank, we are required to prepare and submit the environmental and social framework.</p> <p>We are also in preparation to submit the ESIA (Environmental and Social Impact Assessment) and the environmental and social management plan of the project, right now we are here for data gathering.</p> <p>Carmeli Chaves expressed her satisfaction that the issue of safeguard has been raised, Shed noted that they haven't discussed the possibility of involuntary resettlement for this project, which is the primary concern. Currency, we've been assessing the potential impacts of the project, and one of these impacts is the voluntary resettlement, and according to the law those affected will be compensated or relocated.</p> <p>Carmeli Chaves mentioned that they have conducted initial estimates of the number of households for link road 2 but they are still in the process of confirming that information.</p>
	<p>Tessie Ababon said that the DPWH is still not providing compensation for the affected project on the local road.</p> <p>She inquired if the affected households will be relocated and compensated, so that the barangay Captain will inform them accordingly.</p>	<p>Carmeli Chaves said that there will be compensation of those affected households based on the current market value.</p> <p>Julia Echavez clarified that for trees, it depends if it is a fruit bearing tree that will be subject for compensation, but if it is a natural growing tree that will be subject to DENR administrative order and replacement, the DPWH will implement this.</p> <p>Compensation will be provided for fauna.</p> <p>Lilibeth Rico said this is also part of the project cost</p>

		acquisition, and emphasized that they will be using
--	--	--

NO.	Subjects	Status/ Actions
		appraisal based on BIR or the Zonal value for the purpose of budgeting. Carmeli Chaves in addition this road is definitely longer than the threshold limit of 20km so more than 20km DPWH would apply for ECC for this link road.
	Gemma Montegrande from PPDO emphasized the consideration of commodities such as crops within the area, to preserve the transported products.	Lilibeth Rico responded that one of the considerations is the farm-to-market road.
	One of the LGU Panabo participants suggested the improvement of the ecological setting because the trees will be affected, especially considering the forecasted of roads in different segments like Davao-Bukidnon road.	Julia Echavez responded that the engineering, social and environmental team is taking into account the ecological setting of the proposed project.
	<p>Felix Jonases Sengaon from CPDO informed that there is ongoing 4-lanes construction from brgy. Malativas to Consolation, as well as an ongoing 2-lanes bridge construction in Katipunan.</p> <p>Felix Jonases raised his concern that the landslides occurring in brgy. Cacao and Catipunan, The affected properties affected by this project.</p> <p>Felix Jonases requested the study team to conduct consultations with the City Government of Panabo.</p> <p>Felix Jonases raised the design problem of the road pavement will also be considered</p> <p>Felix Jonases consider the quarry industry, particularly the sand and gravel quarry, in the project planning</p>	Lilibeth Rico responded that they will consider the implementing office and the detailed engineer.
	Joseph Sumusal asking about the project cost and suggested not to limit the budget	
	Hazel Zafra suggested overseeing the project design, road safety.	Lilibeth Rico stated that the world bank will not limit the budget cost and also endorsed the GECl team to extend their assistance to them.

Photodocumentation



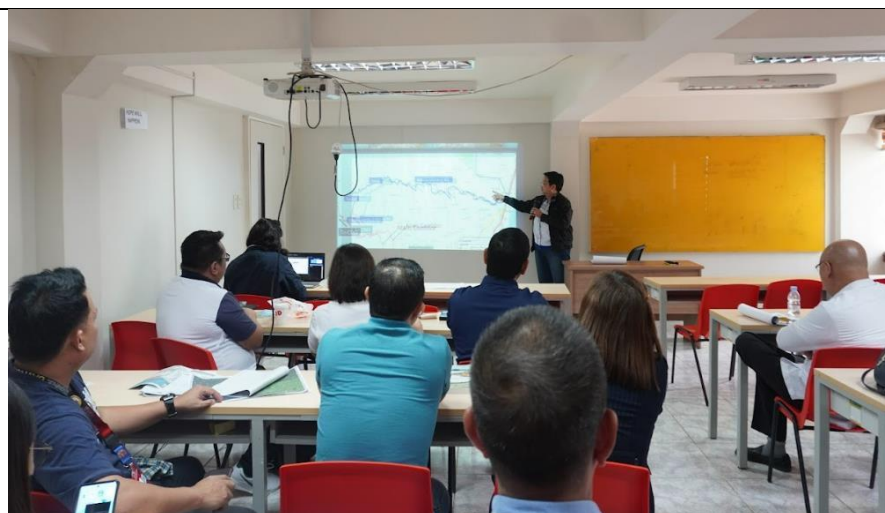
Welcoming of participants

(September 27, 2023)



Acknowledgement of participants

(September 27, 2023)



Presentation of the proposed project

(September 27, 2023)



Joseph Sumusal suggested not to limit the budget

(September 27, 2023)




Hazel Zafra suggested overseeing the project design, road safety.

(September 27, 2023)



Julie Echaves responded that the engineering, social, and environmental team is considering the ecological setting of the proposed project.

(September 27, 2023)

Date, time and place of the meeting:		28 September 2023	9:00 A.M. to 11:00 AM	Digos Gymnasium, Davao del Sur
Attendees:				
	Lilibeth B. Rico	DPWH RMC II, UPMO	PM III	
	Evangeline Carabal	DPWH RMC II, UPMO	PM I	
	Olivia M. Baguio	DPWH RMC II, UPMO	PM I	
	Bryna Nolleth Lazaro	DPWH RMC II, UPMO	Engr.II	
	Rejan Mala	DPWH RMC II, UPMO	Engr.II	
	Armand A. Perez	GECI	a.perez@galerioenvi.com	
	Julia W. Echavez	GECI	j.echavez@galerioenvi.com	
	Oda S. Beltran	GECI	o.beltran@galerioenvi.com	
	Vanessa Pallarco	GECI	v.pallarco@galerioenvi.com	
	Leonila P. Galerio	GECI	gec@galerioenvi.com	
	Maricel D. Lloren	GECI	m.lloren@galerioenvi.com	
	Jecar Dela Cerna	GECI	j.delacerna@galerioenvi.com	
	Robeen John Gerodiaz	GECI	r.gerodiaz@galerioenvi.com	
	Agnes Cabanayan	GECI	a.cabanayan@galerioenvi.com	
Participants	Cris Trinidad	LGU - Admin		
	Joyce Buit	LGU - Guihing		
	Sommaya Sukarno	DPWH		
	Samantha Jordan	DPWH		
	Helen Nunez			
	Ellen Villegas			
	Marites Duramo	Brgy. Captain - Bato		
	Felimonito Villegas Jr.	LGU - Digos City	0907-209-4938	
	Maximo Eltagonde	Brgy. Captain	0950-232-5469	
	Alan Angub	LGU - Sta. Cruz	0907-381-3411	
	Annalou Bongawan	LGU - Sta. Cruz	0920-339-7311	
	El Mark Tayabas	PEO - Davao del Sur	0912-523-2926	
	Ramel Morello	Brgy. Captain - Aplaya	0975-317-6273	
	Ommi Kharzom Buat	MPDO		
	Flora Mae Dominice	MPPDC		
	Jocelyn Arellano	Brgy. Captain - Mabini	0919-785-7147	
	Wilson Ayop	MEO	0919-098-9013	
	Rebecca Ronda	MTO	0920-377-0048	
	Rodeto Muda	Brgy. Captain - Malalag	0970-020-0212	
	Concepcion Carlos	MSWD	0907-573-2448	

Attendees:			
	Noel Ferolino	LGU - Padada	0949-449-7408
	Imelda Rebuyon	PLGU - Davao del Sur	0921-692-6189
	Charles Abuda		0909-270-5603
	Dr. Raymond Cuba	BDONB	0928-507-4817
	Dyanne Grace Cabigas	IP	0946-446-0071
	Randy Villarta	Brgy. Captain - Balutakay	0960-878-5208
	Fritz Gerald Surposa	LGU - Leling	0909-656-0975
	Alfredo Dacuta Jr.	LGU - San Isidro	0951-248-7000
	Francisco Guerrero Jr.	LGU - Padada	
	Alexis Villejo	LGU	
	Bermie Banagbanag	MPDO	0948-721-2126
	Gina Chua	PPDO - Davao del Sur	0918-935-1402
	Leah Eborda	MEO	0909-931-5624
	Dennis Lasat III	MPDO	0907-094-1939
	Nilda Corro	Tribal Office	0912-759-9795
	Alma Dilag	LGU - Crossing	0948-996-2003
	Judith Reponte	KALIPI	0910-043-0455
	Maria Wilma Malait	Women Sector	0929-400-1782
	Willie Villegas	VMO - Sulop	
	Noel Alegre	MEO	0998-958-4829
	Emma Algabre	MSWDO	0923-028-1399
	Myrna Relano	LGU - Malalag	0910-467-0540
	Amelia Deguinon	MSDO	0950-115-8237
	Ronaldo Salvilla	MPDC	
	Lyssa Mae Cabaobao	OMAD	0968-881-2398
	Harvey Ryari Embuo		0938-386-6841
	Arnulfo Lantas	OCPDC	0910-555-8454
	Azucena Buquia	MEO	0939-998-8811

NO.	Subjects	Status/ Actions
Open Forum		
		Ms. Olivia Baguio from DPWH RMC II, UPMO, explained that the World Bank's plan is to maintain a four-lane road to enhance mobility, which will be sustained for five years, covering a total of 428 km. She also highlighted that when traveling through the area from CDO-DAVAO-GENSAN, you can observe damages resulting from the effects of climate change. To address

NO.	Subjects	Status/ Actions
	Mr. Noel Ferolino of LGU Padada stated that they need clarification on which road will be renovated. He asked whether it is the wide one or the highlands.	this, some areas will incorporate canals to mitigate the deteriorating performance of submerged rotors over time. Furthermore, Ms. Olivia Baguio mentioned that one of the structural interventions between Davao del Sur and Davao City is to improve mobility and design speed by overlaying asphalt on the existing roads
	Mayor Fransisco Guerrero Jr. from Padada LGU asked what structures will be placed in the municipality and to those towns that weren't mentioned.	Ms. Olivia Baguio explained that they are working on connecting farms to roads to provide easier access. She added that they are collaborating closely with MINDA and various LGUs to assess the needs of each town. Furthermore, she urged the mayors of these towns to provide the necessary data to identify problem areas in the region.
	Ms. Olivia Baguio asked when will be the next PDC meeting	Ms. Imelda Rebuyon from PLGU Davao del Sur replied that the next PDC meeting will take place in October. She also added that there will be meetings with the Governors because they are still confused about which roads are directly affected.
	<p>Ms. Imelda Rebuyon from PLGU Davao del Sur requested Mr. Armand Perez to determine all the affected barangays of this project.</p> <p>Ms. Imelda Rebuyon asked about the connection between the incident reports and the needed repairs of these roads.</p>	<p>Mr. Armand Perez from GECI said that they have been in constant communication with various government offices in these areas to request incident reports to help them identify those affected areas.</p> <p>Ms. Julia Echavez from GECI replied that the reason for procuring incident reports is to determine the number of beneficiaries and the population in need of road improvements. She also added that they aim to gather environmental profiles for each barangay to assess factors like flood susceptibility, steep slopes, or other hazards. This data is valuable for identifying beneficiaries from a social perspective.</p> <p>Mr. Jerry David added that, at the moment, there are ongoing deviation lane barriers, and as part of safety measures, the installation of street lights is being considered. Given that the project is still in its feasibility study phase, all of these concerns will be raised</p> <p>Mr. Jerry David explained that as of the moment, the project is still in the feasibility study phase and is considering every aspect.</p>

NO.	Subjects	Status/ Actions
	<p>Ms. Imelda Rebuyon asked if bike lanes, street lights and islands will be installed.</p> <p>Ms. Imelda Rebuyon stated that as early as now they are expecting to see clear improvements to be installed.</p> <p>Ms. Imelda Rebuyon asked about existing overpasses with less usage from the residents. She also asked if there were proper studies conducted on these overpasses.</p> <p>Ms. Imelda Rebuyon asked whether the road will be converted into an eight-lane road, if there will be bike lanes and street lights installed, and if it will meet the super international standards. She also inquired if the road will only be maintained for five years.</p>	<p>Ms. Olivia Baguio reiterated that the project is still in the feasibility study stage. She also added the need for the barangays to submit incident reports in order to identify the areas along the main corridor that need improvements. She also added that it is up to the Congressman which areas he wants the project to be placed. The DPWH's duty is only to supervise the construction of these projects.</p> <p>Ms. Olivia Baguio explained that the goal is to standardize the maintenance of the roads. She added that, before the road is turned over to the district offices, which will be the eventual owners of the road, the project facilitators will first make sure that the maintenance of the newly rehabilitated road will be maintained in compliance with the standards set by the project coordinators. Ms. Olivia Baguio also stated that after the project concludes, the warranty period will take effect, and then the project will be handed over to the district offices.</p>
	<p>A participant stated that they thought that the drainage system project included those in the barangay area and not just highways.</p>	<p>The question was addressed by Ms. Olivia, she stated that when it comes to the World Bank Project, if that lane connects to the main line that is consistently flooded, that'll be the time to necessitate the installation of drainage.</p> <p>Furthermore, it is also said that the decision for this depends on the study. Ms. Oda clarified that what they're doing is social analysis and the study in the area. They need to make sure in due diligence that the environmental and social standards of the World Bank were compiled. thus, the interior barangays included in this study and was classified into direct and indirect areas</p>

NO.	Subjects	Status/ Actions
	<p>Mr. Alan Angub raised this concern at this juncture, saying that why is it that in the area of Sta. Cruz only 3 barangays were included in the said project.</p> <p>Follow-up question from Mr. Alan Angub, stating that if the due diligence was really implemented and that it is the very example of non-communication inserting due diligence.</p> <p>Mr. Cris Trinidad asked about the relocation in Sta. Cruz.</p> <p>Has there been a study conducted to address potential flooding issues during construction or to minimize their impact?</p>	<p>Ma'am Oda S. Beltran from GEI answered the concern about why only three barangays were included. She explained that the selection was based on the study's results and the criteria provided by the World Bank, and it doesn't necessarily mean that only these three will be included.</p> <p>Ms. Oda then explained that due diligence is the discussion between the consultant and the bank. That's why it will follow the standard provided by the World Bank to really look at what the necessary things to do in this project.</p> <p>It was then answered that the person responsible for the relocation is in the LGU. They must communicate with the DPWH office.</p> <p>Ms. Oda clarified to Mr. Allan the role of the consultants. The study provided by the consultant through the gathered data would assist the LGU and other offices in preventing situations like this (potentially referring to flooding during construction). The consultants will analyze the data and recommend necessary actions. The study conducted by the consultants will also be valuable in securing loans from the bank. The project's objective is to classify which sections require 2 or 4 lane roads and identify the necessary interventions</p>
	<p>Ms. Evangeline Carabal from DPWH raised her concern and suggested that, if possible, they should establish a standard for the structure or design of the cartrail.</p>	<p>The representative mentioned that this concern had already been noted in their previous meeting.</p>
	<p>Ms. Dyanne Grace Cabigas, a representative from IPs in Digos City, inquired about the projects planned for the city, specifically mentioning these three barangays: Brgy. Binaton, Brgy. Kapatagan, and Brgy. Goma, as well as Brgy. Balabag. She also highlighted that Brgy. Kapatagan is prone to landslides, which is one of their main problems."</p>	<p>Ms. Olivia Baguio answered that for now, their main corridor, as shown in the slides, is directed to Davao Oriental, and they have one project intended for Davao Oriental. She added that they will assess the needs for road access in the mentioned barangays in Digos and what they can do for the IP's community. Their assessment is currently focused on what's shown in the corridor, and later on, they will make recommendations to the locals.</p>
	<p>Randy Villarta, a Balutakay Barangay Captain, stated that in Hagonoy, they are suffering from a slippery road that has caused an estimated 40 car accidents. He asked about the intervention for this issue.</p>	<p>This concern has been noted and will be relayed to the office in charge.</p>

Photodocumentation

	<p>Invocation and National Anthem</p> <p>(September 28, 2023)</p>
	<p>Bryna Nolleth Lazaro acknowledged the participants</p> <p>(September 28, 2023)</p>
	<p>Presentation of the proposed project</p> <p>(September 28, 2023)</p>



Oda Beltran stated that they need to make sure in due diligence that the environmental and social standards of the World Bank were compiled.

(September 28, 2023)



Ms. Dyanne Grace Cabigas inquired about the projects planned within the Ancestral domain.

(September 28, 2023)

Date, time and place of the meeting:		28 September 2023	2:00 P.M. to 4:00 PM	City Hall of General Santos City
Attendees:				
	Lilibeth B. Rico	DPWH RMC II, UPMO	PM III	
	Evangeline Carabal	DPWH RMC II, UPMO	PM I	
	Olivia M. Baguio	DPWH RMC II, UPMO	PM I	
	Bryna Nolleth Lazaro	DPWH RMC II, UPMO	Engr.II	
	Rejan Mala	DPWH RMC II, UPMO	Engr.II	
	Armand A. Perez	GECI	a.perez@galerioenvi.com	
	Julia W. Echavez	GECI	j.echavez@galerioenvi.com	
	Oda S. Beltran	GECI	o.beltran@galerioenvi.com	
	Vanessa Pallarco	GECI	v.pallarco@galerioenvi.com	
	Leonila P. Galerio	GECI	gec@galerioenvi.com	
	Maricel D. Lloren	GECI	m.lloren@galerioenvi.com	
	Jecar Dela Cerna	GECI	j.delacerna@galerioenvi.com	
	Robeen John Gerodiaz	GECI	r.gerodiaz@galerioenvi.com	
	Agnes Cabanayan	GECI	a.cabanayan@galerioenvi.com	
Participants	Wil Francis Magnabijon	CEO	0910-814-8454	
	Alvin Veneracion	CMO	0921-674-5410	
	Jim Changco	CMO	0917-641-7459	
	Dominador Lagare	City Councilor		
	Reymando Clabi	Brgy. Captain - Dalwangan	0950-145-3992	
	Reyna Jane Albutra	SPCCO - Lagare	0915-096-2130	
	Margarita Jimena - Tuico	Yes We care	0928-746-7966	
	Benjamin Garcia	Chamber	0917-530-6972	
	Benny Claudio	Chamber	0917-634-1121	
	Gina Villor	CPDO	0932-885-8322	
	Ritchie Matutina	Brgy. Captain - City Heights	0948-933-5248	
	Alikhan Bentaib	Brgy. Captain - Batomelon	0935-894-2397	
	Josephine Jubakib	Wise	0975-502-9288	
	Rose Ann Absin	Yes We Care	0919-788-7731	
	Mary Joy Neri	GCCM	0933-603-0561	
	Bernadeth Francisco	CPDO		
	Allan Marcilla	City ENRO	0985-232-4011	
	Wilijado Fuster Jr.	DPWH SCIST DEO	0975-747-1766	
	Lei Angelous Bantilan	DPWH SCIST DEO	0956-175-8981	
	Renato Buhat Jr.	MinDA - Amosan	0917-129-9527	

Attendees:			
	Raymond Elicano	SPCCO - Lagare	0930-792-6035

NO.	Subjects	Status/ Actions
Open Forum		
	Ms. Olivia Baguio acknowledged the presence of City Councilor of General Santos City Mr. Dominador Lagare.	
	City Councilor Dominador Lagare addressed that they will not be affected by the project although the main corridor is Cagayan, Davao and GenSan and asked if this particular loan will be up to Malungon only. The City Councilor Dominador Lagare said that on behalf of the city mayor they are fully supportive of this proposed project.	Ms. Olivia Baguio replied that the loan will cover end to end.
	Mr. Benny Claudio asked if ROW is still considered in the project. Mr. Claudio inquired about the estimated budget for the project. Mr. Claudio added about the environmental permit.	Ms. Olivia Baguio answered that once the loan/budget is secured, ROW is included in the budget. Ms. Olivia explained that they are still at the due diligence and option analysis. Environmental permit is the requirements of ICC and there must be an environmental report (ECC). As for ECC we are still gathering data.
	Mr. Alvin Veneracion conveyed that there has been consistent road construction for the past 50 years, particularly in Sarangani and Davao del Sur. He expressed concerns that the proposed Davao-Gensan project may join the list of uncompleted road projects.	Ms. Olivia Baguio stated that the organization conducts regular preventive maintenance and uses a quarterly rating system. In the event of difficulties, they have access to international consultants who can recommend appropriate measures. These consultants work under contracts spanning 5-7 years, with designated 2-year periods for handling rehabilitation-related matters. The evaluations occur on a quarterly basis, as the PCCP preparation process is measured in square meters. Upon completing maintenance on one section, they will proceed to the next.

