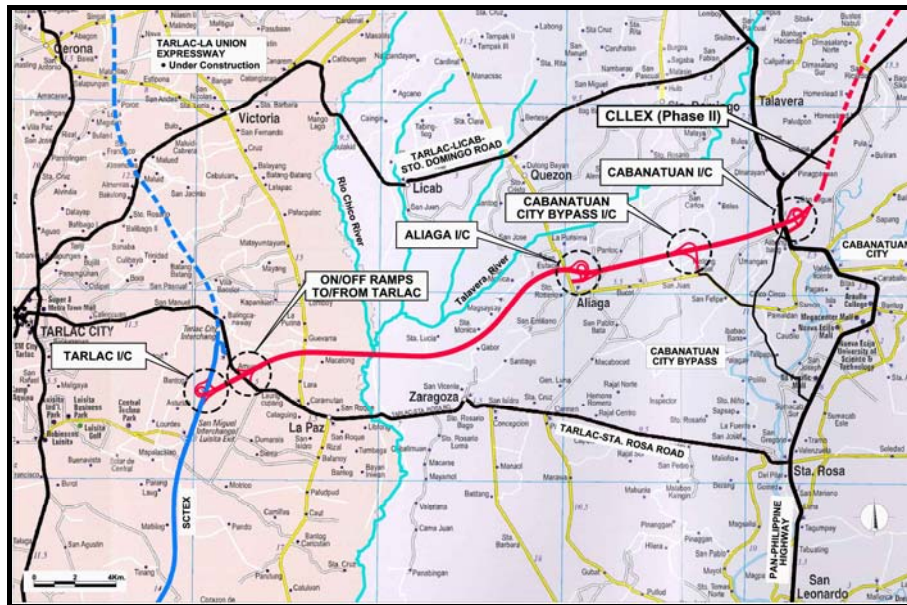




DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS

## ENVIRONMENTAL IMPACT ASSESSMENT (EIA)



### Proposed Central Luzon Link Expressway (CLLEX) Phase I Project

## FINAL REPORT



Japan International Cooperation Agency



Engineering International Co., Ltd.

**ECOSYSCORP, INC.**

August 2011

## Abbreviations

AADT	Annual Average Daily Traffic
AGP	Annual Gross Production
APs	Affected Persons
ASSHTO	American Association of State Highway and Transportation Officials
BIR	Bureau of Internal Revenue
BOD	Biological Oxygen Demand
CA	Commonwealth Act
CAR	Cordillera Administrative Region
CARI	Contractor's All Risk Insurance
CARO	City Agrarian Reform Office
CARP	Comprehensive Agrarian Reform Program
CDO	Cease and Desist Order
CENRO	Community Environment and Natural Resources Office
CLLEX	Central Luzon Link Expressway
CLT	Certificate of Land Transfer
COC	Certificate of Completion
CNC	Certificate of Non-Coverage
CPDC	City Planning and Development Coordinator
CRIC	City Resettlement Implementing Committee
CTC	Community Tax Certificate
DBE	Design Basis Earthquake
DED	Detailed Engineering Design
DENR	Department of Environment and Natural Resources
DENR-FMB	Department of Environment and Natural Resources- Forest Management Bureau
DIA	Direct Impact Area
DO	Department Order
DPWH	Department of Public Works and Highways
DSWD	Department of Social Welfare Development
ECA	Environmental Critical Area
DTI	Department of Trade and Industry
ECC	Environmental Compliance Certificate
ECP	Environmentally Critical Project
EGGAR	Geological and Geo-Hazard Assessment Report
EGF	Environmental Guarantee Fund
EIA	Environment Impact Assessment
EIARC	Environmental Impact Assessment Review Committee
EIS	Environmental Impact Study
EMB	Environmental Management Bureau
EMF	Environmental Monitoring Fund
EMP	Environmental Management Plan/Program
EMS	Environmental Management System
EO	Executive Order
EP	Emancipation Patent
EPRMP	Environmental Performance Report and Management Plan
ERA	Environmental Risk Assessment



ESAL	Equivalent Standard Axle Load
ESHO	Environment and Safety Health Officer
ETC	Electronic Toll Collection
EU	Environmental Unit
GOP	Government of the Philippines
IC	Interchange
IEC	Information Education and Communication
IEE	Initial Environmental Examination
IFC PS 5	International Finance Corporation Performance Standard 5
IIA	Indirect Impact Areas
IO	Implementing Office
IROW-PMO	Infrastructure Right of Way Project Management Office
IRR	Implementing Rules and Regulations
IS	Informal Settlers
HLURB	Housing and Land Use Regulatory Board
HUDCC	Housing and Urban Development Coordinating Council
HWL	High Water Level
JICA	Japan International Cooperation Agency
LGU	Local Government Unit
MAO	Municipal Agriculturist Office
MARO	Municipal Agrarian Reform Office
MCE	Maximum Considered Earthquake
MMT	Multipartite Monitoring Team
MOA	Memorandum of Agreement
MPDC	Municipal Planning and Development Coordinator
MPDO	Municipal Planning and Development Office
MRIC	Municipal Resettlement Implementing Committee
MWFL	Medium Flood Water Level
NAAQS	National Ambient Air Quality Standards
NAMRIA	National Mapping and Resource Information Authority
NDCC	National Disaster Coordinating Council
NEDA	National Economic Development Authority
NGO	Non-government Organization
NHA	National Housing Authority
NIA	National Irrigation Authority
NO2	Nitrogen Dioxide
NPAA	Network of Protected Areas for Agriculture
NPAAD	Network of Protected Areas for Agriculture and Agro-Industrial Development
PAGASA	Philippine Atmospheric Geophysical and Astronomical Services Administrations
PAP/s	Project-Affected Person/s
PCM	Public Consultation Meeting
PD	Presidential Decree
PDCC	Provincial Disaster Coordinating Council
PEIS	Programmatic Environmental Impact Statement

PEPRMP	Programmatic Environmental Performance Report and Management Plan
PMS	Periodic Maintenance Servicing
PPDO	Provincial Planning Development Office
PPE	Personal Protective Equipment
PMO-BOT	Project Management Office-Build-Operate-Transfer
PPP	Public Private Partnership
PSHA	Probabilistic Seismic Hazard Assessment
QRF	Quick Response Fund
RA	Republic Act
RAP	Resettlement Action Plan
ROW	Right-of-Way
RROW	Road Right-of-Way
SCTEX	Subic Clark Tarlac Expressway
SDP	Social Development Program
SO2	Sulfur Dioxide
TC	Total Coliform
TESDA	Technical and Education Skills Development Administration
TMP	Traffic Management Plan
TPLEX	Tarlac Pangasinan La Union Expressway
TSP	Total Suspended Particles
TSS	Total Suspended Solid
WB	World Bank
WVF	West Valley Fault

## TABLE OF CONTENTS

Executive Summary.....	1
Project Background.....	1
Project Rationale.....	2
Project Area and Location.....	2
Process Documentation of the Conduct of EIA.....	2
The EIA Team.....	2
EIA Study Schedule.....	4
EIA Methodology.....	6
Public Participation.....	8
Summary of Baseline Characterization.....	8
Social Development Program (SDP).....	13
Impact Identification, Mitigation and Enhancement.....	14
Decommissioning and Abandonment.....	15
1    Policy, Legal and Administrative Framework.....	1-1
1.1    Environmental and Pertinent Laws, Rules and Regulation.....	1-1
2    Project Description.....	2-1
2.1    Preliminary Design.....	2-1
2.1.1    Design Concept.....	2-1
2.1.2    Design Standard.....	2-1
2.1.3    Design Speed.....	2-2
2.1.4    Design Vehicle.....	2-2
2.1.5    Vertical Clearance.....	2-5
2.1.6    Number of Lanes.....	2-5
2.1.7    Carriageway, Shoulder and Median Width.....	2-5
2.2    Expressway Design.....	2-12
2.2.1    General.....	2-12

2.2.2	Hydrological Analysis.....	2-12
2.2.3	Crossing Road and Water Way Design.....	2-17
2.2.4	Vertical Control.....	2-19
2.2.5	Rio Chico River Flood Prone Area Design.....	2-20
2.2.6	Interchange Design.....	2-33
2.2.7	Structure Design.....	2-41
2.2.8	Pavement Design.....	2-45
2.2.9	Recommended Pavement Structures.....	2-46
2.2.10	Toll Plaza Design.....	2-48
2.2.11	Building and Equipment of the Service Areas.....	2-51
2.2.12	Construction Method.....	2-54
3	Baseline Environmental Condition.....	3-1
3.1	The Land.....	3-1
3.1.1	Topography.....	3-1
3.1.2	Geology.....	3-7
3.1.2.1	Tectonic Setting.....	3-7
3.1.2.2	Potential Earthquake Generators.....	3-10
3.1.2.3	Seismicity.....	3-11
3.1.2.4	Volcanic Activity.....	3-12
3.1.2.5	Flooding Hazard.....	3-15
3.2	The Water.....	3-19
3.2.1	Hydrology.....	3-19
3.2.2	Surface Water Quality.....	3-22
3.3	The Air.....	3-29
3.3.1	Meteorology.....	3-29
3.3.2	Ambient Air Quality.....	3-33
3.3.3	Existing Noise Level Conditions.....	3-38
3.3.4	Noise Modelling.....	3-42
3.4	Terrestrial Biology.....	3-46
3.4.1	Flora.....	3-46
3.4.2	Fauna.....	3-49
3.4.3	Agriculture.....	3-53
3.5	People.....	3-55
3.5.1	The Impact Areas.....	3-55
3.5.2	Social Acceptability of Directly and Indirectly Affected Areas.....	3-72

3.5.3	Social Development Program (SDP) for DIA .....	3-92
4	Environmental Impacts, Mitigation and Enhancement Measures .....	4-1
4.1	Environmental Impacts, Mitigation and Enhancement Measures .....	4-1
5	Analysis of Alternatives .....	5-1
5.1	Main Alignments .....	5-1
5.1.1	Alternative Alignment 1 .....	5-1
5.1.2	Alternative Alignment 2 .....	5-2
5.1.3	Alternative Alignment 3 .....	5-2
6	Environmental Management Plan .....	6-1
	Environmental Monitoring Plan .....	6-6
	Environmental Compliance Certificate .....	6-10
7	Public Participation .....	7-1



## List of Figures

Figure 2-1	Catchment Area
Figure 2-2	Pampanga River Basin
Figure 2-3	Inundated Area Along Study Route (Maximum Flood by 2004)
Figure 2-4	Flood Condition at Rio-Chico River
Figure 2-5	Assumption of MFWL and HWL
Figure 2-6	Schematic Image of Vertical Control Point of Rio Chico River
Figure 2-7	Minimum Bridge Length and Discharge Capacity
Figure 2-8	Structural Design at Flood Prone Area
Figure 2-9	Flood on 27 June, 2011 by Typhoon Falcon (Rio Chico River Equalizing Zone)
Figure 2-10	Equalizer at Same Place Above
Figure 2-11	Location of IC and Number of Facilities
Figure 2-12	Tarlac Junction
Figure 2-13	Tarlac Interchange and Toll Barrier
Figure 2-14	Aliaga Interchange
Figure 2-15	Cabanatuan Bypass Interchange (2/2)
Figure 2-16	Cabanatuan Bypass Interchange (2/2)
Figure 2-17	Cabanatuan Interchange
Figure 2-18	Pavement Structure of Main Carriageway
Figure 2-19	Pavement Structure of Shoulder
Figure 3-1	Topographic Map of Luzon
Figure 3-2	Geologic Map of Luzon
Figure 3-3	Tectonic Map of Luzon
Figure 3-4	Volcanic Risk Assessment Map of Luzon
Figure 3-5	Flood Prone Areas in Central Luzon
Figure 3-6	Water, Air and Noise Sampling Stations
Figure 3-7	Climatological Map of Luzon

## List of Tables

Table I	Preparer's Field of Expertise and EIA Module Assignment
Table II	EIA Study Activities Completed by the Team
Table 2.1	Geometry of CLLEX (Main Alignment) (100KM/HR)
Table 2.2	Geometry of CLLEX (RAMP) (40KM/HR)
Table 2.3	Discharge of Rio Chico River
Table 2.4	Design Frequency by Road Structure
Table 2.5	Cross Sectional Configuration of Crossing Road
Table 2.6	Typical Condition of Crossing Water Way
Table 2.7	Freeboard Allowance
Table 2.8	Characteristics of Rio Chico and Pampanga River
Table 2.9	Flood Condition by Municipality along Rio Chico
Table 2.10	Record of Road Closure Tarlac-Sta. Rosa Road
Table 2.11	Summary of Flood Mechanism at Rio Chico River
Table 2.12	Historical Flood Level
Table 2.13	Comparison of Record and Analyzed Value
Table 2.14	Design Flood Level
Table 2-15	Required Bridge Length of Rio Chico River
Table 3.1	Land Distribution by Slope Category, Tarlac
Table 3.2	Historical Listing of Major Earthquakes in Luzon Prior to July 1990 Earthquake
Table 3.3	Estimated Damage to Infrastructure During Typhoon Falcon
Table 3.4	Location of Surface Water Quality Sampling Stations, July 2011
Table 3.5	Climatological Normal Values
Table 3.6	Climatological Extremes at Cabanatuan City (As of 2009)
Table 3.7	Description of Ambient Air and Noise Sampling Stations
Table 3.8	Base Air Quality Result for the Proposed Central Luzon Expressway Project
Table 3.9	National Ambient Air Quality Guidelines/Standards for Selected Air Pollutants
Table 3.10	Results of the Ambient Noise Quality Sampling, July 2011 for CLLEX
Table 3.11	Rules and Regulations of the National Pollution Control Commission "Noise Standards in General Areas"
Table 3.12	Sensitive Receptors (Churches & Schools) along the CLLEX Alignment
Table 3.13	Clustered Residential Receptors along the CLLEX Alignment
Table 3.14	Surveyed Trees Species Found at the Project Vicinity, October 2009
Table 3.15	Surveyed Shrubs, Herbs, and Grasses Found at the Project Vicinity, October 2009
Table 3.16	Surveyed Animal Species Found at the Project Vicinity, October 2009
Table 3.17	Estimated Production in 2010, Area Harvested and Yield per Hectare,

	by Farm Type
Table 3.18	Household Size of the Respondents Based on Survey/Interview
Table 3-19	Primary Source of Income of DIA Based on Survey/Interview
Table 3.20	Secondary Source of Income of DIA Based on Survey/Interview
Table 3.21	Household Income Based on Survey/Interview of the DIA-Type A and B
Table 3.22	Land Tenure of the Respondents
Table 3.23	Educational Attainment of Women in the DIA Based on Survey/Interview
Table 3.24	Educational Attainment of Men in Based on Survey/Interview
Table 3.25	Educational Attainment of the Children Based on Survey/Interview
Table 3.26	Mother Tongue of the Respondents Based on Survey/Interview
Table 3.27	Religion of Respondents Based on Survey Interview
Table 3.28	Perception on the Negative Impact of the Project on the Economic
Table 3-29	Perceived Negative Impact on the Economic Development of the Host City/Municipality Based on Survey/Interview
Table 3.30	Respondents Acceptability on Land Conversion Based on Survey/Interview
Table 3.31	Perceived Positive Impact of Land Conversion Based on Survey/Interview
Table 3.32	Perceived Negative Impact of Land Conversion Based on Survey/Interview
Table 3.33	Knowledge About the Project of the Respondents Based on Survey/Interview
Table 3.34	Source of Information About the Project Based on Survey/Interview
Table 3.35	Community Concurrence to the Proposed Project of the Respondents Based on Survey/Interview
Table 3.36	Perceived Positive Impact of CLLEX Project Based on Survey/Interview
Table 3.37	Perceived Negative Impact of CLLEX Project Based on Survey/Interview
Table 3.38	Skills of Men in the DIA Based on Survey/Interview
Table 3.39	Skills of Women in the DIA Based on Survey/Interview
Table 4.1-1	Environmental Impacts and Mitigation/Enhancement Measures
Table 5.1	Alignment Alternatives
Table 6.1	Environmental Management Plan (1/4)
Table 6.2	Environmental Monitoring Plan (2/3)
Table 7.1	Summary of Issues and Concerns Raised during IEC

## **APPENDICES**

- A DENR Administrative Order No. 2003-30
- B Location of Irrigation Canals of Tarlac and Nueva Ecija
- C Noise Modelling
- D Letter of DAR
- E Sample of Perception Survey Form
- F Identified Disposal Sites in Aliaga and Cabanatuan
- G Environmental Compliance Certificate (ECC) for the Proposed CLLEX Project
- H Minutes of the IEC Meeting
- I JICA Scoping Matrix

# MAIN REPORT



# EXECUTIVE SUMMARY

---

## PROJECT BACKGROUND

The proposed Central Luzon Link Expressway (CLLEX) Project is one of the components of the Pan-Philippines Highway (PPH) and is the proposed answer to the serious traffic congestions along the vicinity of the core urban areas along PPH. The Japan Bank for International Cooperation (JBIC) envisioned the construction of bypass roads in Plaridel, Bulacan, and Cabanatuan, Nueva Ecija under Loan No. PH-P236 of the Arterial Road Bypass Project, Phase I.

However, before the construction of the proposed bypass, several road developments in Central Luzon were already developed such as the Subic-Clark-Tarlac Expressway (SCTEX) and the in-city bypass of Cabanatuan. Japan International Cooperation Agency (JICA) requested Department of Public Works and Highways (DPWH) for the review of the implementation priority under JBIC Loan No. PH-P236. A quick assessment of the present road network with economic evaluation shows a reduction of the previous high economic benefits of the bypass roads. This means that a number of through traffic using the PPH in Cabanatuan City may have shifted to the SCTEX

Taking into consideration the completed SCTEX and its proposed extension, the Tarlac-Pangasinan-La Union Expressway (TPLEX), it would be necessary to include a lateral expressway that would complement both the major North-South Line of Luzon such as SCTEX and PPH.

On the overall, the project seeks to improve access to the food baskets of Cagayan Valley and the province of Aurora as well as eastern part of CAR (Cordillera Administrative Region) that would ensure safe and faster movements of goods as well as support tourism sector thrust and development directions.

Specifically, the project seeks the following objectives:

- i) Provide a free-flowing alternative route for through traffic along the PPH between San Jose and Cabanatuan Area in Nueva Ecija and Plaridel in Bulacan.

- ii) Provide a linkage between the existing SCTEX and PPH at some latitude above the Cities of Cabanatuan and San Jose.
- iii) Provide a highway of international standards with limited number of intersections.

## **PROJECT AREA AND LOCATION**

The proposed CLLEX is to be constructed in the provinces of Tarlac and Nueva Ecija, which are part of Region 3. The proposed Project has a ROW of 60 meters in width, and a length of 30.7 kilometers, from its connection with the SCTEX (in Brgy. Bantog, Tarlac City, Tarlac) to the PPH (in Brgy. Caalibangbangan, Cabanatuan City, Nueva Ecija, near its boundary).

## **PROCESS DOCUMENTATION OF THE CONDUCT OF EIA**

Primary and secondary information were utilized in the preparation of this EIA Report. The baseline information required in the preparation of this report was established through series of field investigations and ocular inspections. Dissemination of project information was primarily done through conduct of consultation meetings with the affected people, and concerned government agencies and entities.

Secondary data presented in this Report were taken from Environmental and Engineering Studies conducted related to the project such as the Environmental Impact Assessment for the Central Luzon Link Expressway Project, 2010 (LIVCOR Consulting, Inc. et.al) and the Feasibility Study Report for the Proposed Central Luzon Link Expressway (CLLEX) under the Consultancy Services for the Pre-Construction and Supervision of the Arterial Road Bypass Project, 2010 (Katahira & Engineers International, et.al). Additional data were obtained from various government agencies such as the Provincial/City/Municipal Planning and Development Office, Assessor's Office (Tarlac City, La Paz, Province of Tarlac and Zaragosa, Aliaga, Cabanatuan Province of Nueva Ecija), PAGASA, Department of Agriculture, Bureau of Soils and National Irrigation Authority.

## **THE EIA TEAM**

ECOSYSCORP, Inc is a private Environmental Consulting Firm who specializes in conduct and preparation of environmental researches, Resettlement Action Plan (RAP), and related

environmental studies has been involved numerous infrastructure projects for the since its incorporation in 1994. Team Leader Ms. Annabelle N. Herrera and experts specializing in various fields of environmental disciplines compose the EIA Team.

Table I briefly describes the Preparers' field of expertise and the EIA module assigned to each expert.

<b>Table I Preparers' Field of Expertise and EIA Module Assignment</b>		
<b>Preparers</b>	<b>Field of Expertise</b>	<b>EIA Module Assignment</b>
<b>Annabelle N. Herrera</b>	Team Leader, Environmental, Socio-Economic, and RAP Specialist	Socio-Economic
<b>Charlon A. Gonzales</b>	Air Quality Specialist	Air Sampling, and Noise Monitoring and Modeling
<b>Raul A. Fellizar</b>	Mining Engineer, Environmental and RAP Team Member	Socio-Economic Interviews and Survey
<b>Joseph T. Vargas</b>	RAP Team Member	Socio-Economic Interviews and Survey

## EIA STUDY SCHEDULE

**Table II** summarizes the EIA activities undertaken and completed by the Team in the duration of the study.

<b>Table II EIA Study Activities Completed by the Team (1/2)</b>		
<b>Activities</b>	<b>Areas of Concern</b>	<b>Date, Time, &amp; Venue</b>
<b>THE LAND</b>		
Survey on Terrestrial Biology (Flora and Fauna)	Along the entire stretch of the alignment the flora and fauna transect survey was conducted by LIVCOR	October 2009
<b>THE WATER</b>		
Surface Water Quality Sampling	San Miguel Na Munti Creek San Miguel Na Munti Creek Talavera River Talavera River Pantoc Creek Rio Chico River Rio Chico River	0945H21Jul2011  10:20H21Jul2011  11:30H21Jul2011 12:05H21Jul2011 12:35H21Jul2011 02:30H21 Jul2011 03:30H21Jul2011
<b>THE AIR</b>		
Baseline Air & Noise Quality Sampling	SCTEX Area  Laungcupang Area  Guevarra Area  Aliaga Area  Maharlika Highway (DENR Standard)	0934-1034H/22Jul2011 1810-1910H/21Jul2011 0830-0930H/20Jul2011 1641-1741H/20Jul2011 0905-1005H/20Jul2011 1630-1730H/20Jul2011 0805-0905H21Jul2011 1546-1646H21Jul2011 1340-1440H21Jul2011 1-hour sampling period
Noise Modelling Sensitivity Survey	Church, school, and residential areas in the following Cities/Municipalities: Tarlac, La Paz, Zaragosa, Aliaga, & Cabanatuan	August 01 to 12, 2011

**Table II IEC Study Activities Completed by the Team (2/2)**

Activities	Areas of Concern	Date, Time, & Venue
THE PEOPLE		
Information Education and Communication (IEC) meeting with the Municipal Level of Aliaga	Municipality of Aliaga, Province of Nueva Ecija	July 25, 2011, 2:00 pm Ground Floor, Kairos Hotel & Resort, Aliaga, Nueva Ecija
Information Education and Communication (IEC) meeting with the City Level of Cabanatuan City.	City of Cabanatuan, Province of Nueva Ecija	July 26, 2011, 10:00 am 2 <sup>nd</sup> Floor, Conference Hall, City Hall of Cabanatuan City
Information Education and Communication (IEC) meeting with the Barangay Level of Cabanatuan City.	Brgy. Caalibangbangan, Cabanatuan City, Province of Nueva Ecija	July 26, 2011, 2:00 pm Brgy. Hall of Brgy. Caalibangbangan, Cabanatuan City
Information Education and Communication (IEC) meeting with the Municipal Level of La Paz, Province of Tarlac.	Municipality of La Paz, Province of Tarlac	July 27, 2011, 10:0 am Mayor's Office of La Paz, Tarlac
Information Education and Communication (IEC) meeting with the City Level of Tarlac City	Tarlac City, Province of Tarlac	July 27, 2011, 2:00 pm, 2 <sup>nd</sup> Floor Conference Hall, City Hall of Tarlac City, Tarlac
Information Education and Communication (IEC) meeting with the Municipal Level of Zaragoza, Province of Nueva Ecija	Municipality of Zaragoza, Province of Nueva Ecija	July 28, 2011, 10:00 am 2 <sup>nd</sup> Floor, Conference Hall of Municipal Hall of Zaragoza, Nueva Ecija.
Information Education and Communication (IEC) meeting with the Barangay Level of La Paz, Province of Tarlac.	Brgy. Laungcupang, Guevarra, & Macalong,	July 28, 2011, 2:00 pm ABC Session Hall 3 <sup>rd</sup> Floor, La Paz, Tarlac
Information Education and Communication (IEC) meeting with the Barangay Level of Aliaga, Province of Nueva Ecija.	Brgy. Betes, Umangan, Pantoc, Bibiclat, La Purisima, Sta. Monica, Sto. Rosario, San Juan, Magsaysay, San Eustacio, Poblacion East 1	July 29, 2011, 10:00 am 2 <sup>nd</sup> Floor, Kairos Hotel & Resort, Aliaga, Nueva Ecija
Information Education and Communication (IEC) meeting with the Barangay Level of Zaragoza, Province of Nueva Ecija	Brgy. Sta. Lucia Old & Sta. Lucia Young	July 29, 2011 2:00 pm 2 <sup>nd</sup> Floor Conference Hall of Zaragoza, Province of Nueva Ecija
Information Education and Communication (IEC) meeting with the Barangay Level of Aliaga, Province of Nueva Ecija.	Barangay Umangan, Municipality of Aliaga, Province of Nueva Ecija.	August 06, 2011, 2:00 pm Purok 1, Brgy. Umangan, Aliaga, Nueva Ecija



## **EIA METHODOLOGY**

### The Land

#### Geology and Geomorphology

The Geological and Geomorphologic information presented in this report were taken primarily from existing EIA and Feasibility Study Reports.