NO.	Subjects	Status/ Actions
	<p>Mr. Veneracion added that following a road construction project on one side, another construction commenced, resulting in a series of ongoing road developments. However, these roads fail to offer the intended convenience, thus defeating their purpose.</p> <p>Mr. Chairman asked the lifespan of a concrete pavement</p> <p>Mr. Chairman expressed concern regarding the recurring road construction repairs despite a concrete pavement's 20-year lifespan. He questioned whether contractors are held accountable or if corruption plays a role in this issue.</p>	<p>Ms. Olivia Baguio responded that the lifespan of a concrete pavement is around 20 years</p>
	<p>Mr. Chairman inquired about the specific farm-to-market road in General Santos that would be impacted by the proposed project. Based on the objectives of providing and enabling more efficient movement of agricultural products from hinterlands to market.</p> <p>Mr. Chairman added about local government units (LGUs) that lack the capability to maintain their local roads, and questioned the criteria for these roads to be considered for inclusion by the Department of Public Works and Highways (DPWH).</p> <p>Ms. Bernadeth conveyed that they will coordinate with DPWH and DA regarding farm-to-market roads.</p>	<p>Mr. Rejan Mala clarified that the project as a whole is from Cagayan to Gensan. In Gensan, part of the topic is the upgrading, maintenance and rehabilitation of existing roads. Farm-to-market roads are not under DPWH's mandate but fall under the Department of Agriculture budget.</p> <p>Ms. Olivia Baguio explained that local roads are under the mandates of DILG. DPWH can't overstep in other areas because they have their own budget unless recommended by other agencies. Ms. Baguio further explained the process of assigning DPWH to handle the local roads.</p>
	<p>Ms. Bernadeth Francisco recommended incorporating the effects on the drainage system into the analysis and noted that the diversion route (Davao-Gensan) possesses certain restrictions due to its terrain, preventing conversion for alternative purposes.</p> <p>Mr. Chairman commented that the road to Davao supposedly Kiblawan and not Baluyan, no mountains will be traversed.</p>	<p>Ms. Olivia Baguio responded that they are here for inputs and in the process of gathering data.</p> <p>Ms. Olivia Baguio indicated that the matter would be given due consideration.</p>
	<p>Mr. Lei Angelous Bantilan asked regarding the land use plan, certain areas will be prohibited as part of the environment. What will be the definite outline of the Due Diligence and Option Analysis?.</p>	<p>Ms. Julia Echavez elaborated on the necessity of due diligence, which includes site reconnaissance and information collection to evaluate potential improvements for various tasks. The engineering team is composed of geologists, road safety</p>

NO.	Subjects	Status/ Actions
	<p>We expect further consultations regarding those projects?</p> <p>The World Bank funding the feasibility study only or the construction also?</p> <p>Mr. Lei Angelous Bantilan shared that foreign funded projects are more long lasting and use different approaches when it comes to construction.</p>	<p>specialists, hydrology experts, and additional professionals who closely monitor the primary corridors and assess various alternatives for the link roads.</p> <p>Ms. Echavez responded that they are at the feasibility study stage to view options to consider for the link roads and to outlook for improvements and upgrades for the main corridors. This is for the introduction of the study and will be updated as the study proceeds.</p> <p>The World Bank is set to finance the construction project. Following the completion of the feasibility study, various stages must be taken into account within the established timeline, ensuring that both international consultants and foreign contractors are engaged.</p>
	<p>Ms. Bernadeth added input that in the feasibility study should consider the light, drainage, and median barrier in the design.</p> <p>Mr. Alvin Veneracion continues on the concern of median barrier and its design to be added to the study.</p> <p>Mr. Chairman adds to the concern that median barriers that have been set down in Davao del Sur and Koronadal City are too high in comparison to the median barriers in Upper Sinawal Bridge up to Airport.</p>	<p>Ms. Olivia Baguio emphasized that the current phase is focused on a feasibility study. The design process will involve consultations, and the employment of international consultants along with the adherence to international standards will be ensured.</p> <p>Ms. Baguio explained that at this point of time the study is gathering data for the options injected in the Due Diligence and Option Analysis. Local Government Units will be consulted.</p> <p>Ms. Baguio responded that regional office and district office have their own area of responsibility</p>
	<p>Mr. Allan Marcilla was concerned about the trees affected by the project and proposed to do an inventory on the number of trees affected and include the funding of tree replacement in the costing of the project.</p> <p>Mr. Allan Marcilla added that in the environment plan of the project sequestration should be incorporated.</p>	<p>Ms. Olivia Baguio explained that they have appeal in the department. The replacement is part of the contract of the contractor in the case of the internationally funded projects.</p> <p>It is part of the terms of reference and we have experts. In terms of tree replacement to be cut, DPWH has a policy and joint agreement with the DENR.</p> <p>Ms. Baguio stated that they are not mandated by their budget. We have agreements with other agencies that we don't overstep beyond our mandate. We have MoA with</p>

NO.	Subjects	Status/ Actions
	<p>Mr. Chairman commented that on the contract of the contractor the budget of replacement for trees should include the budget for maintenance.</p> <p>Mr. Allan Marcilla stated that CENRO submitted documents but there is no budget yet.</p> <p>Mr. Chairman's additional concern is the maintenance of the island in the center of the roads.</p> <p>Mr. Chairman suggested that with the use of the technology to construct a water line for the maintenance.</p>	<p>CENRO. We paid the seedlings as well as the nurturing with the help of CENRO's identified organizations.</p> <p>As a government agency we are also working on a bigger budget.</p> <p>Ms. Baguio explained that the upkeep of the island is not under the mandates of the DPWH. The maintenance for the island has no budget.</p>
	Mr. Renato Buhat concerns public safety particularly the size of the signages and the street lights during construction.	Mr. Rejan Mala stated that they will discuss this with the construction team to the implementation of the concern.
	Mr. Chairman asked based on the project objective it started from hinterlands. Is it possible to include the farm-to-market road in the world bank project?	Ms. Olivia Baguio explained that it's not only the DPWH, the world bank has also funded local projects but they have processes to follow and only 3 projects qualified.
	<p>City Councilor Dominador Lagare asked why can't we utilize tunnels and what is the engineering problem.</p> <p>City Councilor Dominador Lagare in addition asks if there are any protected sites that have presidential proclamation in the main corridors.</p> <p>City Councilor Dominador Lagare reiterated good points in the meeting and shared that the City Government of General Santos is supportive of the project and thanked the participants of the meeting.</p>	<p>Mr. Rejan Mala explained that the construction for a tunnel is costly.</p> <p>Ms. Olivia Baguio stated that there are no protected areas in Gensan that can be affected by the proposed project.</p> <p>Ms. Baguio further explained the process of handling the documents in case that there are protected areas affected.</p>
	Ms. Olivia Baguio asked for any additional concerns, particularly incident reports for the intervention of road safety measures.	
	Mr. Armand Perez of GECl requested records from the City of General Santos City on accident reports or road accidents in the previous five years to utilize the data for the improvement of implementing road safety measures.	City Councilor Dominador Lagare responded that the City's PNP - Traffic Enforcement Unit holds the statistical data for the monthly accident report. And will have a MTRFB meeting along with PNP-TEU for the concern.
2.	Adjournment	
	Ms. Lilibeth B. Rico for her departing message thanked the Mayor and all the participants for their insights on the project.	

Photodocumentation

Registration

(September 28, 2023)





Invocation and National Anthem

(September 28, 2023)

	<div>Acknowledgement of participants</div> <div>(September 28, 2023)</div>
--	--

	<p>Dominador Lagare said that on behalf of the city mayor they are fully supportive of this proposed project.</p> <p>(September 28, 2023)</p>
	<p>Lei Angelous Bantilana asking about the definite outline of the Due Diligence and Option Analysis?</p> <p>(September 28, 2023)</p>

Date, time and place of the meeting:		29 September 2023	9:00 AM to 11:00 AM	Alabel, Sarangani Province
Attendees:				
	Lilibeth B. Rico	DPWH RMC II, UPMO	PM III	
	Evangeline Carabal	DPWH RMC II, UPMO	PM I	
	Olivia M. Baguio	DPWH RMC II, UPMO	PM I	
	Bryna Nolleth Lazaro	DPWH RMC II, UPMO	Engr.II	
	Rejan Mala	DPWH RMC II, UPMO	Engr.II	
	Armand A. Perez	GECI	a.perez@galerioenvi.com	
	Julia W. Echavez	GECI	j.echavez@galerioenvi.com	
	Oda S. Beltran	GECI	o.beltran@galerioenvi.com	
	Vanessa Pallarco	GECI	v.pallarco@galerioenvi.com	
	Leonila P. Galerio	GECI	gec@galerioenvi.com	
	Maricel D. Lloren	GECI	m.lloren@galerioenvi.com	
	Jecar Dela Cerna	GECI	j.delacerna@galerioenvi.com	
	Robeen John Gerodiaz	GECI	r.gerodiaz@galerioenvi.com	
	Agnes N. Cabanayan	GECI	a.cabanayan@galerioenvi.com	
Participants	Reuben G. Salazar	DPWH - SDEO	0905-553-0924	
	Caryl Joy D. Forro	PENRO – LGU/Alabel	0998-190-7991	
	Renato A. Buhat, Jr.	MinDA – AMO SCm	0917-129-9527	
	Elmer C. Jingco	PEO	0995-633-6305	
	Divine Grace Sumaira T. Fernandez	PLGU	0927-559-4205	
	Nenita Sitier	PPDO	0917-498-1043	
	Arnold F. Santos	PPDO		
	Joji Eunice C. Lasalita	PPDO	0908-896-6047	
	Edwin Aballe	Barangay Captain - San Miguel	0930-221-8388	
	Cesar C. Fernando	IPMR		
	Romeo T. Moda	IPMR - San Miguel	09109644703	
	Annie Lorraine Jorillo	Brgy. Treasurer - Poblacion Malungon	0981-086-9669	
	Arman U. Guili	SP	0939-350-8814	
	Richard E. Saranillo	MPDO	0917-628-5451	
	Norma P. Adia	BLGU	0909-646-9398	
	Shiela S. Manocay	BLGU	0966-924-5279	
	Ahasuerus Keen A. Pacheco	MPDO	0970-804-2987	
	Mark Anthony Zagales	MEO	0970-188-6000	

NO.	Subjects	Status/ Actions
Open forum		
	Nenita Sitier of PPDO mentioned about the upcoming Provincial Development Council (PDC) – Sectoral presentation in October, 2023. In line with the aforesaid event, she asked for the copy of the presentation to be endorsed and submitted to the PDC secretariat to be included in the agenda.	PM Olivia Baguio responded that her team will provide a copy of the presentation. Furthermore, DPWH will wait for the invitation for the PDC – Sectoral presentation.
	Edwin Aballe, Brgy. Captain of Brgy. San Miguel, Malungon, raised the concern on the affected structures. He was particularly concerned on how to explain the compensation to the public.	PM Olivia Baguio referred to RA 10752 otherwise known as <i>An Act Facilitating the Acquisition of Right-Of-Way Site or Location for National Government Infrastructure Projects</i> as a reference for the compensation. She iterated that in foreign-assisted projects, there are additional costs (e.g., transportation) with the government compensating them. As the project is still in its first phase, they are only required to provide the estimated cost of the project. On the Detailed Engineering Design, LGUs will be involved.
	Caryl Joy D. Forro of PENRO informed the participants that Galerio Environmental Consultancy Inc. is in-charge of the Feasibility Study and data collection for Due Diligence and Options Analysis.	
	Richard E. Saranillo of MPDO requested a recap of the presentation as they arrived late due to other prior commitments.	PM Olivia Baguio recapitulated the whole presentation.
	<p>Mr. Arman U. Guili commented that the road, as presented, from San Miguel to Datu Intan is not an existing road and can only be traversed through motorcycles and horses. He asked for clarification where the road connected to the Sta. Maria road will traverse.</p> <p>Mr. Arman also suggested a different route traversing five barangays which allegedly benefits more farmers.</p> <p>Mr. Arman Guili also pointed out various routes and which barangays could benefit most but he emphasized the road from San Roque traversing barangay Upper Lumapat to San Juan wherein these 3 barangays produce most of the agricultural products particularly coconuts, banana and cacao and pointed out that in one of these barangays, a cacao processing plant was constructed but was stopped due to difficult road access.</p>	<p>Ms. Olivia Baguio took note of Mr. Guili's suggestions and explained that the feasibility studies are not limited to only one option.</p> <p>Mr. Armand Perez from GECI affirmed Mr. Guili's sentiments regarding the difficult conditions of the road from San Miguel to Datu Intan. Mr. Armand informed Mr. Guili that there are three proposals being prepared to be presented to NEDA.</p> <p>Ms. Olivia Baguio added that if the procurement of the loan is done, international consultants will be hired.</p> <p>Ms. Olivia Baguio thanked Mr. Arman Guili's inputs and assured him that they will look closely into his suggestions.</p>
	Engr. Mark Anthony Zagales, Municipal Engineer from Malungon, commented on the conduction of the feasibility studies.	Ms. Olivia Baguio stated that her team together with the World Bank, went to the Sta. Maria area but they were only able to go to the

NO.	Subjects	Status/ Actions
	<p>Will there only be revisions of the Feasibility Studies?</p> <p>Mr. Zagales also suggested that the most feasible route for them is the San Miguel - Datu Intan road.</p>	<p>passable sections in Malungon area.</p> <p>Ms. Olivia Baguio stated that a feasibility study offers different alternatives and it aims to give options to the project facilitators. She also added that there will be more consultations in the future</p> <p>Ms. Olivia Baguio thanked Mr. Zagales for his input. She explained that the project is still in its first phase and is still awaiting on future fundings from the World Bank. Once the loan is secured, and the approval from NEDA, the department will hire international consultants to aid the detailed design process.</p> <p>In addition, a representative from MinDA stated that there are five FS and one was recommended. The due diligence and option analysis study is considered as an alternative. He also added that the Sta. Maria-Malungon road is part of the areas identified by the NTF-ELCAC.</p>
	Mr. Arman U. Guili asked if the funding presented will prioritize the proposed national road.	A representative from MinDA replied that all of the proposals connecting to the main corridor can be proposed to the board. He also asked the PLGU if they have any proposal that does not connect the two roads.
	Mr. Guili asked where the proposed road traverses. He also suggested a different route which, according to his own opinion, is easier to connect to the main corridor. He also expressed his concern to the IP people near the area because according to him it comprises 80-85% of residents from the Tribo Tagakaulo. In addition, he also noted that from junction Malungon traversing Upper Mainit to San Miguel connecting Brgy. Kawayan are also provincial roads and every year, funds are allocated for concreting. He finished his statement by leaving it up to the hands of the project facilitators whether or not they will follow their suggestions.	A representative from MinDA thanked Mr. Guili for his recommendations and stated that they encourage more input from the locals as it is the main goal of the public consultation.
	<p>Mr. Richard E. Saranillo, MPDO, expressed his gratitude towards the Governor's prioritization of the proposal.</p> <p>Mr. Saranillo also noted that there is misinformation regarding a Malungon to Sta. Maria road. The truth is the study is still on-going and has not yet been approved by the World Bank.</p>	A MinDA representative clarified that certain sections of the road already have initial fundings.
	Mr. Elmer Jingco expressed his concern about conducting multiple Feasibility Studies on the same section conducted by different consultants. He suggested to exempt the area with existing FS and focus on other scope of the project to save funds.	<p>Ms. Olivia Baguio clarified that the consultants' job is to create Due Diligence and Options Analysis which means that they will not start from scratch but rather provide possible recommendations.</p> <p>Mr. Armand Perez explained that they are hired by the World Bank to conduct due diligence which means that they will recommend</p>

NO.	Subjects	Status/ Actions
		<p>which proposal costs less but gives premium benefits to its beneficiaries. He added that despite the fact that there are existing feasibility studies around the area, it will be compiled and determine which proposals will give the most benefits at a lower cost.</p> <p>Ms. Julia Echavez from GECI added that they are aware of the existing feasibility studies and these studies were used as a part of their review in conducting the Due Diligence and Options Analysis. If one of these feasibility studies is approved, funds from the World Bank will be secured.</p> <p>Ms. Olivia Baguio set a target date for the approval of the loan which is by April 2024.</p> <p>Mr. Armand Perez urged the LGU's to provide precise and detailed data to identify the black spots that need rehabilitation as it is one of the requirements from the World Bank</p> <p>Ms. Vanessa Pallarco from GECI added that the existing FS can be used as a reference as a part of the desk review. At the same time as part of the added feature of the ESF from the world bank, the interventions should adhere with the World Bank's "do no harm" principle which looks into the relationships between the community.</p>
	Mr. Arman Guili added that one of the proposals could traverse the ancestral domain of the tribe Tagakaulo and is awaiting the issuance of the DENR for the Certification of Non-Overlapping. He also appealed to the team to consider his earlier proposal.	Ms. Olivia Baguio thanked Mr. Arman and assured that they will be working with various government agencies.
2.	Other Matters	
	<ul style="list-style-type: none"> Miss Bryna Nolleth Lazaro from DPWH RMC II, UPMO informed everyone that the meeting will be cut short as they will still travel to Malita. 	

Photodocumentation

	<p>Registration</p> <p>(September 29, 2023)</p>
	<p>Acknowledgement of participants</p> <p>(September 29, 2023)</p>
	<p>Presentation of the proposed project</p> <p>(September 29, 2023)</p>

	<p>Edwin Aballe expressed concern about the structures that were affected. He particularly worried about how to communicate the compensation plan to the public.</p> <p>(September 29, 2023)</p>
	<p>Richard E. Saranillo expressed his appreciation for the Governor's support and prioritization of the proposal.</p> <p>(September 29, 2023)</p>
	<p>Arman Guili questioned the proposed road's path and suggested an easier alternative. He expressed concern for the Tagakaulo tribe, an Indigenous People (IP) living in the area, who make up 80-85% of residents.</p>

Date, time and place of the meeting:		29 September 2023	2:00 P.M. to 4:00 PM	Malita, Davao Occidental
Attendees:				
	Lilibeth B. Rico	DPWH RMC II, UPMO	PM III	
	Evangeline Carabal	DPWH RMC II, UPMO	PM I	
	Olivia M. Baguio	DPWH RMC II, UPMO	PM I	
	Bryna Nolleth Lazaro	DPWH RMC II, UPMO	Engr.II	
	Rejan Mala	DPWH RMC II, UPMO	Engr.II	
	Armand A. Perez	GECI	a.perez@galerioenvi.com	
	Julia W. Echavez	GECI	j.echavez@galerioenvi.com	
	Oda S. Beltran	GECI	o.beltran@galerioenvi.com	
	Vanessa Pallarco	GECI	v.pallarco@galerioenvi.com	
	Leonila P. Galerio	GECI	gec@galerioenvi.com	
	Maricel D. Lloren	GECI	m.lloren@galerioenvi.com	
	Jecar Dela Cerna	GECI	j.delacerna@galerioenvi.com	
	Robeen John Gerodiaz	GECI	r.gerodiaz@galerioenvi.com	
	Agnes N. Cabanayan	GECI	a.cabanayan@galerioenvi.com	
Participants	Janice T. Otorodos	Brgy. Sec - Demoloc	0935-186-2585	
	Jerry P. Matanggo	Brgy. Kagawad - Demoloc		
	Alberto Baliota III	Brgy. Chairman - Demoloc	0966-421-3746	
	Frederick F. Fajardo	PPDO	0917-301-9584	
	Jovie Ann B. Ortigas	PEO		
	Victoria U. Yu	Brgy. Captain - Pongpong		
	Ceasar T. Calzada, Jr.	Brgy. Captain - Poblacion	0912-609-8616	
	Mariano G. Panorio	Brgy. Captain - San Isidro	0912-519-3297	
	Anthony B. Guindulan	Brgy. Captain - Datu Intan	0930-786-7121	
	Rogelio A. Mamulawan	Brgy. Kagawad - San Antonio		
	Benjie E. Sandigan	DPWH – DEO	0917-322-6001	
	Rey G. Mejares	DPWH	0910-983-9968	
	Madelyn C. Birondo	PENRO – LGU	0921-272-1387	
	Rey Marlene B. Dela Cruz	BLGU - Malita	0953-320-3124	

NO.	Subjects	Status/ Actions
Open Forum		
	Ms. Olivia Baguio inquired the PPDO on when the next Provincial Development Council will be held.	Mr. Frederick Fajardo of PPDO responded that the next PDC will be in October, although no specified date yet.
	Mr. Rey Mejares of DPWH - District informed that there is an existing road project and explained the details of the project.	Ms. Olivia Baguio shows appreciation for the information given.
	Mr. Frederick Fajardo asked about the involvement and influence of government agencies such as PENRO in the road project handling, the road right of way and the affected households.	Ms. Olivia Baguio explained that the hired consultants are in charge of the feasibility study and gather this sort of data for Due Diligence and Optional Analysis to deliberate by MinDA for submission. The involvement of government agencies is to provide data that can contribute to the study.
	Mr. Joey from DPWH District, asked the barangay captains of the affected barangays if they had encountered issues like floods or landslides.	Mr. Anthony Guindulan, the Barangay Captain of Datu Intan, shared his community's experience with flooding and landslides. Mr. Joey assured Captain Guidalan that his input will be considered.
	Mr. Jerry Matanggo from Brgy. Demoloc had an additional query regarding whether there is compensation for the cutting of trees, including coconut.	Ms. Olivia Baguio clarified that there is an existing law in place to compensate for the cutting of trees and houses affected by the project. Additionally, she noted that the Philippine Coconut Authority is responsible for covering the cost associated with compensating coconut trees.
	Alberto Baliota from Brgy. Demoloc asked about the project's effects on their community.	Ms. Olivia Baguio mentioned that the inclusion of Barangay Demoloc is considered as an alternative option in the project. Additionally, she stated that there are currently five existing alternative options under review, in line with the Due Diligence and Optional Analysis. Mr. Armand Perez from GECL clarified that the inclusion of brgy. Demoloc in the study was based on DPWH data. He further explained that if a section of a barangay was affected to a certain extent, it is considered as being involved in the study.
	Alberto Baliota added there is an existing road project from Demoloc to Malungon, but it has been interrupted due to conflicts related to boundaries.	PM Olivia Baguio affirmed that the provided inputs would be considered in the decision-making process.

	Mr. Benjie Sandigan of DPWH-DEO referred to Indigenous Peoples' Rights Act of 1997 as a reference in the concern that the National Commission on Indigenous Peoples should be informed on account of Ancestral Domain in order to invite IPs during consultation.	PM Olivia Baguio stated that NCIP is one of our partners. Ms. Oda Beltran of GECI reported that they have conducted assessments from Poblacion to Sta. Maria to Barangay San Antonio. Additionally, she mentioned that in Sarangani, a member of the Sangguniang Panlalawigan informed them that they have resolved the ancestral domain issue in San Miguel.
	Ms. Beltran asked the BLGUs about the status of CADT (Certificate of Ancestral Domain Title), considering that 90% of the population in the five barangays of Sta. Maria belongs to the Tagakaulo community. She also noted that based on their observations, the road is situated on top of a mountain.	Mr. Anthony Guindulan stated that most of the population there belongs to the Tagakaulo community, and there are no Ancestral domain issues. He also mentioned that the community relies on experts for road construction due to their limited knowledge in that field.
	Mr. Joey requested DPWH on the alignment of the road construction.	Mr. Benjie Sandigan from DPWH clarified that the original road alignment is unsafe for travel due to a section in Brgy. Pongpong before Sitio Lumbia, where it is not feasible to construct two lanes, especially during heavy rains, as it is susceptible to landslides.
	Ms. Maricel Lloren from GECI clarified the direction of the mentioned routes, and	Mr. Sandigan recommended exploring Barangay Kidadan as a potential rerouting option while maintaining the same exit route. He presented two suggested routes: <ol style="list-style-type: none"> 1. A route before the landslide-prone area that leads downward into a section of Barangay Kidadan and then exits to Barangay Lumbia. 2. An alternative route that enters the main portion of Barangay Kidadan and proposes the construction of a bridge.
	Ms. Oda Beltran requested the DPWH to assist GECI for review of the suggested routes	

	A representative of Barangay Affairs Santa Maria inquired about the involvement of the Local Government Unit in the Project.	<p>Ms. Olivia Baguio responded that the Local Government Units (LGUs) play a role in providing assistance for security purposes, contributing to the Comprehensive Land Use Plan (CLUP), and involving residents in providing input for the design of the proposed project</p> <p>The representative added with regards to the CLUPs that it is not finalized because it is only the first term of the new administration.</p>
	Alberto Baliota inquired whether brgy. Demoloc could be included in Phase 2 of the project.	Ms. Olivia Baguio replied that MinDA will decide to finalize the project.
2.	Adjournment	
	Ms. Lilibeth B. Rico expressed her gratitude to the guest and all participants for sharing their valuable insights on the project in her departing message.	

Photodocumentation



Invocation and National Anthem

(September 29, 2023)



Mr. Rey Mejares informed about an existing road project and elaborated on its specifics.

(September 29, 2023)

 A photograph showing Mr. Anthony Guindulan, a man in a yellow polo shirt, speaking into a microphone at a meeting. He is seated at a table with other participants. A woman in a white shirt is visible in the background.	<p>Mr. Anthony Guindulan,] shared his community's experience with flooding and landslides.</p> <p>(September 29, 2023)</p>
 A photograph showing Mr. Sandigan, a man in a pink shirt, standing and presenting a map on a screen. The map is titled "Main Corridor" and shows a route through a landscape. He is holding a microphone and addressing a group of people seated at tables.	<p>Mr. Sandigan suggested considering Barangay Kidadan as a possible alternative route while keeping the same exit route intact.</p> <p>(September 29, 2023)</p>
 A photograph showing a group of people seated around a large conference table in a meeting room. They are engaged in a discussion. The room has large windows with blinds and a clock on the wall.	<p>Oda Beltran requested the DPWH to provide assistance to GEI in reviewing the suggested route.</p> <p>(September 29, 2023)</p>

Annex 2. Focus Group Discussions (FGDs)

Activity	Date	Venue	Total Number of Participants			Type of stakeholders		Key Issues discussed	Response of Project team/ Next steps
			Male	Female	LGBT	Women, Senior, People, Sector	Youth, Indigenous Business		
Focus Group Discussion 1	Oct 17, 2023	CPDO Conference Room, Cagayan Davao de Oro City, Misamis Oriental	5	8		CPDO, Sector, CEO	Women ORO-TIPS, CEO	<p>3. What are your current experiences with using the [name of main corridor segment and/or link road] in your area? (how often, how long, for what purpose the road is used)</p> <p>4. Are there any other concerns aside about the project from what was mentioned?</p> <p>5. What are your suggestions on how the road improvement project can be implemented to address these concerns, manage risks, or mitigate possible adverse effects?</p>	<p>1. CPDO responded the road is smooth and fast, except in Puerto where it's always crowded</p> <p>2. Women and Senior representative: they usually take the Balabal route instead of the congested Puerto route.</p> <p>3. ORO-TIPC: it is important for them to consider the logistic side and facilitate the transport of goods.</p> <p>4. CEO: It's advisable for different groups working in similar projects to collaborate and share their roadmaps to prevent conflict and overlapping efforts.</p> <p>2.1 suggest conducting a thorough geologic study to avoid this type of problem</p> <p>2.2 The drainage system of DPWH is only 10% where in fact the DPWH standard must be 30%.</p> <p>2.3 the ROW problem does not only affect the residents. There are cases where they experience utility problem in which the project was done but the equipment used stays in the area which causes trouble.</p> <p>5.1 Suggested that the DPWH to apply permit of cutting trees by whole not only by section.</p> <p>5.2 About peace and order, there are two things to look at (1) rebelde, (2) organized crime groups. If there is better infrastructure, there would be a chance that these would leave the area.</p>

Activity	Date	Venue	Total Number of Participants			Type of stakeholders		Key Issues discussed	Response of Project team/ Next steps
			Male	Female	LGBT	Women, Senior, People, Sector	Youth, Indigenous Business		
									5.3 CDO lacks many things including perfect plan, they must improve. Why not consider linking to Talakag area?

Photo Documentation:

Oda Beltran discussed the proposed study of Mindanao Transport Connectivity Improvement Project (MTCIP)



Jeo M. Vaterio is inquiring about the project's timeline and its implementation date.



Oliver Torres provided information about a collaborative project with the National Housing Authority (NHA).

ATTENDANCE SHEET

Project : MTCIP - DDOA
 Activity : Focus Group Discussion
 City/Mun. : Cayan de Oro City/ Misamis Oriental
 Date : October 17, 2023

NAME	ADDRESS	SECTORAL REPRESENTATIVE						SIGNATURE
		Women	Youth	Senior Citizen	Indigenous People	Business Sector	Peace & Security	
1. LITA MAHJORIE ROSE M. NOVA	Cayan de Oro City							
2. Julius Anggamay	Cayan de Oro City							
3. Jocelyn M. Salcedo	Cayan de Oro							
4. Hanin Laguidab	CAYAN DE ORO							
5. Joni Asunaw	Cay							
6. Oda S. Beltran								
7. Carmeli Chaves	Galerio ECI Inc.							
8. Vanessa Pallas	GECI							
9. Jero M. Valerio	CPDO							
10. SIMONETTE F. SAGARAL	ORO-TIRC							
11. ISIDRO G. POKUS	ORO-TIRC							
12. Monica Loran	GECI							
13. MARJANESSE ARMILLO	GECI - OST							
14. Rogelio W. CORDOBA	Puerto							
15. TORRES, OLIVER GREGORY	CIUDDO							

REGISTRATION FORM

Project : MTCIP - DDOA
 Activity : Focus Group Discussion
 City/Mun. : Cayan de Oro City/ Misamis Oriental
 Date : October 17, 2023

NAME	AGE	GENDER			CONTACT NUMBER	EMAIL ADDRESS	SIGNATURE
		MALE	FEMALE	LGBT			
1. Mrs. MARJORIE POSE M. MONTILLO	45		✓		09157646799	lizamontillo@gmail.com	Jos
2. Julius Anggama	28	✓			0905 0383421	reignjakae24@gmail.com	Jr
3. Jocelyn M. Salcedo	40		✓		09925 2010826	jomensalcedo63@gmail.com	Jocelyn M. Salcedo
4. Hanin Laguindab	26	✓			0945-254-0789	hlaguindab17@gmail.com	Hanin
5. John Lawrence	49	✓			0917 791 9090	JOHNWLAWRENCE@gmail.com	John Lawrence
6. Oda S. Beltran	64		✓		09994209125	edaskeltran@gmail.com	Oda S. Beltran
7. Carmeli Chavez	54		✓		0917 794 4273	c.chavez@galerienvi.com	C. Chavez
8. Vanessa Alvarez	37		✓		09178237310	vanessav.alvarez@gmail.com	Vanessa Alvarez
9. Jeo M. Valerio	50	✓			09999939776	valeriojeo@gmail.com	Jeo M. Valerio
10. SIMONETTE F. SAGARA	51		✓		09551531630	sfsagara12@gmail.com	Simonette F. Sagara
11. ISIDRO G. PROKETS					0917 540 6341		Isidro G. Prokets
12. Monica Vorn	74		✓		0917105 0072		Monica Vorn
13. MARJANESSE PRIMILLA	22		✓		09950311219		Marjanesse Primilla
14. ROLANDO M. CORDOBA	73				0977-7720818		Rolando M. Cordoba
15. TORRES, OLIVER GREGORY	76	✓			0906 7017008	torresolivergregory@gmail.com	Oliver Gregory Torres

Activity	Date	Venue	Total Number of Participants			Type of stakeholders		Key Issues discussed	Response of Project team/ Next steps
			Male	Female	LGBT	Women, Senior, People, Sector	Youth, Indigenous Business		
Focus Group Discussion 2	Oct 18, 2023	Tourism Hall, Municipality of Impasug-ong, Province of Bukidnon	6	19		Senior, IPs, LGU,		2. What are your current experiences, are there any other concerns aside about the project from what was mentioned?	<p>2. Representative from senior: Raise her concern of the affected houses and buildings, and asked what this project will do?</p> <p>3. IP representative: Transporting of goods will be easy and convenient from the airport to the port. However, once the road is developed, I think one potential issue could be that some drivers might take advantage of the roads, driving carelessly and fast without considering the other travelers.</p> <p>4. LGU Impasug-ong): In my experience, traveling from Brgy. Kapitan Bayong to Cawayan is difficult due to rough roads, the difficulty of students going to school, and emergency cases that may arise due to heavy rains, leading to slippery roads. The trucks from big companies also contribute to road damage due to the goods that they transport</p> <p>5. IP sector: recommend reducing the curves as they can contribute to road accidents. Drivers have to slow down while navigating the curves, affecting traffic flow.</p>

Activity	Date	Venue	Total Number of Participants			Type of stakeholders		Key Issues discussed	Response of Project team/ Next steps
			Male	Female	LGBT	Women, Senior, People, Sector	Youth, Indigenous Business		
								<p>3. How would you and your community like to be involved in the planning, design and implementation of the road improvement project?</p>	<p>Curves often became hotspots of accidents.</p> <p>6. Speed limit should be implemented. Installation of signages for seniors</p> <p>2.1 Participant: It would be beneficial if laborers from outside the area maintain a logbook, allowing the barangay to effectively monitor their activities. Conducting a slight background check is essential, as we may not be aware of any pending issues. For instance, in Barangay Kibenton, an individual from the laborer was apprehended for drug use.</p> <p>a. we will have easy access to hospitals, and there won't be hindrances for students going to school. As a member of the senior community</p>

Photo Documentation:

Oda Beltran discussed the proposed study of Mindanao Transport Connectivity Improvement Project (MTCIP)



Frederick S. Nacaytuna shared about how grateful it is of this project



Josefino Manalo shared her suggestion of solar street lights on highways for the safety of the riders.



Florentino Minggi suggests the establishment of shortcut connecting the farm-to-market road



Estrella Torres recommended implementing appropriate signage for senior citizen crossing on the street.

CONSENT FORM

(October 18, 2023)

STUDY PROJECT:**Conduct of FGD and KII****Due Diligence and Options Analysis: Mindanao Transport Connectivity Improvement Project****FACILITATOR/S:** Galerio Environmental Consultancy Incorporated (GECI) Social Team**DOCUMENTERS:** Galerio Environmental Consultancy Incorporated (GECI) Social Team

1. I agree to participate in the FGD and KII for Municipality/City of Impasugong organized and facilitated by GECI, to contribute with the study project.
2. GECI Social Team had explained the study project and I understand the objectives of FGD and KII.
3. I am aware that the FGD and KII will respond to the Guide Questions prepared for the study project.
4. I acknowledge that I will remain unnamed; answer any of the guide questions at my own free will; and have the rights to decline to answer the questionnaire at any point.
5. I agree for the documentation and audio recording of the proceedings for analysis and entry planning purposes. I also agree that the data and information will be stored securely and safely and will be used solely for the Due Diligence and Options Analysis for Mindanao Transport Connectivity Improvement Project.

Signed on this day 18 of October, 2023 in Tourism Hall.

NAME	BARANGAY	ORGANIZATION / INSTITUTION	SIGNATURE
1. Anna T. Comungay	Impasugong	Business Sector	[Signature]
2. Goldie Mae Casilio	Impasugong	(Business) Sector	[Signature]
3. Vanna Bhic Paday	Impasugong	Business Sector	[Signature]
4. Marife C. Antivo	Impasugong	Business Sector	[Signature]
5. CHRISTOPHER V. FLORENO	Impasugong	Business Sector	[Signature]
6. Maricel D. Dagno	POBLACION.IMP.	BUSINESS SECTOR	[Signature]
7. Maricar D. Belican	POBLACION.IMP.	Youth	[Signature]
8. Anna Liza B. Saphan	POBLACION.IMP.	Youth	[Signature]
9. Narayana Marlene P.	Impasugong	Women	[Signature]
10. Suldahan, Nario G.	Impasugong	IP Sector	[Signature]

CONSENT FORM

(October 18, 2023)

STUDY PROJECT:**Conduct of FGD and KII****Due Diligence and Options Analysis: Mindanao Transport Connectivity Improvement Project****FACILITATOR/S:** Galerio Environmental Consultancy Incorporated (GECI) Social Team**DOCUMENTERS:** Galerio Environmental Consultancy Incorporated (GECI) Social Team

6. I agree to participate in the FGD and KII for Municipality/City of Impassug-ong organized and facilitated by GECI, to contribute with the study project.
7. GECI Social Team had explained the study project and I understand the objectives of FGD and KII.
8. I am aware that the FGD and KII will respond to the Guide Questions prepared for the study project.
9. I acknowledge that I will remain unnamed; answer any of the guide questions at my own free will; and have the rights to decline to answer the questionnaire at any point.
10. I agree for the documentation and audio recording of the proceedings for analysis and entry planning purposes. I also agree that the data and information will be stored securely and safely and will be used solely for the Due Diligence and Options Analysis for Mindanao Transport Connectivity Improvement Project.

Signed on this day 18 of October, 2023 in Tourism Hall.

NAME	BARANGAY	ORGANIZATION / INSTITUTION	SIGNATURE
11. Suminiao, Silvano C.	IP Poblacion	IP Sector	
12. Cortezola San, Lucas			
13. Lot San, Lucas			L.S
14. Florida M. Romulo SC-Treas.			
15. Estrella Torres	Poblacion SC		
16. Hermosilla Palmas	Poblacion		
17. Teodora Escobio	Poblacion		
18. FLORENTINO G. MORALES	PRB. JIM. MUK	SC / OSCA / TRA	
19. Sonila F. Patis	P.T. Peh. Dimp. Pul	SC /	
20. FLORENTINO G. MORALES	PRB. JIM. MUK	SC	

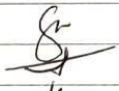
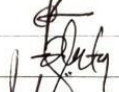
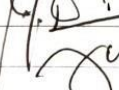
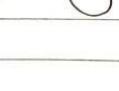
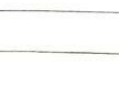

CONSENT FORM

(October 18, 2023)

STUDY PROJECT:**Conduct of FGD and KII****Due Diligence and Options Analysis: Mindanao Transport Connectivity Improvement Project****FACILITATOR/S:** Galerio Environmental Consultancy Incorporated (GECI) Social Team**DOCUMENTERS:** Galerio Environmental Consultancy Incorporated (GECI) Social Team

11. I agree to participate in the FGD and KII for Municipality/City of Impassy-ong organized and facilitated by GECI, to contribute with the study project.
12. GECI Social Team had explained the study project and I understand the objectives of FGD and KII.
13. I am aware that the FGD and KII will respond to the Guide Questions prepared for the study project.
14. I acknowledge that I will remain unnamed; answer any of the guide questions at my own free will; and have the rights to decline to answer the questionnaire at any point.
15. I agree for the documentation and audio recording of the proceedings for analysis and entry planning purposes. I also agree that the data and information will be stored securely and safely and will be used solely for the Due Diligence and Options Analysis for Mindanao Transport Connectivity Improvement Project.

Signed on this day 18 of October, 2023 in Tourism Hall.

	NAME	BARANGAY	ORGANIZATION / INSTITUTION	SIGNATURE
21.	JUMILAP, JOSIELYN	CAWATAN	women	
22.	Pacheco, Samy	CAWATAN	ukh	
23.	Cristita Navarro	CAWATAN	women	
24.	Fredrick Macaytuna	Impassy-ong	MATHATH	
25.	JOSEFINO D. MARALLO	CAWATAN	BLGU	
26.	Benissa Joya D. Chin	Poblacion	Poblacion Women	
27.				
28.				
29.				
30.				

ATTENDANCE SHEET

Project : MTCIP - DDOA
 Activity : Focus Group Discussion
 City/Mun. : Impasugong
 Date : October 18, 2023

NAME	ADDRESS	SECTORAL REPRESENTATIVE						SIGNATURE
		Women	Youth	Senior Citizen	Indigenous People	Business Sector	Peace & Security	
1. Anna T. Comunguit	P-9 Impasugong	✓				✓		Anna T. Comunguit
2. Goldie Mae Casino	P-2 Impasugong	X				✓		Goldie Mae Casino
3. Vonna Bric Paday	P-3 Impasugong	X				✓		Vonna Bric Paday
4. Marife C. Antivo	P-5 Impasugong					✓		Marife C. Antivo
5. CHRISTOPHER U. FLORENCIO	P-7 POB. IMPASUGONG					✓		CHRISTOPHER U. FLORENCIO
6. Maricel D. Dagno	P-7 POB. IMPASUGONG	✓				✓		Maricel D. Dagno
7. Maricar D. Belican	P-3, Poblacion Imp.		✓					Maricar D. Belican
8. Anna Liza B. Saphan	P-3, Poblacion Imp.		✓					Anna Liza B. Saphan
9. Nacaytun, Marilon P.	Impasugong Imp.	✓						Nacaytun, Marilon P.
10. Subolan, Nario G.	Poblacion				✓			Subolan, Nario G.
11. Suminao, Silvano C.	Poblacion				✓			Suminao, Silvano C.
12. COHAZOLU A SAPHIRAO								COHAZOLU A SAPHIRAO
13. Lot A SAPHIRAO								Lot A SAPHIRAO
14. Teodora E. Escobio	Poblacion			✓				Teodora E. Escobio
15. FERNANDO G. MARIAN	POB. TIM. Pobl.	✓		✓	✓			FERNANDO G. MARIAN

ATTENDANCE SHEET

Project : MTCIP - DDOA
 Activity : Focus Group Discussion
 City/Mun. :
 Date :

NAME	ADDRESS	SECTORAL REPRESENTATIVE						SIGNATURE
		Women	Youth	Senior Citizen	Indigenous People	Business Sector	Peace & Security	
1. Hermocilia M. Salinas	Poblacion P.8	✓		✓				hmdalinas
2. Leonila F. Putie	Pop. Imp.	✓		✓				LP
3. Eufreela F. Torres	Pop. Imp.	✓		✓				LP
4. Florida M. Normen	P-8 Poblacion	✓						LP
5. Uvarro C. Cristita	P-4 Cawayan	✓		✓		✓		LP
6. TUMILAP, JOSEFIN	CAWATAN	✓						LP
7. Pochuco Sam	Camayan	✓		✓				LP
8. Fredanick S. Macaytura	Impalutao				✓			LP
9. JOSEFINO B. MANAYO	CAWATAN			✓				LP
10. Penissa Lopez B. Cam	Poblacion	✓						LP
11.								
12.								
13.								
14.								
15.								

REGISTRATION FORM

Project : MTCIP - DDOA
 Activity : ~~Key Informant Interview~~ Focus Group Discussion
 City/Mun. : Impasug-on
 Date : October 15, 2023

#	NAME	AGE	GENDER			CONTACT NUMBER	EMAIL ADDRESS	SIGNATURE
			MALE	FEMALE	LGBT			
1.	Anna T. Comenget	57		/		09673829750		<i>Anna T. Comenget</i>
2.	Goldie Mae Casino	37		/		09614433827		<i>Goldie Mae Casino</i>
3.	Yonna Bhie Paday	38		/		09977260271	yonna.bhie.20@gmail.com	<i>Yonna Bhie Paday</i>
4.	Marife C. Antivo	44		/		09066184968		<i>Marife C. Antivo</i>
5.	CHRISTOPHER V. FLORENCIO	44	/			09550180723		<i>Christopher V. Florencio</i>
6.	Maricel D. Dagno	41		✓		09498471452		<i>Maricel D. Dagno</i>
7.	Maricar P. Belican	23		/		09512577661	maricarbelican@gmail.com	<i>Maricar P. Belican</i>
8.	Anna Liza B. Saphian	23		/		09204499790		<i>Anna Liza B. Saphian</i>
9.	Racantura, Marilon P.	53		/		0965-942-0745		<i>Racantura, Marilon P.</i>
10.	Salvador, Nario G.	53	/			09252957921		<i>Salvador, Nario G.</i>
11.	Vaminao, Si/Vano C.	62	/					<i>Vaminao, Si/Vano C.</i>
12.	Corazon A Salizao	60	/	/				<i>Corazon A Salizao</i>
13.	Lot A Salizao	64	/	/				<i>Lot A Salizao</i>
14.	Florida M. Romulo							<i>Florida M. Romulo</i>
15.	Estrella G. Tames	71		/		0969439645		<i>Estrella G. Tames</i>



REGISTRATION FORM

Project : MTCIP - DDOA
 Activity : ~~Key Informant Interview~~ Focus Group Discussion
 City/Mun. :
 Date :

NAME	AGE	GENDER			CONTACT NUMBER	EMAIL ADDRESS	SIGNATURE
		MALE	FEMALE	LGBT			
1. <i>Hermocilia M. Salinas</i>							<i>Hermocilia M. Salinas</i>
2. <i>Teodora E. Escobio</i>					09353952585		<i>Teodora E. Escobio</i>
3. <i>TERESA G. MORALES</i>	70	✓			09168150654		<i>TERESA G. MORALES</i>
4. <i>Leonida F. Putis</i>	73		✓		09679887347		<i>Leonida F. Putis</i>
5. <i>NAVARO Crisita</i>	61		✓		0		<i>NAVARO Crisita</i>
6. <i>TUMILAP, JOSELYN</i>	49		✓		09510860337		<i>TUMILAP, JOSELYN</i>
7. <i>Dactula Samy</i>	68		✓		09659980884		<i>Dactula Samy</i>
8. <i>Frederick S. Nacastanca</i>	57	✓			09974077898		<i>Frederick S. Nacastanca</i>
9. <i>JOSEFINO B. MAWALO</i>	69	✓			09051511398		<i>JOSEFINO B. MAWALO</i>
10. <i>Nelsona Soyu P. Chiu</i>	47		✓		0935-748-4843		<i>Nelsona Soyu P. Chiu</i>
11.							
12.							
13.							
14.							
15.							

Activity	Date	Venue	Total Number of Participants			Type of stakeholders	Key Issues discussed	Response of Project team/ Next steps
			Male	Female	LGBT	Women, Youth, Senior, Indigenous People, Business Sector		
Focus Group Discussion 3	Oct 20, 2023	Third Floor, Function Hall, Panabo City, Davao del Norte	1	3	1	CMO Housing, CPDO, CEO	<p>2. What are your current experiences, are there any other concerns aside about the project from what was mentioned?</p> <p>3. What are the biggest challenges you face as a road user? (e.g., access, road conditions, road safety, conflict, transport cost, personal conditions)</p>	<p>1. CHO housing: The road was used by the eleven barangays like students, employees, etc., At the same time, it is used from farm-to-market roads. The existing two lanes are already concreted, but the damage to the road is evident, having been used for a considerable amount of time.</p> <p>2. an alternate route from Davao to reduce traffic congestion</p> <p>3. They responded that the farmers are using this road to reach the market</p> <p>2.1 Never late in work due to improved transportation, Potential for business investors will bloom, An increase in land value, changes in land use, possibility of attracting additional migrants to the area.</p>

Photo Documentation:



Vanessa Pallarco discussed the proposed study of Mindanao Transport Connectivity Improvement Project (MTCIP)



Jessie V. Lorin describes an alternate route from Panabo City to Davao City



Frensele Marie E. Layan emphasized that the City's housing initiative is focused on the ISF and ensure their location to suitable sites



Emely Anito stated that the road improvements are limited to urban regions


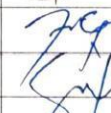
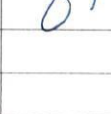
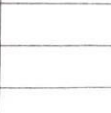
CONSENT FORM

(October 20, 2023)

STUDY PROJECT:Conduct of FGD and KIIDue Diligence and Options Analysis: Mindanao Transport Connectivity Improvement Project**FACILITATOR/S:** Galerio Environmental Consultancy Incorporated (GECI) Social Team**DOCUMENTERS:** Galerio Environmental Consultancy Incorporated (GECI) Social Team


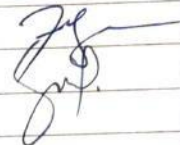
21. I agree to participate in the FGD and KII for Municipality/City of Panabo City organized and facilitated by GECI, to contribute with the study project.
22. GECI Social Team had explained the study project and I understand the objectives of FGD and KII.
23. I am aware that the FGD and KII will respond to the Guide Questions prepared for the study project.
24. I acknowledge that I will remain unnamed; answer any of the guide questions at my own free will; and have the rights to decline to answer the questionnaire at any point.
25. I agree for the documentation and audio recording of the proceedings for analysis and entry planning purposes. I also agree that the data and information will be stored securely and safely and will be used solely for the Due Diligence and Options Analysis for Mindanao Transport Connectivity Improvement Project.

Signed on this day 20 of October, 2023 in Function Hall of Panabo City.

NAME	BARANGAY	ORGANIZATION / INSTITUTION	SIGNATURE
41. JESIE V. LOBIN			
42. EMELLY G. APITO			
43. FRENSQUE MARIE E. LAYAN			
44. Cyren C. Bulilla			
45.			
46.			
47.			
48.			
49.			
50.			

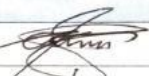


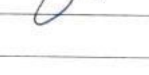
ATTENDANCE SHEET

Project : MTCIP - DDOA
Activity : Focus Group Discussion
City/Mun. : Panabo City / Davao del Norte
Date : October 20, 2023

NAME	ADDRESS	SECTORAL REPRESENTATIVE						SIGNATURE
		Women	Youth	Senior Citizen	Indigenous People	Business Sector	Peace & Security	
1. JESSIE V. LORIN	LGU - PANABO - CPDO							
2. EMELY G. ANITO	LGU - PANABO - CEO							
3. FERNANDEZ MARIE E. LAYAN	LGU - PANABO - CAO							
4. CYREN C. RUBILLA	LGU - PANABO - CAO							
5.								
6.								
7.								
8.								
9.								
10.								
11.								
12.								
13.								
14.								
15.								

REGISTRATION FORM

Project : MTCIP - DDOA
Activity : Focus Group Discussion
City/Mun. : Panabo City / Davao del Norte
Date : October 20, 2023

	NAME	AGE	GENDER			CONTACT NUMBER	EMAIL ADDRESS	SIGNATURE
			MALE	FEMALE	LGBT			
1.	JESSE V. LORIN	43	/			0991-360-8539	jazielorin202@gmail.com	
2.	EMILY G. ANITO	56		/		0991-360-8531	aniteoargelo96@yahoo	
3.	FRANSELE MARIE E. LAYAN	31		/	/	09308774428	fransele@gmail.com	
4.	Cyreen C. Rubilla	25		/		09928936155	CyreenRubilla1597@gmail.com	
5.								
6.								
7.								
8.								
9.								
10.								
11.								
12.								
13.								
14.								
15.								