### Terrestrial Biology

#### Flora

The assessment of the vegetation in the vicinity of the proposed CLLEX Project was conducted last October 8 to 9, 2009 by LIVCOR. The floral transect survey was undertaken by traversing the areas that will be affected by the proposed project alignment and making observation and listing down the plant species encountered using transect line.

#### Fauna (Avifauna)

Faunal transect survey was undertaken simultaneously with the floral species assessment of the proposed project which was conducted by LIVCOR. The assessment of animal species was done by making observations and listing down of species encountered along the way with the help of local guides.

### The Water

#### Water Quality

Water samples were taken from the upstream and downstream portions of the river and creeks along the alignment using a 1-liter sterilized mineral water bottle. Standard water sample preparation procedure was followed. The sample bottles were properly labeled; the caps were securely sealed with scotch tape, and placed in a chest filled with ice to preserve the samples. The samples were later brought to the laboratory for analysis of TSS, BOD, DO, TC and conductivity.

Field measurements of pH and temperature were also undertaken. A 400 ml sterilized beaker was filled with samples from the river and creeks. Using a portable pH and a laboratory thermometer, on-site measurements were taken. The pH meter was properly calibrated prior to use. Physical appearance of the water is also recorded.

## The Air

### Air Quality

The air quality parameters considered during the sampling were Sulfur Dioxide (SO<sub>2</sub>), Nitrogen Dioxide (NO<sub>2</sub>), and Total Suspended Particulates (TSP). The monitoring was based on a 1-hour sampling period and one (1) 24-hour period at Station 1.

The methods of analyses of air samples are Pararosaniline Method for SO<sub>2</sub> and Griess Saltzman Method for NO<sub>2</sub>. This method done is by bubbling the ambient air through an absorbing solution in the glass impingers using the AirChek Gas Sampler. For total suspended particulates (TSP), gravimetric method is adopted using a Staplex high-volume sampler with a filter paper that is weigh prior to and after sampling.

Analyses methods were adopted as specified in DENR DAO 14. The sampling was done in conformity with the National Ambient Air Quality Standards (NAAQS) of the Department of Environmental and Natural Resources (DENR)

### Noise Level

Noise level monitoring was simultaneously done with the conduct of the air quality sampling at the same sites. The noise level monitoring was conducted in accordance with the standard monitoring periods specified in the National Environmental Protection Council (NEPC) EIA Handbook. Averaging of the noise frequencies received by the portable noise meter within a 10-minute period was done. The noise meter was properly calibrated as specified in the manual prior to sampling.

## The People

Surveys were conducted in the areas traversed by the proposed Central Luzon Link Expressway Project Phase I particularly those who will be directly affected by the proposed project to establish socio-economic profile of the stakeholders (Tarlac City and La Paz in the Province of Tarla; Zaragosa, Aliaga and Cabanatuan City in the Province of Nueva Ecija).

## **PUBLIC PARTICIPATION**

### **Consultation Meetings**

The EIA Team organized consultation meetings: four (4) with the LGUs and six (6) with project affected persons.

Aside from the EIA Team, representative/s from implementing agency DPWH and representative/s from JICA Study Team were in attendance to provide responses and clarifications to queries on the engineering aspect.

## **SUMMARY OF BASELINE CHARACTERIZATION**

### **The Land**

#### **Land Use and Classification**

Central Luzon is the longest contiguous area of lowlands and is known as the central plains of Luzon. The Region produces one third of the country's total rice production. It is also called as the Rice Granary of the Philippines. Forty one percent of its total land area is agricultural plains with rice as the major crop.

#### **Topography**

Nueva Ecija. The terrain of Nueva Ecija begins with the southwestern marshes near the Pampanga border. It levels off and then gradually increases in elevation to rolling hills as it approaches the mountains of Sierra Madre in the east, and the Caraballo and Cordillera ranges in the north.

It is dominated by a broad expanse of alluvial plain covering more than one-half of the whole provinces. The only areas of high relief are the northern and eastern boundaries where the Sierra Madre, Cordillera and the Caraballo Mountains occur. The Sierra Madre constitutes one continuous topographic unit that forms an almost north-south trending block bordering the eastern boundary of the provinces of Quezon. The alluvial plain is gently undulating towards the east and rises abruptly to the Sierra Madre Cordillera.

Tarlac. The Tarlac province is situated in the Central Plain of Luzon and is bounded by Pangasinan Province on the north, Nueva Ecija Province on the east, Pampanga Province on the south, and the Zambales Province on the west. Its exact position is between 120°10' to 120°47' longitudes and 15°10' to 15°55' north latitude. The location of this province in Central Luzon is nearer to the Gulf of Lingayen than to Manila Bay. Tarlac, the provincial capital, is 131.3 kilometers from Manila.

There are two distinct geographical areas in the province. The northern and eastern parts consist of an extensive level plain of recent alluvial deposits of sand, silt and small amount of clay. The western and northwestern parts consist of hills and mountains comprising the eastern sides of the Zambales mountain range. There are three prominent mountains in this range, namely, Dome Park (1,389 meters high), Iba Mountain (1,605 meters high) and Sawtooth Mountain (1,806 meters high). These mountains and the areas surrounding them consist of volcanic rocks of basalts and andesites. The andesites are mostly porphyritic.

### Physiography and Geomorphology

The Central plain is the main geomorphological feature between the gulf of Lingayen and Manila and this is where Nueva Ecija and Tarlac can be found. The central plains' lithology is mostly composed of alluvium deposits formed by the Agno River. Agno River shows a braided channel pattern which then transforms into a southwest directed bend as it passes the Central Luzon Plain. The most dominant lithology in the Project area, as shown are the Late Oligocene to Pleistocene and quaternary alluvium deposited by the Agno River.

### **Geology**

Geologically, the plain of the provinces consists of recent alluvial deposits of various materials. The depths of these deposits vary in many places according to the elevation of the area. The absence of gravel, cobble-stones, and pebble in the substratum shows that these deposits were made by slow-moving streams. The mountains in the northern part consist of Tertiary undifferentiated rocks, while those on the eastern sides consist of Tertiary and later effusive rocks of rhyolites, dacites, and basalts. The foothills on the western flank of Sierra Madre Range consist of narrow strips of volcanic tuff material, sandstone, shales and limestones.

The rock formation in the province is represented by time units ranging in age from Pre-Cretaceous to Quaternary. Below is the Geology of Nueva Ecija presented in tabulated form. This is adopted from the Geology and Mineral Resources of Nueva Ecija by Leonardo R. Antonio.

## Terrestrial Biology

### Flora

The historic pre-development pattern of land use in the provinces of Tarlac and Nueva Ecija are predominantly an agricultural system (rice fields), with the scattered patches of shrubs and miniaturized trees.

The present conditions of the area explain that the existing ecosystems were most likely, characterized by relatively 'very low' to 'low' species diversity and an impaired rate of ecological functioning due primarily to a lot of human interventions and disturbances as a result of the various land and farming activities. The proposed Project's site and its surrounding areas represent a region of 'low' ecological significance or importance in terms of species diversity.

### Fauna (Avifauna)

The same with the floral condition of the Project area, the assessment of faunal conditions is characterized by relatively 'very low' to 'low' species diversity due to the long history of human intervention, such as farming and other agro-industrial activities. There are no critical wildlife habitat areas that will be encountered or disturbed, and, in fact, most of the vicinity of the proposed Project are identified or been transformed to farmlands are classified as agricultural, have mostly domesticated animals. These animals are either used for pets, poultry, farming, and livestock feeding.



## The Water

### Water Quality

Pampanga River, the largest river draining into Manila Bay and the fourth largest river basin in the Philippines, is classified “Class A” under DENR standards (DAO 90-34) in its upstream and ‘Class C’ in its downstream. There are seven (7) water quality stations conducted with the parameters of Biological Oxygen Demand (BOD), total Suspended Solids (TSS), and Dissolved Oxygen (DO), Total Coliform and Conductivity last July 21, 2011. **Table 3.4** lists the results of the water sampling.

Meanwhile as of 2009, Talavera River which runs through Nueva Ecija is still listed as ‘Unclassified’ water body by EMB Region 3.

## The Air

### Air Quality

It was observed that the present 1-hour ambient ground level concentration of total suspended particulates (TSP) ranges from 47 to 299  $\mu\text{g}/\text{Ncm}$ . The DENR standard of 300  $\mu\text{g}/\text{Ncm}$  was not exceeded in all five sampling station. The station A5 (Maharlika) recorded the highest TSP level in the selected sampling station for both morning and afternoon sampling of 299 and 247  $\mu\text{g}/\text{Ncm}$ , respectively.

The gaseous pollutants, sulfur dioxide ( $\text{SO}_2$ ) and nitrogen dioxide ( $\text{NO}_2$ ), shows the concentrations level ranging from 10 to 30  $\mu\text{g}/\text{Ncm}$  for  $\text{SO}_2$  and from 2 to 11  $\mu\text{g}/\text{Ncm}$  for  $\text{NO}_2$  for the 1-hour time averaging sampling. Station A5 (Maharlika) recorded the highest measured gaseous pollutant concentration for  $\text{SO}_2$  and  $\text{NO}_2$  for a 1-hour time average measurement for both morning and afternoon period. The 1-hr sampling observed concentration is way below the limit set by DENR standard (see **Table 3.9**). These values are well within DENR ambient standards of 340  $\mu\text{g}/\text{Ncm}$  for  $\text{SO}_2$  and 260  $\mu\text{g}/\text{Ncm}$  for  $\text{NO}_2$  for 1-hr sampling.

## Climatology

The prevailing climate in Nueva Ecija is 'Type I' and 'Type III' based on Philippine Atmospheric and Geophysical and Astronomical Services Administration's (PAGASA) Corona's Classification System, as shown in **Figure 3-7**. The Type I classification has dry season from December to May, and wet for the rest of the year. Type III has no pronounced maximum rain periods but with short dry season lasting from one (1) to three (3) months.

Nueva Ecija also has an average relative humidity of 87% while temperature ranges from 21.5°C to 35.7°C. The recorded average mean amount of rainfall for the year is 1597.1 mm, with highest amount of 4,304 mm during the month of August. (Nueva Ecija Provincial Profile, 2008).

Tarlac belongs to 'Type I' climate, and it experiences rainfall during the southwest monsoon period from June to November, which is the wet season. November to May is the dry season. The hottest part of the year is March to May and sometimes extends up to June. The heaviest rains come in July to November with August being the wettest month of the year.

## Noise Level

The noise measurements were conducted using a Center 322 Data logging sound level meter on A-weighting scale.

The noise levels along proposed Central Luzon Link Expressway road project are typical for an urban area due to heavy volume of traffic except at station A1 (SCTEX) where station is located in an agricultural field about 150 meter from the SCTEX expressway. The average noise levels for the five sampling stations ranged from 48.8 to 70.9 dB(A) during daytime period 1-hr air sampling measurement.

## The People

### Direct Impact Areas

There are 224 households interviewed. Among the households, 53.1% have an average household size of 1-4 persons. 2.2% have more than ten (10) persons per household and 44.6% have an average household size of 5-10 persons.

### Social Acceptability

There are several criteria used for evaluating the social acceptability of a project. Some of these are environmental soundness, poverty alleviation, concurrence to land use plans and conflict resolution. A more direct way however, is through perception survey wherein the PAPs are asked whether they are in favor of the proposed project or not. There are 64 and 160 respondents in the DIA Type A and B respectively and 100 respondents in the IIA were interviewed.

A relatively high percentage of 68.5% are in favor of the project. The remaining 31.4% are not in favor due to the negative impact the project will brought particularly in loss of income and land in farming

When asked about perceived positive impact of the proposed project, the respondents' top three (3) answers are (i) it will improve accessibility (30.6%); (ii) it will improve farm products delivery (21.9%) and (iii) will improve quality of life (17.6%). Others still believe that the project will not generate any positive impact (3.7%).

### **SOCIAL DEVELOPMENT PROGRAM (SDP)**

The DPWH must support a Social Development Program (SDP) that will ensure that affected communities get compensated for the disturbance to their normal lives, not only in terms of monetary settlement for the damages. It is just fair that they be assisted so that the processing of payment due them can be expedited. Aside from these, DPWH must also make sure that the relocation plan is sustainable; i.e., aside from the basic amenities at the resettlement area, an alternative livelihood assistance program must be included.

The criteria used for identifying beneficiaries who would be eligible to the SDP for the CLLEX Project Phase 1 are those:

- (i) informal settlers who have no awarded land from government housing project;
- (ii) informal settlers who no other place to thrive in;
- (iii) who do not have other means of livelihood;
- (iv) farmers who will loss income and land.

## **IMPACT IDENTIFICATION, MITIGATION AND ENHANCEMENT**

Briefly, the following are considered significant adverse impacts:

- (i) Physical displacement of informal settler/landless families from La Paz, Tarlac (3), Zaragosa (1), Aliaga (32) and (28) Cabanatuan, Nueva Ecija;
- (ii) Socio-economic displacement of estimated 507 farm landowners;
- (iii) Noise pollution to noise sensitive receptors such as schools, churches and residential areas near the proposed CLLEX Project Phase 1; and
- (iv) Traffic congestion during construction stage;

For details on predicted impacts most likely to affect the Land, Water, Air, and People during the Pre-Construction, Construction, Operation, and Abandonment Phases of the Proposed Central Luzon Link Expressway Phase I Project, together with corresponding mitigation/enhancement of each identified impacts, please refer to **Table 4.1** in Chapter 4. The Environmental Management and Monitoring Plan is presented in **Table 6.1** of Chapter 6.

## **CONTINGENCY AND RESPONSE PLAN**

During the construction of the CLLEX Project Phase I, the Constructors must ensure that;

- (i) Adequate warning signs, barricades, warning light including traffic aides must be provided at all times during construction;

- (ii) Vehicles for emergency cases are provided;
- (iii) Ensure that all equipment are in good working condition;
- (iv) The construction crew are using the required safety procedures/methods and are always using their Personal Protective Equipment (PPE); and
- (v) Safety and emergency contingency programs are formulated and coordinated at all times

## **DECOMMISSIONING AND ABANDONEMENT**

Decommissioning and abandonment measures must be implemented after the construction activities. Upon completion of the project, all parties concerned, such as the DPWH, the DENR, and the LGUs must jointly inspect the area to check if:

- (i) Temporary structures, if not usable anymore are dismantled, and stockpiled materials are properly disposed of;
- (ii) Interrupted power, water, telecoms service connections are properly re-installed or re-commissioned, and in the usual functioning conditions;
- (iii) Construction equipment and used materials are transported back to the contractors; and
- (iv) Temporary camp of construction workers and facilities are dismantled and cleared of debris.

---

# **Chapter 1**

## **Policy, Legal and Administrative Framework**

---

# 1 POLICY, LEGAL AND ADMINISTRATIVE FRAMEWORK

---

## 1.1 ENVIRONMENTAL AND PERTINENT LAWS, RULES AND REGULATIONS

The Environmental Management Plan (EMP) contains the various proposed mitigation and enhancement measures to abate the negative impacts of the CLLEX Elevated Expressway Phase 1. The following pertinent national policies and guidelines for environmental considerations of infrastructure projects were strictly complied with: (See **Appendix A DENR Administrative Order No. 2003-30**).

1. Presidential Decree (PD) 1586, also known as the Philippine Environmental Impact Assessment Law, which requires the DPWH to undertake environmental impact assessments for all its major projects. Compliance means that all projects implemented by the DPWH are covered by an Environmental Compliance Certificate (ECC) unless exempted by the DENR. This law was updated by DENR Administrative Order No. 37, series of 1996, more commonly known as DAO96-37, which also prescribed the specific procedures to be followed in complying with the EIA law.
2. AO 42, rationalizing the implementation of the Philippine EIS System and giving authority in addition to the Secretary of the DENR, to the Director and Regional Director of the EMB to grant or deny the issuance of ECCs.
3. DAO 2003-30, streamlining the EIS System and to strengthen the processes for its implementation.
4. DENR Administrative Orders 34 and 35 (1990) which embodies the environmental quality guidelines on water quality.
5. Republic Act No. 8749, also known as the Clean Air Act which provides for a comprehensive air quality management policy and program which aim to achieve and maintain healthy air for all Filipinos.

6. Republic Act No. 6969 covers the management of toxic and hazardous materials. As an agency whose activities potentially generate pollutants in various forms, the DPWH ensures that contractors are aware of, and in compliance with these guidelines.
7. Republic Act No. 9147 (Conservation of Wildlife Resources and their Habitats). Construction activities also pose a risk to wildlife and biological resources through habitat encroachment or degradation. This law precludes infrastructure development in areas already classified as protected and provides ways to conserve wildlife resources and their habitats.



---

## **Chapter 2**

### **Project Description**

---

## 2 PROJECT DESCRIPTION

---

### 2.1 PRELIMINARY DESIGN

#### 2.1.1 Design Concept

The design concept is to provide a high-speed toll road that allows safe and efficient movement of traffic as an expressway with fully controlled access, especially to improve the access from Tarlac (connection to Subic Clark Tarlac Expressway) to Cabanatuan (Pan Philippines Highway) in the total length of 30.73km.

The scope of work of the preliminary design study is to review the past study and to consider stage construction in accordance with traffic demand forecast.

#### 2.1.2 Design Standard

The following standard is mainly used as reference for the Central Luzon Link Expressway (Phase I) design.

- A Policy on Geometric Design of Highways and Streets, AASHTO 2004.
- Highway Safety Design Standards Part 1 Road Safety Design Manual, May 2004, DPWH
- Japan Road Association, Road Structure Ordinance, 2004
- Highway design manual, Metropolitan Expressway Co., Ltd.,
- Japan Highway design manual, NEXCO, Japan.

### **2.1.3 - Design Speed**

For the main alignment, the recommended design speed by the previous feasibility study was 100kph. In accordance with Road Safety Design Manual (DPWH,2004) and considering the moderate topographic condition and safety of the traffic of staging construction, the design speed recommended is 100kph as well the interchange ramp design speed used is 40kph, which is 40% of the highway design speed and described minimum design speed in AASHTO 2004.

### **2.1.4 - Design Vehicle**

A WB-15 is considered as design vehicle of the main alignment and ramp. The Geometry applied to the design of main alignment and ramp is summarized in **Table 2.1** and **Table 2.2**.

**TABLE 2.1 GEOMETRY OF CLLEX (MAIN ALIGNMENT) (100KM/HR)**

Geometric Design Standards									
Project:		CLEX							
Item		Unit	Standard	Absolute	Remark				
Design Speed		kmh	100						
Design Vehicle		-	WB-15						
Stopping Sight Distance		m	185		page 56, Table 16.3, DPWH Rad Safety Design Manual				
Passing Sight Distance		"	670		Page 69, Table 16.4 DPWH Road Safety Design Manual				
1. Cross Section Elements									
Item		Unit	Standard	Substandard	Remark				
Pavement Type					PCCP				
Lane Width		m	3.50		12ft(AASHTO2004)for high type highway, n311				
Median Width(Center Separator)		"	3.00		Guard rail, drainage, tree planting included, refer to NEXCO				
Inner Shoulder Wdth		"	1.00		Considering to mergin for staging construction				
Outer Shoulder width		"	2.50		WB-15 trailer (2.44m)				
Number of Lanes		nos	4		2 for 1st stage construction				
Normal Crossfall		%	2.00						
Maximum super elevation		%	6.00		page 53, table 16.1 DPWH Road Safety Design Manual				
Super elevation		%	exhibit 3-26		page 168, exhibit 3-26, ASSHTO 2004				
Maximum relative gradients		%	0.43		page 62, super elevation DPWH, Road Safety Design Manual				
2.Horizontal Alignment									
Item		Unit	Standard	Absolute	Remark				
Minimum Radius		m	437		Page 147, exhibit 3-15, ASSHTO 2004				
Min. Transition Curve Length		"	56		Page 61, Figure 16.3 DPWH Road Safety Design Manual				
Min.Radius not requiring		"	2560		page 168, exhibit 3-26, ASSHTO 2004 (2.0%)				
Transition Curve									
Superelevation run off			0.43%		p62 for 100kmh DPWH, Road Safety Design Manual				
3. Vertical Alignment									
Item		Unit	Standard	Absolute	Remark				
Max Vertical Gradient		%	3	4	Page 53, Table 16.1 DPWH Road Safety Deign Manual				
Min.K value	Crest	"	85.0		1500(1000) JPN Standard				
	Sag	"	52.0		2000(1400)JPN Standard				
Min. Vertical Curve Length		"	60		Page 636, DPWH Design Guidelines, Criteria and Standards Vol II				
Max.Composition Grade		%							
4.Vertical Clearance									
Object		Vertical Clearance (m)			Remark				
Road		5.000			DPHW Requirement, 4.9m(16feets) Clearance +0.10m (Fugure AC Overlay)				

**TABLE 2.2 GEOMETRY OF CLLEX (RAMP) (40KM/HR)**

Geometric Design Standards				
Project:		CLEX Ramp		
Item	Unit	Standard	Absolute	Remark
Design Speed	"	40		
Design Vehicle	-	WB-15		Exhibit 2-4, p22 AASHTO 2004
Stopping Sight Distance	"	50		page 56, Table 16.3, DPWH Rad Safety Design Manual
Passing Sight Distance	"	270		Page 69, Table 16.4 DPWH Road Safety Design Manual
<b>1. Cross Section Elements</b>				
Item	Unit	Standard	Substandard	Remark
Pavement Type				PCCP
Lane Width	m	3.50		NEXCO A Type
Median Width	"	1.00		NEXCO A Type
Inner Shoulder Strip	"	1.00		NEXCO A Type, 1 direction 1lane ramp
Inner Shoulder Strip	"	0.75		NEXCO A Type, 2 direction 3lane ramp
Outer Shoulder Strip	"	2.50		NEXCO A Type
Number of Lanes	nos	1		
Normal Crossfall	%	2.00		
Maximum super elevation	%	6.00		page 53, table 16.1 DPWH Road Safety Design Manual
Super elevation	%	exhibit 3-26		page 168, exhibit 3-26, ASSHTO 2004
Maximum relative gradients	%	0.66		page 62, super elevation DPWH, Road Safety Design Manual
<b>2.Horizontal Alignment</b>				
Item	Unit	Standard	Absolute	Remark
Minimum Radius	m	50	43	Page 825,Page 147, exhibit 3-15, ASSHTO 2004
Min. Transition Curve Length	"	22		Page 61, Figure 16.3 DPWH Road Safety Design Manual
Min.Radius not requiring	"	525		page 168, exhibit 3-26, ASSHTO 2004 (2.0%)
Transition Curve				
Superelevation run off		0.66%		p62 for 40kmh DPWH, Road Safety Design Manual
<b>3. Vertical Alignment</b>				
Item	Unit	Standard	Absolute	Remark
Max Vertical Gradient	%	6	7	Page 53,Table 16.1 DPWH Road Safety Design Manual
Min.K value	Crest	"	6.0	( ) is recommended value
	Sag	"	9.0	( ) is recommended value
Min. Vertical Curve Length	"	60		Page 636, DPWH Design Guidelines, Criteria and Standards Vol II
Max.Composition Grade	%	11.5		
<b>4.Vertical Clearance</b>				
Object	Vertical Clearance (m)		Remark	
Road	5.000		DPHW Requirement, 4.9m(16feets) Clearance +0.10m (Fugure AC Overlay)	

### **2.1.5 Vertical Clearance**

The vertical clearance of the highway and crossing road shall be 4.0m to 5.2m (4.9m(16 feet)+0.3m(overlay)).