WORLD BANK GROUP








Annex 3. Key Informant Interviews (KIIs) documentation

Activity	Date	Venue	Total Number of Participants			Type of stakeholders	Key Issues discussed	Response of Project team/ Next steps
			Male	Female	LGBT	Peace and Security		
Key Informant Interviews 1	Oct 16, 2023	Camp Evangelista, Brgy. Patag, Cagayan Davao de Oro City	5			Peace and Security	<ol style="list-style-type: none"> 1. GECL asking about the insight of the project 2. If the project contributes to peace building? And peace and security 	<ol style="list-style-type: none"> 1. Suggested to consider the IP's insights, the Right of way issue (ROW), the FPIC, and CADT 2. Suggested checking with the PNP for additional details on the city's crimes. 3. There is low rate of ambush cases like in Claveria. 4. The main road and link road are considered safe 5. There's no problem with NPA 6. providing accurate information is vital to prevent them from being easily influenced by potentially harmful ideologies, such as communism. 7. The Indigenous Peoples (IPs) value this type of project because it makes them feel acknowledged by the government. They sense that the government is attentive to their needs and concerns, fostering a sense of inclusion and consideration. 8. recommending solutions for road-related issues, such as road crashes, emphasizes the significance of proper signage

Photo Documentation	
	Jose Maria A. Cuerpo recommended taking into account the insights of Indigenous Peoples (IPs), addressing the Right of Way (ROW), obtaining Free, Prior, and Informed Consent (FPIC), and respecting Certificate of Ancestral Domain Title. (CADT)
	Carmeli Marie Chaves emphasized: Resident safety is a vital aspect of a due diligence project.

ATTENDANCE SHEET

Project : MTCIP - DDOA
 Activity : Key Informant Interview
 City/Mun. : Cagayan de Oro City/ Misamis Oriental
 Date : October 16, 2023

	NAME	AGE	GENDER			CONTACT NUMBER	EMAIL ADDRESS	SIGNATURE
			MALE	FEMALE	LGBT			
1.	COL TED B. PUMOSMAG	53	✓			09176046001	tedb.pumosmag@yaho.com	
2.	LTC RICHARD RIVERA GOCE	49	✓			09176207477	cardinalkey_99@yahoo.com	
3.	LTC MICHAEL REX S. PENYAN	49	✓			0917-586-6684	rexpenyan@gmail.com	
4.	COL ALBERT C. FLORES	51	✓			0917 309 2996	jetkey97@yahoo.com	
5.	MR. JOSE MARIA R. CORDERO	55	✓			0917-077-9990		
6.								
7.								
8.								
9.								
10.								
11.								
12.								
13.								
14.								
15.								

Activity	Date	Venue	Total Number of Participants			Type of stakeholders	Key Issues discussed	Response of Project team/ Next steps
			Male	Female	LGBT			
Key Informant Interviews 2	Oct 19, 2023	Eastern Mindanao Command, Davao City, Davao del Sur	2	1		Peace and Security	GEI asking the peace and conflict issue in region XI	<ol style="list-style-type: none"> the driver's conflict is still existed, like burning of backhoe Hiring local to monitor the equipment there are some risks from local police, mayors, and IPs the FPIC is one of the developments of ancestral domain <ol style="list-style-type: none"> National heritage like burial site Suggested that the laborers will hire come from the local community, because they are part of the security. Davao and Malungon are considered safe


Photo Documentation



Vanessa Pallarco presented the proposed project to the participants.

ATTENDANCE SHEET

Project : MTCIP - DDOA
 Activity : Key Informant Interview
 City/Mun. : Davao City
 Date : 10/19/23

	NAME	ADDRESS	SECTORAL REPRESENTATIVE						SIGNATURE
			Women	Youth	Senior Citizen	Indigenous People	Business Sector	Peace & Security	
1.	LT GER B DIAZ FN	DAVAO CITY	—					—	
2.	COL MONFORT PA	" "						—	
3.	ATL EDA BANACOF								
4.									
5.									
6.									
7.									
8.									
9.									
10.									
11.									
12.									
13.									
14.									
15.									



WORLD BANK GROUP



GALERIO ENVIRONMENTAL CONSULTANCY, INC.



Annex 4. Grievance Submission Form

Social and Environmental Management System Manual

Department of Public Works and Highways

GRIEVANCE REGISTRATION	
Case No.:	Date :
Name :	
Department/ Contractor Name	
Phone no.	
Details of grievance:	
Name of person recording grievances (if applicable):	
Designation of recording person (if applicable):	
Proposed date of response to grievance:	
Signature of recording person (if applicable)	Signature of complainant
GRIEVANCE REDRESSAL RESPONSE	
Date of redresses:	
Decision of GO (give full details):	

Source: https://www.adb.org/sites/default/files/project-documents/49086/49086-001-eia-en_2.pdf

Annex 5. Outline and Guide for the Subproject-level Stakeholder Engagement Plan (SEP)

Subproject-level Stakeholder Engagement Plan (SEP)

(note: use the Project SEF as the main guide)

A. **Brief Project Background** (refer to the Project FS, ESMF, and SEF; in discussing the project location please highlight the subproject site specific to the Municipality/City)

B. **Objectives of the SEP** (refer to SEF)

C. Stakeholder Identification and Analysis

Stakeholder Identification: Guide questions

- Who are the key stakeholders for each activity/site? Using a conflict-sensitive lens, what other groups or entities need to be considered as stakeholders?
- Who are the vulnerable groups within the identified stakeholder?
- Who are the potential physically and/or economically displaced groups?
 - do they have formal legal rights to the affected land or assets?
 - they do not have formal legal rights to the affected land or assets, but have a claim to land or assets that is recognized or recognizable under national law (such claims could be derived from adverse possession or from customary or traditional tenure arrangements)?
 - they have no recognizable legal right or claim to the land or assets they occupy or use (i.e. the case of informal settlers or an informal occupant with verbal permission from land-owner)?
- What are each stakeholder's roles in the project?

Stakeholder analysis: The following definitions are adopted to determine the degree of influence and interest of stakeholders on the project.

Identifying interest is done with the stakeholder's perspective in mind. Stakeholders are generally said to have an interest in a project based on whether they can affect or be affected by it. The more heavily involved the stakeholder is in the project, the stronger/higher their interest as well. The following two main parameters shall serve as guide for rating the level of interest:

- Stakeholders' interest in the outcome of the project, success of the project or the attainment of the project's goals and objectives
- Stakeholders' interest on the potential project benefits or the potential negative effects of the project

To determine the degree of influence to the project of a stakeholder, the following parameters shall serve as a guide:

- influence indicates a stakeholder's relative power over and within a project
- a stakeholder with high influence would control key decisions within the project and have strong ability to facilitate implementation of project tasks and cause others to take action
- stakeholder's high influence could come from expert knowledge, negotiation and consensus building skills, charisma or control over strategic resources.

- influence could also be grounded on the stakeholder's hierarchical, economic, social, or political position

Based on the results of the Stakeholder Identification and Analysis plot using Stakeholder Mapping to determine the stakeholder engagement activities and methods of engagement best suited for each stakeholder category during the project preparation and implementation. A stakeholder map is a visual representation with four-quadrants used to identify stakeholders and categorize them in terms of their influence and interest in the project. Stakeholders are plotted on this map depending on how they fall on these two parameters.

D. Stakeholder Engagement Program

This section must include information regarding:

- In which project stage/cycle will the engagement activities will be conducted? (i.e., preparation, implementation/ construction, post-construction)
- What are engagement activities designed for each group of stakeholders?
- Will there be different approach/engagement plan for specific vulnerable group/s? (This is crucial to tailor an approach to engage potential physically and/or economically displaced households/individuals, both with and without recognizable right to land. If indigenous peoples are among the identified stakeholders in the subproject site, please refer to Indigenous Peoples Policy Framework prepared for MTCIP)
- Will there be any recruitment of local facilitators or translator or social/gender specialist for implementation? (if there is recruitment of personnel, please refer to Labor Management Procedures in ESMF)

E. Grievance Redress Mechanism (GRM)

This section must include information regarding:

- the mechanism and available channels for stakeholders to convey their concerns, feedback and grievances especially the affected parties and vulnerable groups
- structure
- uptake channels
- monitoring and reporting of grievances

For GRM in general, please refer to Feedback and Grievance Redress Mechanism in the ESMF and SEF

F. Information Disclosure

Develop information disclosure plan taking into consideration the following questions:

- What are the topics/messages/documents that need to be disclosed?
- When should it be disclosed?
- Will the data/ document need to be translated or changed into “public-friendly” form? i.e. infographic, brief summary, short video or short radio program/announcement
- Who are in charge in ensuring that information is disclosed properly and timely?
- How is the monitoring and reporting mechanism?

G. Implementation Arrangements and Resources

Subproject-level stakeholder engagement plan should include a budget plan to fund the engagement activities. Discuss as well the implementation arrangements on who are responsible for the implementation of the SEP.

H. Monitoring and Reporting

Municipal/City-level stakeholder engagement plan should develop monitoring and reporting plan, including the internal process and timeline to submit it to DPWH PIU. It is extremely crucial to monitor the implementation and quality of engagement activities especially with the physically and/or economically displaced households/persons.

Annex 6. SEF Budget Table

Budget Categories	Quantit y	Unit Costs		Times/ Years		Total costs		Remarks
1. Estimated staff salaries* and related expenses								
1.a. Communications Specialist	2	Ph P	300,000.00	3	month s	PhP	1,800,000.00	
1.b. Travel Costs	2		20,000.00	4	times		160,000.00	
1.c. Per diems	2		2,000.00	28	days		112,000.00	7 days x 4 quarters
1.d. Salary for Community Liaison Officer	5		60,000.00	20	days		6,000,000.00	7 days x 4 quarters
Subtotal for Part 1						Ph P	8,072,000.00	
2. Consultations/Participatory Planning, Decision-Making Meetings								
2.a. Project launch meetings	100	Ph P	400.00	27	times	PhP	1,080,000.00	6 cities 13 municipalities 8 provinces
2.a. Organization of focus groups	50		400.00	18 9	times		3,780,000.00	189 barangays, once
Subtotal for Part 2						Ph P	4,860,000.00	
3. Communication Campaigns								
3.a. Posters, flyers	2	Ph P	10,000.00	27	times	PhP	540,000.00	6 cities 13 municipalities 8 provinces
3.b. Social media campaign	1		50,000.00	12	month s		600,000.00	Social media manager
Subtotal for Part 3						Ph P	1,140,000.00	
4. Trainings								

Budget Categories	Quantity	Unit Costs		Times/ Years		Total costs		Remarks
4.a. Resettlement Action Plan Training	1	Ph P	400,000.00	1	time	PhP	400,000.00	Expected no. of participants: 40 pax
4.b. Operational Health and Safety Training	1		400,000.00	1	time		400,000.00	
4.c. Gender and Development Training	1		400,000.00	1	time		400,000.00	
4.d. Environmental Impact Assessment Training	1		400,000.00	1	time		400,000.00	
4.e. Traffic Impact Assessment Training	1		400,000.00	1	time		400,000.00	
Subtotal for Part 4						Ph P	2,000,000.00	
5. Beneficiary Surveys								
5.a. Mid-project (baseline) perception survey	1	Ph P	392,500.00	13	times	PhP	5,102,500.00	13 packages (8 MC, 5 LRs)
5.b. End-of-project perception survey	1		392,500.00	13	times		5,102,500.00	Includes salaries for 5 enumerators and 2 specialists, travel and per diem expenses
Subtotal for Part 5						Ph P	10,205,000.00	
6. Grievance Mechanism								
6.a. Training of GM committees	1	Ph P	400,000.00	13	times	PhP	5,200,000.00	One training per CP
6.b. Suggestion boxes in barangays	1		1,000.00	189	pieces		189,000.00	189 barangays
6.c. GM communications materials	100		25.00	189	times		472,500.00	

Budget Categories	Quantity	Unit Costs		Times/ Years		Total costs		Remarks
6.d. Grievance investigations/site visits	1		36,000.00	10 0	times		3,600,000.00	Semi-annual x 3 days 8 CPs for MC (5 yrs) 5 CPs for LRs (2 yrs) Includes rental of service vehicle for one inspection team
6.e. GM Information Systems (setting up or maintenance)	1		100,000.00	13	times		1,300,000.00	Website per CP
6.f. Other GM logistical costs	1		100,000.00	1	time		100,000.00	Lump sum
Subtotal for Part 6						Ph P	10,861,500.00	
7. Other expenses								
Contingency (5% of total of Parts 1 to 6)		Ph P	1,856,925.00			PhP	1,856,925.00	
Subtotal for Part 7						Ph P	1,856,925.00	
TOTAL STAKEHOLDER ENGAGEMENT BUDGET:						Ph P	38,995,425.00	

Appendix 9. Philippine Laws and Regulations

Presidential Decree 1586 – Philippine Environmental Impact Statement System (PEISS)

The Philippine Environmental Impact Statement System (PEISS) requires that all agencies and instrumentalities of the national government, government-owned or controlled corporations, as well as private corporations, firms and entities to conduct an environmental impact assessment for every proposed project and undertaking which may significantly affect the quality of the environment. Projects covered by the PEISS need to secure an Environmental Compliance Certificate (ECC) while those that are not covered qualifies for a Certificate of Non-Coverage (CNC).

The PEISS requires the identification of direct and indirect impacts of a project on the biophysical and human environment and the development of appropriate environmental protection and enhancement measures to address adverse impacts and risks. The Implementing Rules and Regulations to implement the PEISS are outlined in DENR Administrative Order No. 2003-30. Specifically on the Revised Procedural Manual for DENR Administrative Order 2003-30 which provides the procedures for the screening, scoping, conduct of the EIA, and review, decision and monitoring.

EMB Memorandum Circular (MC) # 2007-02 otherwise known as the Revised Procedure Manual of DAO 2003-30, which integrates new DENR-EMB policies to further promote EIA as a planning and decision-making tool. EMB MC# 2007-002 lists the Environmentally Critical Project Types and Environmentally Critical Area (ECA) has declared by Proclamation No. 2146 in 1981. It includes provisions in determining whether a project location is an ECA or a Non-ECA (NECA). Further, consistent with relevant Proclamations and Administrative Orders, projects have been classified into four (4) major groups:

- Group I: ECPs in either ECAs or NECAs
- Group II: NECPs in ECAs
- Group III: NECPs in NECAs
- Group IV (Co-located Projects in either ECA or NECA)

A co-located project is defined as a group of single projects, under one or more proponents/locators, which are located in a contiguous area and managed by one administrator, who is also the ECC applicant. The co-located project may be an economic zone or industrial park, or a mix of projects within a catchment, watershed or river basin, or any other geographical, political or economic unit of area. Since the location or threshold of specific projects within the contiguous area will yet be derived from the EIA process based on the carrying capacity of the project environment, the nature of the project is called “programmatic”. Such maybe the case of repair, upgrading, slope protection, flood control /climate adaptation, and/or widening activities on the pertinent sections or on all sections within each region along the existing Main Corridor of MTCIP. The three (3) new link roads which shall be constructed will each be categorized as single projects either as Group I, II, or III depending on the final scale and location/alignment of the road/s.

EMB Memorandum Circular No. 2014-005 provides the guidelines on coverage screening and the standardization of requirements under the PEISS. Thus, **Table 1** presents the

required documents for ECC/CNC application for single/new construction road projects such as for the Link Roads and for the modification/widening or mitigation to environmental problem project components such as those on the existing Main Corridor.

Table 1. Classification and requirements for ECC application for Roads and Bridges

Projects/Description	Covered (Required to secure ECC)			Not covered (may secure CNC)
	Category A: ECP	Category B: Non-ECP		Category D
	EIS	EIS	IEE Checklist	PD (Part I only)
3.4.1 Roads, new construction	NATIONAL ROAD: ≥ 20.0 km, (length with no critical slope) OR ≥ 10.0 km (length with critical slope)	PROVINCIAL ROAD and OTHER TYPES OF ROADS: ≥ 20.0 km, (length with no critical slope) OR ≥ 10.0 km (length with critical slope)	ALL TYPES OF ROADS: > 2 km but < 20.0 km, (length with no critical slope) OR > 2 km but < 10.0 km (length with critical slope)	≤ 2 km
3.4.2 Roads, widening, rehabilitation and/or improvement	None	$> 50\%$ increase in capacity (or in terms of length/width) AND ≥ 20.0 km, (length with no critical slope) OR ≥ 10.0 km (length with critical slope)	$> 50\%$ increase in capacity (or in terms of length/width) AND > 2 km but < 20.0 km, (length with no critical slope) OR > 2 km but < 10.0 km (length with critical slope)	$\leq 50\%$ increase in capacity (or in terms of length/width) but ≤ 2 km increase in length
3.4.3 Bridges and viaducts (including elevated roads), new construction	≥ 10.0 km	≥ 5 km but < 10.0 km	> 50 m but < 5.0 km	≤ 50 m Regardless of length for footbridges or for pedestrian only
Projects/Description	Covered (Required to secure ECC)			Not covered (may secure CNC)
	Category A: ECP	Category B: Non-ECP		Category D
	EIS	EIS	IEE Checklist	PD (Part I only)
3.4.4 Bridges and viaducts (including elevated roads), rehabilitation and/or improvement	None	$\geq 50\%$ increase in capacity (or in terms of length/width) OR ≥ 10 km	$> 50\%$ increase in capacity (or in terms of length/width) but $< \text{total length of } 10$ km	$\leq 50\%$ increase in capacity (or in terms of increase in length
3.4.5 Roads flyover/cloverleaf/interchanges	None	None	Regardless of length and	None

Notes:

1. **Category A** – projects or undertakings which are classified as environmentally critical projects (ECP) under Presidential Proclamation No. 2146 (1981), Proclamation No. 803 (1996), and any other projects that may later be declared as such by the President of the Philippines. Proponents of these projects implemented from 1982 onwards are required to secure an Environmental Compliance Certificate (ECC).
2. **Category B** – projects or undertakings which are not classified as ECP under **Category A**, but which are likewise deemed to significantly affect the quality of the environment by virtue of being located in an Environmentally Critical Area (ECA) as declared under the Proclamation No. 2146 and according to the parameters set forth in the attached guidelines. Proponents of these projects implemented from 1982 onwards are likewise required to secure an ECC.
3. **Category C** – projects or undertakings not falling under Category A or B which are intended to directly enhance the quality of the environment or directly address existing environmental problems.
4. **Category D** – projects or undertaking that are deemed likely to cause significant adverse impact on the quality of the environment according to the parameters set forth in the Screening Guidelines. These projects are not covered by the Philippine EIS system and are not required to secure an ECC. However, such non-coverage shall not be construed as an exemption from compliance with other environmental laws and government permitting requirements.
5. For those Main Corridor sections previously covered w/ ECC based on IEE Checklist, and which will be modified (either upgraded, repaired, rehabilitated, widened, or undertaken with slope protection or climate resilience components) which will either not entail exceedance of coverage thresholds or EMP can still address impacts or risks arising from modification, a Letter Request for ECC Amendment, with brief description of additional capacity or component shall be submitted to the concerned EMB Regional Office which issued the original ECC.
6. For those proposed modifications to previously issued ECCs, such as increase in project size parameter or auxiliary component of the project which will either exceed coverage thresholds, or EMP cannot address impacts and risks arising from modification, the letter request for ECC amendment shall be supported with the Environmental Performance Report and Management Plan (EPRMP).

Reference: EMB MC No. 2014-005 “Revised Guidelines for Coverage Screening and Standardized Requirements under the Philippine EIS System
Annex A, Project Thresholds for Coverage Screening and Categorization.
Annex B, Decision chart for determination of requirements for project modification.

The PEISS also covers the aspects of community safety and health. It includes the assessment of impacts to public health and safety due to potential environmental and social risks of a project.

The requirements for public participation or stakeholder engagement are provided in DENR Administrative Order NO. 2017-15 otherwise known as the Guidelines on Public Participation under the Philippine Environmental Impact Statement (EIS) System. It aims to improve and rationalize public participation by incorporating best practice principles and

standardizing the procedures and requirements and to achieve meaningful public participation at the various stages of the EIA process in the EIS System. Under the DENR DAO 2017-15, public participation is a requirement from the social preparation prior to scoping to impact management and monitoring during project implementation.

EMC 2018-004. Amending Section 1 of Memorandum Circular No. 2016-001 Requires Online Submission of Compliance Monitoring Report under the Philippine Environmental Impact Statement System to include non-Environmentally Critical Project (non ECPs) such as the MTCIP.

Other DENR Administrative Orders including those from other government agencies requiring the securing of clearances/permits applicable to MTCIP are further discussed in Section 3.2 (Project Preparation Phase), particularly Table 5.

Republic Act 10174 – Amending the Climate Change Act of 2009

Consistent with the GOP commitment under the United Nations Framework Convention on Climate Change (UNFCCC), Republic Act 10174 provides the regulatory framework for the development of the National Framework Strategy on Climate Change (NSFCC) and the National Climate Change Action Plan (NCCAP). These documents serve as guidance to government in managing climate risk and vulnerability and in determining appropriate adaptation and mitigation measures for the country. Pursuant to this country commitment, EMB MC No. 2011-005 incorporates disaster Risk Reduction and Climate Change Adaptation concerns in the Philippine EISS.

Thus, MTCIP has incorporated climate resiliency measures in its Long-Term Road Asset Maintenance and Connectivity project components.

Republic Act No. 6715 – Labor Code of the Philippines

The Labor Code is a comprehensive legislation that regulates employment relations and provides the labor and working standards. The labor code and its implementing rules and regulations provide for the terms and conditions of employment that includes requirements such as working conditions and rest periods, hours of work, health, safety and social benefits, among others. The law also provides for equal rights among workers and prohibits gender discrimination in access to promotion and training opportunities.

The DDOA for MTCIP, being a project involving a large number of workers, required as one of the deliverables a Labor Management Plan (LMP) to ensure project compliance to this law and also in conformance with WB ESS2.

Republic Act 11058 – Occupational Safety and Health Standards Act of 2017

RA11058 strengthens the compliance with Occupational Safety and Health Standards to ensure a safe and healthy working environment for employees by providing protection from all possible dangers in the workplace. The law applies to all organizations, projects, sites, or any place where work is being done. The DOLE Department Order No. 198-2018 sets out the implementing rules and regulations of this act. The order provides that all workers must be appropriately informed by the employer about all types of hazards in the workplace,

and be provided access to training, education, and orientation of chemical safety, electrical safety, ergonomics, and other hazards and risks.

This law does not only ensure the protection and safety of the workers but also of public/community of the possible hazards in the worksite. Chapter III – Duties and Rights of Employers, Workers and Other Persons, Section 9 (Safety Signage and Devices) of DOLE Department Order No. 198-2018, states that all establishments, projects, sites and all other places where work is being undertaken shall have safety signage and devices to warn the workers and the public of the hazards in the workplace.

This law is not only relevant to WB ESS2 (Labor and Working Conditions), but also to WB ESS4 (Community Health and Safety), owing to the presence of communities adjacent or near the MTCIP road alignments.

Republic Act 8749 – Philippine Clean Air Act of 1999

RA 8749 aims to achieve and maintain clean healthy air for the people. It covers air pollution coming from stationary sources; mobile sources such as motor vehicles; and other potential sources of air pollutants. It includes certain limits/standards and the corresponding penalties. DAO 2000-81 and DAO 2013-13 set the rules, limits and standards for air pollutants such as PM_{2.5}, PM₁₀, sulfur dioxide (SO₂), and nitrogen dioxide (NO₂).

MTCIP compliance to the pertinent DAO regulations/standards is also in conformance with WB ESS 3 Resource Efficiency and Pollution Prevention and Management. MTCIP construction and operational phases will have adverse impacts on air quality, thus the applicability of this RA to the project.