### **2.1.6 Number of Lanes**

Number of lane is set as below in accordance with traffic demand forecast;

- 1) Ultimate Stage: 4 lanes
- 2) Interim Stage: 2 lanes

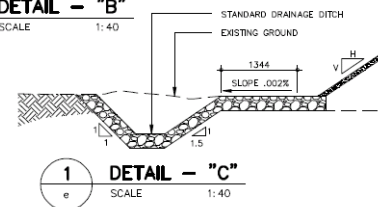
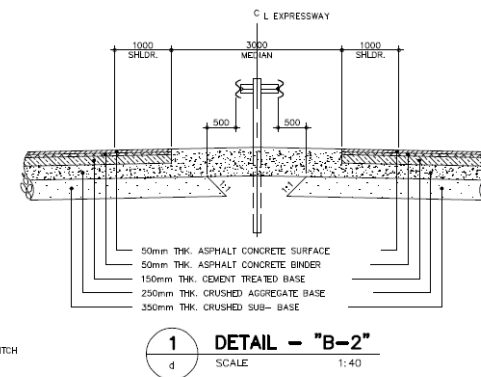
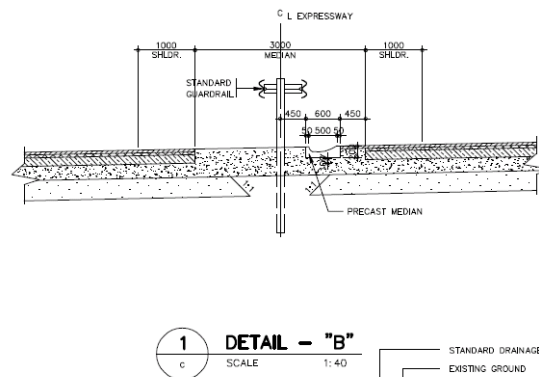
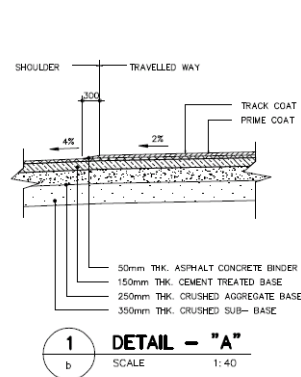
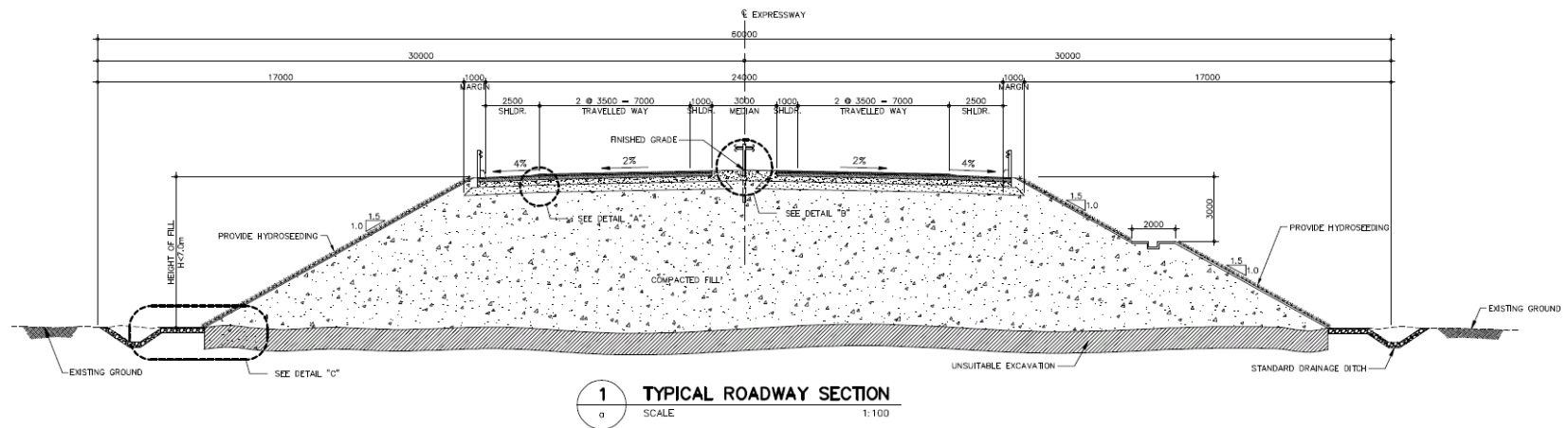
### **2.1.7 Carriageway, Shoulder and Median Width**

The cross sectional configuration is reviewed and recommended as below:

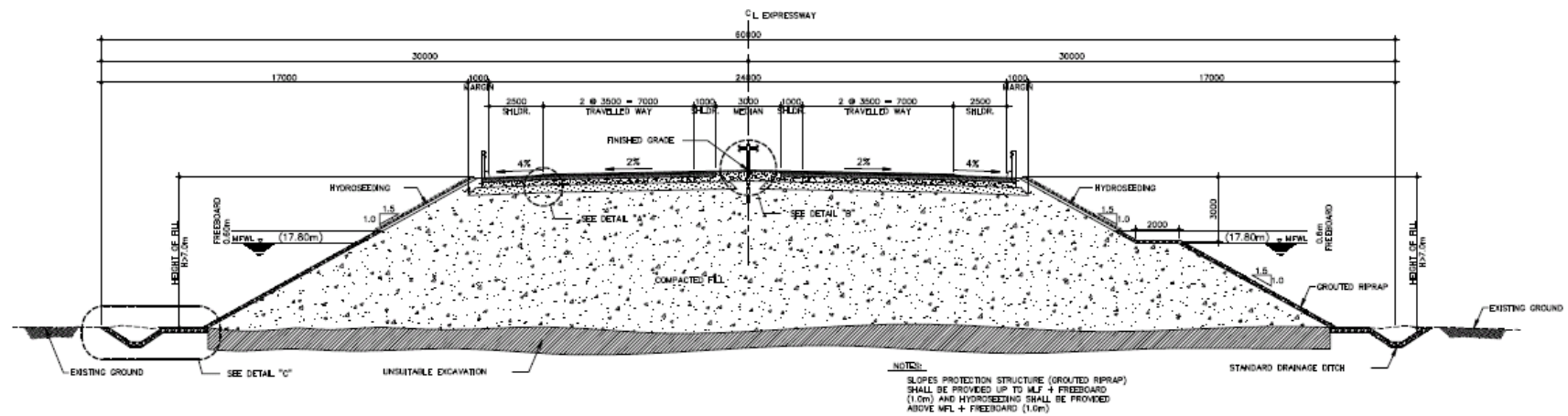
1. Main Alignment -The carriage way of the main alignment is 3.5m in accordance with Road Safety Manual (DPWH 2004). Likewise the inner shoulder is designed as 1.0m. This allows the construction of the 2nd stage cross without conflict from the section for the 1st stage construction. The outer shoulder is designed as 2.5m. This permit semi trailer class (w=2.44m) emergent stops. The width of median is designed as 3.0m with guard rail post and plantation of low height trees.
2. Ramp - The carriage way of the ramp is recommended same width as main alignment, namely 3.5m. Widening of 1.0m is added to this carriage way. The inner shoulder is designed as 1.0m and outer shoulder 2.5m with provision for passing a stalled vehicle of predominantly P vehicles but consideration for WB-15 trailers.
3. Medium/ Small size bridge (L=<100m) - For small and medium size bridge (L=<100m), cross sectional configuration shall be the same as embankment roadway section.

4. Viaduct Bridge ( $L > 100\text{m}$ ) - For viaduct bridge, inner shoulder shall be reduced to 0.5m and outer shoulder shall be reduced to 1.5m for economical reason. However, the bridge which will be constructed for initial open stage (2 lanes, 2 directions) shall be accommodated with outer shoulder of 1.5m.

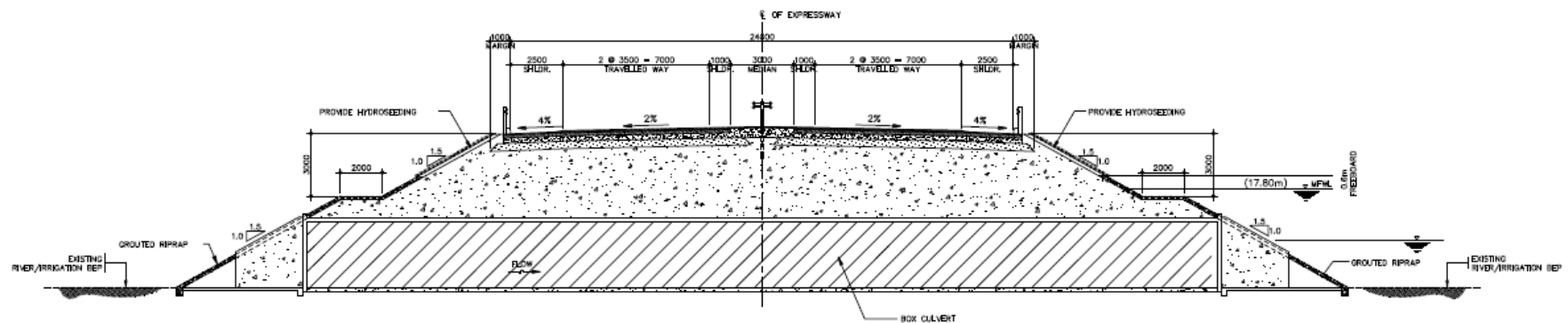
Typical Cross Sections are shown in following pages.



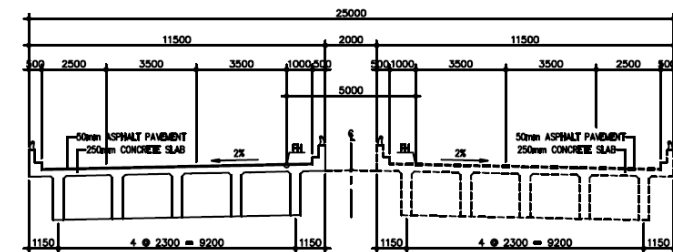
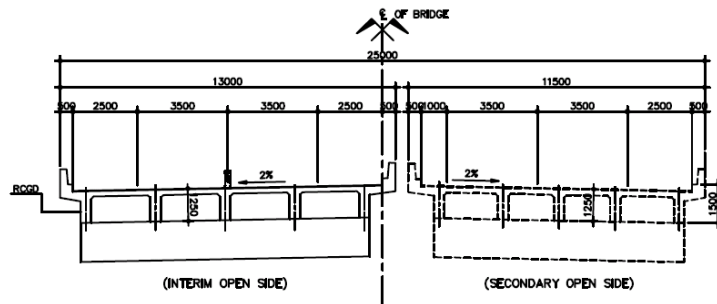
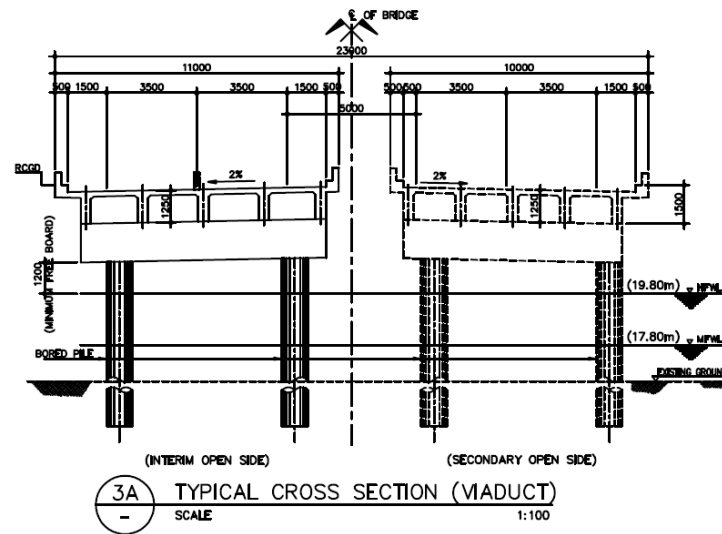


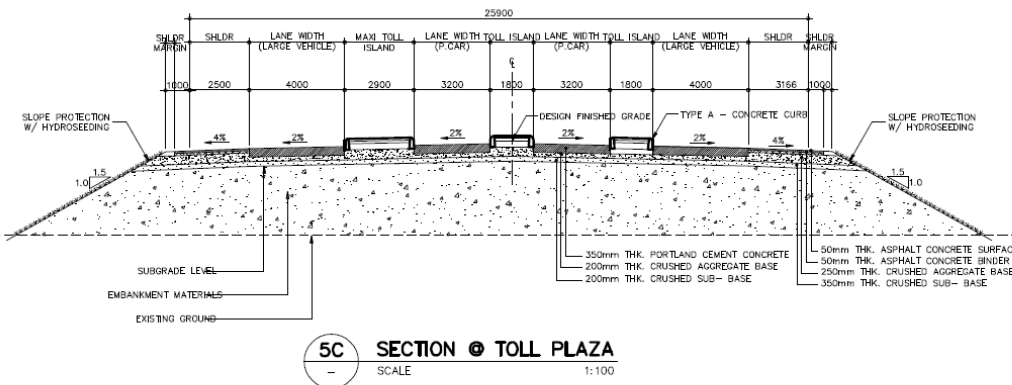
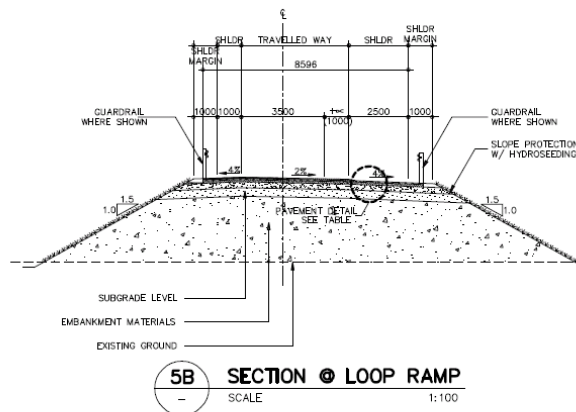
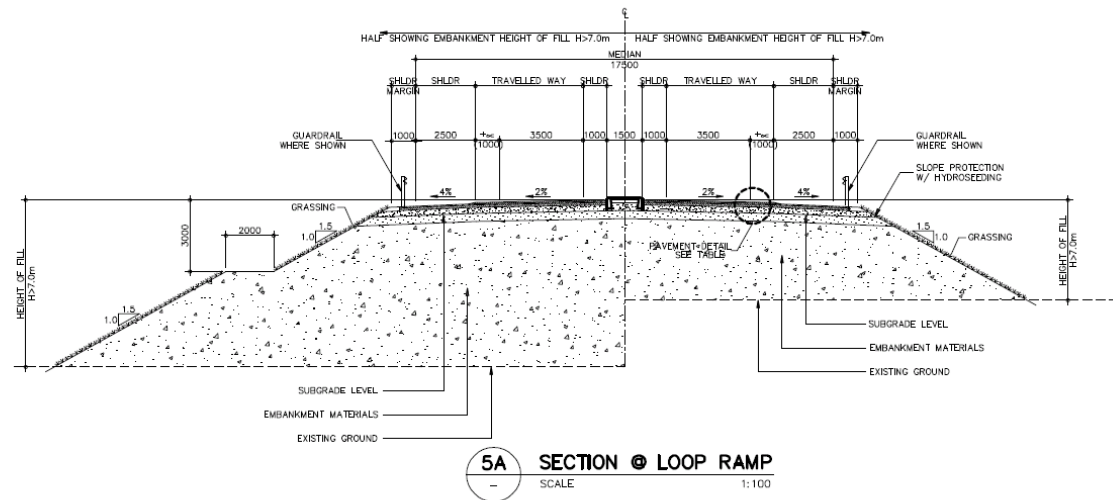


2A TYPICAL ROADWAY SECTION (EQUALIZING ZONE)  
SCALE 1:100



2B TYPICAL ROADWAY SECTION (EQUALIZING ZONE (BOX CULVERT))  
SCALE 1:100





PAVEMENT THICKNESS TABLE

LAYER	TRAVELLED WAY	SHOULDER
SURFACE COURSE	50mm THK. ASPHALT CONCRETE SURFACE COURSE	
BINDER COURSE	50mm THK. ASPHALT CONCRETE BINDER COURSE	50mm THK. ASPHALT CONCRETE BINDER COURSE
BASE COURSE	100mm THK. CEMENT TREATED BASE COURSE	100mm THK. CEMENT TREATED BASE COURSE
	250mm THK. CRUSH AGGREGATE BASE COURSE	250mm THK. CRUSH AGGREGATE BASE COURSE
SUBBASE COURSE	350mm THK. AGGREGATE SUBBASE COURSE	350mm THK. AGGREGATE SUBBASE COURSE

## **2.2 Expressway design**

### **2.2.1 General**

This section of the report highlights the engineering studies undertaken for the proposed project following the AASHTO and DPWH technical guidelines and procedures.

This section contains following technical studies;

- 1) Hydrological analysis
- 2) Crossing Road and River Design
- 3) Vertical Control
- 4) Rio Chico River Flood Prone Area Design
- 5) Interchange Design

### **2.2.2 Hydrological Analysis**

#### Data collection

Topographic maps from the National Mapping and Resource Information Authority (NAMRIA) were acquired. For the rainfall data, the same data from the existing Feasibility Study was obtained from the Philippine Atmospheric; Geophysical Astronomical Services Administration (PAGASA) was used.

#### *Topographic Maps*

NAMRIA is the government agency responsible for the preparation of topographic maps of the Philippines. For the project location, 1:50,000 maps were available.

#### *Rainfall Data*

For the purpose of this study, the same rainfall data used in the existing Feasibility Study is utilized. The available data are from the Cabanatuan City (based on 33 years of record), Munoz, Nueva Ecija (based on 21 years of record) and Pantabangan (based on 19 years of record.)

#### Hydrologic Study

#### *Design Criteria*

The method used in computing the discharge was selected based on the size of the catchment area. The following criteria were used;

<u>Catchment area</u>	<u>Method</u>
0 – 20 km <sup>2</sup>	Rational Formula
> 20 km <sup>2</sup>	JICA Study 1982 (Rio Chico River and Talavera River)

#### ***Rational Formula***

The Rainfall Formula is the simplest method in estimation maximum discharge.

This is widely applied when the catchment area is less than 20km<sup>2</sup>.

The formula is;

$$Q = 0.278 CIA \text{ ( in m}^3\text{/sec)}$$

Where:

Q = discharge in cubic meters per second

C = coefficient of runoff which depends on the topographical character of the drainage area

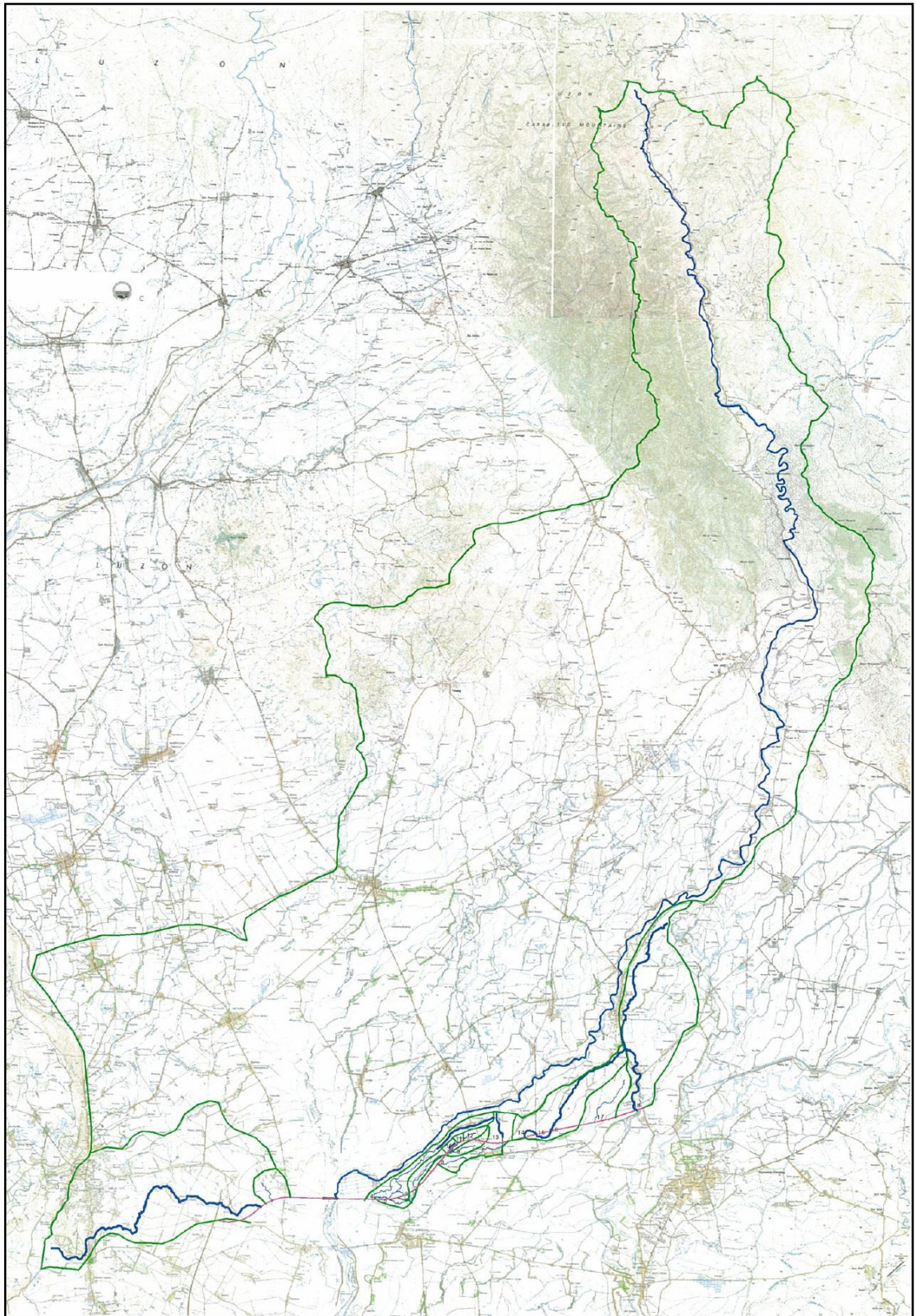
I = Rainfall intensity in mm/hr for a duration equal to the time of concentration

A = Drainage area in Km<sup>2</sup>

#### ***Catchment or Drainage Areas***

The preferred alignment was plotted on the topographic maps. Eighteen (18) natural waterways were identified along the alignment. The catchment area for each waterway was delineated. A catchment area is defined as the limits of the topographic divide which is the line that separates water flow between basins. Other hydrologic parameters such as length of waterway and difference of elevation are identified. Figure 2-1 shows the delineated catchment areas.





**FIGURE 2-1 CATCHMENT AREA**

### Rio Chico

Attached is an excerpt from the JICA Study indicating the Fifty (50) Year Maximum Discharge of Rio Chico and Talavera River calculated by storage function method. The sum of the discharges of the two rivers is the design discharge used. Below is the summary of the study: **Table 2.3** shows the discharge of Rio Chico River

<b>Table 2.3 Discharge of Rio Chico River</b>			
<b>Discharge Volume (m3/s)</b>			
	<b>Rio Chico</b>	<b>Talavera</b>	<b>Total</b>
No.	45	41	
100	1,488	1,410	2,898
50	1,269	1,203	2,472
20	985	932	1,917
10	778	735	1,513

### **Drainage Design Frequency**

The design storm frequency adopted for this project is shown in **Table 2.4** by recommendation in DPWH Design Guidelines Criteria and Standards Volume II (p697).

<b>Table 2.4 Design Frequency by Road Structure</b>	
Structure	Return Period (year)
Bridge	1/50
Box Culvert	1/25
Earth Embankment	1/10
Pipe Culvert	1/10
Road Structure Drainage	1/2
Road side drainage	1/2

*Source: DPWH*

### **Design Flood Level**

The area between SCTEX and Aliaga is known as flood prone area (more detail is described in Section 6.3.5). Water from Rio Chico River overflows and causes flood frequently.

In the profile design of this section, two (2) design flood level was considered to determine the finished grade, namely 1) Medium Flood Water Level (MFWL) and 2) HWL (High Water Level.).



### **2.2.3 Crossing Road and Water Way Design**

#### Technical Approach

In order to maintain the present accessibility after the construction of the highway, crossing road (under the highway or overpass the highway) and service road are designed.

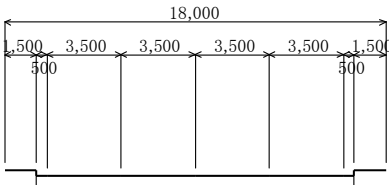
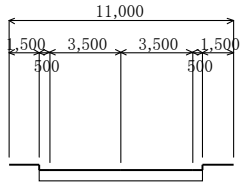
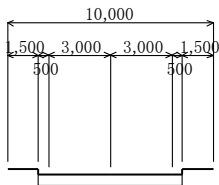
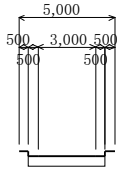
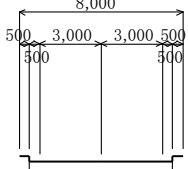
Technical approach of the design is described as below;

- (1) To provide crossing road to maintain present accessibility after the construction
- (2) To provide enough road width considering future widening if any.
- (3) To provide enough vertical clearance in accordance with road category

#### Typical Condition of Crossing Road

Cross sectional configuration of the crossing road and vertical clearance is designed according to present condition of the road.

**Table 2.5 Cross Sectional Configuration of Crossing Road**

No.	Road Category	Road width (m)	Cross Sectional Configuration	Vertical Clearance (m)	Remark
1	National Road /Municipality Road to be widened	18.0m		5.2m Vertical clearance (4.9m) + overlay(0.3m)=5.2m	Pan Philippine Highway Sta.Roas-Tarlac RD Cabanatuan BP
2	National Road / Provincial Road not to be widened	10.0m		5.2m Vertical clearance (4.9m) + overlay(0.3m)=5.2m	La Paz- Victoria RD Gumba-Aliaga RD
3	Municipality Road	10.0m		4.0 m Vertical clearance (3.8m) +Over ray(0.2m) =4.0m	
4	Farm road / BRGY Road (1lane)	5.0m		4.0 m Vertical clearance (3.8m) +Over ray(0.2m) =4.0m	
5	Farm road / BRGY Road (2 lane)	8.0m		4.0 m Vertical clearance (3.8m) +Over ray(0.2m) =4.0m	

### Typical Condition of Crossing Water Way

Table 2.6 shows Typical condition of crossing water way.

Table 2.6 Typical Condition of Crossing Water Way		
Category of water way	Crossing Condition	Structure
River	Discharge Volume (50years) <80m <sup>3</sup> /s	RCBC with free board
	Discharge Volume(50 years)>80m <sup>3</sup> /s	Bridge with free board
	Existing Water Way Width >10m	Bridge with free board
Irrigation Canal	Keep the same or more cross section of existing canal	Varies with free board

Table 2.7 shows Freeboard allowance of water way.

**TABLE 2.3.3-3 FREE BOARD ALLOWANCE**

Table 2.7 Freeboard Allowance		
No.	Design Discharge Q (m <sup>3</sup> /s)	Free board (m)
1	Less than 200	0.6m
2	200 to less than 500	0.8m
3	500 to less than 2,000	1.0m
4	2000 to less than 5,000	1.2m
5	5000 to less than 10,000	1.5m
6	More than 10,000	2.0m

## 2.2.4 Vertical Control

### Technical Approach

The Express highway is situated in the very flat plane land. The profile was studied in accordance with following orientations;

- To Minimize Construction Cost: The embankment height shall be minimum while providing sufficient clearance at road and water way crossing points.
- To Secure from Flood: The minimum finished grade shall be determined in accordance with present and past flood in order to be secured from flood.
- To Secure smoothness of drive: The minimum distance between PI point of vertical profile shall be 500m in order to secure smoothness of drive.
- To accommodate surface drainage: It is also important to accommodate surface drainage to secure drivers safety during rain. The minimum vertical gradient is set as 0.3% for this reason.

### Minimum Embankment Height

The most parts of the present surface of the land is paddy filed. The minimum embankment height is set as 1.5m. This is to secure stability of embankment from water and to provide sufficient clearance for small size pipe culverts for drainage.

## 2.2.5 Rio Chico River Flood Prone Area Design

### Technical Approach

The express highway across flood prone area of Rio Chico River. This Section summarize following points regarding to road structure design in such area.

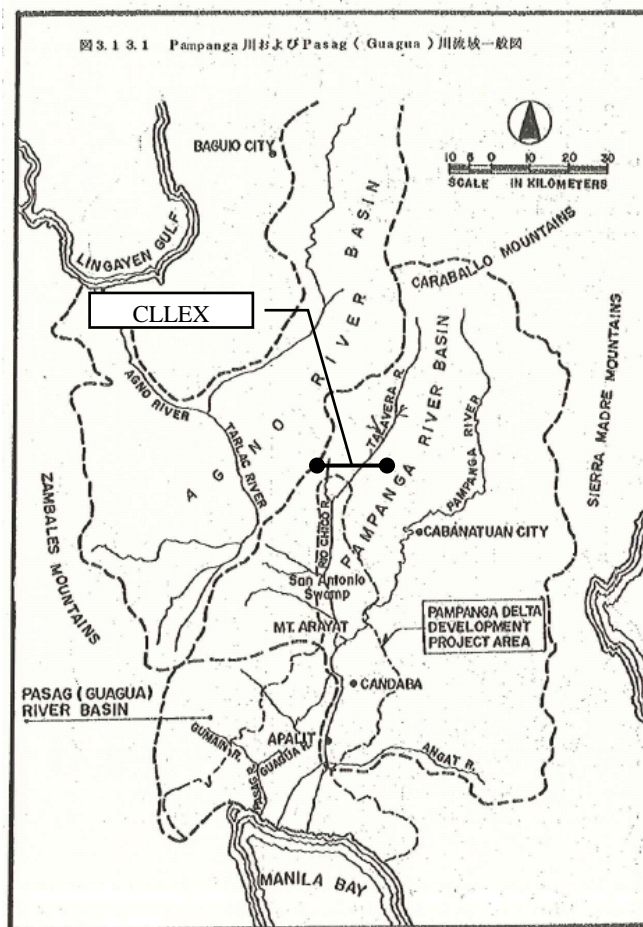
- 1) Hydrological characteristics of Rio Chico River
- 2) Flood condition and mechanism
- 3) Structural design for the flood prone area

### Hydrological characteristics of Rio Chico River

Tarlac province is boundend by two (2) principal rivers; Tarlac River and Rio Chico River which are both heavily silted. Tarlac River aggradation problem is attributed to the heavy transport of lahar due to Mt.Pinatubo eruption while Rio Chico has narrow/limited river cross section with meandering flow and serves as the catch basin of waterways from

Talavera-Aliaga, Zaragoza, Cabanatuan, Guimba, Licab and Sto.Domingo and the eastern towns of Tarlac, outfall to Sacobia-Bamban-Paura River and Quitangil River.

Rio Chico River is one of the tribunal of Pampanga River which is located upper part of Pampanga Rive Basin. The Rio Chico River and Talavera River confluent in La Paz and flow to San Antonio Swamp before meet to Pampanga River. Major characteristics of Rio Chico River is shown in **Table 2.8**.



**Figure 2-2 Pampanga River Basin**

<b>Table 2.8 Characteristics of Rio Chico and Pampanga River</b>		
	<b>Rio Chico River</b>	<b>Pampanga River</b>
Catchment Area	1700km <sup>2</sup>	7700km <sup>2</sup>
River Slope	1/3,500	1/10,000 – 1/8,000
Discharge (50years)	2,400 (at Zaragoza) 3,700(at San Antonio)	4,350 (at Cabiao)
Discharge (100 years)	2,800(at Zaragoza) 4,400(at San Antonio)	4,900 (at Cabiao)

*Source: JICA 1982*

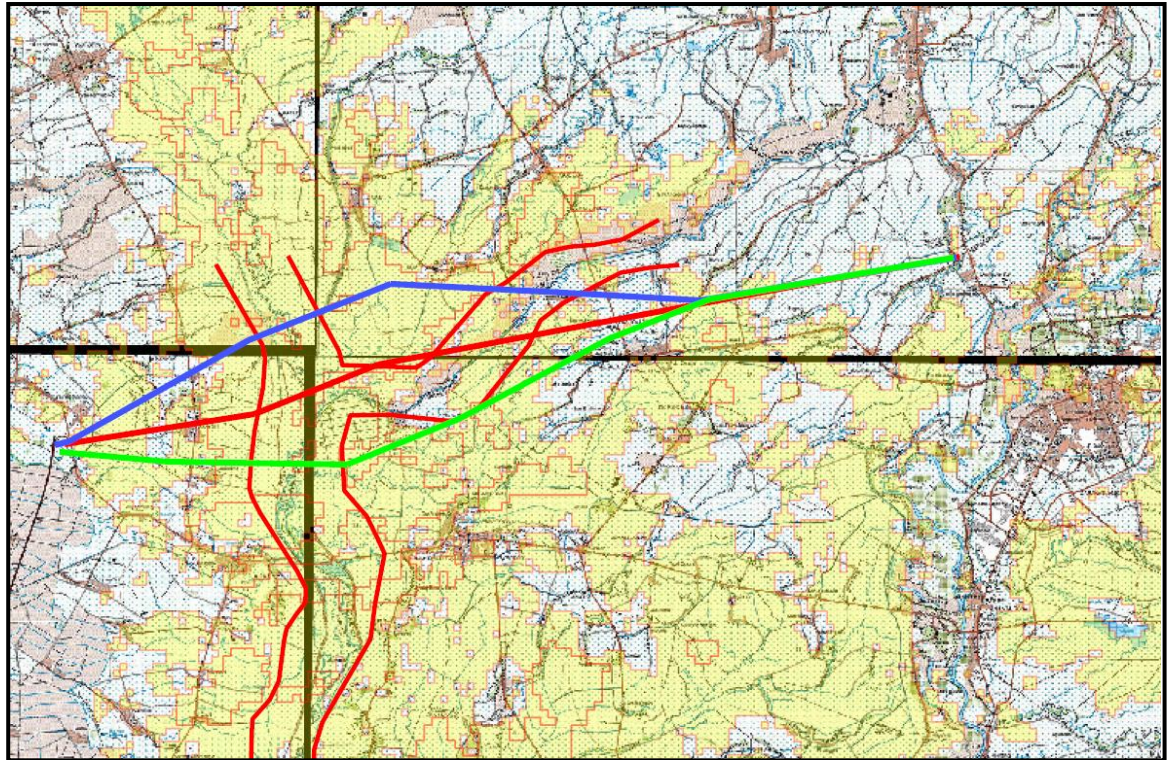
### Flood Condition

#### *Flood Prone Area*

The maximum inundated area by 2004 is shown in **Figure 2-3**. The inundated area by Typhoon Pepeng in 2009, which caused the most flood disaster in this region, is assumed almost the same according to interview survey by the study team. This figure illustrates that major parts of the road stretch is within inundated area.



**Table 2.9** shows average inundated depth and days of related municipalities. La Paz has the most serious flood condition among all.



Source: JICA 2010

**FIGURE 2-3 INUNDATED AREA ALONG STUDY ROUTE  
(MAXIMUM FLOOD BY 2004)**

<b>Table 2.9 Flood Condition by Municipality along Rio Chico River</b>		
<b>Municipality</b>	<b>Inundated depth (ave)</b>	<b>Inundated days (ave)</b>
Victoria	0.8m	3-5 days
Licab	0.5m	1-3 days
Quezon	0.5m	1-3 days
La Paz	1.8m	8-12 days
Zaragoza	0.5m	2-3 days

Frequent flood area and historical flood area were identified by interview survey to the Local Government Office.

Close of Tarlac- Sta.Rosa National Highway

**Table 2.10** shows closure days of national highway due to flood.

<b>Table 2.10 Record of Road Closure Tarlac-Sta. Rosa Road</b>		
<b>Year</b>	<b>Month/ Date</b>	<b>Cause</b>
2006	July 24	Not specified
2007	Record not found	n/a
2008	August 10	Typhoon "Julian"
2009	October 09-11	Typhoon "Pepeng"
2010	October 21-22	Typhoon "Juan"
2011	June 26-27, 2011	Typhoon "Falcon")

*Source: DPWH Tarlac 2nd District Eng'g. Office*

<b>Year</b>	<b>Month/ Date</b>	<b>Cause</b>
Average for the last 5 years	Three (3) incidents of road closures each year. Each road closure incident is about 2 to 3 days long.  Thus, about 6-10 days (with 10 as maximum).	Heavy Rains / Typhoons (June to November)

### Flood Mechanism

Flood mechanism in this area is summarized as **Table 2.11** and **Figure 2-4**.

<b>Table 2.11      Summary of Flood Mechanism at Rio Chico River</b>			
<b>No.</b>	<b>Location</b>	<b>Reason</b>	<b>Flood</b>
1	Confluence of Rio Chico River and Labong River	Low land	Ground elevation is 16 to 18m while other are is approx.20m River water gathers at low land.
2	Confluence of Rio Chico Rive and Talavera River	Confluence of two major river	Both rive has approx 1,200m <sup>3</sup> /s (50years). There is only low earth dike at the confluence point which is easily flow over.
3	National Road Crossing Point at Rio Chico River	Narrow river channel	There is equalizer constructed in 2009 and a bridge of 250m passes over Rio Chico River. Flood frequently occurs at this point due to insufficient capacity of present river corridor. This causes back flow to the upper stream.
4	Rio Chico River and Talavera River	Collaption of existing dike	Existing dike is mostly earth bank which is already collapsed due to lack of maintenance. River water easily over flow from such portion.



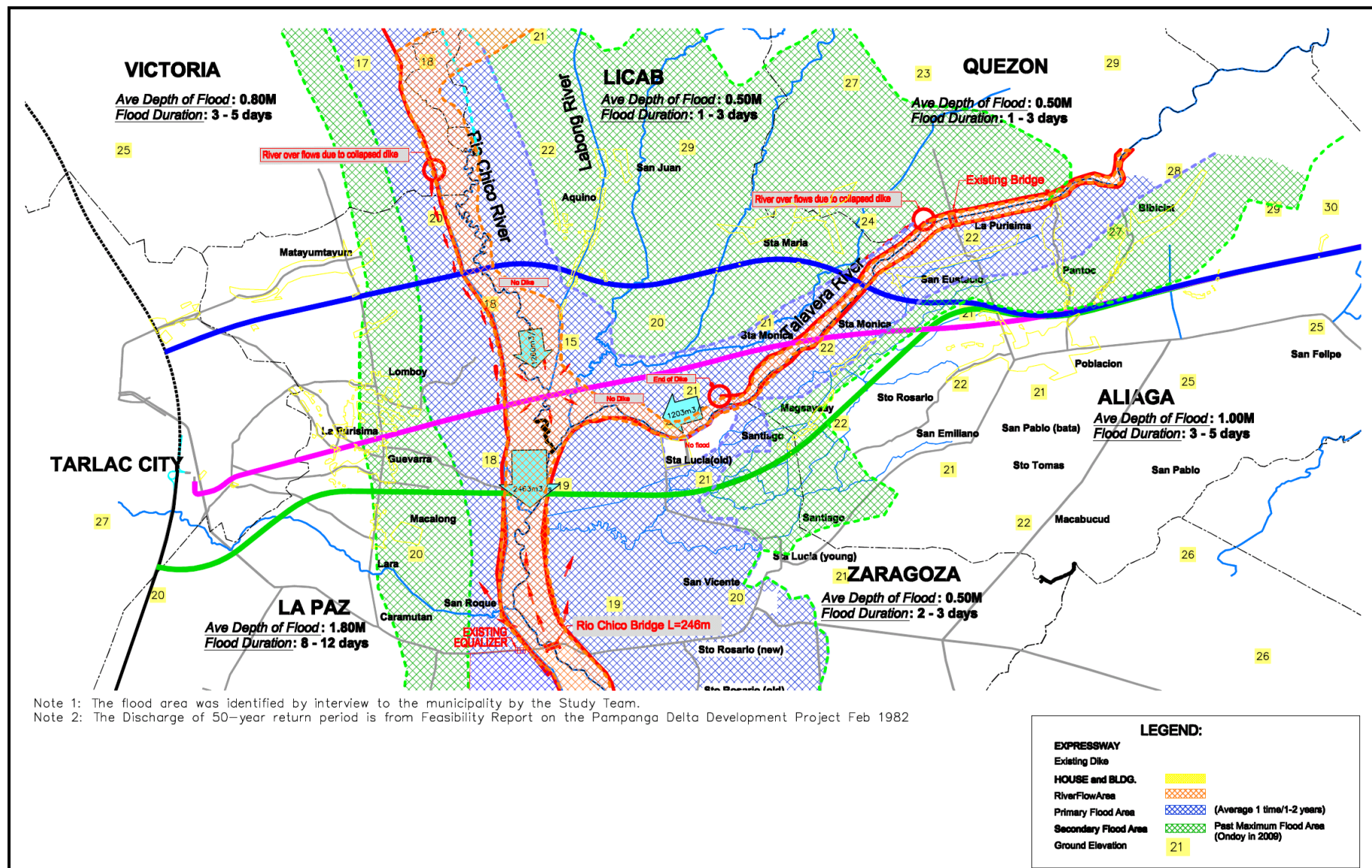


FIGURE 2-4 FLOOD CONDITION AT RIO-CHICO RIVER

### Rehabilitation Plan of Rio Chico River

JICA conducted a study on the nationwide flood risk assessment and the flood mitigation plan for the selected areas in the Republic of the Philippines in 2007. The JICA study team is proposing the rehabilitation of Rio Chico River as the 20th priority among all rivers in the Philippines.

### Design High Water Level of Rio Chico River Flood Prone Area

Historical flood level is shown in **Table 2.12** and comparison from analyzed value is shown in **Table 2.13**

Design flood level is determined as shown in **Table 2.14** by following reasons;

- a) The actual high water level at crossing point is calculated as 19.2m from past record which can be assumed corresponding to 50 years return period.
- b) Analyzed water level is 17.4m for 50 years discharge. It is -1.8m of record level.
- c) The existing equalizer elevation at Tarlac-Sta Rosa NH is approximately 17.8m verified by topographic survey.
- d) It is observed that flood water is blocked at equalizer and causing backflow to the upper stream. This explains recorded water level is higher than calculated level.
- e) For such reason the Design Water Level is set as **19.2m** for Bridge Design (50years) and **17.8m** for Embankment Design.

Presentation of Assumption of MFWL and HWL is presented in **Figure 2-5**

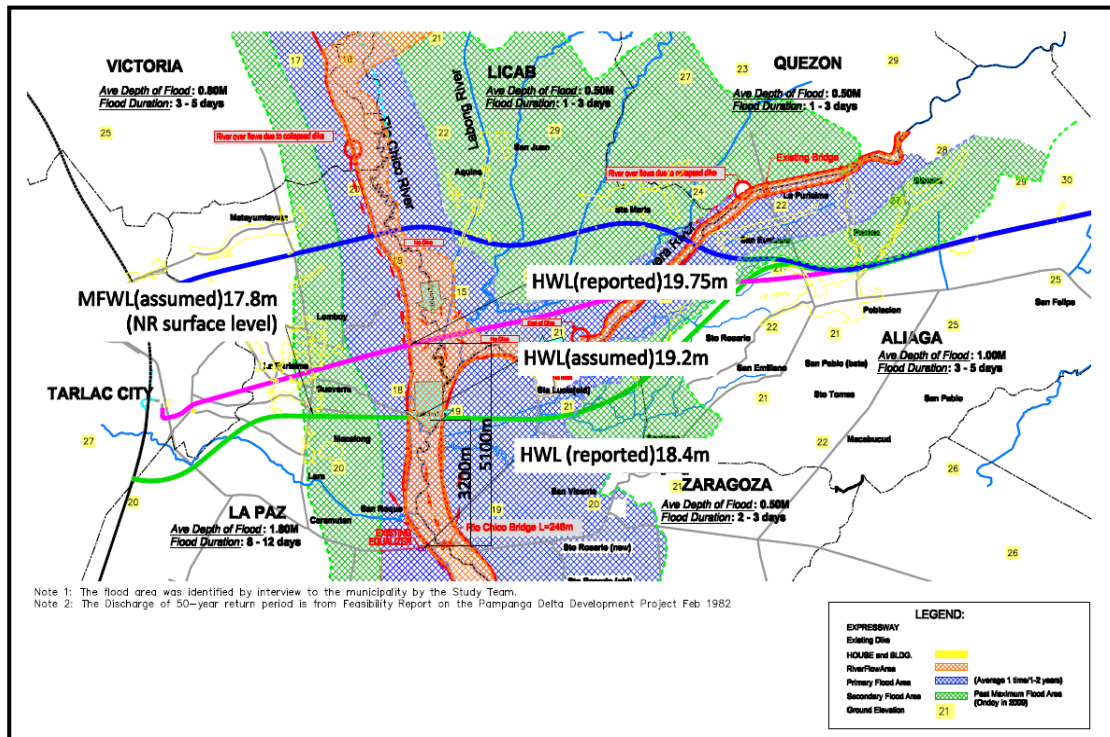
Table 2.12 Historical Flood Level			
Location	Water level	Remark	Source
1. Along C route (FS2010)	19.75m	Ondoy 2009, 5.1km from recommended alignment	FS2010 DPWH
2. Tarlac- Sta.Rosa NH	18.4m	Ondoy 2009, 3.2km from recommended alignment	FS2010 DPWH
3. Tarlac-Sta Rosa NH	17.8m	Average flood area	DPWH Tarlac
Tarlac –Sta Rosa NH	+1.0m from road surface at Equalizer	According to interview to LGU, Ondoy 2009	
Tarlac – Sta.Rosa NH		Surface elevation 17.5m – 18.0m	Topo survey conducted July 2011
Assumed water level at CLLEX crossing	<b>19.2m</b>	Calculated from 1 and 2	

Table 2.13 Comparison of Record and Analyzed Value	
	Water level
(1) Recorded water level (historical)	19.2m
(2) Calculated water level (50years)	17.4m

Table 2.14 Design Flood Level				
Design Water Level	Corresponding Return Period (assumed)	Value	Structure	Design Control
MFWL (Medium Flood Water Level)	10 years	17.8m*	Embankment	Minimum elevation = MFWL +0.6m(Freeboard) +0.8 (Pavement) =17.8+0.6+0.8=19.2m
HWL (High Water Level)	50 years	19.2m* *	Rio Chico Bridge	Minimum elevation = HWL+1.2m(Freeboard)+2.0m(Bridge girder and slab) = 19.2+1.2+2.0=22.4m

\* Assumed from flood at Tarlac – Sta.Rosa National Road

\*\* Assumed from past maximum flood level



**FIGURE 2-5 ASSUMPTION OF MFWL AND HWL**

### Vertical Control at Rio Chico River Bridge

Considering the flood condition, vertical control of Rio Chico River bridge is set as below; (**Figure 2-6**)

Minimum Vertical Clearance is 19.2m(HWL) + Freeboard 1.2m (corresponding to 2,500m<sup>3</sup>/s for 50 years return period).

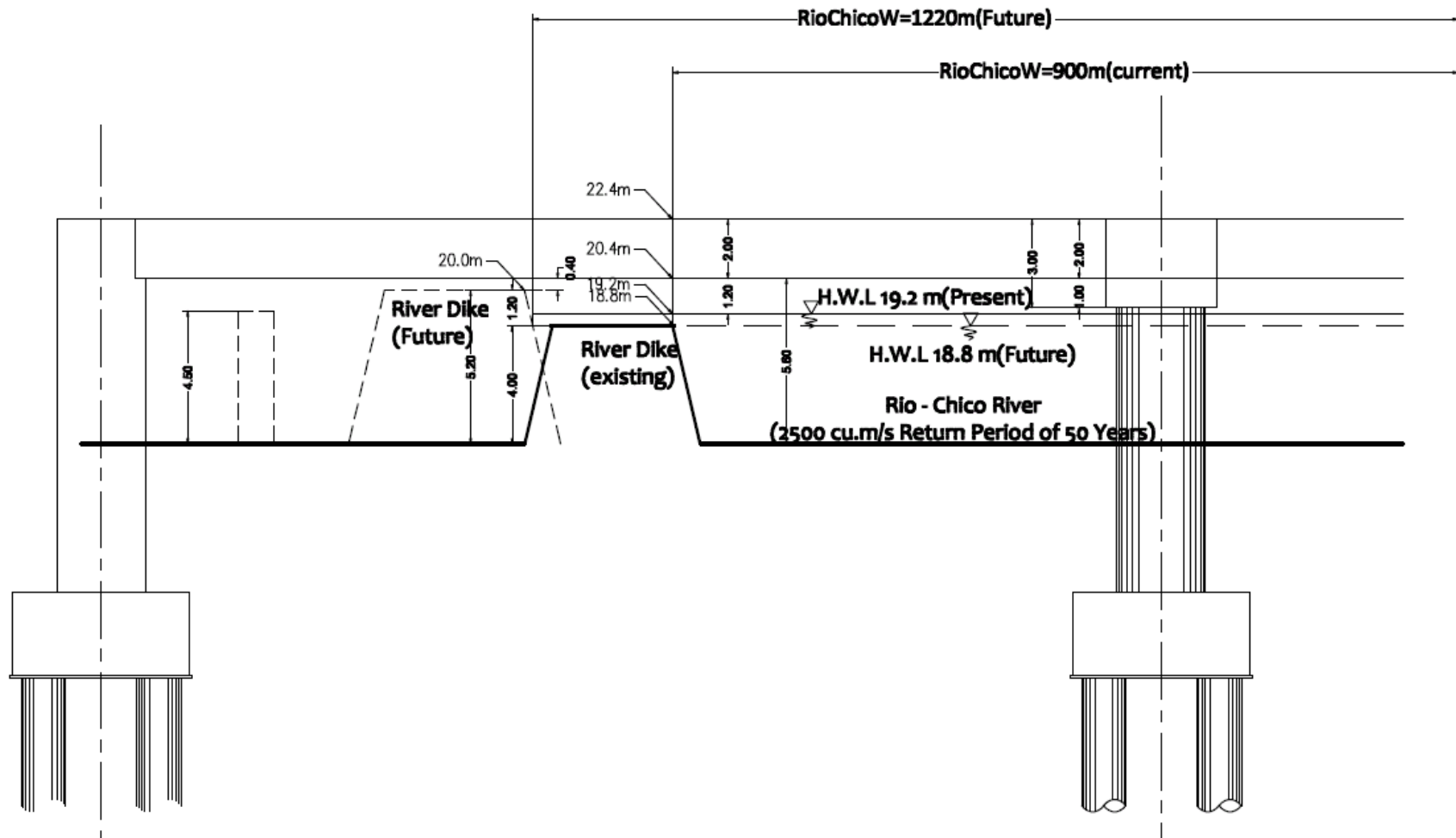


FIGURE 2-6 SCHEMATIC IMAGE OF VERTICAL CONTROL POINT OF RIO CHICO RIVER



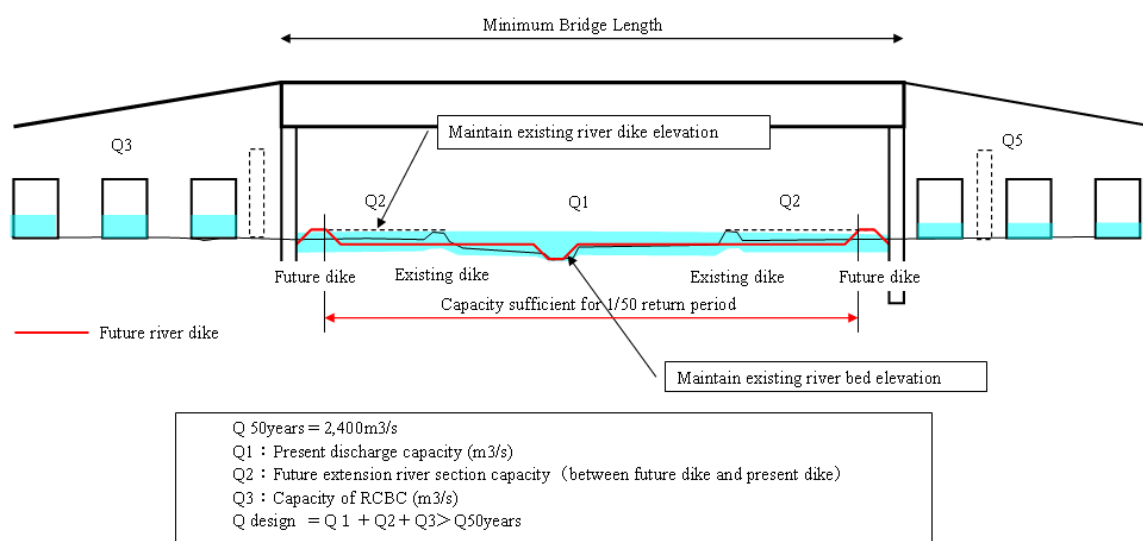
## Structural design in the flood prone area

### **1) Bridge and Equalizer**

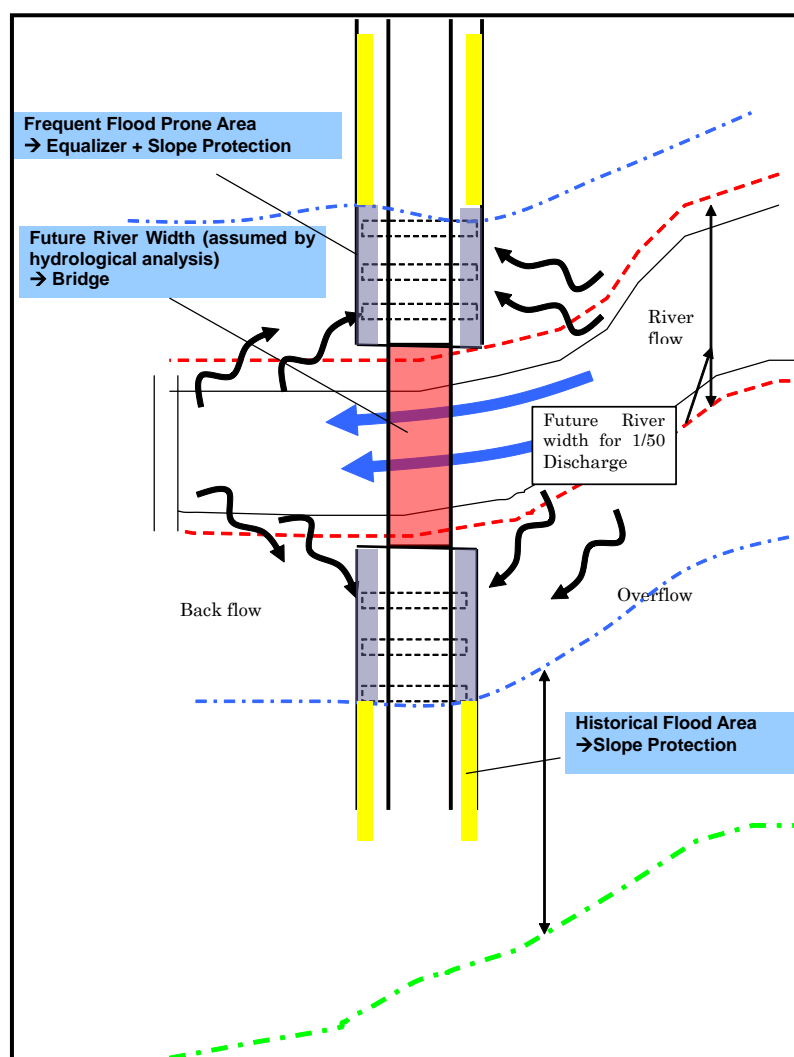
Technical approach of the structural design in flood prone area is shown as follows;

- 1) Existing Rio Chico River corridor and future river corridor (for 50 years return period) shall be crossed by bridge structure.
- 2) Equalizer shall be provided whole stretch of “frequent flood area”
- 3) Equalizer shall be series of box culvert (3.0mx3.0m) @100m
- 4) Slope protection by stone rip rap shall be provided under MFWL within frequent flood area

Please refer to **Figure 2-7** for Minimum Bridge Length and Discharge Capacity and **Figure 2-8** for Structural Design at flood Prone Area.