Republic Act 9275 – Philippine Clean Water Act of 2004

RA 9275 provides the comprehensive water pollution policy and applies quality management in all water bodies in the Philippines. It aims to protect the country's water bodies from pollution from land-based sources (industries and commercial establishments, agriculture and community/household activities) and covers all water bodies such as fresh, brackish, and saline waters, and includes but not limited to aquifers, groundwater, springs, creeks, streams, rivers, ponds, lagoons, water reservoirs, lakes, bays, estuarine, coastal, and marine waters.

Compliance to above law and the pertinent DAO regulations/standards apply to MTCIP activities such as bridge construction that may impact river water quality compliance, are also in conformance with WB ESS3.

Republic Act 9003 – Ecological Solid Waste Management Act of 2000

RA 9003 and its implementing rules and regulations stipulated in DAO 2001-34 promotes among others, the proper segregation, collection, transport, storage, treatment and disposal of solid waste. It describes ecological waste management which requires segregation at source, segregated transportation, storage, transfer, processing, treatment, and disposal of solid waste and all other waste management activities so as to prevent harm to the environment.

Implementation of the above-mentioned activities for the MTCIP generated solid wastes shall be also in accord with WB ESS 3, and ESS4.

Republic Act 6969 – Toxic Substances and Hazardous and Nuclear Wastes Control Act of 1990

RA 6969 regulates, restricts, or prohibits the importation, manufacture, processing, sale, distribution, use and disposal of chemical substances and mixtures that present unreasonable risk and/or injury to health or the environment; to prohibit the entry, even in transit, of hazardous and nuclear wastes and their disposal. The implementing rules and regulations are stipulated in DAO 1992- 29 stipulates the IRR of RA 6969, and also sets the registration and permitting requirements for hazardous waste generators, transporters and treaters.

MTCIP compliance to this law and the implementing DAO regulations is also in conformance with WB ESS3. Compliance is required due to toxic wastes and chemicals that may be generated by the project during its construction phase. Spills of toxic and /or hazardous waste/chemicals due to vehicular accidents during operations phase need compliance to this law and the applicable DAOs.

Republic Act 7586 - National Integrated Protected Areas System as amended by E-NIPAS Law

Known and referred to as the “National Integrated Protected Areas System Act of 1992”, the act establishes a comprehensive system of integrated protected areas within the classification of national park as provided for in the Constitution. Effective administration of these areas requires cooperation among national government, local government and concerned private organizations; that the use and enjoyment of these protected areas must be consistent with the principles of biological diversity and sustainable development. The National Integrated Protected Areas System (NIPAS) encompasses outstandingly remarkable areas and biologically important public lands that are habitats of rare and endangered species of plants and animals, biogeographic zones and related ecosystems, whether terrestrial, wetland or marine, all of which shall be designated as “protected areas”.

Categories of protected areas include:

- a. Strict nature reserve;
- b. Natural Park;
- c. Natural monument;
- d. Wildlife sanctuary;
- e. Protected landscapes and seascapes;
- f. Resource reserve;
- g. Natural biotic areas; and
- h. Other categories established by law, conventions or international agreements which the Philippine Government is a signatory.

Provisions of the law are relevant to MTCIP and to WB ESS6 Biodiversity Conservation and Sustainable Management of Living Resources, due to the proximity of the following protected areas to MTCIP: Mt. Kitanglad Range Natural Park (MKRNP) and Mt. Kalatungan

Range Natural Park (MKaRNP) in Bukidnon; Mt. Apo Natural Park (MANP) in Davao City, Davao del Sur, and North Cotabato; and Mt. Matutum Protected Landscape (MMPL) in South Cotabato. MTCIP also traverses watersheds, which though not legislated as critical watersheds, yet have remnants of forests habitat to threatened flora/fauna species.

Presidential Decree 856 – Sanitation Code of the Philippines

The law provides the guidelines and standards to ensure health and safety of the people. Chapter VII (Industrial Hygiene) outlines the standards on sanitation and health services that takes into consideration the prevention of fire hazards, provision of sufficient ventilation, optimum lighting, and provision of potable water and sewage and waste disposal systems, PPEs and health services for employees and workers.

This decree is complementary to RA 6715 Labor Code of the Philippines and RA 11058 OSHS Act, and conforms with WB ESS2. The requirements of this Decree apply to the construction personnel/workers as well as to the construction camps/site offices.

Republic Act 10066 – Cultural Heritage Act

According to RA 10066, in circumstances of chance finds, the discoverer shall report the said cultural or historical property to the Commission or to the concerned agency. Activities leading to the non-reporting of sites shall be considered physical interventions on archaeological or historical site and shall be penalized accordingly. The National Museum or the National Historical Institute shall immediately suspend all activities that will affect the site and shall immediately notify the local government unit having jurisdiction of the place where the discovery was made. The suspension of these activities shall be lifted only upon the written authority of the National Museum or the National Historical Institute and only after the systematic recovery of the archaeological materials.

This law is relevant to MTCIP to conform with WB ESS8 Cultural Heritage.

The Local Government Code of 1991

The LGU Code requires all national agencies and offices to conduct periodic consultations with appropriate LGUs, non-governmental and people's organizations, and other concerned sectors of the community before any project or project is implemented in their respective jurisdictions.

Compliance to this law by the project proponent (DPWH) is also in conformance with WB ESS10 Stakeholder Engagement and Information Disclosure.

Republic Act 8371 Indigenous Peoples Rights Act

This Act Recognizes, Protects and Promotes the Rights of Indigenous Cultural Communities/Indigenous People, creating a National Commission of Indigenous People, Establishing Implementing Mechanisms, Appropriating funds therefor, and for Other Purposes.

The Indigenous Peoples Right Act (IPRA) was signed into law on October 29, 1997 is a landmark legislation for the indigenous peoples of the Philippines. Generally, the law intends to a) correct historical injustice, b) enforce constitutional mandates and c) observe international norms. The law defines the indigenous cultural communities/indigenous peoples (ICCs/IPs) of the country and set the conditions for the:

- a. Four (4) bundles of rights of the ICCs/IPs (rights to ancestral domains/lands, self-governance, social justice and human rights, and cultural integrity).
- b. Creation of the National Commission on Indigenous Peoples (NCIP)
- c. Delineation and recognition of ancestral domain and/or ancestral lands
- d. Free and Prior Informed Consent (FPIC)
- e. Primacy of customary laws
- f. Quasi-judicial powers

MTCIP compliance to this law is required due to its impact on Indigenous people, and therefore also in conformance with WB ESS7 Indigenous Peoples.

RA 10752 – An Act facilitating the Acquisition or Right of Way, Site or Location for National Government Infrastructure Projects

Pursuant to Article III, Section 9 of the Constitution, private property shall not be taken for public use without just compensation. The Act provides that owners of real property acquired for national government infrastructure projects are promptly paid just compensation for the expeditious acquisition of the required right-of-way for the projects. The Act provides further, among others, the following:

- a. Modes of Acquiring Real Property
- b. Rules on negotiated Sale
- c. Guidelines for Expropriation Proceedings
- d. Standards for the Assessment of the Value of the Property Subject to Negotiated Sale
- e. Ecological and Environmental Concerns
- f. Relocation of Informal Settlers
- g. Appropriations for Acquisition of Right-Of-Way Site or Location for National Government Infrastructure Projects in Advance of Project Implementation
- h. Regulation of Developments Within Declared Right-of. Way

MTCIP subproject activities such as construction of new roads and bridges, and in some sections, road widening will incur RROW acquisition thus the relevance of this RA, and also relevant to WB ESS5 Land Acquisition, Restriction on Land Use and Involuntary Resettlement.

Guidelines and Standards

DPWH Social and Environmental Management Systems Manual of 2021

The Operations Manual of the Social and Environmental Management Systems of the DPWH presents the internal procedures of DPWH in complying with the requirements of the PEISS

for infrastructure projects for development, rehabilitation, re-construction and improvement. It outlines the guidelines in the application of the EIA in the infrastructure life cycle and identifies the roles and responsibilities on environmental safeguards of the various units and offices within the department.

As early as the screening stage of every simple or complex project (ECC required or CNC eligible), the project stakeholders, particularly the project-affected communities, are identified and analyzed for engagement. They are informed and consulted on the project at the earliest stage as a general rule of courtesy. This ensures a timely, well-informed participation of potentially affected communities, organizations, and other government agencies. Consultations should be undertaken with local residents, professionals and experts to gather their views on both positive and negative potential impacts of the project, and to solicit recommendations to mitigate any identified adverse impacts.

The 2021 Manual levels up significantly thru addition among others, of the following:

- Addition of a section on chronological listing of safeguard activities by project phase to further streamline operations through an early entry of EIA approach for safeguard activities inclusive of work and financial planning.
- Addition of a section to cover more government sectoral instruments with respective regulatory procedures, in addition to the requirements of Philippine EIS System with online transactions.
- Addition of sections to cover more social safeguards aside from LARIPP Policy

Noise Standards

The noise standards in the Philippines were outlined in National Pollution Control Commission (NPCC), Section 78, Table1; NPCC Memorandum Circular No. 1980-002; and noise permissible limits in workplaces, as regulated by the DOLE. Noise in areas near schools and hospitals merit the strictest noise levels. The maximum allowable noise levels are outlined in Table 2.

Table 2.Noise Standards in General Areas

Category/Area	Maximum Allowable Noise Level, dB(A)		
	Daytime	Morning/Early Evening	Nighttime
AA/ areas within 100 m from Schools, Hospitals, homes for the aged	50	45	40
A/ Residential area	55	50	45
B/ Commercial area	65	60	55
C/ Light Industrial area	70	65	60
D/ Heavy Industrial area	75	70	65

Source: NPCC 1980

Division of 24-hour period is as follows:

Morning - 5:00 AM to 900 AM

Daytime - 9:00 AM to 6:00 PM

Evening - 6:00 PM to 10:00 PM
Nighttime- 10:00 PM to 5:00 AM

In 1980, the NPCC then issued Memorandum Circular No. 002 (or NPCC 1980) amending Section 75 to Section 78 of NPCC (1978). The highlights of the revisions to NPCC 1978 are discussed below, among others:

- Section 75(b) stipulates that no person shall undertake activities that result in emission of noise levels greater than the ambient noise standards or a “level that could cause adverse effect on the public”.
- Section 78 provides correction factors for areas facing roads and noise standards for construction activities.

There are, however, discrepancies on the correction factors and the definition of heavy industrial area. The correction factors specify two correction factors (+5 and +10 dBA) for areas directly fronting a four-lane road. Further, Class B and Class D are specified for areas zoned or used as heavy industrial area. In NPCC (1978), Class B is defined for section or contiguous area, which is primarily a commercial area.

[Table 3](#) indicates the noise permissible limits in workplaces, as regulated by the DOLE. The noise limits are set at various averaging times from 0.25 to 8 hours. Exposures to impulsive or impact noise shall not exceed 140dB.

Table 3. Permissible Noise Exposure

Duration per day, hours	Sound levels, dBA, slow response
8.00	90
6.00	92
4.00	95
3.00	97
2.00	100
1.50	102
1.00	105
0.50	110
0.25	115

Source: DOLE 1990

Air Quality Standards

The National Ambient Air Quality Guideline Values for Particulate Matter 2.5 (PM_{2.5}) is outlined in DENR Administrative Order 2013-13 wherein in an averaging time of 24 hours, the PM_{2.5} should not exceed 50 $\mu\text{g}/\text{Nm}^3$. The standards for other criteria pollutants at 24-hour averaging time are:

- Total suspended particulates (TSP) -230 $\mu\text{g}/\text{Nm}^3$;

- PM10 – 150 $\mu\text{g}/\text{Ncm}$;
- Sulfur dioxide (SO₂) – 180 $\mu\text{g}/\text{Ncm}$;
- Nitrogen dioxide (NO₂) – 150 $\mu\text{g}/\text{Ncm}$

Water Quality Guidelines and Standards

DENR Administrative Order No. 08-Series of 2016 (DAO 2016-08) provide guidelines for the classification of water bodies in the country; determine time trends and the evaluation of stages of deterioration/enhancement in water quality; evaluate of the need for taking actions in preventing, controlling or abating water pollution; and designate water quality management areas (WQMA).

Aside from the DAO 2016-08, Classification of water bodies and parameters, applicable WHO Guidelines /Standard for Drinking Water Quality also apply to MTCIP. Table 4 lists the classification of water bodies according to its intended beneficial usage, and Table 5 presents the limits and maximum allowable limit (MAL) for water quality parameters applicable to MTCIP.

Table 4. Water Body Classification and Usage of Freshwater

Classification	Intended Beneficial Use
Class AA	Public Water Supply Class I - Intended primarily for waters having watersheds, which are uninhabited and/ or otherwise declared as protected areas, and which require only approved disinfection to meet the latest PNSDW
Class A	Public Water Supply Class II - Intended as sources of water supply requiring conventional treatment (coagulation, sedimentation, filtration and disinfection) to meet the latest PNSDW
Class B	Recreational Water Class I - Intended for primary contact recreation (bathing, swimming, etc.)
Class C	1. Fishery Water for the propagation and growth of fish and other aquatic resources 2. Recreational Water Class II - For boating, fishing, or similar activities 3. For agriculture, irrigation, and livestock watering
Class D	Navigable waters

Note: For unclassified water bodies, classification shall be based on the beneficial use as determined by the Environmental Management Bureau (EMB).

Table 5. Water Quality Guidelines for Primary Parameters (Lifted from DENR AO 2016-08 and WHO Guidelines and Standards for Drinking Water Quality)

Parameter	Unit	Water Body Classification				
		AA	A	B	C	D
DO (minimum)	mg/l	5	5	5	5	2
pH (Range)		6.5-8.5	6.5-8.5	6.5-8.5	6.5-9.0	6.0-9.0
Temperature	°C	26-30	26-30	26-30	25-31	
Total Suspended Solids	mg/l	80	80	80	80	80
Conductivity*	$\mu\text{S}/\text{cm}$	Not more than 400 $\mu\text{S}/\text{cu m}$ for drinking water				
Total Dissolved Solids*	mg/l	300 for drinking water				

Note: * WHO Standard for Drinking Water Quality

Bridges along the Main Corridor of MTCIP and the corresponding rivers traversed by the bridges were verified their EMB Water Classification. Among the rivers crossed by the MTCIP MC bridges, five (5) have been classified by the DENR -EMB as Class A (Public Water Supply Class II), which require only approved disinfection to meet the latest Phil. National Standards for Drinking Water (PNSDW) or intended as sources of water supply requiring conventional

treatment (coagulation, sedimentation, filtration, and disinfection) to meet the latest PNSDW. The five (5) Class A rivers are:

- Mangima River, Manolo Fortich, Bukidnon
- Kulaman River, Manolo Fortich, Bukidnon
- Sawaga River, Manolo Fortich, Bukidnon
- Pulangi River, Maramag, Bukidnon
- Tamugan River, Marilog District, Davao City

All other rivers were classified as either Class B, Class C, Class D, or unclassified. Thus, when the location of bridges to be repaired or of new bridges to be constructed will have been identified, water quality sampling to establish baseline data shall be conducted and assessed against the above DENR AO 2016-08 and WHO parameters and Standards.

Department of Labor and Employment (DOLE) - Department Order No. 13, series of 1998 – Guidelines Governing Occupational Safety and Health in the Construction Industry

This DOLE Order was issued to ensure the protection and welfare of workers employed in the construction industry, ensure the protection and welfare of the general public within and around the immediate vicinity of any construction worksite as well as the promotion of harmonious employer- employee relationships, and consider the relevant industry practices and applicable government requirements. This guideline will apply to all construction activities, including demolition, regardless of whether private or public property. The Department Order sets forth the inclusion of a “Construction Safety and Health Program” prior to the onset of the construction where in the construction project manager is required to submit a comprehensive plan for the said program to the respective DOLE Regional Office. The said program includes the creation of a Safety and Health Committee, safety policies, penalties and sanction, orientation, instruction and training, and waste disposal. The DO also highlights the need for the use of personal protective equipment, designation of safety personnel, use of construction safety signages, observance of safety and health information, and the practice of safety inspection and tool box meeting.

Joint Memorandum Circular No. 1, series 2020 – Occupational Safety and Health Standards for the Public Sector

The joint memorandum circular is an offshoot of the National Occupational Health and Safety Policy Framework that was signed by the Civil Service Commission (CSC), Department of Health (DOH) and the DOLE to guide key stakeholders in the development, implementation, monitoring and evaluation of occupational safety and health for both the public and private sector workers. The memorandum circular presents the guidelines to protect all government employees from dangers of injury, sickness or death in the workplace through the adoption of safe and healthy working conditions to ensure the preservation of human lives and resources and prevent loss/damage of properties.

Appendix 10. MTCIP Contract Packages

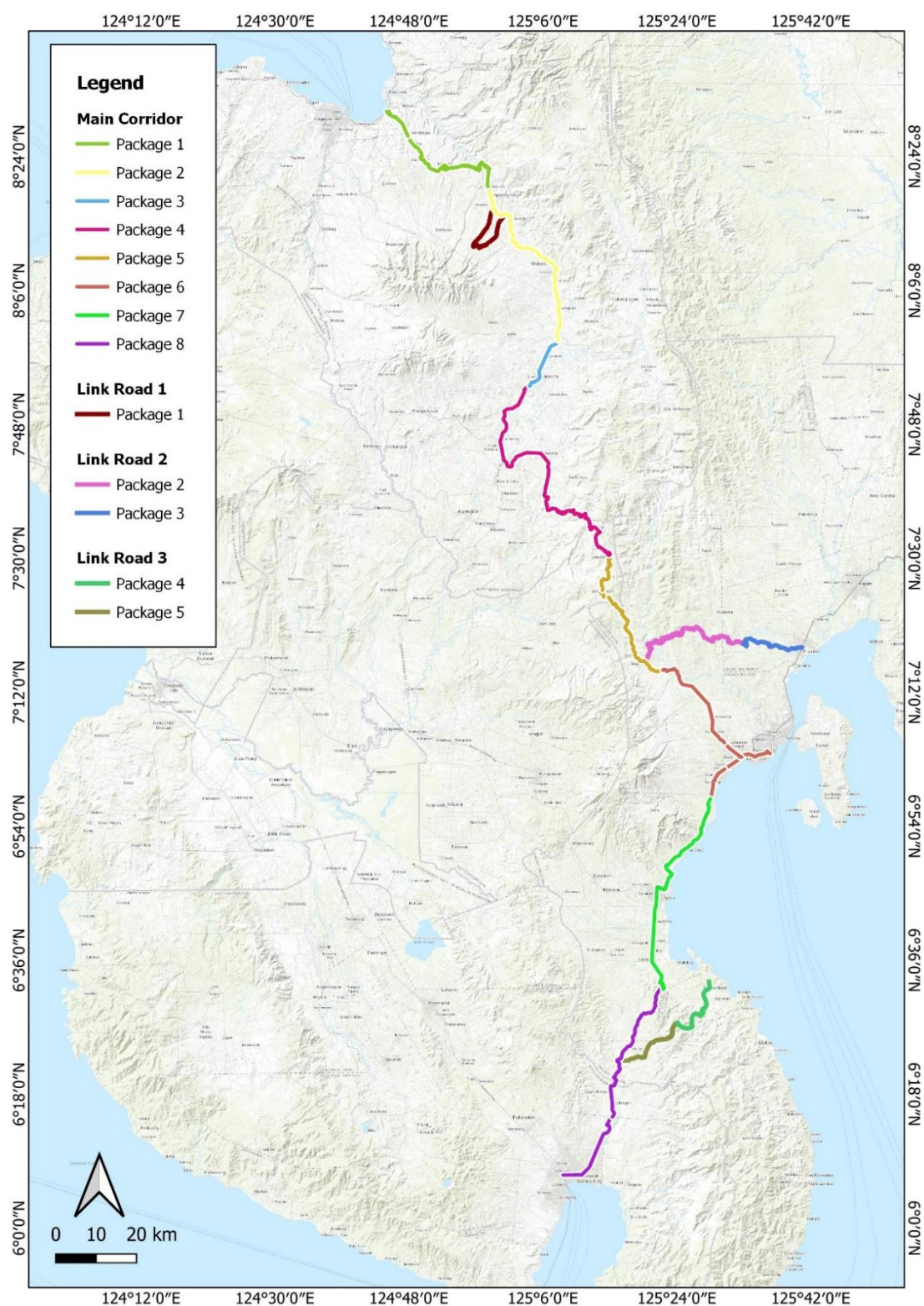


Figure 8. Map of Contract Packages

1. Local Link Roads (20 km)

Package	District, Province/Region	Length	Amount in million Pesos
Package 1 – LR1	Impasug-ong	25.03 km	PHP 1,315.85
Package 2- LR2	Davao City	40.16 km	PHP 2,012.49
Package 3 – LR2	Davao del Norte	19.24 km	PHP 487.00
Package 4 -LR3	Davao Occidental	17.90 km	PHP 1,239.43
Package 5- LR3	Sarangani	27.13 km	PHP 1,138.91

2. Main Corridor (50 km)

Package Number	Section Name	Length in km	Contract cost in million Pesos
Package 1	Cagayan De Oro Manolo Fortich, Sumilao	50.575	PHP 4,451.22
Package 2	Impasug-ong Malaybalay	48.287	PHP 805.97
Package 3	Valencia Maramag	39.011	PHP 1,298.44
Package 4	Quezon	58.38	PHP 995.36
Package 5	Arakan Davao City	50.2	PHP 455.86
Package 6	Davao City	53.757	PHP 778.86
Package 7	Sta. Cruz Digos City Hagonoy, Padada Sulop, Malalag	58.458	PHP 1,428.48
Package 8	Malungon General Santos	63.583	PHP 1,408.54

Appendix 11. Environmental Provisions in the Contract including EMP, EMoP and GRM

(Ref: DPWH-JICA. PHI: Improving Growth Corridors in Mindanao Road Sector Project. May 2020.)

Section 8 - Particular Conditions of Contract

Part B – Specific Provisions**Table 1.** Procurement of Works Bidding Document for PR-XX MTCIP

Ref. GCC	Subject	Data
4.12	Unforeseeable Physical Conditions	In addition to notice of any Unforeseeable physical conditions, the Contractor shall provide the Engineer with a written notice of any unanticipated environmental, resettlement or indigenous peoples risks or impacts that arise during construction, implementation or operation of Plant or Permanent Works, which were not considered in the <u>Initial Environmental Examination (or EIS)</u> attached hereto as Appendix X, the Environmental Management Plan attached hereto as Appendix 2 of Section XX Employer's Requirements or the resettlement and indigenous peoples development plan.
4.13	Rights of Way and Facilities	The Contractor shall comply with (i) the measures and requirements relevant to the Contractor which are set forth in the Resettlement Plan ("RP"), to the extent it concerns impacts on affected people during construction; and (ii) any corrective or preventive actions set out in safeguards monitoring reports that the Employer will prepare from time to time to monitor implementation of the Resettlement and Indigenous Peoples Development Plan.
4.16	Transport of Goods	The contractor shall adequately record the condition of roads, agricultural land and other infrastructure prior to the start of transporting materials, goods and equipment, and construction.
4.18	Protection of Goods	The Contractor shall comply with all applicable national, provincial, and local environmental laws and regulations. The Contractor shall (a) establish an operational system for managing environmental impacts, (b) carry out all of the monitoring and mitigation measures set forth in the <u>Initial Environmental Examination (or EIS)</u> and the <u>Environmental Management Plan</u> attached hereto and (c) allocate the budget required to ensure that such measures are carried out. The Contractor shall submit semi-annual reports on the carrying out of such measures to the Employer. More particularly, the Contractor shall comply with (i) the measures and requirements set forth in the <u>IEE (or EIS)</u> and the <u>Environmental Management Plan</u> and (ii) any corrective or preventative actions set out in safeguards monitoring reports that the Employer will prepare from time to time.