**FIGURE 2.7 MINIMUM BRIDGE LENGTH AND DISCHARGE CAPACITY**



**FIGURE 2-8 STRUCTURAL DESIGNATED FLOOD PRONE AREA**

2) *Minimum required bridge length of Rio Chico Bridge*

**Table 2.15** shows summary of hydrological calculation of Rio Chico River.

Table 2.15 Required Bridge Length of Rio Chico River							
Case	Check	Width	Discharge	Calculation Condition			Remark
		m	m3/s	Roughness coefficient	Capacity (m3/s)	Evaluation for 50 years	
Rio Chico River	Necessary Section	1222m	2472	0.1	2479	OK	

### ***Slope Protection***

The water flow speed can be 1.5m/s to 2.0m/s during flood time. Riprap Stone shall be provided for slope protection. **Figure 2-9** illustrate existing equalizer along national highway and flooded situation (June 27, 2011, Typhoon Falcon)



**FIGURE 2-9 FLOOD ON 27 JUNE, 2011 BY TYPHOON FALCON  
(RIO CHICO RIVER EQUALIZING ZONE)**



**FIGURE 2-10 EQUALIZER AT SAME PLACE ABOVE**



## 2.2.6 Interchange Design

### Technical Approach

Followings are basic technical approach to design interchange of CLLEX.

- 1) To provide number of toll booth lane in accordance with traffic demand forecast.
- 2) To provide weigh station and U turn space for overloaded vehicle
- 3) To provide necessary widening of the existing road at future intersection

### Interchange location and booth lane number

**Figure 2-11** illustrates IC location and booth lane number.

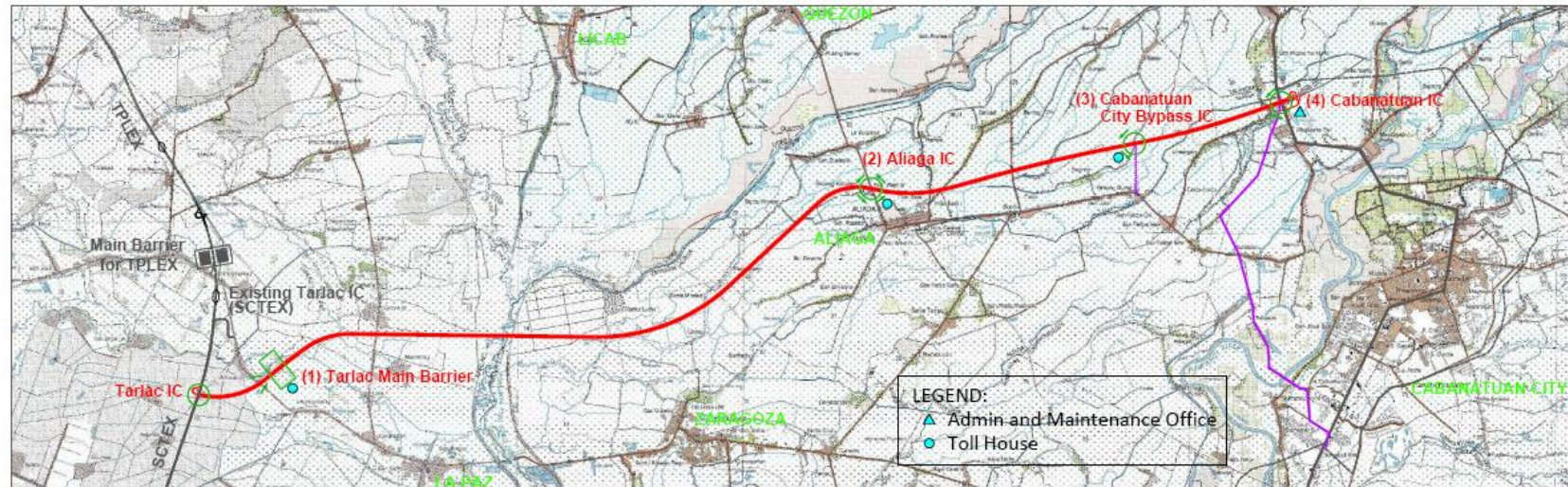
### Typical Toll booth layout

Basic layout and dimension of toll booth is referred to TPLEX which is still under construction.

### Interchange Ramp Layout

Interchange Ramp layouts are shown in **Figure 2-12** to **Figure 2-17**.

# LOCATION FOR TRAFFIC AND MAINTENANCE OFFICE



INTERCHANGE	DESCRIPTION	NO. OF TOLL BOOTH *	WEIGHT IN MOTION	ADMIN/MAINT. OFFICE	TOLL HOUSE
(1) Tarlac Main Barrier	From SCTEX : Pay SCTEX Toll And Get Ticket For CLLEX	3	-	-	1
	From Tarlac IC : Get Ticket For CLLEX	2	1		
	To SCTEX : Pay CLLEX Toll And Get Ticket For SCTEX	3	-		-
	To Tarlac IC : Pay CLLEX Toll	2	-		
(2) Aliaga IC	Entrance : Get Ticket	2	1	-	1
	Exit : Pay CLLEX Toll	2	-		
(3) Cabanatuan City Bypass IC	Entrance : Get Ticket	2	1	-	1
	Exit : Pay CLLEX Toll	2	-		
(4) Cabanatuan IC	Entrance : Get Ticket	2	1	1	-
	Exit : Pay CLLEX Toll	3	-		
TOTAL		23	4	1	3

Note: \* Number of Toll Booth is estimated by future traffic volume and service time (entrance - 6 sec/veh., exit 14 sec/veh.)

**FIGURE 2-11 LOCATION OF IC AND NUMBER OF FACILITIES**













FIGURE 2-14 ALIAGA INTERCHANGE









**FIGURE 2-16 CABANATUAN BYPASS INTERCHANGE (2/2)**





FIGURE 2-17 CABANATUAN INTERCHANGE



## **2.2.7 STRUCTURE DESIGN**

### Minimum Design Standards for Structure

#### **Structure Design Standard**

The Structure Design Standard shall be in accordance with the following codes and guidelines:

- AASHTO Standard Specifications for Highway Bridges 17th edition 2002,
- DESIGN Guidelines Criteria and Standard for Department of Public Works  
And Highways,
- Basic Specifications – DPWH Standard Specifications 2004, Highways,  
Bridges and Airports
- Alternatively, Japanese Standards also will be adopted as the structure design standards.

#### **Loading Specifications**

Structure shall be designed to carry the following loads and forces:

- 1) Dead Load
- 2) Live Load

Live Load shall be MS18 (HS-20-44)

- 3) Impact Load

$$I = 15.24/(L+38)$$

4) Sidewalk Live Load

4.07 KPa of sidewalk area

5) Earthquake Load

A = 0.4g, Seismic Performance Category = D

6) Earth Pressure

Coulomb's Formula

7) Wind Load

For the Superstructure design, 2,394Pa of wind load shall be applied horizontally at right angle to the longitudinal axis of girders and beams.

8) Thermal Forces

The range of temperature shall be as follows:

17.8 °C to 48.9 °C

16.7 °C temperature rise

22.2 °C temperature fall

### **Seismic Design**

Seismic Design shall be in accordance with AASHTO Standard Specifications Division I-A. Acceleration coefficient of 0.50g shall be adopted to consider importance classification and past/recent experience in the Philippines.

### **Materials**

All materials to be used in the project shall conform to DPWH Standard Specifications (2004), and AASHTO Code.

## Concrete

DESCRIPTION	<u>fc' (Min.)</u> MPa	MAXIMUM SIZE OF CONCRETE AGGREGATES (mm)	MINIMUM CONCRETE COVER (mm)
a. Superstructure			
- Deck slabs, Diaphragms	28	20	Deck slab with BWS Top: 50 Bottom: 50 Others: 35
- Sidewalk, railings, parapets, medians	21	20	
- PSC I-Girders	38	20	PSC I-Girders: 35
b. Substructure			
- PC Pier copings, columns, footings	28	20	Pier Copings, RC & PSC: 50
- PSC Pier copings, rotating pier head	38	20	PSC Hammerheads: 40 RC columns: 50
- RC Abutment walls, footings	28	20	Footing and Bored Piles: 75
- Bored piles	28	20	Abutment Walls: 50
c. Earth covered RC Box structures	28	20	Earth covered Box structures: 50
d. Other concrete (normal use)	21	20	
e. Lean concrete (for leveling)	17	25	
f. Non shrink grout	41	40	

### Reinforcement Steel

All pre-stressing steel shall be high strength stress relieved wires or strands with an ultimate stress,  $f_s' = 1860$  MPa

Pre-stressing steel shall be free from kinks, notches and other imperfections that will tend to weaken its strength or its bonding properties with concrete

### Pre-stressing

All pre-stressing steel shall be high strength stress relieved wires or strands with an ultimate stress,  $f_s' = 1860$  MPa.

Pre-stressing steel shall be free from kinks, notches and other imperfections that will tend to weaken its strength or its bonding properties with concrete.

### Structural Steel

All structural steel shall conform to the requirements of AASHTO or ASTM Designations as follows:

- i. Structural Steel Shapes - AASHTO M 270 (ASTM A 36) Gr 36 and (ASTM A572) Gr 50.
- ii. Steel Sheet Pile - AASHTO M 202 (ASTM A 328)
- iii. Bridge Bearing - AASHTO M 270 (ASTM A 36) AASHTO M 106 (ASTM B 100) AASHTO M 103 (ASTM A 27) (Copper Alloy Bearing Expansion Plates Grade 70 – 36 of Steel and Sheets)
- iv. Deck Drain - AASHTO M 105 (ASTM A 46) Class No. 30 (Gray Iron Casting)
- v. Bridge Railing - Sch. 40 Galvanized Steel Pipe

### Elastomeric Bearing Pads

Elastomeric bearing pads shall be 100% virgin chlorophene (neoprene) pads with durometer hardness 60. Unless otherwise specified in the plans, bearing pads shall be laminated type bearing pads consisting of layer of elastomer, restrained at their interfaces by bonded laminations are required on the plans, laminated plate shall be non-corrosive mild steel sheet.

#### Joint Filler

Joint filler, hot poured elastic type, used for expansion joint shall conform to AASHTO M 213.

#### Bituminous Wearing Course

Bituminous wearing course to be used as surface overlay shall conform to the requirements of DPWH Standard Item 307 with minimum dry compressive strength of 1.4 MPa (200 pal). The wearing course may be used to adjust elevations on the vertical grade by varying the thickness from 50mm (min.) to 75mm (max).

### **2.2.8 PAVEMENT DESIGN**

#### General

This section describes pavement design for the project expressway. The pavement design are based on the following;

- 1) The results and findings of the subgrade characteristics over which the road is to built;
- 2) The traffic load anticipated to traverse the proposed road alignments over the selected design life; and
- 3) The type of pavement to adopted based on the technical and economical advantages.

#### Pavement Design Standards

The pavement design are in accordance with the "Guide for Design of Pavement Structures, 1993" by the American Association of State Highway and Transportation Officials and in reference also to "Design Guidelines, Criteria and Standards for Public Works and Highways" by the Department of Public Works and Highway.

#### Technical Approach

The design parameters used in the pavement design includes time constrains, traffic, design serviceability loss, reliability, subgrade strength and material properties for pavement structure design.

Followings are major design conditions;

- 1) Design period- 20 years

It is assumed that the design life of pavement consummates the 20-year design period before rehabilitation is performed.

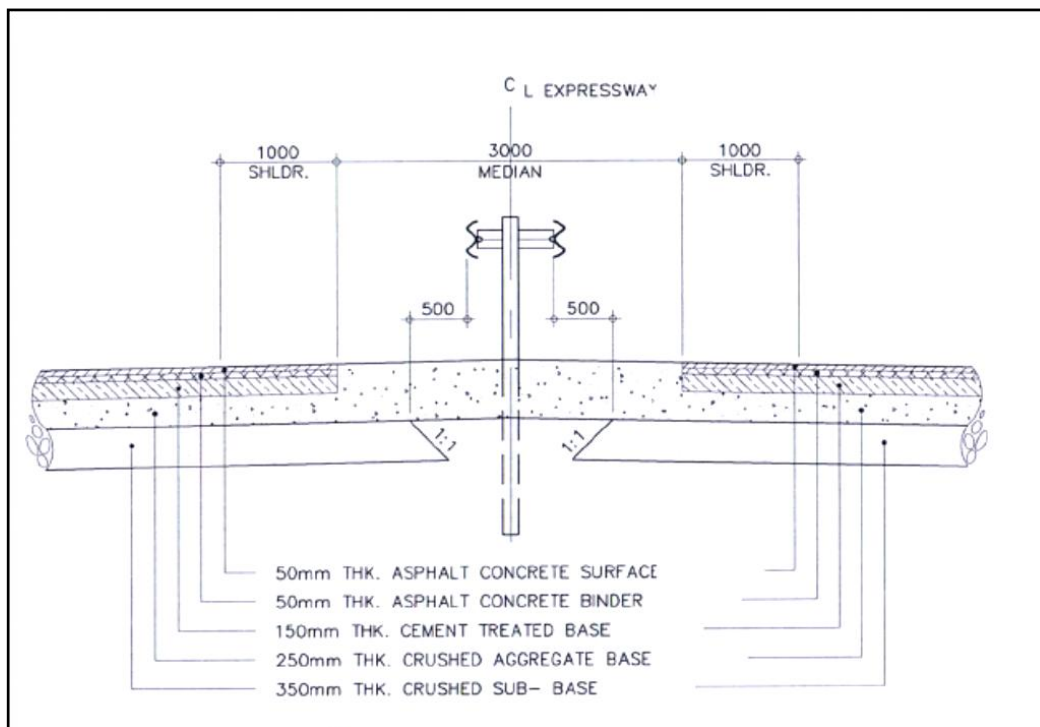
- 2) Traffic - The structural design of the pavement is based on fatigue loads. Fatigue loading is taken as the cumulative number of passes of an Equivalent Standard Axle Load (ESAL) of 8,300kgs (18kips) per axle, to which the pavement structure will be subjected throughout its design life.

## 2.2.9 RECOMMENDED PAVEMENT STRUCTURES

### Pavement Structure for Main Expressway

1. Main Carriage Way - The recommended pavement structures for both directions of the expressway main carriageway is as below;

No.	Thickness	Pavement Structure
1	50 mm	Asphalt Concrete Surface Course
2	50 mm	Asphalt Concrete Binder Course
3	150 mm	Cement Treated Base Course
4	250 mm	Crushed Aggregate Base Course
5	350 mm	Crushed Sub-Base Course

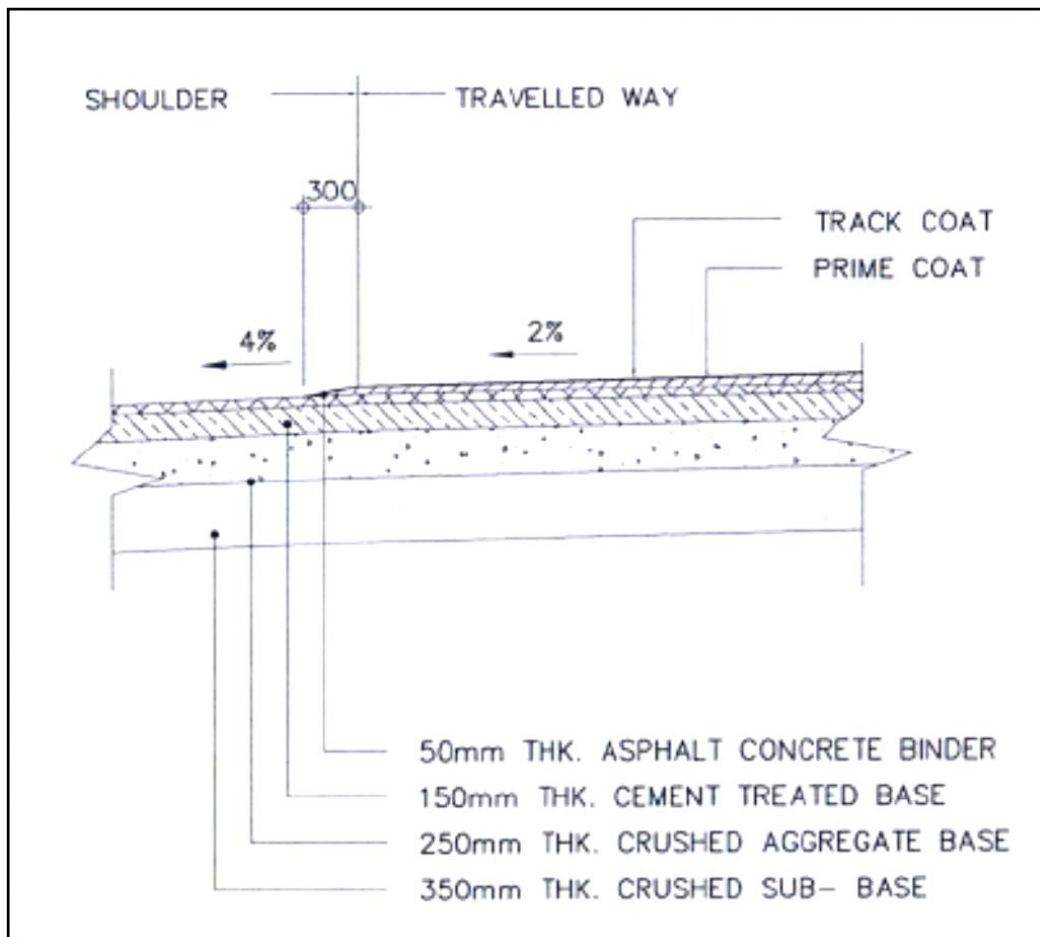


**FIGURE 2-18 PAVEMENT STRUCTURE OF MAIN CARRIAGEWAY**

### Shoulder of Main Expressway

The pavement structure for shoulder followed the designed for the main carriageway. However, the surface course is not applied because shoulders is not subjected to carry full traffic on the expressway but only to accommodate vehicle emergency parking and temporary use of maintenance activities.

No.	Thickness	Pavement Structure
1	50mm	Asphalt Concrete Binder Course
2	150mm	Cement Treated Base Course
3	250mm	Crushed Aggregate Base Course
4	350mm	Crushed Sub-Base Course



**FIGURE 2-19 PAVEMENT STRUCTURE OF SHOULDER**

## **2.2.10 TOLL PLAZA DESIGN**

### Toll Plaza Configurations

During the past 50 years, several basic toll plaza configurations have evolved. The configurations are largely determined not by traffic demand, but by the type of toll system, methods of toll collection, the toll rate schedule, and the physical and environmental constraints of the site.

### Toll Plaza Categories

In general, toll plazas fall into two categories: mainline and ramp. Both can be designed to handle one-way or two-way toll collection. The mainline plaza is a toll lane or series of toll lanes running perpendicular to the traveled roadway. The main line plaza is primarily used at bridge and tunnel facilities, where as ramp plazas are used on ramps. The selection of toll plaza configurations depends on the toll system that is adopted.

### Basic Toll Plaza Elements

Whether designing a toll facility with a single toll booth serving both directions of travel, or a multilane mainline plaza, certain basic elements are common to many conventional toll plazas:

- A toll collection point (typically with a booth or automatic coin/ ticket machine in each lane), Toll islands, and
- A canopy or protective overhang.

### Methods of Toll Collection

Until the late 1980s, there were primarily two methods of toll collection-manual and automatic. The method a patron chooses depends on his or her familiarity with the toll facility, frequency of use, and availability of exact change.

### Manual Collection

Manual Collection requires a toll collectors or attendant. Based on vehicle classification as defined by the facility's toll schedule, and usually classified by the collector, a cash toll is received by the collectors. The collector, who also makes change, may accept and sell scrip, tickets, coupons, or tokens issued by the agency or allow the customer to change the toll using an agency-issued magnetic strip credit card (mag card).



### Automatic Toll Collection

Automatic toll collection is based on the use of automatic coin machines (ACMs), which were introduced to the toll industry in the 1960s. ACMs can accept both coins and tokens issued by the operating agency. The coins and tokens are discretely counted by their weight and size (diameter and thickness) and, in some ACMs, by metallic composition.

### Electronic Toll Collection

Electronic toll collection (ETC), originally referred to as automatic vehicle identification (AVI), entered the toll arena around 1986. ETC is a system that automatically identified a vehicle equipped with a valid encoded data tag or transponder as it moves through a toll lane. The ETC system then post a debit or charge to a patron's account, without the patron having to stop to pay the toll.

The use of ETC focuses on expediting toll payment, thereby decreasing congestion and delays at toll plazas and reducing agency toll collection costs.

### Toll Rates and Schedule

Toll rates posted in a toll schedule are based on many considerations, including the potential for traffic diverting to free roadways in the travel corridor, cost of the project, type of patrons, operation and maintenance costs, reserve requirements, and debt service coverage on bond principal and interest. The toll rates and schedule, in turn, dictate the methods of collection and, when compared with various peak traffic demands, determine the number of toll lanes to be provided.

### Plaza Location

The location of a toll plaza is determined by the type of toll system. In a closed ticket system, plazas are located at each point of entry and exit. In a closed cash system, plazas are located at ramp entry and exit points and along the mainline. In an open system, mainline and ramp

plazas are strategically located primarily to intercept through traffic and are placed where a majority of this traffic is least likely to divert to alternative free routes.

The plaza should be accessible to and from the toll facility's mainline plaza or from a local road adjacent to the mainline or ramp plaza. This will facilitates access by personnel and reduce their round-trip travel. Moreover, it is preferable to locate a plaza where it has easy access to public utility connections to provide

improved system integrity and to facilitate construction. The plaza should be located away from residential areas and oilier sensitive air and noise receptors and where lighting spillover may be adversely received. The majority of facilities are located on a tangent segment of roadway or on a gentle curve with adequate sight distance for the roadway design speed.

The selection of a site involves a number of design decisions and revenue considerations. These include the following:

- Available right-of-way –
- Topography -
- Environment concerns and impacts -
- Feasibility of potential abatements measures -
- Number of toll lanes and methods of toll collection -
- Space for potential reversible lane operation and roadway transitions –
- Support facilities such as a plaza administration or utility building and parking for employees.

#### Road Markings and Signs and Safety

Besides the warning signs along the expressway, both the rest areas and the service areas should be equipped with road markings and signs for the following purposes;

- a) to limit speeds to 40 km/hr;
- b) to give advance warning of junctions;
- c) to prevent stopping outside the zones specifically designated for parking;
- d) to advertise the various services offered by the service area

#### Water Supply and Sanitary Systems

The service area should be provided with a water system both for drinking and for industrial purposes (washing, irrigation, WC), preferably connected with the public networks. A water system should also be provided for rest areas.

The rest areas and service areas should be equipped with drainage for the disposal of rain and waste water, connected with the expressway drainage system; where it is impossible to arrange a connection with the public sewerage network, the foul water will have to be treated.

### Landscaping

Landscaping assumes particular importance in the rest areas and service areas; the foliage contributes to a target extent to provision of a relaxed atmosphere.

The foliage should necessarily be characteristic of the local terrain, though presenting as wide a variety as possible. Refreshment and assistance facilities, fuel stations and parking lots should be separated by green zones. The parking lots, in particular, should be arranged in such a way as to be shaded by trees or high shrubbery. The whole zone separating the area from the expressway carriageway should be planted with foliage, preferably with plants which require little maintenance but of a consistency such as to constitute a protection against vehicles possibly running off the road and to prevent pedestrians from attempting to cross the carriageway.

## **2.2.11 BUILDINGS AND EQUIPMENT OF THE SERVICE AREAS**

### Service Station

A service station should include, at the minimum, the following premises and installations:

- a) office for the personnel with an attached telephone booth where users can make local and long-distance calls;
- b) storeroom for stocks of lubricants, tires and most commonly used spare parts;
- c) premises for service personnel with attached dressing room, shower and sanitary facilities;
- d) premises for sanitary facilities destined for the users, separate for men and for women, and equipped with at least the following:
  - no. 3 toilet closets for women, with anteroom equipped wash basins; -
  - no. 3 toilet closets for men and no. 5 urinals, with anteroom equipped with wash basins;
  - no. 1 toilet closet for handicapped persons, with access to the outside withoutsteps, of dimensions greater than average and with a door sufficiently wide to permit the entry of wheelchairs.
- e) premises for small mechanical and electrical repairs and changing tires,

whenever the area is not provided with a workshop;

f) the following fuel distribution installations:

- -pumps for normal gasoline
- -pumps for super gasoline
- -pumps for diesel fuel
- -pumps for mixtures
- -pumps for LPG (possible)
- -taps for compressed air
- -pumps for water

g) possible premises for the sale of tobacco, newspapers, auto parts and accessories.

#### Workshop

The building used for the shop should include:

- a) two large rooms for mechanical repairs, of which one is equipped with a lift;
- b) sanitary facilities for the personnel, with shower and dressing room;
- c) spare parts storeroom.

The shop should be equipped with sufficient equipment to perform mechanical and electrical repairs of medium difficulty, i.e. repairs which would require less than 6 hours down time for the vehicle.

#### Coffee Shop

Depending upon the location of the rest areas and the service areas, and the presence or not of restaurants in the latter, the coffee shop facilities may be provided in general according to the following criteria:

- a) self-service facility, consisting of a series of automatic distributions of hot and cold beverages, sandwiches, cigarettes, etc., located in suitable premises which permit the customer to stand while he eats;
- b) coffee shop, consisting of a suitable premise equipped with service counter, equipment for the preparation of foods (dishes, grill, etc.) and of

hot and cold beverages, a refrigerator, stools and/or small tables for the use of the customers, and a public telephone.

A separate room in the rear can be provided for the preparation of the foods, a pantry of suitable size and restrooms for the users. Besides hot and cold snacks, these coffee shops could also serve pre-packaged hot and cold meals which do not require special handling and preparation, i.e. a completely equipped kitchen.

#### Restaurant

Restaurant service can be provided either at tables or at the counter, and in either case can be performed by service personnel or take the form of self-service.

The two types of service can be employed alternatively or at the same time, or be programmed in successive stages.

The restaurant should be equipped with an air conditioning system; other facilities and services can also be located on the premises, such as shops, displays of typical local products, tourist information centers, etc.

#### Stalls

Open – air eating and drinking facilities on the expressway service area present very definite advantages. The presence of a coffee shop or a restaurant in the service area may influence the size of the stall area but sufficient land to cope with forecast growth in demand both in short term (e.g. holiday week-ends) and long term should be considered.

The stall area should be covered and provided with water system and drainage for the disposal of rain and waste water.

#### Sanitary Facilities

It is advisable that the sanitary facilities be constructed, for specific uses, according to varying criteria depending on their location within the area.

In all cases it will be advisable to provide for non-removable sanitary fixtures with embedded controls, easily cleaned, with larger than normal outlets and easily inspect able, automatic time control taps, with floors designed for easy washing with jets of water or steam, with discharge direct into the sewerage network.

When these are located within the buildings (service station, restaurant, coffee shop), they may be equipped with mirrors, electric hand driers, soap dispensers, electrical outlets, paper dispensers, a cabinet for cleaning and maintenance materials, and a small room for the maintenance staff.

In those service areas specially equipped for servicing heavy vehicles, the sanitary facilities should be located in premises near the parking areas, and have more practical features, i.e. sinks of larger dimensions, showers, dressing rooms, etc.

In the rest areas, where the sanitary facilities will almost always be unsupervised, it will be necessary to adopt equipment of very simple construction and designed in such a way as not to be subject to vandalism; even greater care should be taken in the construction of the outlets, so as to eliminate as far as possible any danger of clogging.

## **2.2.12 CONSTRUCTION METHOD**

### General

Central Luzon Link Expressway (CLLEX) in Phase 1 is connected between the current terminal exit of SCTEX and Cabanatuan City. In general, CLLEX will be running in flat paddy field and over rivers, irrigation canals and national / provincial / market roads along the routes.

Major items and quantities in Phase 1 are as follows

Items		Phase 1
1	Expressway length	28.2 km
2	Embankment volume	3,600,000 m <sup>3</sup>
3	Bridge / viaduct no & length	10 no.
4	Overpass bridge no	4 no.
5	Major box culvert	7 no.
6	Interchange	2 no.
7	Service area	2 no.

### Highway

The project in Phase 1 runs in paddy field and have whole stretch in the expressway is in fill except bridges and viaduct structures. In this sense, embankment works are most important and key activity in the project.

Prior to fill, clearing and removal of unsuitable material shall be carried out and material from borrow sources shall be tested in order to have basic parameter for quality control.

Embankment shall be placed in horizontal layers not exceeding thickness specified in the specification and shall be compacted as specified before the next layer is placed.

Compaction shall be carried out until a uniform density of not less than 95 mass percent of the maximum dry density determined by AASHTO T191, T205 or other approved field test. During embankment works, site shall be kept free from stagnant water at all the time.

Slope shall be formed as specified and shall be protected with rip-rap near rivers and canals and/or in the swampy area (in Sta. 6 to Sta. 9 of Phase 1). In other area, slope shall be protected with hydro-seeding.

In swampy area in Phase 1, after removal of unsuitable material geo-textile shall be laid to separate original ground and fill material. Embankment shall be carried out in the same manner as specified. Great care shall be taken for de-watering.

Paving works shall start to search material (sub-base & base course, surface course, prime & tack coat etc) supply, which meets requirements in the specification. Construction of each layer shall be carried out with proper arrangement of machineries and work forces and in accordance with the requirements in the specification. Test sample shall be taken as specified to confirm the required quality.

#### Bridges

Bridges are designed either over river, canal, road or those combinations, and therefore those (river, canal or road) shall be diverted and/or temporary decking shall be installed, before commencement of construction.

#### Piling works

If required, preliminary test pile shall be constructed to confirm pile capacity prior to working pile constructions. Then working piles shall be commenced in the following procedures.

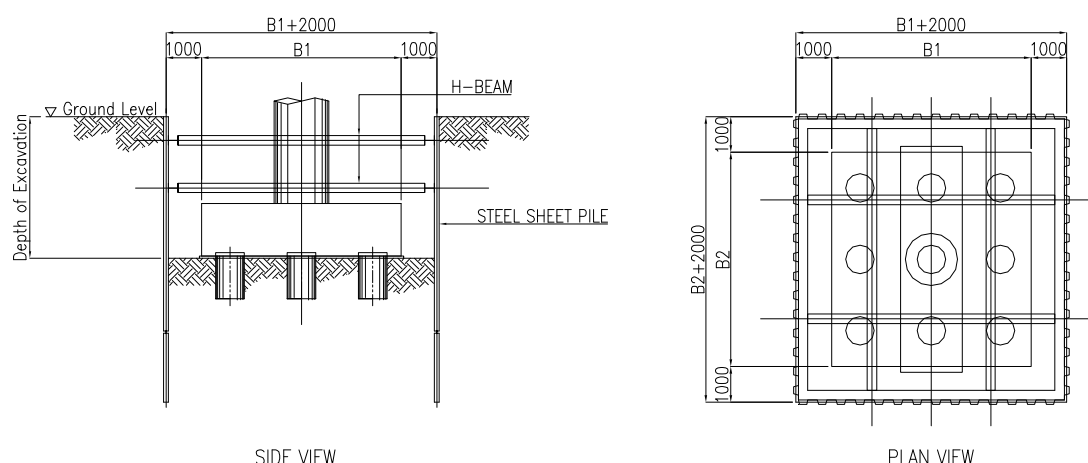
- a) Survey setting out

- b) Pre-boring and installation of temporary casing
- c) Boring with slurry (checking specific weight of slurry)
- d) Placing steel cage in bored hole
- e) Concrete pouring through tremie pipe
- f) Extracting temporary casing

The piles selected from working piles shall be tested to confirm the quality with either static load test or test by low-strain dynamic method, high-strain dynamic method or cross-hole sonic logging or combination of those tests.

#### Sub structure

Because all sub structures are near rivers, canals or existing road, temporary shoring shall be installed before excavation. Temporary shoring in general shall be watertight and well braced to sustain earth pressure during excavation. Typical shoring sketch (plan and section) is shown below.



When excavation complete, pile heads shall be treated as specified without damage to the piles and then lean concrete shall be placed. Following the lean concrete, reinforcing bars shall be arranged and forms be installed. Prior to placing concrete of footing, inspection shall be carried out and then concreting be done as per requirements in the Specification.

Walls, columns and column heads shall be continued with treatment of construction joint and firm scaffolding and supports shall be provided. All the while, concrete shall be cured with appropriate method in a period specified.



After properly backfilled, temporary shoring shall be removed carefully without damaging concrete structures.

#### Super Structure

RCDG type shall be cast in-situ in general. Temporary support shall be firmly erected to carry dead and live loads from concrete casting. Formwork, reinforcement bar erection and concrete casting shall be carried out in the same manner stated in sub structure. Curing shall also be in the same and removal of temporary support shall be subject to concrete strength and period as specified.

RCDG type may be such that girders is cast in precast yard, delivered to site and erected in position (on substructure). Then deck slab is cast in-situ with proper temporary support.

PCDG type shall be such that girders with tensioning is to be produced in casting yard, delivered to site, erected and then slab is to cast in-situ. Girders shall be produced in casting yard and quality control for casting, tensioning and grouting shall be done properly. Delivery and erection of girders shall be planned and carried out as per requirements spelled out in the specification. For casting slab, the manner shall be the same in RCDG type.

In both types, bearings, expansion joints and rails shall be met in the material specification and properly set and installed as specified.

#### Culvert

Structural excavation shall be carried out with proper slope and final trimming at bearing level shall be done with special care so as not to disturb bearing layer. Dewatering shall be done all the time to keep excavation area free from water.

Backfilling shall be carried out as specified and filling shall be balanced at both sides of structure to avoid unnecessary unilateral earth pressure

#### Toll plaza and related buildings

Toll plaza includes approach and departure zones, que area/toll island/recovery zone, toll booth and other facilities as well as operation buildings and toll systems. These shall be procured, constructed and installed as specified in the specification.

#### Lighting facility

Lighting facilities mean selection of facilities, procurement and installations. The facilities shall meet with the requirements specified and the installation of facilities shall follow standard manual of the facilities selected.

#### Road sign & pavement marking

Road signs shall be furnished and installed as specified and in accordance with the quality in the specification.

Pavement markings shall be carried out using approved materials as required in the specification.

---

## **Chapter 3**

### **Baseline Environmental Condition**

---

## 3 BASELINE ENVIRONMENTAL CONDITION

---

### 3.1 LAND

#### 3.1.1 Topography

##### Tarlac

Tarlac province's topography diverges from level to very steep, with elevations ranging from 70 above mean sea level up to 1,670 meters above mean sea level (amsl). Higher elevations can be observed at the western portion of the province where watersheds are located, slowly decreasing as it moves towards the eastern border. Dome peak has the highest elevation at 1,670 meters and is situated near the border of Zambales. Tarlac City measures an average of 72.5 meters above mean sea level.

Very steep slopes with terrain over 30 percent occupy roughly 31,176 hectares or 10.21 percent of the province' total land area. These can be located at the western most side of the province. Towards the east, the slopes slowly changes to moderately steep to rolling terrain. (18-30 percent) covering an area of 41, 364 hectares or 13,555. The province's watershed namely: the Balog-Balog, O'Donnell, and the Tangbao sub-watershed can be found here. These watersheds are also tourism potentials of the province.

To the town centers of Bamban, Capas, San Jose and Mayantoc of the western municipalities the terrain transforms from rolling to moderately sloping. A flat terrain formation may be observed on the direction towards the Servants of the Risen Christ Monastery from Tarlac City. Common features may be observed in the municipalities of San Clemente, Camiling, Sta. Ignacia and Mayantoc at the northeastern area of the province. Land under this area occupies an area of 33,108 hectares or 10.84percent.

In Tarlac City and towards the eastern municipalities of San Manuel, Moncada, Anao, Paniqui, Ramos, Gerona, Pura, Victoria, La Paz and Concepcion, the terrain changes from gently sloping to level. Majority of the land for agriculture and livestock raising may be found here. This category occupies 199,697 hectares or 65.4 percent of the province's total land area.

<b>Table 3.1 Land Distribution by Slope Category, Tarlac Province</b>			
<b>Slope Category</b>	<b>Description</b>	<b>Area (has)</b>	<b>Percent of Total</b>
0 – 3percent	Level to gently sloping	179,897.00	58.92
3 – 8percent	Gently sloping to undulating	19,800.00	6.48
8 - 18percent	Moderately sloping to rolling	33,108.00	10.84
18 - 30percent	Rolling to moderately steep	41,364.00	13.55
30 - 50percent	Steep hills and mountains	23,953.00	7.84
Over 50percent	Very steep hills and mountains	7,223.00	2.37
<b>Total</b>		<b>305,345.00</b>	<b>100.00</b>

*(Source: 1998-2008 Provincial Physical Framework Plan of Tarlac)*

### Nueva Ecija

The topography of Nueva Ecija is comprised of low lying alluvial plains and rolling uplands. The alluvial plains can be located in the central, western, and southwestern areas bordered by the provinces of Tarlac, Pampanga and Bulacan. The rolling uplands are in the eastern, northern, and southeastern parts of the province. It is bordered by a part of rugged and complex topography of Caraballo Mountains in the north which tend to divide the boundary between the province and Nueva Viscaya and the Sierra Madre Mountain range in the east. Small non-active volcanic cones can also be found near the boundaries of Pangasinan and Nueva Viscaya.

The tallest peaks of mountains can be found in the eastern side of the province. The north - south trending Sierra Madre range in the borders between Nueva Ecija and Quezon/Aurora provinces comprises of scattered peaks with highest elevation of about 1,724 meters above sea level.

The lowest area in the province can be located at the southwestern part bordering the province of Pampanga. The area is a part of the vast Candaba Swamp and has an elevation of approximately 12 meters above sea level.

The province is intersected by the Philippines Fault Line intersecting from the north and exiting southeasterly towards Quezon province. It can be identified by the abrupt steep slopes that traverses the fault line brought about by the fault movement. (Source: Provincial Framework Plan of Nueva Ecija, year 2010)

## Regional Geomorphology and Stratigraphy

The main geomorphological feature in the region between the Gulf of Lingayen and Manila, where the provinces of Tarlac and Nueva Ecija are included, is called the Central Plains.

The Central plains is the main geomorphological feature between the gulf of Lingayen and Manila and this is where Nueva Ecija and Tarlac can be found. The central plains' lithology is mostly composed of alluvium deposits formed by the Agno River. Agno River shows a braided channel pattern which then transforms into a southwest directed bend as it passes the Central Luzon Plain. The most dominant lithology in the Project area, as shown **Figure 3-1**, are the Late Oligocene to Pleistocene and quaternary alluvium deposited by the Agno River. The following are the main stratigraphic units in the region.

- Caraballo Formation
- Pantabangan Formation
- Guadalupe Formation

As per the maps shown below, majority of the lands upon which CLLEX Phase 1 will traverse lands classified as 'quaternary alluvium deposit. Please refer to **Figure 3-2**



Fig. No. 3-1

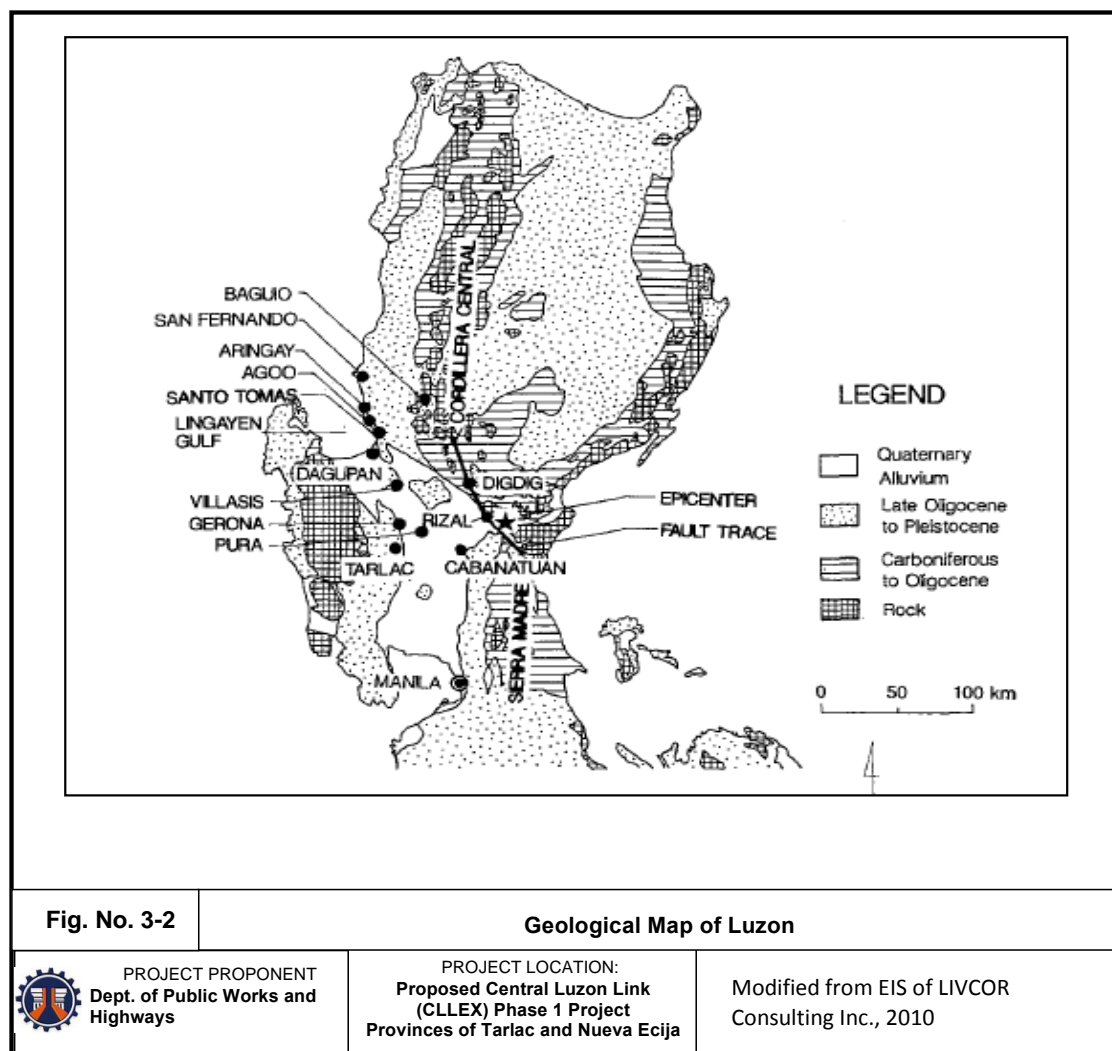
Topographic Map of Luzon



PROJECT PROPONENT  
Dept. of Public Works and  
Highways

PROJECT LOCATION:  
Proposed Central Luzon Link  
(CLLEX) Phase 1 Project  
Provinces of Tarlac and Nueva Ecija

Modified from EIS of LIVCOR  
Consulting Inc., 2010



### **Caraballo Formation**

The Caraballo Formation is located in the northeastern part of San Jose City, Nueva Ecija. It is the most extensively exposed rocks in the Northern Sierra Madre, previously designated by MMAJ-JICA (1977) as Caraballo Group, and subdivided into Formations I, II and III (Ringerbach, 1992). This formation is composed of a proximal and distal volcano-sedimentary facies. It is dated in the Late Cretaceous to Late Eocene and is widely distributed in the Caraballo Mountains.

The distal facies of the Caraballo Formation are well-exposed along the eastern side of the Northern Sierra Madre range, in Divilacan Bay, west and south of Dinapigue, south and east of San Ildefonso Peninsula and north of Dingalan. These facies consists of well bedded red and green mudstones, siltstones, sandstones, and pyroclastic rocks, with occasional fragmental flows and conglomerates. On the western side of the northern



Sierra Madre, from San Jose to Digdig, Nueva Ecija, red and green siltstones and mudstones are overlain by gray to black tuffs and conglomerates which coarsen upwards and become intercalated with pillow basalts. (GMRP vol. 1 Geology, 2004; San Jose City Bypass Project EIS, 2002)

#### Pantabangan Formation

The Pantabangan Formation is facing the highlands located east of San Jose City, Nueva Ecija. This formation is a series of sandstone, mudstone and polymictic conglomerates forming the gently rolling hills in the area of Pantabangan Basin. A uniqueness separates this formation from the underlying Palali and Santa Fe formations.

An increase in the amount of conglomerates towards the south and east suggests a origin from this direction. The formation is believed to be partly equivalent to the Plio-Pleistocene Ilagan Formation of the Cagayan Valley Basin. Ringenbach (1992) has obtained a dating of 1.3 Ma (Pleistocene) for a biotite extracted from an andesite intruding the Pantabangan Formation. Furthermore, Ringenbach (1992) correlates this formation to the Tartaro Formation on the western flank of the Southern Sierra Madre dates as Plio-Pleistocene from benthonic foraminifera. It is estimated to attain a thickness of 1000 m (Ringenbach, 1992). (GMRP vol. 1 Geology, 2004; San Jose City Bypass Project EIS, 2002)

#### Guadalupe Formation

The Guadalupe Formation is found beneath the highland eastern parts of Cabanatuan City, Nueva Ecija. Corby, et al (1951) called it Guadalupe Tuffs' and Teves and Gonzales (1950) adopted the name 'Guadalupe Formation' with two members: a lower Alat Conglomerate and an upper Diliman Tuff member. The formation uniquely overlies Miocene rocks and on the basis of the presence of *Stegodon* fossils and other vertebrates remains, leaf imprints and artifacts, it is assigned a Pleistocene age.

The Alat Conglomerate was first mapped and named by Alvir after marine littoral conglomerate exposed along Sapang Alat about 3 km north of the the Novaliches reservoir near Novaliches town where it uniquely overlies Miocene lavas. The Alat consists of massive conglomerate, deeply weathered silty mudstone and tuffaceous sandstone. The most common rock type, the poorly sorted conglomerate, consists of

well rounded pebbles and small boulders of the underlying igneous, metamorphic and sedimentary rocks cemented by a coarse-grained, calcareous sandy matrix. The interbedded sandstone is 'massive to poorly-bedded', 'tuffaceous 'fine – to medium-grained', 'loosely-cemented', friable and exhibits cross bedding. The mudstone is medium to thin bedded, soft, sticky, silty and tuffaceous. The maximum estimated thickness of this member is 200 m.

The whole series is flat-lying, medium to thin bedded and consists of fine grained vitric tuffs and welded pyroclastic breccias with minor fine to medium grained tuffaceous sandstone. Dark mafic minerals and bits of pumiceous and scoriaceous materials are dispersed in the glassy tuff matrix. The thickness of the Diliman Tuff is 1,300-2,000 m.

### **3.1.2 Geology**

#### **3.1.2.1 Tectonic Setting**

The major structural element recognized in the area of Nueva Ecija is the Dingalan-Cabaldon Rift; a segment of Philippine Fault. The fault appears to be the major factor that influences the formation of Gabaldon Valley. It trends N 40°W and branches out into numerous secondary faults of minor magnitude that the northeastern part, cutting the Cretaceous-Paleogene rock series. These secondary faults appear to have sliced the rocks into a series of parallel fault blocks. The orientation of these faults, together with the schistosity and fold axes appears to be closely related to the major northwest structure.

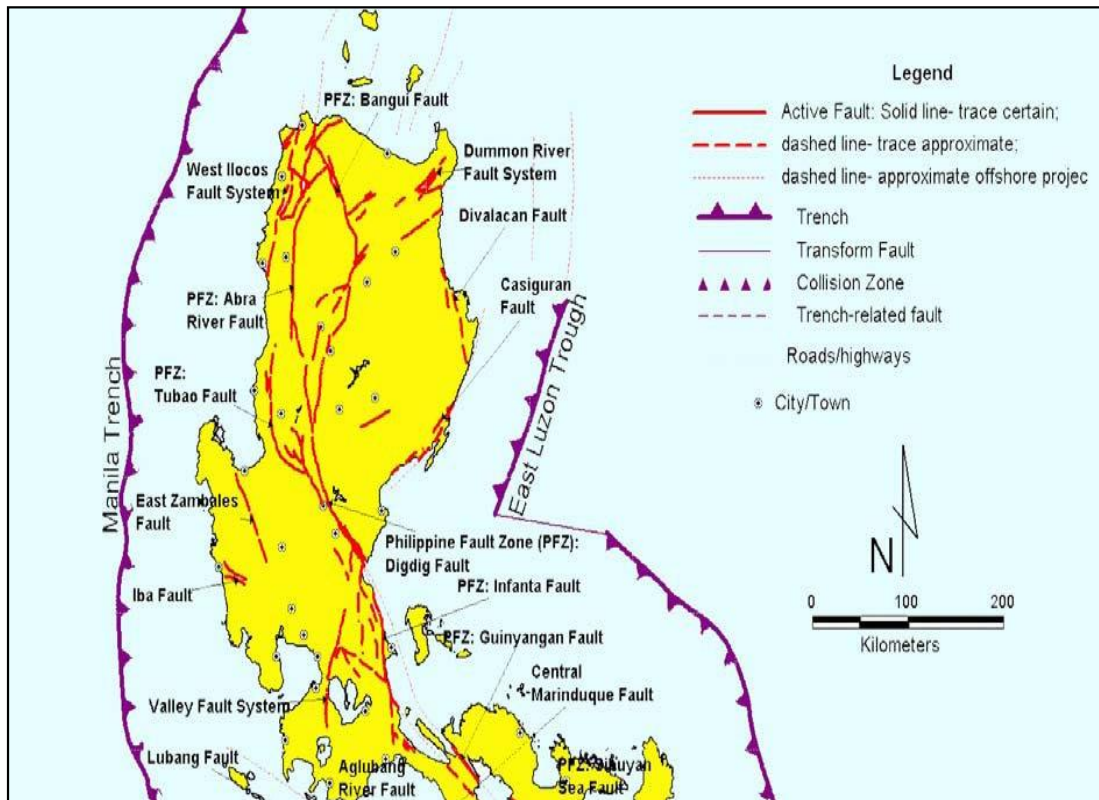
The Philippine Fault Zone, as shown in **Figure 3-3**, is a major left-lateral strike-slip fault zone that has a mapped length of 1,200 km from the eastern part of Mindanao to Northern Luzon. Slip on the Philippine Fault Zone accommodates a significant portion of oblique convergence between the Philippine Sea and Eurasian Plates (Acharya, 1980; Acharya and Aggarwal, 1980). The Philippine Fault Zone trends northwest from Dingalan Bay just east of Gabaldon to the southern end of the Central Cordillera; this reach of the fault is referred to as the Philippine Fault. Northwest of Gabaldon the Philippine Fault splays into the Digdig Fault and the San Jose Fault.