ENVIRONMENTAL MANAGEMENT PLAN

1. The Environmental Management Plan (EMP) is the synthesis of all proposed mitigation and monitoring actions to avoid, minimize and mitigate adverse environmental impacts and enhance positive impacts of the project. The EMP defines institutional responsibilities for mitigation implementation and monitoring, reporting requirements, and a system to manage and provide speedy resolution of construction-related complaints through the grievance redress mechanism (GRM). The EMP is included in the bid documents to enable contractors allocate human and financial resources for effective implementation and monitoring. The EMP will be distributed to potential contractors so that the noted mitigation and monitoring requirements can be evaluated and included in the specifications and cost proposals submitted for the proposed project. It enables the project to comply with Philippine government and WB requirements on environmental management. The project EMP may require updating to address unanticipated impacts or significant changes in the project scope to ensure that additional impacts could be effectively managed.
2. Contractors Environmental Management Plan. The EMP requires each contractor to prepare and submit a contractor's environmental management plan (CEMP) consistent with the project EMP, prior to start of construction. It should be cleared by DPWH, CSC and WB before any physical activity is started on the site.
3. The CEMP shall include the contractor's management plans to mitigate construction impacts, such as air and water pollution, soil erosion, construction noise, solids, liquids and hazardous wastes, construction spoils, traffic, and community and workers' health and safety. The contractor's environment, health and safety officer (EHSO) has the primary responsibility for CEMP preparation hence it is important for the contractor to mobilize the EHSO upon receipt of the notice to proceed. The Construction Supervision Consultant (CSC) will ensure that the CEMPs are in accordance with the EMP requirements before they are submitted for approval to PMO and to WB.
4. Inasmuch as some of the associated project facilities such as borrow pits, quarry sites, construction camps, and batching plants will be identified by the contractors, the CEMPs will provide specific information on these facilities to identify potential impacts and the required remedial measures to address these environmental issues. The CEMP should provide details of activities and the location of facilities specific to the contract package. It should confirm and update the list of sensitive receptors in the IEE to identify locations where mitigation would be most required. Assessment should be conducted to determine the necessity for environmental baseline surveys prior to start of construction, to supplement secondary data available. If undertaken, the survey results shall be included in the CEMP and mitigation measures shall be adjusted accordingly based on the results.
5. CEMPs should be cleared by DPWH and WB before civil works commence. The associated project facilities will also be subject to inspection by PMO and CSC to confirm that locations are appropriate and will not cause significant environmental and social issues. The CEMP should clearly state that the project will comply with relevant Philippine laws and the WB Safeguard Policy Statement (SPS) 2009. The contractor will be responsible for CEMP compliance of the subcontractors.

Impact Mitigation and EMP Monitoring

6. The MTCIP Road project will improve the existing CDO- Bukidnon-Davao-GenSan Hi-way and the Link Roads 1-3. The project will upgrade the road to concrete pavement following the existing alignment on a 20-m right-of- way. New bridges ranging from 25 – 120m will be constructed, crossing a number of rivers. The project will also improve drainage and slope protection structures.
7. Detailed engineering design estimates that approximately 2,500 trees on both publicly- and privately- owned lands will be affected by the road improvement project. The actual number will be validated by the Community Environment and Natural Resources Office (CENRO) and DPWH during a joint inventory of affected trees prior to start of construction. A replacement number of tree seedlings (1:100) will be contributed by the project to the country's National Greening Program administered by the Department of Environment and Natural Resources (DENR) to offset the tree cutting. Fruit bearing trees including coconut trees shall be compensated to the landowners/farmers as part of improvements affected by the project. The identified environmental impacts resulting from the project and the corresponding mitigation measures, including implementation and monitoring responsibilities are presented in **Table 27 (Impact Mitigation Plan)**.
8. The mitigation measures are deemed adequate to address project impacts but may be adjusted based on a closer inspection of site conditions prior to start of construction. This would include the list of sensitive receptors identified in the Initial Environmental Examination (IEE) or Environmental Impact Statement (EIS) and the conditions and uses of the rivers to the communities where bridge works will be undertaken. Sensitive receptors are particularly vulnerable to noise and dust resulting from road construction.
9. **Table 28** presents the **Environmental Monitoring Plan (EMoP)/activities** to be undertaken during various project phases. Monitoring of the contractor's environmental performance in terms of implementation of mitigation measures for pre-construction and construction phases shall be undertaken by the construction supervision consultant (CSC) who may be hired for the project, and DPWH. CSC shall assist DPWH in preparing semi-annual environmental monitoring reports for submission to WB and DENR, when required.

The monitoring reports shall describe progress with the implementation of the EMP and compliance issues and corrective actions, if any

Table 1. Impact Mitigation Plan

Environmental Impacts/Concerns	Proposed Mitigation Measures	Estimated Cost	Responsible Institutions	Responsible for Monitoring	Implementation Schedule
Pre-Construction Stage					
Improper implementation of the Environmental Management Plan (EMP)	<p>1. Engage a qualified Environmental, Health and Safety Officer (EHSO) who will ensure compliance with environmental, health, and safety statutory requirements, contractual obligations on environment and the EMP.</p> <p>2. Prepare and submit a contractor's environmental management plan (CEMP), based on the project EMP with specific details (location of sensitive receptors; associated facilities such as batching plants, material requirements and sources) relevant to the particular contract package or lot, to be approved by DPWH and CSC and cleared by WB prior to establishment of the facilities and start of construction. It shall include management plans for dust, erosion and sediment, solid, liquid and hazardous wastes, construction spoils, construction facilities such as workers' camps, batching plants, traffic management and community and occupational health and safety.</p> <p>3. Assess the need to conduct baseline environmental quality measurements (air and water quality, noise levels) prior to construction, the results of which shall be included in the CEMP.</p>	Part of bid cost	Contractor Review and approval: DPWH and Construction Supervision Consultant (CSC)	ESSD/CSC	Upon contractor mobilization
Inadequate disclosure of project information to stakeholders	1. Project implementation schedule, activities, impacts and mitigation will be communicated to the LGU representatives and residents of affected communities in advance, when and where noise, dust and other nuisances may be expected, and how affected persons can access the GRM for environmental concerns related to the project. Information dissemination will be conducted.	Part of Project and Bid cost	DPWH/construction supervision consultant (CSC), together with contractor	Environment and Social Safeguards Division (ESSD) of DPWH/CSC	Mobilization period prior to site clearing and civil works and at least monthly
Lack of system to address complaints	5. A grievance redress mechanism (GRM) will be established prior to start of site activities to address and resolve project related complaints.	Part of Project and Bid cost	DPWH/construction supervision consultant (CSC), together with contractor	Environment and Social Safeguards Division (ESSD) of DPWH/CSC	Mobilization period prior to site clearing and civil works and at least monthly
Non-compliance with government requirements	2. All required government permits such as environmental compliance certificates (ECC) for the project and associated facilities, tree cutting permit, and LGU permits shall be secured prior to start of construction	Part of Project and Bid cost	DPWH, Contractor	ESSD/CSC	Prior to construction
Construction Stage					

Environmental Impacts/Concerns	Proposed Mitigation Measures	Estimated Cost	Responsible Institutions	Responsible for Monitoring	Implementation Schedule
Local air pollution	7. Provide signages informing public and contractor staff to observe speed limit of at least 25 kph in populated areas (sensitive receptors) of the community	Part of Bid Cost	Contractor	ESSD/CSC	Prior to construction
	8. Regular water spraying/dampening dust emissions from disturbed soil, roadway construction surfaces and haul roads wherever there are sensitive receptors (such as houses, churches, businesses, schools, medical facilities) nearby is undertaken. Spraying will be done twice daily or at such frequency as is needed to suppress dust emission to acceptable levels.	Part of Bid Cost	Contractor	ESSD/CSC	During dry construction days
	9. Regular removal of debris and spoil piles and clean up after completion	Part of bid cost	Contractor	ESSD/CSC	As often when construction activities require
	10. All vehicles transporting dusty materials will be tightly covered to prevent release of fugitive dust. Part of bid cost Contractor ESSD/CSC During each hauling activities.	Part of bid cost	Contractor	ESSD/CSC	During each hauling activities
	11. Construction camps which include rock crushing, concrete batching plant, fabrication yards and similar facilities will be located at least 500 m from habitations and community environments including other sensitive receptors such as churches, schools, and medical facilities. The facilities shall secure all required govt permits from DENR, EMB and LGUs prior to their establishment.	Part of bid cost	Contractor	ESSD/CSC	During establishment of project facilities
	12. All equipment, machinery and vehicles used for the project must be well maintained to ensure proper functioning thereby minimizing contribution to air pollution.	Part of bid cost	Contractor	ESSD/CSC	All throughout the construction period until demobilization
Local air pollution	13. For storage areas of construction materials such as sand, gravel, and cement, provisions will be made to prevent materials from being blown away towards sensitive receptors.	Part of bid cost	Contractor	ESSD/CSC	All throughout the construction period until demobilization
	14. Roads will be regularly cleaned to remove tracked mud, cement, and other dirt.	Part of bid cost	Contractor	ESSD/CSC	During rainy days; and after concrete pouring activities in the
	15. Stockpiling of spoils near sensitive receptors will be prohibited	Part of bid cost	Contractor	ESSD/CSC	During hauling and stockpiling
	16. Asphalt plants, concrete batching plants and crushing plants will be equipped with dust suppression devices such as water sprays, dust collectors, covered conveyor.	Part of bid cost	Contractor	ESSD/CSC	All throughout construction until demobilization
	17. Speed limits will be imposed on construction vehicles to minimize dust emission along areas where sensitive receptors are located.	Part of bid cost	Contractor	ESSD/CSC	Throughout the Construction period until demobilization

Environmental Impacts/Concerns	Proposed Mitigation Measures	Estimated Cost	Responsible Institutions	Responsible for Monitoring	Implementation Schedule
	18. Burning of all types of wastes generated at the construction sites, work camps and other project related activities will be strictly prohibited.	Part of bid cost	Contractor	ESSD/CSC	Throughout the construction period.
	19. Stockpiles of sand and aggregate greater than 20 m3 for use in concrete mixing will be enclosed on three sides, with walls extending above the pile and two meters beyond the front of the piles.	Part of bid cost	Contractor	ESSD/CSC	During hauling and stockpiling activities and throughout the construction period
	20. Water sprays will be used during the delivery and handling of all raw sand and aggregates, and other similar materials, when dust is likely to be created and to dampen such stored materials during dry and windy weather to avoid impacts to sensitive receptors	Part of bid cost	Contractor	ESSD/CSC	During materials delivery activities and throughout the construction period
	21. Cement and other fine-grained materials delivered in bulk will be stored in closed containers.	Part of bid cost	Contractor	ESSD/CSC	During cement delivery activities and throughout the construction period
	22. Limit the duration of noisy construction activities to daylight hours, whenever possible, in the vicinity of sensitive receptors. Noisy equipment will not be operated during nighttime to early morning (19:00H – 06:00H)		Contractor	ESSD/CSC	Throughout the construction period until complete demobilization
	23. Workers exposed to high noise levels will be provided with ear plugs		Contractor	ESSD/CSC	Throughout the construction period until complete demobilization
	24. The contractors will provide prior notification to the community on the schedule of noisy construction activities.		Contractor	ESSD/CSC	Throughout the construction period until complete demobilization
	25. Whenever possible, noisy equipment will be completely enclosed using materials which can significantly reduce noise levels.	Part of bid cost	Contractor	ESSD/CSC	Throughout the construction period until complete demobilization
	26. Any stationary equipment that produce high noise levels (e.g., portable diesel generators, compressors, etc.) will be positioned as far as is practical from sensitive receptors.		Contractor	ESSD/CSC	Throughout the construction period until complete demobilization
	27. Construction traffic routes will be defined in cooperation with local communities and traffic police to minimize noise and nuisance.		Contractor	ESSD/CSC	Prior to the commencement of the construction activities
	28. Vehicle speeds will be reduced around sensitive receptors. Minimize back-up alarm noises on construction vehicles where practical and feasible		Contractor	ESSD/CSC	Throughout the construction period

Environmental Impacts/Concerns	Proposed Mitigation Measures	Estimated Cost	Responsible Institutions	Responsible for Monitoring	Implementation Schedule
	29. Concrete batching and rock crushing plants will be located at least 500 m away from sensitive receptors. Contractor ESSD/CSC Prior to establishment of the plants.		Contractor	ESSD/CSC	Prior to establishment of the plants.
	30. Throughout the construction period temporary noise barriers will be installed along the edge of the road, as necessary, in front of sensitive receptor	Part of bid cost	Contractor	ESSD/CSC	Prior to the commencement of the activities
	31. Prior to undertaking noisy activities, the contractor will consult with village leaders and representatives from the religious sites and schools along the project road regarding construction schedule so as to minimize disturbance to important events such as ceremonies, examination period and the like.		Contractor	ESSD/CSC	Prior to the commencement of the activities
Spoils Disposal	32. Prior to excavation, contractors will submit a spoils disposal plan to concerned authorities such as LGUs and DPWH for approval. The plan will show the location of proposed excavation sites, cut locations, fill and/or disposal sites for excess cut and disposal sites for concrete resulting from spillway demolition. The plan will include photographs of the sites and will also indicate the existing land use and capacity of the disposal site. A copy of the approved plan forming part of the CEMP will be submitted to WB.	Part of bid cost	Preparation: Contractor Review and approval: DPWH and CSC	ESSD/CSC	Prior to the commencement of the activities
	33. The contractor will ensure that spoils disposal will not encroach on surface water courses, will not cause sedimentation or obstruction of stream/river flow and will not cause damage to agricultural land, irrigation, densely vegetated areas, forests, properties and other productive sites	Part of the cost	Contractor	ESSD/CSC	Prior to the commencement of the activities; and throughout the duration of the project
	34. Where local residents and villages requests to use spoils as fill materials in their lots and properties, the contractor shall secure a written request and agreement for proper disposal. The contractor shall keep an inventory of the quantities of spoil disposed through various means for inclusion in the SEMR. Contractor shall ensure that the filling activities shall not cause pollution or sedimentation and/or water ponding by technically assisting property owners in the establishment of adequate bunding and drainage.	Part of the cost	Contractor	ESSD/CSC	Prior to the commencement of the activities; and throughout the duration of the project
	35. For commercial borrow pits and quarries, the contractor will ensure that only facilities with necessary environmental permits will be used for the project. Part of bid cost Contractor ESSD/CSC Prior to the commencement of the activities;	Part of the cost	Contractor	ESSD/CSC	Prior to the commencement of the activities; and throughout the duration of
	36. For quarries and borrow pits that will be solely established and operated for the project, the contractor will ensure that these are	Part of the cost	Contractor	ESSD/CSC	Prior to the commencement of the activities; and

Environmental Impacts/Concerns	Proposed Mitigation Measures	Estimated Cost	Responsible Institutions	Responsible for Monitoring	Implementation Schedule
	covered by necessary environmental permits. Copies of the environmental permits shall be included in the CEMP				throughout the duration of the project
	37. Prior to operation of borrow pits and quarries, the contractor will submit to the LGU and DPWH a plan showing the location/s of such facilities to be used, as well as timeframe and mitigation measures to be implemented to rehabilitate project-specific borrow pits and quarries. Estimated quantities of material requirements from borrow pits and quarries shall be included in the CEMP.	Part of the cost	Preparation: Contractor Review & approval: DPWH & CSC	ESSD/CSC	Prior to the commencement of the activities;
	38. The contractor will also ensure that topsoil will be properly removed, stockpiled and preserved for later use during restoration of the borrow pit.	Part of the cost	Contractor	ESSD/CSC	Throughout the duration of the project
	39. Vegetation cover will be provided during rehabilitation of the site.	Part of bid cost	Contractor	ESSD/CSC	Following completion of civil works activities
	40. Upon completion of extraction activities, quarries and borrow pits will be dewatered, signages and fences installed, as appropriate, to minimize health and safety risks.	Part of bid cost	Contractor	ESSD/CSC	Upon completion of extraction activities
	41. Undertake planting of native species of trees and landscaping along the roads and embankment slopes, as appropriate.	Part of bid cost	Contractor	ESSD/CSC	Following completion of extraction activities
	42. Construction activities in hilly areas will be carried out intensively during dry season. However, as the area is not generally typhoon-prone, construction work during wet season is likely feasible. Contractor	Part of the cost	Contractor	ESSD/CSC	During the dry season and as weather permits.
	43. Slope protection measures (such as sodding) will be implemented to avoid impacts to agricultural land and adjacent properties. Areas to be cleared of vegetation for construction will be restricted to the minimum required for immediate works.	Part of the cost	Contractor	ESSD/CSC	Prior to commencement of the protection works
Deterioration of water quality and soil contamination	44. Limit the exposure of areas prone to erosion.		Contractor	ESSD/CSC	During earthworks, and throughout the duration of the activities.
	45. Observe proper management of spoils by surrounding the stockpile with bund.	Part of the cost	Contractor	ESSD/CSC	During earthworks, and throughout the duration of the activities.
	46. Transport spoils immediately to final disposal sites	Part of the cost	Contractor	ESSD/CSC	During earthworks, and throughout the duration of the activities.
	47. Undertake sodding of spoils stockpile if prolonged storage is necessary.	Part of bid cost	Contractor	ESSD/CSC	During earthworks, and throughout the duration of the activities.

Environmental Impacts/Concerns	Proposed Mitigation Measures	Estimated Cost	Responsible Institutions	Responsible for Monitoring	Implementation Schedule
	48. Bentonite slurry used during bridge construction will be collected and processed in a closed system. Discharge into watercourses will be prohibited.		Contractor	ESSD/CSC	During earthworks, and throughout the duration of the activities.
	49. Spillage of bentonite in agricultural land will be cleaned immediately to prevent caking and hardening.	Part of the cost	Contractor	ESSD/CSC D	During earthworks, and throughout the duration of the activities.
	50. Prior to establishment and operation of concrete batching plants and casting yards, the contractor will		Contractor	ESSD/CSC D	During earthworks, and throughout the duration of the activities.
	51. Retention ponds with sufficient specifications/capacity will be constructed for wastewater from washing of equipment such as mixer drums, trucks and chute, and other sources.		Contractor	ESSD/CSC	Throughout the use of the pond until demobilization
	52. Operate and maintain the retention ponds to ensure that effluent quality will meet applicable standards	Part of the cost	Contractor	ESSD/CSC	Throughout the use of the pond until demobilization
	53. Equipment service and maintenance yards will be provided with impermeable flooring and collection sump	Part of the cost	Contractor	ESSD/CSC	During the establishment of the facility
	54. Water -tight receptacles will be provided in all the equipment maintenance shops for waste oil, oily rags, spent oil filters, solvents and oily containers.	Part of bid cost	Contractor	ESSD/CSC	Throughout the operation of the maintenance shops until demobilization.
	55. Disposal of wastes contaminated with hazardous materials will be through authorized waste handlers and recyclers.	Part of bid cost	Contractor	ESSD/CSC	During wastes disposal activities.
	56. Refueling and servicing of equipment will only be carried out in areas adequately equipped to collect leaks and spills. Drip pans will be used when necessary	Part of the cost	Contractor	ESSD/CSC	Throughout the operation of the maintenance shops until demobilization.
	57. Fuel and other hazardous materials will be stored in a roofed area that has an impervious floor and bund around it	Part of the cost	Contractor	ESSD/CSC	During the establishment of the facility
	58. Fuel storage area will be located at least 100 meters away from watercourses, flood-prone areas and workers camps.	Part of bid cost.	Contractor	ESSD/CSC	Prior to establishment of the fuel storage tank
	59. Availability of spill clean-up materials (e.g., absorbent pads, etc.) specifically designed for petroleum products and other hazardous substances where such materials are being stored and used.	Part of bid cost.	Contractor	ESSD/CSC	Throughout the operation of the campsite until demobilization

Environmental Impacts/Concerns	Proposed Mitigation Measures	Estimated Cost	Responsible Institutions	Responsible for Monitoring	Implementation Schedule
	60. If spills or leaks of hazardous materials do occur, immediate clean-up will be undertaken.	Part of bid cost.	Contractor	ESSD/CSC	Immediately during spills or leaks.
	61. Relevant construction personnel will be trained in handling of fuels/hazardous substances and spill control procedure	Part of bid cost.	Contractor	ESSD/CSC	Prior to handling of hazardous materials, etc.
	62. All storage containers of hazardous materials and wastes will be properly labeled and maintained in good condition.	Part of bid cost.	Contractor	ESSD/CSC	Throughout the operation of the campsite until demobilization.
	63. Restoration of temporary work sites will include removal and treatment or proper disposal of oil contaminated soils.	Part of bid cost.	Contractor	ESSD/CSC	Prior to demobilization
Loss of vegetation	64. DPWH will obtain a tree cutting permit in compliance with PD 705 (Revised Forestry Code of the Philippines). No tree cutting will be undertaken without the necessary permit to be issued by the Community Environmental and Natural Resources Office (CENRO) of the DENR	Part of project cost	DPWH	ESSD/CSC	Prior to tree cutting activities
	65. Tree cutting can only be undertaken under close supervision of CENRO, DPWH and CSC staff who will be present at the site throughout the duration	Part of project cost	Contractor	ESSD/CSC	During and/or after tree cutting activities.
	66. Only trees marked based on the Tree Chart prepared by the CENRO will be cut.		Contractor	ESSD/CSC	During and/or after tree cutting activities.
	67. Cut trees will be turned over to the CENRO for disposal	Part of bid cost.	Contractor	ESSD/CSC	During and/or after tree cutting activities.
	68. In compliance with DENR Memorandum Order no. 05 of 2012: Uniform Replacement Ratio for Cut or Relocated Trees, purchase 250,000 tree seedlings (estimate only) and turn over to the CENRO	Part of bid cost.	Contractor	ESSD/CSC	During and/or after tree cutting activities.
	69. Ensure that one of their environment specialists and/or that of the supervision consultant will closely monitor the tree cutting activities to ensure that these will comply with the provisions of the Tree Cutting Permit and corresponding Tree Chart.	Part of project cost	Contractor	ESSD/CSC	DPWH/CSC ESSD/CSC During tree cutting activities.
	70. As part of the semi-annual environmental monitoring report to be submitted to WB, DPWH will report on the status of tree cutting, tree relocation or replacement any issues/concerns, corresponding actions, growth progress of the replacement of trees and other relevant matters		DPWH CSC	ESSD/CSC	Semi-annual during SEMR preparation and submission to WB
	71. To avoid unnecessary impacts to vegetation, the contractor will prohibit cutting of trees for firewood and for other uses in the Project and will ensure that tree cutting is limited to areas as approved by the CENRO.		Contractor	ESSD/CSC	During tree cutting activities.