The convergence rate of the Philippine Plate relative to Eurasia falls in the range of 8.0 cm/yr. The movement is accommodated on three main parallel zones:

- The westward verging subduction zones running through the Taiwan-Mindoro-Panay trenches
- The Philippine Plate at the eastern side, subducting westward along the Philippine Trench; and
- In between the two, the Philippine Fault, an active left-lateral strike-slip which runs from Southern Mindanao to Northern Luzon.

The subduction at the Philippine Trench and the Philippine Fault are young features, initiated in late Early Pliocene, probably in response to increasing blockage by collisions along Eurasia's boundary. Most of the oblique convergence would have since been partitioned between the two structures (*Ringerbach et. al., 1991*).

In Luzon, the South China Sea plate is subducted eastward along the Manila Trench while at the eastern side; the Philippine Trench is indented by the Benham Rise. A strike slip fault zone along the East Luzon Trough, borders the latter. The area of Northern Luzon is wedged and compressed by the two opposing subduction zones. (*San Jose Bypass Project EIS, 2002*)



**Fig. No. 3-3**

**Tectonic Map of Luzon**



PROJECT PROPONENT  
Dept. of Public Works and  
Highways

PROJECT LOCATION:  
**Proposed Central Luzon Link  
(CLLEX) Phase 1 Project**  
Provinces  
of Tarlac and Nueva Ecija

Modified from EIS of LIVCOR  
Consulting Inc., 2010

### 3.1.2.2 Potential Earthquake Generators

The Philippine Trench (East Luzon) and Manila Trench generate most of the earthquakes that affect Luzon, including those of Tarlac and Nueva Ecija, as shown Figure 3-4. The subductions and slippage in these tectonic lines generates shallow and deep-seated quakes of varying intensities. Seismological studies showed that aside from offshore trenches and subduction zones, active faults could generate earthquakes of significant intensities (E. Ramos, 1999; San Jose Bypass Project EIS, 2002)

#### The Manila Trench

This is a subduction related feature that parallels the western shore of Luzon. Convergence of the oceanic crust of South China Sea and the Luzon landmass causes the subduction of the oceanic crust under Luzon.

#### The East Luzon Trough

The East Luzon Trough is a deep oceanic trench that roughly traces the eastern shores of Luzon, serving as a tectonic boundary between the Luzon arc and the Philippine Sea Plate, which forms the western Pacific plate. At this trench, the Philippine Sea Plate subducts under the Luzon arc along the East Luzon Trough. This subduction process is marked by the depression of the ocean floor along the East Luzon Trough, and by the intense and westward-deepening region of earthquakes.

#### The Philippine Fault

The 1,200 km long Philippine Fault is one of the world's major strike-slip faults. It extends from Luzon to Mindanao and is related to oblique convergence between the Philippine Trench and the Manila Trench. It follows a simple curved trace in the central and southern Philippines becoming a complex system of anastomosing branches in the northernmost part of Luzon. The northwest trending main active branch, which emerges from the Philippine Sea splits into an array of N-S strike-slip faults responsible for the tectonic evolution of Central Cordillera. The active splays, from northwest to southeast are the San Manuel in Middle Miocene and reactivated since late Early Pliocene (Ringerbach et.al., 1991)

### The Digdig Fault

The Digdig Fault – a splay of the Philippine Fault, is a pure strike-slip along the N16E coarse and has a normal component along the northwesterly one, which coincides with NW-SE strand of the Philippine Fault. Data indicates that the Digdig Fault have an average slip rate in the order 1-1.5cm/year (Daligdig et al, 1994). Analysis made by Ringerbach (1992) gave an average minimum horizontal slip rate of 1.3cm/year. Regional geologic and kinematics analysis done by Barrier et al (1991) predicted a 1.9-2.5 cm/year velocity for the southern part of the fault and this is supported by GPS data (Duquesnoy et al, 1994).

### The Carranglan Fault

The Carranglan Fault runs north-northwest parallel to Digdig Fault, from the north to south of Carranglan town proper and is considered active by Ringerbach (1991). Unfortunately, no supporting recent morphological features or rupture have been observed along its trace. This fault stretches south from Pantabangan, which is located in Nueva Ecija, along the western border of Carranglan basin and makes a sharp bend toward a northwesterly trend and dies out 3 to 4 kilometers further on, between Segium and Bunga Rivers. Vertical displacement is estimated to be 130 meters based on the elevation difference between the Carranglan River at 230m and then 360 meters high conglomerate highland on the west bank. This estimate does not include elevation lost through erosion as marked by the erosional surface on the conglomerate capping the highland.

#### 3.1.2.3 Seismicity

There are few strong earthquakes that affected Luzon. **Table 3.2** shows the historical earthquakes that affected Luzon prior to the 1990 earthquake that severely affected Nueva Ecija. The northern Luzon section of the Philippine Fault had been relatively quiet and having only been subjected to earthquakes with long return periods. Based on recorded data shows that this section of the fault had moved in two occasions: in 1645 and in 1839, an interval of 151 and 194 years.

<b>Table 3.2 Historical Listing of Major Earthquakes in Luzon Prior to July 1990 Earthquake</b>				
<b>Date</b>	<b>Affected Areas</b>	<b>Io<sup>1</sup></b>	<b>Ms<sup>2</sup></b>	<b>Generator</b>
21 June 1599	Manila	VIII	7.9	Undetermined
30 Nov 1619	N. Luzon, Ilocos & Cagayan (Batac, Dingres, Sinaït, Vigan)	IX	8.4	Undetermined
30 Nov 1645	Manila	IX	8.4	Philippine Fault Nueva Ecija
12 Jan. 1743	Tayabas, Sariaya, Lucban, Majayjay, Lilio, Nagcarlan, Mt. Banahaw	IX	8.4	Philippine Fault
5 Nov 1796	Pangasinan, Manila	IX	8.4	San Manuel Fault
16 Sep 1852	SW Luzon, Manila, Orion, Orani, Abucay, Pilar, Mariveles, Balanga, Balayan, Taal Batangas, Mindoro	VIII	7.9	Lubang Fault
3 Jun 1863	Manila, Rizal, Bulacan, Pampanga	VIII	7.9	Lubang Fault
19 Oct. 1865	SE Luzon, N. Caceres	VIII	7.9	Samar-Bicol Fault
6 Mar 1892	Manila, Marikina, Montalban, Rizal, Laguna, Bolinao Pangasinan, San Fernando La Union	VIII	7.9	Digdig Fault

*Note:*

<sup>1</sup>Io – Maximum Intensity Recorded

<sup>2</sup>Ms – Surface Magnitude

Source: San Jose Bypass Project EIS, 2002

The July 1990 earthquake filled the seismic gap along the Northern Luzon section of the Philippine Fault. The July 1990 earthquake was a result of the strike-slip movements along the NW segment of the Philippine Fault zone and its slopes, the Digdig and Gabaldon Faults (R.S Punongbayan et al, 1992). The quake is the first documented occurrence for this century with a magnitude of 7.8 and produced a 125km-long ground rupture that stretches from Dingalan, Aurora to Kayapa, Nueva Vizcaya. The epicenter was placed near the town of Rizal, Nueva Ecija.

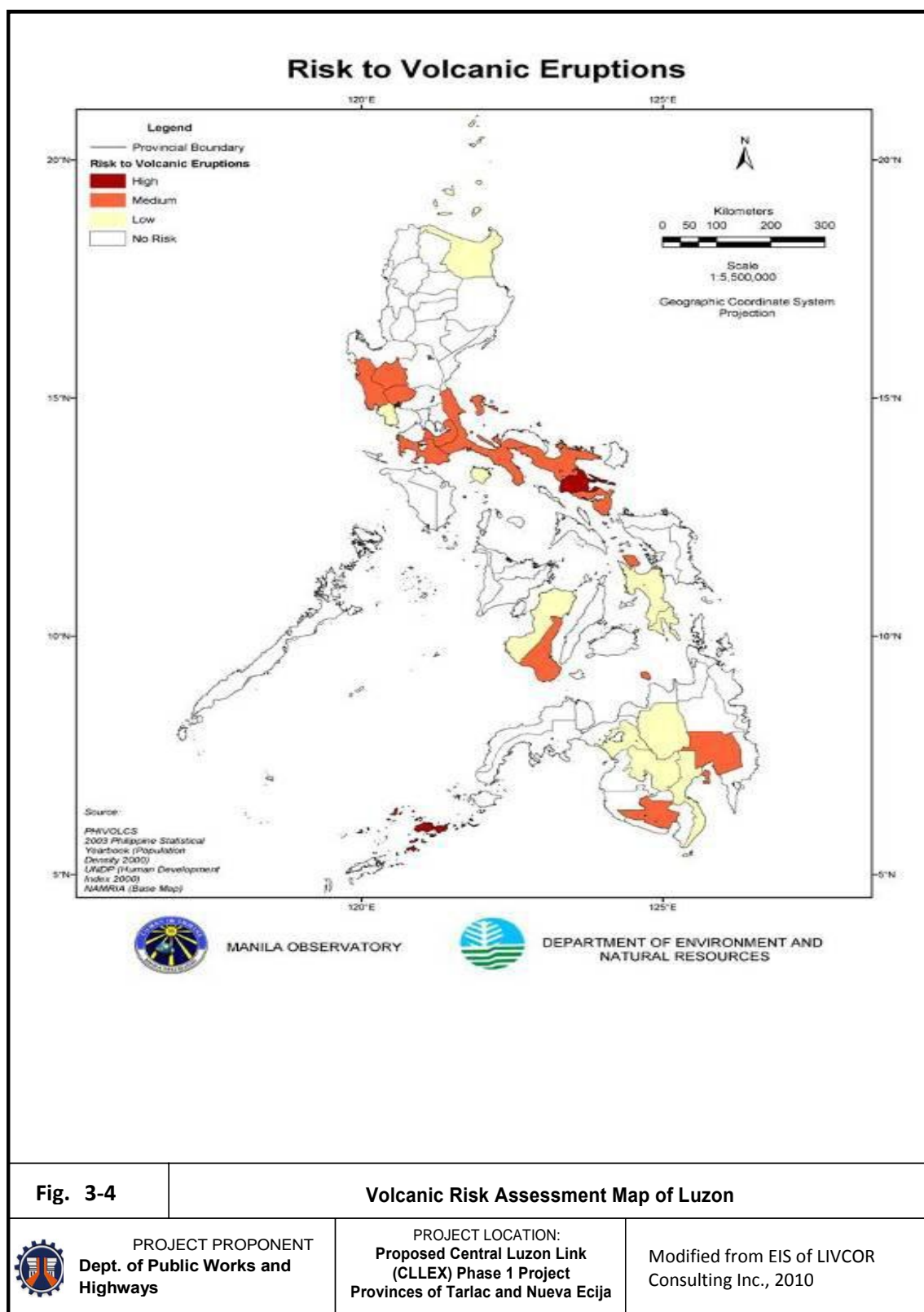
The surface rupture followed the pre-earthquake active fault trace with only slight deviations in certain places. Secondary shears are present as localized features along portions of the main rupture trace. Movement along the ground rupture was predominantly left-lateral with measured vertical and horizontal displacements varying 0.1-2.5 and 0.2-6.2 meters, respectively.

#### 3.1.2.4 Volcanic Activity

Geographically, Mt. Pinatubo which is approximately 85 kilometers away, is the nearest active volcano that may possibly affect the province of Tarlac, and Nueva Ecija. It is

located in the tri boundary of Pampanga, Tarlac, and Zambales provinces. There are two (2) recorded volcanic eruptions of Mt. Pinatubo; one in 1380 and the second eruption was recorded last June 1991, which was recorded as one of the most violent eruptions in the 20<sup>th</sup> century. Risk Volcanic Reaction of Luzon for the Proposed Central Luzon Link Expressway CLLEX Project is presented in **Figure 3-4**.





Given that the distance of the project site to Mt. Pinatubo is significantly distant, the project area is considered to be in the Low risk zone for volcanic eruptions. Based on the latest eruption of Mt. Pinatubo, which produced an eruption column of more than 20 kilometers with the ash cloud extending from Mindoro to Ilocos Sur, the possible impact of this volcano on the provinces of Tarlac and Nueva Ecija would be ash fall.

#### 3.1.2.5 Flooding Hazard

Tarlac and Nueva Ecija are areas that are prone to strong typhoons that can potentially bring extensive wind and rain hazards and may cause flooding in the local area. The Provincial Disaster Coordinating Council (PDCC) is recommending that a Provincial Flood Control and Drainage Master Plan is prepared to address the perennial flooding problems of the province. This Master plan would detail preventive maintenance procedures and the proper management of important waterways in the provinces of Tarlac and Nueva Ecija, including dikes as well as the irrigation canals of National Irrigation Authority (NIA). The Master Plan will be implemented in coordination with the provincial, city and municipal disaster coordinating councils. Please refer to **Appendix B** for the Location of Irrigation Canals of Tarlac and Nueva Ecija.

##### Tarlac Province

Flood-prone areas are subjected to flooding during heavy rains. Several factors can cause flooding in the area, these factors include: accumulated rainfall, run-off, river/creek outflow, and the area's elevation. Severely-flooded areas are found in the municipalities of La Paz, Victoria Concepcion, Gerona, Paniqui, Camiling and San Clemente and Tarlac City.

Flooding has been a perennial problem in the low-lying areas in Tarlac. The most severely affected areas during the rainy seasons are Tarlac City, Paniqui and Moncada, mainly the central and eastern areas of the Tarlac River in these municipalities. People in the urban centers are often affected by severe flooding, impacting both lives and property. Severe flooding can also diminish agricultural efficiency by severely impacting farmlands in the area. Major flood control projects are under the responsibility of the national government through the Department of Public Works and Highways (DPWH). Drainage along national roads are constructed and maintained by

the DPWH along with roads and bridges. The LGUs construct and maintain drainage canals along roads under their respective jurisdiction. With this perennial threat, a province-wide masterplan for drainage is necessary.



**Plate No. 1** Water level of Spill Way at Rico Chico River during Typhoon Juaning



**Plate No. 2** Flooding at La Paz, Tarlac Market during Typhoon Juaning

### Nueva Ecija

Nueva Ecija province is a typhoon prone area. With areas of which that are prone to flooding specifically the southwestern portion. The power and communication system in the province has not yet been developed to meet industrial and commercial

requirements. The provincial road network still needs to be upgraded to be at par with nearby provinces and to support the requirement of agro-industrial development one of the most glaring environmental threat is the degradation due to pollution, indiscriminate use of inorganic fertilizers and agricultural chemicals in crop production. And because of rapid urbanization, indiscriminate land use conversion is now also threatening some of the province's prime production lands.

**Table 3.3** showing the latest terminal report of Typhoon Falcon damages to infrastructure and agriculture in the project affected areas.

<b>Table 3.3 Estimated Damage to Infrastructure During Typhoon Falcon</b>			
<b>City/ Municipality</b>	<b>Location</b>	<b>Name of Project</b>	<b>Description extent of Damage</b>
1. Zaragoza	Brgy. Sta Lucia	Hinukay Earth Dike	2,450m/60,000cu m Scoured Earth dike
2. Aliaga	Brgy. Monica	Sta.Monica Earth dike	1,878m/46,000cu m Scoured Earth dike
<b>ESTIMATED DAMAGES TO AGRICULTURE (PALAY)</b>			
<b>Municipality/City</b>	<b>Number of Farmers Affected</b>	<b>Area of Standing Crop</b>	<b>Area affected</b>
1. Aliaga	-	-	1,745.00
2. Zaragoza	-	-	97.00
		271.05	271.05
		16.50	16.50
3. Cab City	233	28.00	28.00
<i>Source: Provincial Disaster Risk Reduction and Management Council (Nueva Ecija) Terminal Report on Tropical Depression Falcon</i>			

#### **PANTABANGAN DAM WATER ELEVATION**

<b>Current Elevation</b>	<b>185.16 meters ( as of 6:00 PM June 30, 2011)</b>
Maximum Water Elevation	220 meters
Minimum Water Elevation	200 meters
Spilling Level	221 meters
<i>Source: Provincial Disaster Risk Reduction and Management Council (Nueva Ecija) Terminal Report on Tropical Depression Falcon</i>	

Map of flood prone areas in Central Luzon is shown in **Figure 3-5**.

## FLOODING IN CENTRAL LUZON

Source: RDCC - Region 3  
as of 7:-00 am October 11, 2009

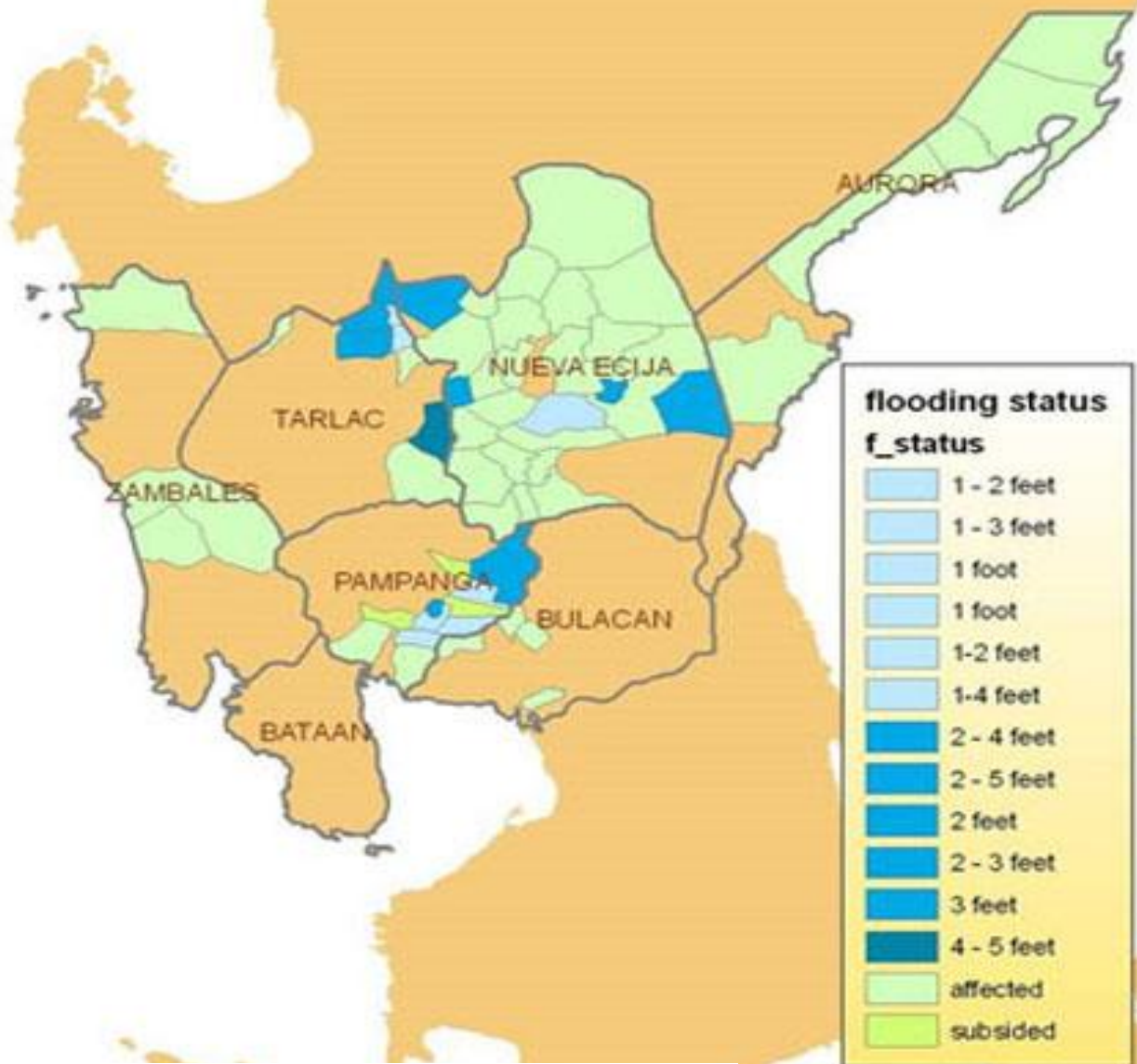


Fig. No. 3-5 Flood Prone Areas in Central Luzon



## **3.2 THE WATER**

### **3.2.1 Hydrology**

The hydrological characteristics of the area are defined by two major river watersheds: Pampanga River and Talavera River.

#### Pampanga River

The Pampanga River reveals a twisting feature where the active channel has a regular sinuous pattern. The channel is confined within a meander belt, a complex zone of active and abandoned channels. The meandering characteristics of the river reflect very low slope of the terrain. Aerial photos and observations of those from the field shows the river is in a continuous state of re-sculpturing its course within the meander belt. On its initial stage of development, the river had a lateral erosion behavior, forming a wide meander belt bounded by 2-meter high bank scarps on both banks. Within the pre-formed meander belt, the channel had gradually migrated on a northern direction. This is reflected by a sequence of abandoned meander channels in the stretch from Brgy. Pangatian, Kalwayan and Pagas, located at the south bank of Pampanga River, east of Cabanatuan and the alignment. A number of abandoned channels were also noted at the southern bank of the main channel north of Cabanatuan proper and west of the alignment. (San Jose Bypass project EIS, 2002)

The water flow of Pampanga River shows similarities to that of the Talavera River. With the Pampanga River showing a more complex flow compared to that Talavera River, based on the number of shifting of the channel within the meander belt also, with the distribution of both depth and velocity. As a result, the channel as a whole shows a traverse migration of flow while depositing sediment by lateral accretion.

The bank material influences the erodability of the channel bank. As observed from the terrace scarps, the meander belt is underlain by a sequence of poorly compacted and loosely consolidated soil composed of silty fine sand overlaying loose sandy gravel with lenses of loosed coarse to medium sand. During flood period, where water level rises above the normal level, the unconsolidated sediments are in direct contact with floodwater flowing at a high velocity that results either to the undercutting or scouring of the material that leads to erosion.

The most vulnerable segments are the lower and middle terraces within the meander belt. The rate of extent of erosion rate varies along the area. On a river section in Bagong Sikat, upstream of the proposed alignment, a 25m-wide segment of the middle terrace was eroded in a single flood event in 1998. Other river segments have also been subjected to erosion during annual flood events. (San Jose Bypass Project EIS, 2002)

#### Talavera River

Based on the terrain features from the aerial photos and those at the ground, the present course of the Talavera River segment within the alignment corridor is “geologically recent”, a result of an avulsion from an original southerly direction to that its present course. The avulsion point is in the river section between the barangays of Pantoc Bulac and Caaninaplahan. From the avulsion point, the river originally joins the Pampanga River. (San Jose Bypass Project EIS, 2002)

The banks of the present Talavera River are marked by 3 channel terraces indicating the main channel had undergone 2 episodes of readjustments since its avulsion. The terrace edges are marked with near vertical escarpments, with height of 2 meters at the upper terrace to 1.5 meters at the lower terrace towards the main channel. Also evident is the upper terraces at the southern bank have wider lateral extent as compared to those in the northern bank. The lower and middle terraces at the northern bank on the other hand, have a constricted lateral configuration. (San Jose Bypass Project EIS, 2002)

Exposed along the bank is a sequence of poorly compacted and loosely consolidated soil composed of silty fine sand overlaying loose sandy gravel on top of a gravelly clay horizon. High water levels during the rainy seasons causes the soil materials that are in direct contact with floodwater to flow at a high velocity causing the undercutting of the material and leads to the collapse of the slope.

Bank sections that are directly affected by peak channel flows are more vulnerable most specially those on the channel bend. The flow in a meander bend helicoidal with a component of surface flows towards the inner bank. The locus of the maximum depth of the channel, the thalweg, corresponds roughly with the zone of the maximum velocity with scour pool developing near the outer bank. In simple curve bend, the velocity, the asymmetry and the position of the thalweg change over between bends as

the helicoidal flow changes its sense of rotation. As a result of the flow pattern, the outer concave bank is the site of erosion and the inner convex bank is the site of deposition, the channel as a whole migrating transversely to the flow to deposit sediment by lateral accretion. (San Jose Bypass Project EIS, 2002)

The residents also described and helped in giving an indication as to the rate of erosion of certain sections of the north bank. In Basang Hamog, it is estimated that 60 meters of the channel bank was eroded from 1976 to 2000. In this section, the width of the eroded segment varies with 10 meters as the biggest recorded that occurred during the 1986 flood.

In the section of Pantak Bulac, comparison of the bank features from the aerial photo taken in the middle of 1999 with the present bank show at least 50 meter wide section of some part of the bank was eroded after the photo was taken. Other bank sections exposed to erosion are located in the area of Sicsican Matanda, San Pascual, a few meters upstream from the abutment of the present bridge, and Sto. Domingo. As in Pantuc Bulac, the erosion in his section had already compromised the existing barangay road. (San Jose Bypass Project EIS, 2002)



### 3.2.2 Surface Water Quality

The EIA Team conducted water quality sampling on July 21, 2011 (wet season, high precipitation period) at the upstream and downstream portions of the rivers and creeks to be traversed by the proposed CLLEX. The samples were assessed the following parameters: BOD, TSS, Total Coliforms and Conductivity by DENR accredited laboratory. Temperatures and pH of samples were determined in the field. The results and the DENR standard are presented in **Table 3.4**.