Environmental Impacts/Concerns	Proposed Mitigation Measures	Estimated Cost	Responsible Institutions	Responsible for Monitoring	Implementation Schedule
	72. Prohibit workers from hunting wild animals and/or purchasing any wildlife.		Contractor	ESSD/CSC	During the construction period
	73. As much as possible, bridge works will be scheduled in dry season to minimize adverse impacts to fishery, river water quality and other aquatic resources.		Contractor	ESSD/CSC	During the DRY SEASON
	74. Use of personal protective equipment (PPE) such as safety shoes, safety hat, goggles, safety belt, ear protection or other garments or equipment designed to protect the wearer's body from injury will be strictly observed during construction.	Part of bid cost	Contractor	ESSD/CSC	Throughout the construction period
	75. Provision of first aid kits that are readily available to workers as well as access to or availability of a health worker to attend to any immediate health needs of workers and in case of untoward incidents.	Part of bid cost	Contractor	ESSD/CSC	Throughout the construction period
	76. Conduct orientation for construction workers regarding health and safety measures, emergency response in case of accidents, fire, etc., and prevention of HIV/AIDS, COVID-19,	Part of bid cost	Contractor	ESSD/CSC	Prior to work deployment; as often as necessary.
	78. Installation of adequate drainage in workers camps to avoid water	Part of bid cost	Contractor	ESSD/CSC	During campsite establishment
	79. Provision of separate clean housing with sufficient ventilation and separate hygienic sanitation facilities for male and female workers. Part of bid cost Contractor ESSD/CSC During campsite establishment. Part of bid cost Contractor ESSD/CSC During campsite establishment	Part of bid cost	Contractor	ESSD/CSC	During campsite establishment
	80. Provision of reliable supply of water for drinking, cooking and washing purposes at the workers' camps.	Part of bid cost	Contractor	ESSD/CSC	During campsite operation
Occupational health and safety hazard	81. Proper collection and disposal of solid wastes within the workers'/construction camps consistent with local regulations.	Part of bid cost	Contractor	ESSD/CSC	During campsite operation
	82. Provision of fire-fighting equipment at the work areas, as appropriate, and at workers camps.	Part of bid cost	Contractor	ESSD/CSC	During campsite operation
	83. Treatment of wastewater emanating from workers camps, construction camps and other project-related activities and facilities consistent with	Part of bid cost	Contractor	ESSD/CSC	During campsite operation
	84. Use of reversing signals on all construction vehicles	Part of bid cost	Contractor	ESSD/CSC	Throughout the construction
	85. Regular coordination with local authorities' period regarding project activities throughout the construction phase to reduce over-all security risks	Part of bid cost	Contractor and DPWH	ESSD/CSC	Throughout the construction
Public health and safety period. hazards	86. Installation of sturdy fencing around excavation areas and construction sites.	Part of bid cost	Contractor	ESSD/CSC	During excavation works until completion of
	87. Provision of proper signage and lighting at night at the periphery of the construction site to warn and direct traffic and pedestrians	Part of bid cost	Contractor	ESSD/CSC	Throughout the construction period

Environmental Impacts/Concerns	Proposed Mitigation Measures	Estimated Cost	Responsible Institutions	Responsible for Monitoring	Implementation Schedule
	88. Deployment of security personnel in hazardous areas to restrict public access.	Part of bid cost	Contractor	ESSD/CSC	Throughout the construction period
	89. Imposition of speed limits for construction vehicles along residential areas and where there are other sensitive receptors		Contractor	ESSD/CSC	Throughout the construction period
	90. Orientation of drivers on safe driving practices to minimize accidents and to prevent spill of hazardous substances and other construction materials during transport.		Contractor	ESSD/CSC	Prior to work deployment and throughout the construction period
Traffic Obstruction	91. If necessary, provide safe passageways for pedestrians crossing the construction site.		Contractor	ESSD/CSC	Throughout the construction activity until completion.
	92. All construction areas, provide safe access to farmland and other properties		Contractor	ESSD/CSC	Throughout the construction activity until completion.
	93. Provide signs advising road users that construction is in progress. Particularly in areas where the project alignment crosses existing roads and where construction related-facilities are		Contractor	ESSD/CSC	Throughout the construction activity until completion.
	94. Employ flag persons to control traffic when construction equipment is entering or leaving the work area.		Contractor	ESSD/CSC	Throughout the construction activity until completion.
	95. Post traffic advisory signs (to minimize traffic build-up) in coordination with local authorities.		Contractor	ESSD/CSC	Throughout the construction activity until completion.
Accidental discovery of artefacts	96. Contractor to immediately cease operations at the site of discovery.		Contractor	ESSD/CSC	Immediately upon discovery of artefacts.
	97. Contractor to inform the CSC and Environment Officer of the Office of the District Engineer.		Contractor	ESSD/CSC	Immediately upon discovery of artefacts.
	98. CSC to relay information to DPWH.		CSC	ESSD/CSC	Immediately upon discovery of artefacts.
	99. DPWH to notify the National Historical Commission of the Philippines (NHCP) and/or other concerned government agencies for the next steps.		DPWH	ESSD/CSC	Immediately upon discovery of artefacts.
	100. Re-commence work only after NHCP has provided official notification accordingly.		Contractor	ESSD/CSC	Immediately upon NHCP notification.
Damage to properties	101. The contractor will immediately repair and/or compensate for any damage that it causes to properties (houses, farmlands, aquaculture ponds, irrigation canals, etc.), community facilities such as water supply, power supply, communication facilities and the like.	Part of bid cost	Contractor	ESSD/CSC	Immediately upon completion of damage assessment.

Environmental Impacts/Concerns	Proposed Mitigation Measures	Estimated Cost	Responsible Institutions	Responsible for Monitoring	Implementation Schedule
	102. Access roads used for transport of construction materials and other construction-related activities will be maintained by the Contractor in at least in their pre-project condition for the duration of construction.	Part of bid cost	Contractor	ESSD/CSC	Throughout the construction period.
	103. If any unanticipated impacts become apparent during project implementation, the DPWH will update the environmental assessment and EMP or prepare a new environmental assessment and EMP to assess the potential impacts, evaluate the alternatives, and outline mitigation measures and resources to address those impacts. The updated or newly prepared documents will be submitted to WB for review, clearance and public disclosure.	Part of project cost	Contractor, CSC, ESSD	DPWH	Immediately upon occurrence of impact.
	104. Implement measures specified in the new or updated environmental assessment and EMP to address unanticipated environmental impact	Part of project cost	Contractor	ESSD/CSC	Immediately upon completion of impact assessment
	105. Implement additional environmental mitigation measures, as necessary, to avoid, minimize and/or compensate for adverse impacts due to construction works and related activities performed by the contractor.	Part of Project cost	Contractor	ESSD/CSC	Immediately upon completion of impact assessment and agreement on corrective action
	106. As necessary, install traffic calming measures, e.g., speed bumps in areas where there are sensitive receptors so as to further reduce noise levels from passing vehicles	Part of Project cost	District Engineering Office (DEO)	DPWH	Upon completion of roadworks.
	107. Undertake regular maintenance of pavement and traffic management especially near receptors to contribute to lower ambient noise levels.	Part of Project cost	District Engineering Office (DEO)	DPWH	After the defects liability period of the contractor.
	108. Setting up warning and guide signs, arrow marks and providing delineation lines clearly along the road.	Part of Project cost	DPWH		Upon completion of roadworks.
	109. Provision of traffic signals at key intersections.	Part of Project cost	DPWH		Upon completion of roadworks.
	110. Improved Road will have vertical curves that suit safe design criteria/requirement.	Part of Project cost	DPWH		During detailed design and construction.
	111. Installation of chevron signs where required and speed limit signs.	Part of Project cost	DPWH		Upon completion of roadworks and during maintenance operation if necessary.

Environmental Impacts/Concerns	Proposed Mitigation Measures	Estimated Cost	Responsible Institutions	Responsible for Monitoring	Implementation Schedule
	112. Road will have improved vertical alignment to suit sight distance requirement.	Part of Project cost	DPWH		During detailed design and construction.
	113. Installation of guardrails between the road and ditches	Part of Project cost	DPWH		Upon completion of roadworks and during maintenance if necessary.
	114. Prohibit the use of carriageway as parking to ensure safe, efficient and smooth vehicular flow; coordinate with LGU(s) concerned to improve enforcement	Part of Project cost	DPWH		Upon completion of roadworks and during maintenance if necessary.
	115. Provision of pedestrian crossing	Part of Project cost	DPWH		Upon completion of roadworks and during maintenance if necessary.
	116. Provision of sidewalks and bicycle lanes where appropriate	Part of Project cost	DPWH		As specified in the detailed design.
	117. Implementation of related mandates with regards to the provision of solid waste management, health and sanitary facilities		LGU		Upon project completion.
	118. Implementation of related mandated to prevent or minimize illegal tree cutting and other resource extractive activities (e.g., through close monitoring)		DENR		Upon project completion.

Table 2. Environmental Monitoring Program

Aspect	Means of Monitoring	Location /Frequency	Responsible for Monitoring
Pre-Construction			
1. Inventory of affected trees	ROW inspection and tagging of trees based on detailed project plans	Entire MTCIP alignment	DPWH/Contractor
2. Compliance with government requirements prior to start of construction	Checking copies of applicable permits (ECC, tree cutting permit, LGU permits)		DPWH/CSC
3. Submission and approval of CEMP	Review and clearing of CEMP		DPWH, CSC, WB

4. Updating or validation of sensitive receptors; also include utility facilities that could be potentially affected	Site inspection	Entire MTCIP alignment	Contractor/DPWH/CSC
5. Updating of baseline environmental quality (assess if necessary)	Assessment and surveys	Entire MTCIP alignment	Contractor/DPWH/CSC
6. Guidelines and protocols on infectious diseases are in place and all workers are provided briefing and appropriate PPEs prior to mobilization. This shall also be included in the CEMP.	Review and clearing of the guidelines if these are aligned with Philippine government, WHO and other internationally accepted protocols		Contractor/DPWH/CSC
Construction			
7. Close supervision of the contractor's implementation of mitigation measures to minimize or avoid impacts to air quality (particularly dust emission), noise, siltation of surface water and other impacts	As part of day-to-day project supervision	On-going throughout the construction phase	Contractor/DPWH/CSC
8. Contractor's environmental performance and implementation of construction phase environmental mitigation measures specified in the IEE (or EIS)/ EMP	Site visit, ocular inspections, interviews with local residents, coordination with concerned barangay/s	Monthly	DPWH, ESSD, CSC
9. Dust	Visual observation, interviews with local residents, coordination with concerned barangay/s	Monthly	DPWH/ESSD/CSC
11. Noise	Site observation, interviews with local residents, coordination with concerned barangay/s	Monthly	DPWH/ESSD/CSC
11. Surface water quality	Visual observation, interviews with local residents, coordination with concerned barangay/s	Monthly	DPWH/ESSD/CSC
12. Air quality, noise, water quality	Field sampling/measurements	To validate complaints and/or during pollution events that are potentially caused by the project	Contractor under supervision of ESSD and CSC
13. Compliance with ECC requirements	Site Inspection and data gathering	As required by the ECC	Contractor under supervision of ESSD and CSC

Institutional Roles and Responsibilities

The implementation of the environmental mitigation and monitoring measures will be the responsibility of the Department of Public Works and Highways as executing agency of the project. The following section presents the roles and responsibilities of the various units in environmental management. Effective EMP implementation is a joint effort of all key players on the project.

Table 3. Responsibilities for EMP Implementation

Agency	Responsibility
Department of Public Works and Highways (DPWH) *Including Regions X, XI and XII Offices and District Engineering Office (DEOs)	<ul style="list-style-type: none"> • Executing agency with overall responsibility for project construction and operation • Ensure that sufficient funds are available to properly implement the EMP; <ul style="list-style-type: none"> • Ensure that Project implementation complies with Government environmental policies and regulations; • Ensure that the Project, regardless of financing source, complies with the provisions of the EMP and WB ESS <ul style="list-style-type: none"> • Obtain necessary environmental approval(s) from the Environmental Management Bureau and/or other concerned government agencies prior to commencement of civil works; • Ensure that tender and contract documents for design, supervision and civil works include the relevant EMP requirements; • Establish information on an environmental grievance redress mechanism, as described in the IEE, to receive and facilitate resolution of affected peoples' concerns; and • Submit semi-annual monitoring reports on EMP implementation to WB.
DPWH-Unified Project Management Office (UPMO), Roads Management Cluster II (RMC-II)	<ul style="list-style-type: none"> • Project management office with direct responsibility for the implementation of civil works, engineering designs and project coordination; • Ensure that EMP design measures are incorporated in the detailed design; • Ensure that EMP provisions are strictly implemented and monitored during various project phases (design/preconstruction, construction and operation) to mitigate environmental impacts to acceptable levels; • Ensure compliance with environmental permits; and • Include relevant provisions of the EMP in the bid and contract documents for design, civil works and supervision. <ul style="list-style-type: none"> • Coordinate with DENR-EMB, Local Government Units (LGU), and other concerned agencies related to environmental aspects for maintaining project's compliance with environmental permits.

Agency	Responsibility
Environmental and Social Safeguards Department (ESSD) of DPWH	<ul style="list-style-type: none"> Assist the UPMO-RMC II and CSC in undertaking their environment-related tasks
Detailed Engineering Design (DED) Consultant	<ul style="list-style-type: none"> Incorporate into the project design the environmental protection and mitigation measures identified in the EMP for the design/pre- construction stage; and Assist PMO to ensure that all relevant mitigation and monitoring measures from the EMP are incorporated in the bidding and contract documents for project supervision and civil works.
Construction Supervision Consultant (CSC)	<ul style="list-style-type: none"> Prior to establishment of contractor's facilities and commencement of civil works, undertake review of specific environmental management plans (e.g., Consultant (CSC) spoils disposal plan, facilities development plan, etc.) to be prepared by contractors to ensure that such plans are consistent with the provisions of the EMP. Engage environment specialists who will undertake supervision and monitoring of EMP implementation and contractor's environmental performance; As part of day-to-day project supervision, closely supervise the contractor's implementation of mitigation measures specified in the EMP; Undertake monthly monitoring of contractor's environmental performance and over-all implementation of the EMP; Prepare semi-annual environmental monitoring reports on status of EMP implementation for submission to DPWH; Based on the results of EMP monitoring, identify environmental corrective actions and prepare a corrective action plan, as necessary, for submission to WB
Contractor	<ul style="list-style-type: none"> Recruit qualified environmental and safety officer to ensure compliance with environmental statutory requirements, contractual obligations and EMP provisions; Provide sufficient funding and human resources for proper and timely implementation of required mitigation and monitoring measures in the EMP; and Implement additional environmental mitigation measures, as necessary, to avoid, minimize and/or compensate for adverse impacts due to construction works and related activities performed by the contractor
	<ul style="list-style-type: none"> Conduct periodic site visits to assess status of EMP implementation and over-all environmental performance of the Project; Review environmental monitoring reports submitted by the executing agency to ensure that adverse impacts and risks are properly addressed; and Publicly disclose through posting on WB's website environmental monitoring reports, corrective action plans, prepared by the executing agency during project implementation prepared by contractors to ensure that such plans are consistent with the provisions of the EMP.
	<ul style="list-style-type: none"> Engage environment specialists who will undertake supervision and monitoring of EMP implementation and contractor's environmental performance; As part of day-to-day project supervision, closely supervise the contractor's implementation of mitigation measures specified in the EMP; Undertake monthly monitoring of contractor's environmental performance and over-all implementation of the EMP; Prepare semi-annual environmental monitoring reports on status of EMP implementation for submission to WB; Based on the results of EMP monitoring, identify environmental corrective actions and prepare a corrective action plan, as necessary, for submission to WB

Agency	Responsibility
Contractors	<ul style="list-style-type: none"> • Recruit qualified environmental and safety officer to ensure compliance with environmental statutory requirements, contractual obligations and EMP provisions; • Provide sufficient funding and human resources for proper and timely implementation of required mitigation and monitoring measures in the EMP; and • Implement additional environmental mitigation measures, as necessary, to avoid, minimize and/or compensate for adverse impacts due to construction works and related activities performed by the contractor.
Environmental Management Bureau (EMB) of the Department of Environment and Natural Resources (DENR)	<ul style="list-style-type: none"> • Review and approve environmental assessment reports required by the Government; and • Undertake monitoring of the project's environmental performance based on their mandate.
World Bank	<ul style="list-style-type: none"> • Conduct periodic site visits to assess status of EMP implementation and over-all environmental performance of the Project; • Review environmental monitoring reports submitted by the executing agency to ensure that adverse impacts and risks are properly addressed; and • Publicly disclose through posting on WBs website environmental monitoring reports, corrective action plans, prepared by the executing agency during project implementation

Reporting

Throughout the construction period, the contractor will submit monthly progress reports to DPWH and CSC who will compile the major findings in the monthly reports into a semi-annual report supplemented by CSC's own findings, for DPWH to submit to the WB. The semi-annual reports will highlight a summary of the progress of construction, results of site inspections, progress made in EMP implementation, status of compliance with Government's environmental regulatory requirements and other clearances, record of community complaints, unforeseen environmental impacts and suggested remedial actions for the next monitoring period.

Grievance Redress Mechanism

A subproject-specific grievance redress mechanism (GRM) will be established at the DPWH District Engineering Office (DEO) before the start of construction, to receive, evaluate and facilitate the complaints/grievances of affected persons on the sub-project's environmental performance. This mechanism will be disclosed to the host communities prior to commencement of site works. Contact information on how to access the GRM will be included in project information billboards.

The District Engineer will appoint an Environment Officer and will establish the Grievance Redress Committee (GRC) to be chaired by the DPWH District Engineer. Members will include the following:

- a. the contractor's highest official at the site such as the Construction Manager or the Construction Superintendent;
- b. Barangay Chairperson; and
- c. Environment Specialist of the Construction Supervision Consultant.

For the quick filing of complaints, the DGRC will use the grievance intake form appended in the IEE. The DEO's Environment Officer will be responsible for the registration of grievances and communication with the aggrieved party. To facilitate addressing complaints, the contractor will be required to provide contact details of its representative(s) on site in its campsite offices and in project billboards that will be erected at the starting point of the project. The billboard shall likewise include the contact details of DPWH representatives in the event complaints are not readily addressed by the contractor on-site.

The steps to be followed in filing complaints and the procedures for redress are the following:

- a. complainant will provide the background and file the complaint directly either verbally or in writing to the on-site contractor representative(s), and Barangay through its officials for immediate corrective action;
- b. the contractor(s) representative is then required to act immediately on valid complaints and record such complaints in a complaints registry that must be maintained on site.
- c. complaints that cannot be immediately attended to by the Contractor shall be filed either verbally or writing to the DEO, and or the DEO's Environment Officer who will assist the complainant in filling-up the grievance intake form;
- d. within 2 working days, the Environment Officer, contractor's representative, and complainant will discuss if the complaint can be resolved without calling for a GRC meeting;
- e. within 3 days of lodging the complaint, the DEO's Environment Officer will provide the complainant written feedback on the process, steps and timeframe for resolving the complaint.
- f. if the complaint cannot be resolved, a GRC meeting with the complainant will be called within 5 working days;
- g. the GRC will have 15 days to resolve the complaint;
- h. the complainant will receive feedback from the DEO's Environment Officer within 5 working days after the various steps of the GRM are completed.
- i. if unsatisfied with the decision, the existence of the GRC will not impede the complainant's access to the Government's judicial, administrative remedies or through concerned government agencies (e.g., Community Environment and Natural Resources Office and Provincial Environment and Natural Resources Office of DENR, Regional offices of the Environmental Management Bureau.

The GRC will receive, follow-up and prepare monthly reports regarding all complaints, disputes or questions received about the Project and corresponding actions taken to resolve the issues. These reports will be included in the semi-annual environmental monitoring reports to be submitted by DPWH to WB.

Appendix 12. Subproject Environmental and Social Monitoring and Reporting Templates**Appendix 12-A. Checklist for Evaluation of Site-Specific ESMP of Contractor****Table 1. Site-Specific Checklist**

Name of Project components:	
Location:	
Project owner:	
Name of contractor:	
Estimated start of project:	
Estimated duration:	
Scope of work:	

	Yes	No	Remarks
Site-Specific ESMP must contain the following:			
1. Non-Hazardous solid waste management:			
a. solid waste segregation and collection system			
b. solid waste disposal			
c. frequency of collection			
d. location of disposal site			
e. solid waste contractor			
2. Hazardous waste management:			
a. hazardous waste generator registration (approved by DENR)			
b. asbestos material management system			
c. hazardous waste segregation area			
d. hazardous waste transporter (registered with DENR)			
e. hazardous waste treater (registered with DENR)			
3. Name/s of Site Pollution Control Officer (PCO) or Safeguards Officer Must specify the name of the PCO, DENR-accreditation, and PCO Accreditation Certificate			
4. Sanitation Must specify domestic wastewater management, provision of safe and potable water supply for workers, housekeeping of site			
5. Air pollution control			
6. Noise and vibration control			
7. Emergency response plan in case of spills of fuel and hazardous materials			
8. Drainage management Must specify measures to control soil runoff, clogging of canals, sedimentation of creek/rivers			
9. Traffic management Must specify delivery schedule, location of yard			
10. Community health and safety			
a. Stakeholder consultation plan and information disclosure			
b. Measures to protect the general public within the vicinity of the construction site			
c. Provision of barriers and warning signages			
d. Grievance redress mechanism			

	Yes	No	Remarks
11. Disaster emergency preparedness contingency plan			
12. Chance Find Procedure			
13 Budget for implementation of environmental compliance measures to ECC conditions			
C. Attachments			
1. Photocopy of PCO Accreditation Certificate from DENR			
2. Photocopy of Certificate of Completion of required PCO training			
3. Labor Management Procedure			
4. Grievance Redress Mechanism			
5. Photocopy of DENR Hazardous Waste Generator Registration ID			
6. Photocopy of DENR registration of Hazardous Waste Transporter			
7. Photocopy of DENR registration of Hazardous Waste Treater			

Name of Project components:	
Location:	
Project owner:	
Name of contractor:	
Estimated start of project:	
Estimated duration:	
Scope of work:	

	Yes	No	Remarks
Site-Specific ESMP must contain the following:			
1. Non-Hazardous solid waste management:			
a. solid waste segregation and collection system			
b. solid waste disposal			
c. frequency of collection			
d. location of disposal site			
e. solid waste contractor			
2. Hazardous waste management:			
a. hazardous waste generator registration (approved by DENR)			
b. asbestos material management system			
c. hazardous waste segregation area			
d. hazardous waste transporter (registered with DENR)			
e. hazardous waste treater (registered with DENR)			
3. Name/s of Site Pollution Control Officer (PCO) or Safeguards Officer Must specify the name of the PCO, DENR-accreditation, and PCO Accreditation Certificate			
4. Sanitation Must specify domestic wastewater management, provision of safe and potable water supply for workers, housekeeping of site			
5. Air pollution control			
6. Noise and vibration control			
7. Emergency response plan in case of spills of fuel and hazardous materials			
8. Drainage management Must specify measures to control soil runoff, clogging of canals, sedimentation of creek/river			
9. Traffic management Must specify delivery schedule, location of yard			
10. Community health and safety			
a. Stakeholder consultation plan and information disclosure			
b. Measures to protect the general public within the vicinity of the construction site			

c. Plan for temporary relocation of affected classroom/health facility			
d. Provision of barriers and warning signages			
e. Grievance redress mechanism			
	Yes	No	Remarks
11. Disaster emergency preparedness contingency plan			
12. COVID-19 health and safety protocols			
13. Chance Find Procedure			
14. Budget for implementation of environmental compliance measures to ECC conditions			
C. Attachments			
1. Photocopy of PCO Accreditation Certificate from DENR			
2. Photocopy of Certificate of Completion of required PCO training			
3. Labor Management Procedure			
4. Grievance Redress Mechanism			
5. Photocopy of DENR Hazardous Waste Generator Registration ID			
6. Photocopy of DENR registration of Hazardous Waste Transporter			
7. Photocopy of DENR registration of Hazardous Waste Treater			

Appendix 12-B. Self-Monitoring Report Form

(Source: Annex C, DAO 2003-27, SMR System)

**Department of Environment and Natural Resources
Environmental Management Bureau****Reference No:***(to be filled up by EMTB only)***GENERAL INFORMATION SHEET**

Name of the Establishment/Facility			
Establishment/Facility Address (NOT the company of head office)	Street # & Street Name: _____ Barangay: _____ City/Municipality: _____ Province: _____		
Name of Owner/Company			
Address (if address is not the same as previous address)	Street # & Street Name: _____ Barangay: _____ City/Municipality: _____ Province: _____		
Phone Number		Fax Number	
e-mail address			
Type of Business/ Industry Classification	Philippine Standard Industry Classification Code No. _____ Philippine Standard Industry Descriptor: _____ _____		
Responsible Officer/s:	CEO/President: _____ Tel #: _____ Fax #: _____ e-mail address: _____ Plant Manager: _____ Tel #: _____ Fax #: _____ e-mail address: _____		
Pollution Control Officer	Name: _____ Tel #: _____ Fax #: _____ e-mail address: _____		
Legal Classification	<input type="checkbox"/> single proprietorship <input type="checkbox"/> partnership <input type="checkbox"/> private domestic corporation <input type="checkbox"/> government corporation <input type="checkbox"/> Multi-national <input type="checkbox"/> _____		

*We hereby certify that the above information are true and correct.*_____
Name/Signature of CEO/President_____
Name/Signature of PCO

Reference No:

QUARTERLY SELF-MONITORING REPORT

MODULE I: GENERAL INFORMATION	
Name of the Plant	
Please provide the necessary revised, corrected or updated information not contained in your <i>General Information Sheet</i>	
(use additional sheet/s if necessary)	

DENR Permits/Licenses/Clearances				
Environmental Laws	Permits		Date of Issue	Expiry Date
P.D. 984	A/C No.			
	PO No.			
PD 1586	ECC 1			
	ECC 2			
	ECC 3			
RA 6969	DENR Registry ID			
	CCO Registry			
	Importer Clearance No			
	Permit to Transport			
RA 8749	A/C No.			
	PO No.			

Name of Plant: _____

Reference No:

Operation

	Operating hours/day	Operating days/week	# of shift/day
Average			
Maximum			

Operation/Production/Capacity:

Average Daily Production Output		Total Output this Quarter	
Total Water Consumption this Quarter (cubic meters)		Total Electric Consumption this Quarter (KwH)	

Please use additional sheet/s if necessary

Name of Plant: _____

Reference No: _____

MODULE 2: RA 6969**A. CCO Report (please accomplish this section for each chemical/substance)**

Common Name/IUPAC/CAS Index Name. _____
CAS No.: _____
Trade Name: _____

For importers only:

Quantity Requested	Import Clearance No.	Date of Arrival	Quantity Received*	Port of Entry	Country of Origin	Country of Manufacture
Total Quantity Requested (annual)		Total Quantity Received (annual)				

* attach copy/s of Bill of Lading

For distributors (importers/non-importers)

Name of Client	License No.	Quantity	Date of Distribution
Total Quantity Distributed			

For non-importer users:

Name of Distributor	Quantity	Date of Purchase
Total Quantity Purchased from Distributor		

For producers

Module 2B: RA 6969 (Hazardous Wastes Generator)

page ____ of ____

Name of Plant:

Reference No:

Average Daily Production Output		Total Output this Quarter	
Quantity of Stock Inventory (Start of Quarter)		Quantity of Stock Inventory (End of Quarter)	
Name of Buyer		Quantity	Date of Purchase
Total Quantity Sold			

Used in Production (please fill up only if chemical/substance is not main product)

Average Daily Production Output		Total Output this Quarter	
Average Quantity Used per month		Total Quantity Used this Quarter	
Describe any changes in Production/Process/Operations:			

Stock Inventory/Waste Chemical Generated:

Average Quantity of Waste Chemical Generated per month		Total Quantity of Waste Chemical Generated this Quarter	
Quantity of Stock Inventory (Start of Quarter)		Quantity of Stock Inventory (End of Quarter)	

Other Information:

Manner of handling hazardous wastes	<input type="checkbox"/> storage on-site	<input type="checkbox"/> Treatment on-site
	<input type="checkbox"/> storage off-site	<input type="checkbox"/> Treatment off-site
Changes in Safety Management System	<input type="checkbox"/> Yes (please attach copy of revised plan) <input type="checkbox"/> No	
Chemical Substitute Plan	<input type="checkbox"/> Yes (please attach copy if not submitted/included in previous report/s or had been revised) <input type="checkbox"/> No	

B. Hazardous Wastes Generator

Module 2B: RA 6969 (Hazardous Wastes Generator)

page ____ of ____

Name of Plant: _____

Reference No: _____

HW Generation:

HW No.	HW Class	HW Nature	HW Cataloguing	Remaining HW from Previous Report		HW Generated	
				Quantity	Unit	Quantity	Unit

Waste Storage, Treatment and Disposal:(Please fill-up one table per HW)

HW Details	HW No.: _____ Qty of HW Treated: _____ Unit: _____ TSD Location: _____
Storage	Name: _____ Method: _____
Transporter	ID: _____ Name: _____ Date: _____
Treater	ID: _____ Name: _____ Method: _____ Date: _____
Disposal	ID: _____ Name: _____ Date: _____ Date: _____

HW Details	HW No.: _____ Qty of HW Treated: _____ Unit: _____ TSD Location: _____
Storage	Name: _____ Method: _____
Transporter	ID: _____ Name: _____ Date: _____
Treater	ID: _____ Name: _____ Method: _____ Date: _____
Disposal	ID: _____ Name: _____ Date: _____ Date: _____

On-Site Self Inspection of Storage Area:

Module 2B: RA 6969 (Hazardous Wastes Generator)

page ____ of ____

Name of Plant:

Reference No:

Date Conducted	Premises/Area Inspected	Findings & Observations	Corrective Action Taken (if any)

Name of Plant:

Reference No:

C. Hazardous Wastes Treater/Recycler**HW Stored and/or Untreated as of End of Quarter:**

HW Number	Wastes Generator	Date of Transport	Transport Permit/Date of Issue	Valid until	Quantity	Type of Storage Container/ # of containers	Time Table for Treatment

HW Treated and/or Recycled as of End of Quarter:

Type of Wastes	HW Number	Wastes Generator	Date of Transport	Transport Permit/Date of Issue	Quantity	Type of Treatment or Recycling Process	Type & Quantity of Recycled or Treated Product

Residual Wastes Generated from the Treatment and/or Recycling Operation:

Type of Wastes	HW Number	Process by which the Wastes is Generated	Quantity	Type of Storage Container/ # of containers	Disposal Option	Time Table for Disposal

Name of Plant:

Reference No:

MODULE 3: P.D. 984 (Water Pollution)**Water Pollution Data**

Domestic wastewater (cubic meters/day)		Process wastewater (cubic meters/day)	
Cooling water (cubic meters/day)		Others: _____ (cubic meters/day)	
Wash water, equipment (m ³ /day)		Wash water, floor (cubic meters/day)	

Record of Cost of Treatment (Separate entries for separate facilities)

	Month 1	Month 2	Month 3
Person employed, (# of employees)			
Person employed, (cost)			
Cost of Chemicals used by WTP			
Utility Costs of WTP (electricity & water)			
Administrative and Overhead Costs			
Cost of operating in-house laboratory			
New/Additional Investments in WTP (Description)			
Cost of New/Add Investments			

WTP Discharge Location

Outlet Number	Location of the Outlet	Name of Receiving Water Body
1		
2		
3		
4		
5		

Reference No:

Detailed Report of Wastewater Characteristics for Conventional Pollutants

[illegible]

Please fill-up/accomplish separate form/s for other outlet/s.

Reference No:

Detailed Report of Wastewater Characteristics for Other Pollutants

[illegible]

**Please fill-up/accomplish separate form/s for other outlet/s.
Please use additional sheet/s if necessary.**

Name of Plant:

Reference No:

MODULE 4: R.A. 8749 (Air Pollution)**Summary of APSE/APCF**

Process Equipment		Location		# of hrs of operations	
1.					
2.					
3.					
4.					
Fuel Burning Equipment	Location		Fuel Used	Quantity Consumed	# of hrs of operations
1.					
2.					
3.					
4.					
5.					
6.					
Pollution Control Facility		Location		# of hrs of operations	
1.					
2.					
3.					
4.					

Cost of Treatment

	Month 1	Month 2	Month 3
Cost of Person employed, (salary)			
Total Consumption of Water (cubic meters)			
Total Cost of chemicals used (e.g., activated carbon, KMnO ₂)			
Total Consumption of Electricity (KwH)			
Administrative and Overhead Costs			
Cost of operating in-house laboratory, if any			
Improvement or modification, if any. (Description)			
Cost of improvement of modification			

Reference No:

Detailed Report of Air Emission Characteristics

[illegible]

**Please fill-up/accomplish separate form/s for other PCF/s.
Please use additional sheet/s if necessary.**

Name of Plant:

Reference No:

MODULE 5: P.D. 1586

Ambient Air Quality Monitoring (if required as part of ECC conditions)

Description/Location of Monitoring Station								
DATE	Noise Level (dB)	CO (mg/Ncm)	NO _x (mg/Ncm)	Particulates (mg/Ncm)	(name) (mg/Ncm)	(name) (mg/Ncm)	(name) (mg/Ncm)	(name) (mg/Ncm)

(Please accomplish one table per monitoring station.)

Ambient Water Quality Monitoring (if required as part of ECC conditions)

Description/Location of Sampling Station								
DATE	(name)	(name)	(name)	(name)	(name)	(name)	(name)	(name)
	(unit)	(unit)	(unit)	(unit)	(unit)	(unit)	(unit)	(unit)

(Please accomplish one table per sampling station.)

Name of Plant:

Reference No:

Other ECC Conditions

ECC Condition/s	Status of Compliance		Actions Taken
	Yes	No	
1.			
2.			
3.			
4.			
5.			
6.			

Please use additional sheet/s if necessary.

Environmental Management Plan/Program

Enhancement/Mitigation Measures	Status of Implementation		Actions Taken
	Yes	No	
1.			
2.			
3.			
4.			
5.			
6.			

Please use additional sheet/s if necessary.

Solid Waste Characterization/Information:

Average Quantity of Solid Wastes Generated per month		Total Quantity of Solid Wastes Generated this Quarter	
Average Quantity of Solid Wastes Collected per month		Total Quantity of Solid Wastes Collected this Quarter	
Entity in charge of collecting solid wastes			
Brief Description of Solid Waste Management Plan (e.g., waste reduction, segregation, recycling)			

Name of Plant: _____

Reference No: _____

MODULE 6: OTHERS**Accidents & Emergency Records**

Date	Area/Location	Findings and Observation	Actions Taken	Remarks

Personnel/Staff Training

Date Conducted	Course/Training Description	# of Personnel Trained

I hereby certify that the above information are true and correct.

Done this _____, in _____.

Name/Signature of PCO_____
Name/Signature of CEO

SUBSCRIBED AND SWORN before me, a Notary Public, this _____ day of _____, affiants exhibiting to me their Community Tax Receipts:

Name	CTR No.	Issued at	Issued on
_____	_____	_____	_____

Appendix 12-C. Compliance Monitoring Report Template

(Source: EMB-MC 2007-002)

**PRO-FORMA PROPONENT COMPLIANCE MONITORING REPORT (CMR): Semi-annual Module 5
of SMR**_____
PROPONENT'S NAME**MONITORING PERIOD COVERED:** _____**I. BASIC PROJECT INFORMATION AND UPDATES**

ECC Control No/REFERENCE Code No: _____
 Project Title: _____
 Project Type: _____
 Location: _____
 Project Coordinates: _____
 Project Stage/Phase: (i.e. construction; commissioning, etc.) _____
 Contact Person: _____
 EMP Approval: ☐ During ECC Application Stage
 ☐ Updated after ECC Issuance; approved on _____
 Changes in Project Design (if any): _____

II. EXECUTIVE SUMMARY

This section should include a summary of the major findings for the monitoring period. For example, a statement that there were no major activities that influenced the monitoring parameters during the monitoring period can be made if there were really no activities by the proponent that affected the monitored parameters.

Table II-1. Summary of Major Findings for the Monitoring Period

Condition / Requirement / Commitment	Compliance Status & Summary of Actions taken	Recommendation/Commitment for the next reporting
Compliance with ECC		
Compliance with EMP		
Implementation of appropriate & effective env'tal impact remedial actions in case of exceedances		
Complaints Management		
Realistic and sufficient budget for conducting the environmental monitoring and audit activities		
Accountability - qualified personnel are charged with the routine monitoring of the project activities in terms of education, training, knowledge and experience of the environmental team		
Others . . .		

III. RESULTS AND DISCUSSIONS**A. Compliance Monitoring**

The status of compliance to the ECC conditionalities and the attainment of EMP commitments should be elaborated in this section. Reasons for noncompliance or unmet commitment should be explained and solutions and measures to attain full compliance of ECC terms and conditions as well as satisfactory attainment of EMP commitments should be discussed as renewed efforts for the next monitoring period. **Table 1** may be used to summarize the status of compliance.

Table 1. Summary Status of ECC & EMP Compliance

ECC/EMP Condition/Requirement Categorization	Relevant ECC Condition/s (if any)		Status of Compliance (✓ if complying)	REMARKS
	#/s	Requirement Description		
1) Project coverage/limits/				
2) Components				
3) Other sectoral requirements mandated by other agencies to be complied with				
4) EMP and updates as deemed required				
5) Conduct of baseline, compliance and impact self-monitoring				
6) Multi-sectoral Monitoring (as may be required)				
7) Regular reporting				
8) Institutional arrangements necessary for implementation of environmental management measures				
9) Standard DENR requirement on transfer of ownership				

10)	Standard DENR requirement on abandonment				
11)	Impact Mitigation Plan or Construction/ Contractor's Environmental Program				
12)	Social Development Plan (SDP)				
13)	IEC Plan				
14)	Contingency/Emergency Response Plan or equivalent Risk Management Plan				
15)	Abandonment Plan (when applicable)				
16)	Environmental Monitoring Plan (EMoP)				
17)	(Others)				

B. Impact Monitoring

This section shall contain relevant graphical presentation of quantitative and semi-quantitative impact monitoring results showing trends, comparing past monitoring results with the current. Relevant monitoring results in the other SMR modules shall be referred to. The latest monitoring findings and conclusion should be discussed in text form.

Qualitative impact monitoring results may be presented in text form or in terms of pictorial coverage, if applicable. Examples of qualitative impacts are those relating to quality of life, degree of happiness, and sense of environmental cleanliness.

i. Summary of Previous Monitoring

The key findings, recommendations, and action plan from the previous monitoring and outstanding issues from earlier monitoring periods (if applicable) should be highlighted in this section.

ii. Current Monitoring Results and Findings

The data collected and related expenses from the various sampling and measurement events done under the Environmental Monitoring Plan (EMoP) or a Sampling and Measurement Plan (SAMP) for the current monitoring period shall be summarized in a tabular form, preferably using the prescribed format in **Tables 2 and 3** below, and discussed under this section. Only processed and summarized data must be presented here.

The current monitoring results must be related to the historical trend for each parameter. Any deviation from this trend must be explained. More, importantly, the discussion must focus on point-by-point comparison of the gathered values with Environmental Quality Performance Levels (EQPLs), if EQPLs have been committed by the Proponent or established with the Multi-partite Monitoring Team. The monitoring results could also be used to determine the action and limit levels for the specific project. These should all be presented here in detail and summarized in the conclusions and recommendations section.

Compliances, non-compliances and exceedances must all be thoroughly explained. In cases of compliances, success factors must be cited. For non-compliances and exceedances, the proponent's response should be explained. Moreover, causative factors must be identified and additional solutions and mitigation measures proposed, if needed.

PREPARED BY:

NOTED BY:

It: _____
Name/Position

_____ sampling activities.
Name/Position

Tr: _____
Proponent/Company Name

_____ included in the action plan should be
Proponent/Company Name

Date

Date

Table 3. Report on Status of Environmental Budget Allocations and Expenses

Expense Item*	Budget		Actual Expenses	
	Direct from Co.	Budget for MMT	Direct Co. Expense	MMT expenses
A. Implementation of Management Plans & Programs				
1) Environmental Impact Mitigation Plan	✓		✓	
2) Social Development Plan	✓		✓	
3) IEC Plan	✓		✓	
4) Enhancement Programs (if any)	✓		✓	
B. Implementation of Monitoring Plans				
1) Self-Monitoring	✓		✓	
2) Environmental Monitoring Fund (with MMT)	✓	✓	✓	✓
3) Environmental Guarantee Fund	✓	✓	✓	✓
TOTALS				

*For mining projects, equivalent cost items shall be adopted, e.g. SDMP in lieu of SDP.

IV. CONCLUSIONS AND RECOMMENDATIONS

This section should present the conclusions and recommendations of the current SMR based on the results and discussion of the previous sections. It should also explain if the previous monitoring recommendations should continue (if implemented). On the other hand, if warranted, the recommendation may be the cessation of specific or all monitoring activities.

The conclusions and recommendations should preferably be in a bulleted format and as much as possible grouped according to coherent themes, such as the following headings.

A. Compliance Status

Only the key conclusions about the status of compliance to ECC and EMP are included in this section. The status of non-compliances should be particularly tracked throughout all SMRs even if compliance has been already attained. Recommended additional measures or amendments to the EMP should be presented here.

B. Environmental Quality Status (applicable only if EQPLs have been set by the Proponent as its commitment or if opted to be mutually agreed upon by Proponent with the EMB and other members of the MMT)

Only the key conclusions on meeting the set EQPLs are included in this section.

C. Environmental Management Plan Status

Only the key conclusions about the status of EMP implementation and recommended additional measures or amendments should be presented here.

D. ENVIRONMENTAL RISK CATEGORIZATION

The proponent should fill-up or update the project's environmental risk categorization questionnaire (presented in Annex 2-7d of the Revised Procedural Manual of DAO 2003-30) – applicable on the Second Semi-annual ECC Compliance Monitoring Report.

E. WORK PLAN FOR NEXT MONITORING PERIOD

The specific actions for the next monitoring period, including carry-overs from previous monitoring periods, should be detailed in this section.

V. ATTACHMENTS

Please have the following documents attached:

- Laboratory Results of Analysis from DENR-EMB recognized laboratory;
- Approved Impact Mitigation Plan in the EIS/other EIS Update Documents; and
- Approved Environmental Monitoring Plan in the EIS/other EIS Update Documents

PREPARED BY:

Name/Position

Proponent/Company Name

Date

NOTED BY:

Name/Position

Proponent/Company Name

Date

Appendix 12-D. Environmental & Social Safeguards Inspection Checklist

(Ref: DPWH SEMS Manual)

Table 1. E&S Safeguards Inspection Checklist

	Acceptable? Yes/No	Remarks
1. Housekeeping		
<input type="checkbox"/> Solid waste segregation bins (biodegradable, non-biodegradable, recyclables, residual wastes, construction debris)		
<input type="checkbox"/> Waste bins removed regularly		
<input type="checkbox"/> Drainage system kept clear		
<input type="checkbox"/> Toilets are clean		
<input type="checkbox"/> Clean and potable water available for workers		
<input type="checkbox"/> Passageways are clean		
<input type="checkbox"/> Materials are properly stored at site		
<input type="checkbox"/> Welding gas containers are organized		
<input type="checkbox"/> Billboard/sign is posted at the site		
<input type="checkbox"/> Materials delivery vehicles are parked properly		
2. Hazardous waste management:		
<input type="checkbox"/> Hazardous waste generator registration secured from DENR		
<input type="checkbox"/> Asbestos material management system (if applicable)		
<input type="checkbox"/> Separate hazardous waste bins/containers		
<input type="checkbox"/> Hazardous waste manifest available onsite		
3. Pollution Control Officer (PCO) onsite		
4. Health and Safety		
<input type="checkbox"/> Safety officer is onsite		
<input type="checkbox"/> Workers wearing proper PPEs		
<input type="checkbox"/> First-aid equipment is in-place		
<input type="checkbox"/> Working area is barricaded		
<input type="checkbox"/> Working area is well-lighted		
<input type="checkbox"/> Safety warning signs are available		
<input type="checkbox"/> Fire extinguishers available		
Identify any inconveniences:		
Identify any site accidents and safety incidents:		
5. Air pollution control		
<input type="checkbox"/> Dust control measures are effective		
6. Noise and vibration control		
<input type="checkbox"/> Noise and vibration managed		
7. Emergency response		
<input type="checkbox"/> Fire extinguishers available onsite		
<input type="checkbox"/> Spill control and management instruction available onsite		
<input type="checkbox"/> Workers are aware of emergency response procedures		
10. Community complaints Identify any community complaints received including issues from the school/health facility end-user about the construction activities:		
12. Chance Find (as applicable) Are there any chance find of artifact?		
13. Post-Construction		
<input type="checkbox"/> Work area cleaned up		
<input type="checkbox"/> There are no materials and wastes left onsite		
<input type="checkbox"/> Disturbed areas restored properly		

Appendix 13. DPWH Project Contract Management Application (PCMA) Online Monitoring System

Welcome
De Guzman, Trizsanne Margaret C.
North Manila District Engineering Office

Sign Out

Contract Management

Search

Contract ID

200E0058

Contract Information

Contract ID: 200E0058

UNLAWFUL CONSTRUCTION / TIGIT Ar.B
MAJOR FLOODS - FLOOD CONTROL AND
MAINTENANCE OF FLOOD CONTROL
SYSTEMS - CONSTRUCTION OF
DRAINAGE MAIN

Contract Effectivity Date

Contract Completion Date

Drawings

Contract Documents

Accomplishment

Implementation Status

Project Components

P00420194LZ-CW1

Construction Schedule

E-Log

Actual Work Activity

Time Variance

Potential VO

Milestones

Monthly Reviews

Actual Outputs

Select Project Component: P00420194LZ-CW1

Select Date: 12/22/2020

PRINT

SAVE

Weather & Site Condition Log

Time: ☐ 24hrs

Weather Condition: Fair

Site Condition: ☒ Workable ☐ Unworkable

Time	Weather	Site Condition
6:00 AM - 7:00 AM		
7:00 AM - 8:00 AM		
8:00 AM - 9:00 AM		
9:00 AM - 10:00 AM		
10:00 AM - 11:00 AM		
11:00 AM - 12:00 PM		
12:00 PM - 1:00 PM		
1:00 PM - 2:00 PM		
2:00 PM - 3:00 PM		
3:00 PM - 4:00 PM		
4:00 PM - 5:00 PM		
5:00 PM - 6:00 PM		
6:00 PM - 7:00 PM		
7:00 PM - 8:00 PM		
8:00 PM - 9:00 PM		

Weather & Site Condition Log

Time: 8:00 PM - 9:00 PM

Weather Condition: No Record

Site Condition: No Record

Site Accident Log

Accident Date: 12/22/2020

Accident Time: 8:00 AM

Accident Location: 100m from site

Accident Description: No accident occurred.

Causes of Project-Site-Related Accident:

Equipment, Manpower & Materials Log

Observed compliance with safety regulations?

☐ Yes ☒ No ☐ Partial

Contractor's Project Engineer Sapico, Roselle Valerie on-site?

☐ Yes ☒ No ☐ Partial

Construction Supervision Consultant's Resident Engineer on-site?

☐ Yes ☒ No ☐ Partial

Equipment scheduled to be on-site available and functioning?

☐ Yes ☒ No ☐ Partial

Remarks

Remarks

Remarks

Remarks

Additional Remarks

Appendix 14. PENRO-Bukidnon Certification of MTCIP Link Road 1 Location

DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES
KAGAWARAN NG KAPALIGIRAN AT LIKAŠ YAMAN



SAGONG PILIPINAS

CERTIFICATION

To Whom It May Concern:

This is to certify that the Proposed Mindanao Transport Connectivity Project (MTCIP), specifically the Link Roads in Brgy. La Fortuna and Brgy. Kibenton Impasug-ong, Bukidnon does not fall within the Boundary of Mt. Kitanglad Range Natural Park (MKRNP)-ASEAN Heritage Park per Republic Act No. 8978, also known as the Mt. Kitanglad Range Protected Area Act of 2000.

This certification is issued upon the request of **Galerio Environmental Consultancy, Inc.**, through Ms. Oda Beltran for whatever legal purpose it may serve best.

Done this 15TH day of March 2024 in Malaybalay City, Bukidnon Province, Philippines.


THOMAS L. CARDENTE II, Ph.D.
OIC, PENR Officer
DENR Bukidnon

San Victores St., Barangay 9, Malaybalay City, Bukidnon
E-mail add: penrobukidnon@denr.gov.ph Telephone No.: (088) 813-2104