A total of seven (7) surface water quality sampling stations were selected from the bodies of water to be crossed by the proposed CLLEX. Please refer to **Figure 3-6** for the Sampling Stations of the Water Quality Sampling.

As presented in Table 3.4, results of ambient water quality sampling show that:

- In terms of DO, only two (2) stations, both of which were taken from San Miguel na Munti Creek are slightly below the DENR standard;
- In terms of BOD, almost all are within the DENR standard, except for Station 3 at Talavera River, which is slightly higher than 5 mg/li
- In terms of Total Colliform have high values, indicating high bacteriological contents
- In terms of TSS, four (4) out of five (5), namely Stations 3 &4 from Talavera River, and Stations 6 & 7 from Rio Chico River exceeded the DENR Standard



SAMPLING STATIONS, July 2011 STUDY

Location of Ambient Air and Noise Quality Sampling Stations

Sampling Stations	Locations	GPS Coordinates	Remarks
A1	Near SCTEX Tarlac Tollgate (Located at the agricultural farm of Mr. Jamin David)	15° 28' 28.70" N 120° 40' 41.70" E	Observed volume of traffic was significant at the SCTEX about 150 meters away from the sampling station, with trucks, busses and private cars were observed during air sampling.
A2	Laungcupang Area (Located along Sta Rosa - Tarlac Rd at left side of Eastbound lane of Bgy Laungupang, La Paz, Tarlac)	15° 29' 33.20" N 120° 41' 29.10" E	Observed volume of transport traffic was significant with trucks, busses and private cars were observed during air sampling.
A3	Guevarra Area (Located along La Paz - Victoria Rd at right side of Northbound lane near Bgy Guevarra, La Paz, Tarlac)	15° 28' 28.40" N 120° 43' 02.60" E	Observed volume of transport traffic was significant with trucks, busses and private cars were observed during air sampling.
A4	Aliaga Area (Located along Guimba - Aliaga Rd at left side of Northbound lane near Aliaga Trading Center in Bgy Sto Rosario, Aliaga, N.E.)	15° 31' 11.30" N 120° 49' 44.70" E	Observed volume of transport traffic was significant mostly light vehicles and private cars were observed during air sampling.
A5	Maharlika Highway (Located at top of earth mound near the Iglesia ni Cristo Church adjacent Cabanatuan-Talavera boundary marker)	15° 31' 39.40" N 120° 56' 03.80" E	Observed volume of transport traffic was significant with trucks, busses and private cars were observed during air sampling.

Location of Surface Water Sampling Stations

Sampling Stations	Locations	GPS Coordinates	Remarks
W1	San Miguel na Munti, Talavera, Nueva Ecija	15° 32' 18.70" N 120° 55' 36.90" E	San Miguel na Munti Creek
W2	Umangan, Aliaga, Nueva Ecija	15° 31' 42.40" N 120° 55' 36.90" E	San Miguel na Munti Creek
W3	Biblicat, Aliaga, Nueva Ecija	15° 33' 01.90" N 120° 52' 02.7" E	Talavera River
W4	Pantoc, Aliaga, Nueva Ecija	15° 31' 58.00" N 120° 50' 40.20" E	Talavera River
W5	Poblacion East 1, Aliaga, Nueva Ecija	15° 30' 38.90" N 120° 50' 54.30" E	Pantoc Creek
W6	Sta Lucia Old, Zaragosa, Nueva Ecija	15° 28' 37.90" N 120° 44' 51.30" E	Rio Chico River
W7	Rio Chico Bridge, La Paz, Tarlac	15° 26' 53.10" N 120° 44' 57.50" E	Rio Chico River

SAMPLING STATIONS, OCTOBER 2009 STUDY

Location of Ambient Air and Noise Quality Sampling Stations

Sampling Stations	Locations	GPS Coordinates	Remarks
A1	SCTEX Tarlac Exit	15° 28' 24.33" N 120° 40' 53.74" E	Located in a busy national road, with rice fields in both sides.
A2	Guevarra, La Paz, Tarlac	15° 29' 01.11" N 120° 42' 31.50" E	Located in a non-busy national road, with rice fields in both sides.
A3	Aliaga Municipal Health Center, Nueva Ecija	15° 30' 14.90" N 120° 50' 17.50" E	Located in a non-busy national road, with rice fields in both sides.
A4	Talavera-Cabanatuan City Boundary	15° 31' 48.64" N 120° 56' 02.64" E	Located in a very busy national highway, with built-up areas and rice fields in both sides.
A5	Brgy. Dimasalang Norte, Talavera, Nueva Ecija	15° 36' 04.93" N 120° 58' 03.59" E	Located in a non-busy barangay road, w/ light residential estab's and rice fields in both sides.
A6	Brgy. Tayabo, San Jose City, Nueva Ecija	15° 49' 48.90" N 121° 01' 53.67" E	Located in a very busy national highway, with built-up areas and rice fields in both sides.

Notes: Sampling Stations A5 is located 8km NE of Cabanatuan IC (Talavera, NE)  
Sampling Stations A6 is located 20km NE of Cabanatuan IC (San Jose City)

Location of Surface Water Quality Sampling Stations

Sampling Stations	Locations	GPS Coordinates	Remarks
W1	Rio Chico de la Pampanga	15° 26' 38.49" N 120° 45' 05.33" E	Located at La Paz and downstream portion of Talavera River, Km. 13-14 of CLLEX.
W2	Talavera	15° 31' 28.50" N 120° 49' 30.86" E	Located at Aliaga and upstream portion of Talavera River, Km. 13-14 of CLLEX.
W3	Baca River (down-stream)	15° 35' 53.67" N 120° 58' 25.78" E	Located at Talavera and downstream portion of Baca Creek, Km. 37 of CLLEX.
W4	Baca River (up-stream)	15° 37' 01.63" N 120° 58' 30.35" E	Located at Talavera and upstream portion of Baca Creek, Km. 37 of CLLEX.
W5	Cabanatuan-Talavera River (down-stream)	15° 47' 15.84" N 121° 00' 17.08" E	Located at San Jose and downstream portion of Talavera River.
W6	Cabanatuan-Talavera River (up-stream)	15° 49' 58.78" N 121° 02' 03.15" E	Located at San Jose and upstream portion of Talavera River.

Notes: Sampling Stations W3 and W4 are located 8km NE of Cabanatuan IC (Talavera, NE)  
Sampling Stations W5 and W6 are located 20km NE of Cabanatuan IC (San Jose City)



LEGEND	OCT. 2009	JUL. 2011
Location of Ambient Air and Noise Quality Sampling Stations		
Location of Surface Water Quality Sampling Stations		

Figure 3-6 Location of Surface Water, Air Quality and Noise Level Sampling Stations, Oct. 2009 and July 2011



**Table 3.4 Results and DENR Standards of Water Quality Sampling conducted during Wet Season**

STA NO.	Water Sampling Location			Water Sample No.	Date/ Time Taken	Physical Water Quality Data (Field)			TC (MPN 100ML)	Conductivity @25°C (µS/cm)	DO (mg/L)	BOD (mg/L)	TSS (mg/L)
	BARANGAY /MUNICIPALITY	GEOGRAPHICAL COORDINATES	WATER BODY NAME			TURBIDITY	TEMP	pH					
1.0	San Miguel Na Munti, Talavera, Nueva Ecija	N 15° 32' 18.7" E 120° 55' 36.9"	San Miguel Na Munti Creek	CLLEX-T-1	9:45 AM 07/21/2011	Cloudy with plant residue;	28	7.8	22,000	397	<2.0	6	10
2.0	Umangan, Aliaga, Nueva Ecija	N 15° 31' 42.4" E 120° 55' 35.0"	San Miguel Na Munti Creek	CLLEX-U-2	10:20 AM 7/21/2011	slightly clear	29	7.5	35,000	291	<2.0	3	8
3.0	Bibiclat, Aliaga, Nueva Ecija	N 15° 33' 01.9 E 120° 52' 02.7"	Talavera River	CLLEX-3	11:30 AM 7/21/2011	murky	29	8.1	3,300	290	8.1	8	145
4.0	Pantoc, Aliaga, Nueva Ecija	N 15° 31' 58.0" E 120° 50' 40.2"	Talavera River	CLLEX-P-4	12:05PM 7/21/2011	murky	30	8.2	11,000	283	6.9	4	115
5.0	Poblacion East 1, Aliaga, Nueva Ecija	N 15° 30' 38.9" E 120° 50' 54.3"	Pantoc Creek	CLLEX-5	12:35 PM 7/21/2011	cloudy	30	6.9	3,300	325	4.3	2	17
6.0	Sta. Lucia Old, Zaragosa, Nueva Ecija	N 15° 28' 37.9 " E 120° 44' 51.3"	Rio Chico River	CLLEX-STO-6	2:30 PM 7/21/2011	murky	31	7.9	7,000	291	7.7	6	177
7.0	Rio Chico Bridge, La Paz, Tarlac	N 15° 26' 53.1" E 120° 44' 57.5"	Rio Chico River	CLLEX-T-7	3:30 PM 7/21/2011	murky	31	7.2	13,000	292	6.3	6	162
DENR Standards Class A								6.5-8.5	1,000 (m)	-	5.0	5	50
DENR Standards Class D								6.0-9.0	5,000 (m)	-	3.0	7	15



**Photo No. 3** Temperature of water sample from the upstream portion of Talavera River was determined using a laboratory thermometer.



**Photo No. 4** On-site measurement of pH of the water sample from *San Miguel na Munti* Creek was taken using a portable pH meter.



**Photo No. 5** Water sample being collected at SSTA.-San Miguel na Munti Creek (Downstream)



**Photo No. 6** Water sample being collected at SSTA.-Talavera River (Upstream)





**Photo No. 7** Surface water sampling at SSTA.-Talavera River (Downstream) at Brgy. Pantoc at dam and near hanging bridge



**Photo No. 8** Surface water sampling at SSTA.- Pantoc Creek near road to Brgy. Pantoc



**Photo No. 9** Water sampling at SSTA.-*Rio Chico River* (Upstream) near flood control dike at boundary of Tarlac and Nueva Ecija



**Photo No. 10** Water sample being collected at SSTA.-*Rio Chico River*(Downstream) south side of Rio Chico Bridge



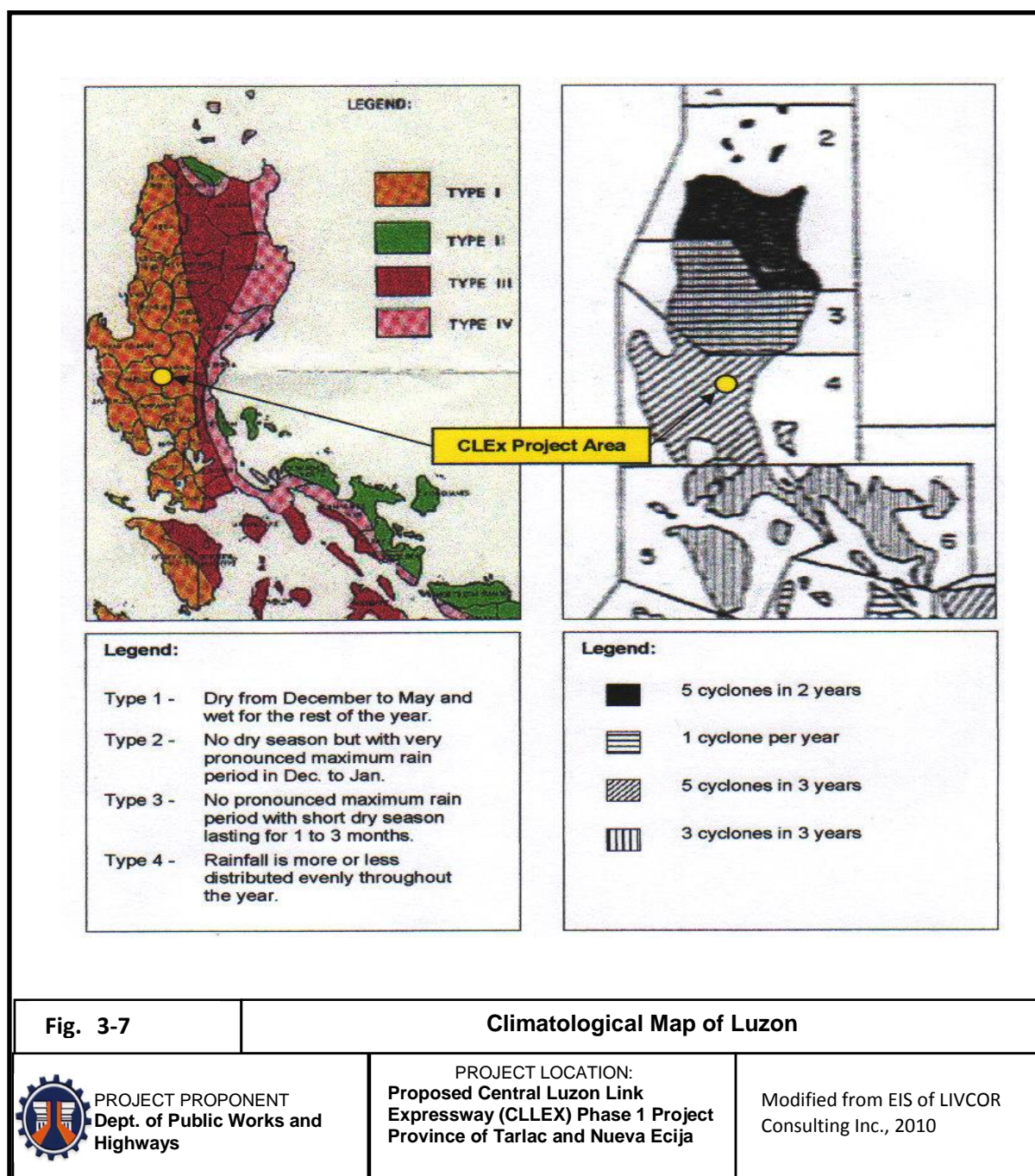
### **3.3 THE AIR**

#### **3.3.1 Meteorology**

Based on the Philippine Atmospheric and Geophysical and Astronomical Services Administration's (PAGASA) Corona's Classification System, 'Type I' and 'Type III' are the prevailing climate classification in Nueva Ecija as shown in **Figure 3-7**. The Type I classification has dry season from December to May, and wet for the rest of the year. Type III has no pronounced maximum rain periods but with short dry season lasting from one (1) to three (3) months.

Nueva Ecija has an average relative humidity of 87% while the temperature ranges from 21.5°C to 35.7°C. The recorded average mean amount of rainfall for the year is 1597.1 mm, with highest amount of 4,304 mm during the month of August. (Nueva Ecija Provincial Profile, 2008)

Tarlac belongs to the 'Type I' climate classification, and experiences rainfall during the southwest monsoon period from June to November, which is also known as the wet season. November to May is known as the dry season. The hottest part of the year is March to May and can sometimes extend up to June. The heaviest rains come in July to November with August being the rainiest month of the year.



### Rainfall, Typhoon Vulnerability, Prevailing Winds

The nearest synoptic meteorological station to the proposed CLLEX is located in Cabanatuan City, Nueva Ecija. Based on **Table 3.5** Climatological data of Philippine Atmospheric Geophysical Astronomical Service Administration (PAGASA), the city and its surrounding area receive an annual rainfall of about 1,854.9 mm. The highest amount of rainfall in the month of August is **372.0 mm**. The same month also registers the most number of rainy days with **24**. The Climatological Extremes of Cabanatuan is presented in **Table 3.6**.

**Table 3.5 Climatological Normal Values**

**Station Name:** Cabanatuan, Nueva Ecija  
**Period:** 1981-2010  
**Latitude:** 15°29'18" N  
**Longitude:** 120°57'42" E  
**Elevation:** 32.0 m

MONTH	RAINFALL		TEMPERATURE						Vapor Pressure (MBS)	Relative Humidity (%)	Mean Sea Level Pres (mbs)	WIND		Cloud Amount (okta)	Number of Days with	
	Amount (mm)	No. Of RD	Maximum (°C)	Minimum (°C)	Mean (°C)	Dry Bulb (°C)	Wet Bulb (°C)	Dew Point (°C)				Direction (16 pt)	Speed (mps)		Thunder Storm	Lightning
JAN	16.9	2	32.1	20.6	26.4	25.4	23.0	22.1	26.4	82	1013.1	NE	1	4	0	0
FEB	16.6	2	32.8	21.1	27.0	26.0	23.4	22.4	27.0	80	1013.0	NE	1	3	0	0
MAR	18.4	2	34.3	22.1	28.2	27.3	24.4	23.4	28.6	79	1012.1	SE	1	3	1	1
APR	47.4	4	36.0	23.5	29.8	28.8	25.6	24.5	30.6	77	1010.6	SE	1	3	4	4
MAY	179.1	13	35.6	24.4	30.0	28.9	26.1	25.2	31.9	80	1007.5	S	1	5	14	11
JUNE	193.7	16	34.3	24.4	29.4	28.2	26.3	25.7	32.9	86	1008.7	S	1	5	15	13
JULY	371.1	22	33.0	24.1	28.5	27.5	26.0	25.5	32.6	89	1008.0	S	1	6	18	10
AUG	372.0	24	32.3	24.1	28.2	27.1	25.9	25.5	32.6	91	1007.8	S	1	6	16	7
SEP	320.4	21	32.5	23.9	28.2	27.1	25.8	25.3	32.3	90	1008.4	S	1	6	17	9
OCT	186.4	12	32.9	23.4	28.2	27.2	25.5	24.9	31.4	87	1009.4	NE	1	5	7	7
NOV	90.0	8	32.7	22.6	27.7	26.7	24.7	24.0	29.7	85	1010.6	NE	1	4	2	2
DEC	42.9	5	32.0	21.7	26.8	25.9	23.6	22.7	27.5	82	1012.2	NE	2	4	0	0
<b>ANNUAL</b>	<b>1854.9</b>	<b>131</b>	<b>33.4</b>	<b>23.0</b>	<b>28.2</b>	<b>27.2</b>	<b>25.0</b>	<b>24.3</b>	<b>30.3</b>	<b>84</b>	<b>1010.1</b>	<b>NE</b>	<b>1</b>	<b>5</b>	<b>94</b>	<b>64</b>

**Table 3.6 Climatological Extremes at Cabanatuan City (As of 2009)**

Computed Extreme Values (in mm) of Precipitation													
Month	Temperature (°C)				Greatest Daily Rainfall (MM)		Highest Wind (MPS)			Sea Level Pressures (MBS)			
	HIGH	DATE	LOW	DATE	AMOUNT	DATE	SPD	DIR	DATE	HIGH	DATE	LOW	DATE
JAN	36.2	01-09-1979	15.0	01-23-2005	137.2	01-25-2007	22	NE	01-27-1981	1023.1	01-13-1955	100.1	01-29-1970
FEB	38.1	02-21-1961	15.0	02-02-1963	69.6	02-07-2000	25	NE	02-10-1981	1021.6	02-28-1963	1003.9	02-27-1972
MAR	38.8	03-05-1961	13.7	03-01-1963	82.8	03-07-2000	28	ENE	03-11-1981	1021.9	03-30-1958	1001.2	03-05-1999
APR	39.9	04-26-1961	15.8	04-23-1975	135.4	04-10-1997	20	E	04-26-1988	1019.3	04-01-1958	997.0	04-21-1956
MAY	40.4	05-11-2002	18.8	05-22-1975	226.1	05-24-1976	22	E	05-02-1981	1016.1	05-08-1957	994.2	05-17-1989
JUNE	38.5	06-02-1993	19.9	06-02-1986	356.4	06-27-1960	25	SW	06-15-1991	1016.3	06-06-1966	989.7	06-29-1964
JULY	37.0	07-22-1998	18.4	07-09-1967	406.1	07-28-1952	35	NW	07-04-1981	1017.7	07-20-1987	985.9	07-15-1982
AUG	36.0	08-14-1998	19.0	08-19-1997	245.4	08-05-1960	30	N	08-18-1987	1015.4	08-12-1987	994.5	08-07-1964
SEP	37.0	09-09-2008	20.0	09-03-1997	281.4	09-08-1956	18	NW	09-19-1981	1015.9	09-25-1967	988.8	09-26-2009
OCT	37.1	10-18-1961	18.6	10-31-1969	325.9	10-13-1960	44	NE	10-18-1985	1017.6	10-30-1961	968.6	10-26-1978
NOV	37.5	11-03-1974	17.0	11-25-1992	297.2	11-05-1980	44	S	11-24-1981	1019.5	11-30-1989	973.4	11-24-1981
DEC	36.5	12-03-2002	15.1	12-09-1984	138.6	12-14-1964	24	NE	12-04-1983	1020.6	12-28-2003	992.2	12-14-1964
ANNUAL	40.4	05-11-2002	13.7	03-01-1963	406.1	07-28-1952	44	NE	10-18-1985	1023.1	01-13-1955	968.6	10-26-1978
Period of	1949 - 2009				1919 - 2009		1966 - 2009			1949 - 2009			
Record													

### 3.3.2 Ambient Air Quality

The baseline air quality along the project site alignment was measured from July 20 to 22, 2011. The air quality parameters measured were Sulfur Dioxide (SO<sub>2</sub>), Nitrogen Dioxide (NO<sub>2</sub>) and Total Suspended Particulates (TSP). The method of sampling used for sulfur dioxide (SO<sub>2</sub>) and nitrogen dioxide (NO<sub>2</sub>) is to let the ambient air pass through an absorbing solution in glass impingers using the Air Check Gas Sampler and Kimoto Gas Bubbler. For total suspended particulates (TSP), a Staplex high-volume sampler is used with a filter paper that is weighed prior to and after sampling.

The methods of analysis of air samples are Pararosaniline Method for SO<sub>2</sub>, Griess-Saltzman Method for NO<sub>2</sub>, and a gravimetric method for TSP as specified in DENR DAO 14. The sampling was done in conformity with the National Ambient Air Quality Standards (NAAQS) of the Department of Environment and Natural Resources (DENR).

Air and noise sampling was undertaken at five stations along the proposed Central Luzon Link Expressway Project. The selected stations would measure air quality twice per day, one in the morning and another measurement in the afternoon averaging 1 hour per measurement. For the measurement of noise levels, three separate time periods were monitored (morning evening, day time, night time), a sample was taken every 30 seconds for each one hour per period. The location and the description of ambient air and noise sampling stations are as follows: **Table 3.7**

<b>Table 3.7 Description of Ambient Air and Noise Sampling Stations</b>		
<b>Station No.</b>	<b>Location</b>	<b>Remarks</b>
A1 Near SCTEX Tarlac Tollgate 15°28'28.7"N, 120°40'41.7"E	Located at the agricultural farm of Mr. Jamin David	Observed volume of traffic was significant at the SCTEX about 150 meters away from the sampling station, with trucks, buses and private cars were observed during air sampling.
A2 Laungcupang Area 15°27'33.2"N, 120°41'29.1"E	Located along Sta Rosa-Tarlac Road at left side of East bound lane of Brgy Laungcupang, La Paz Tarlac	Observed volume of traffic transport was significant with trucks, buses and private cars were observed during air sampling.
A3 Guevarra Area 15°28'28.4"N, 120°43'02.6"E	Located along La Paz-Victoria Road at right side of North bound lane near Brgy Guevarra, La Paz Tarlac	Observed volume of traffic transport was significant with trucks, buses and private cars were observed during air sampling.
A4 Aliaga Area 15°31'11.3"N, 120°49'44.7"E	Located along the Guimba-Aliaga Road at left side of North bound lane near Aliaga Trading Center in Brgy. Sto Rosario, Aliaga Nueva Ecija	Observed volume of traffic transport was significant mostly light vehicles and private cars were observed during air sampling.
A5 Maharlika Highway 15°31'39.4"N, 120°56'03.8"E	Located at the top of earth mound near the Iglesia Ni Kristo Church adjacent the Cabanatuan City-Talavera Marker Arc	Observed volume of traffic transport was significant with truck, buses and private cars were observed during air sampling.

The existing air qualities in five stations set up along the proposed Central Luzon Link Expressway project alignment are presented in **Table 3.8**. It was observed that the present 1-hour ambient ground level concentration of total suspended particulates (TSP) ranges from 47 to 299 µg/Ncm. The DENR standard of 300 µg/Ncm was not exceeded in all five sampling station. The station A5 (Maharlika) recorded the highest TSP level in the selected sampling station for both morning and afternoon sampling of 299 and 247 ug/Ncm, respectively.

For the gaseous pollutants, sulfur dioxide (SO<sub>2</sub>) and nitrogen dioxide (NO<sub>2</sub>), shows the concentrations level ranging from 10 to 30 µg/Ncm for SO<sub>2</sub> and from 2 to 11 µg/Ncm for NO<sub>2</sub> for the 1-hour time averaging sampling. Station A5 (Maharlika) recorded the highest measured gaseous pollutant concentration for SO<sub>2</sub> and NO<sub>2</sub> for a 1-hour time average measurement for both morning and afternoon period. The 1-hr sampling observed concentration is way below the limit set by DENR standard (see **Table 3.9**). These values are well within DENR ambient standards of 340 µg/Ncm for SO<sub>2</sub> and 260 µg/Ncm for NO<sub>2</sub> for 1-hr sampling.



Table 3.8 Base Air Quality Result for the Proposed Central Luzon Link Expressway Project				
Station No.	Time/Date	Concentration in ug/Ncm		
		TSP	SO2	NO2
A1 SCTEX Area	0934-1034H/22Jul2011	68	10	5
	1810-1910H/21Jul2011	47	11	6
A2 Laungcupang Area	0830-0930H/20Jul2011	136	19	10
	1641-1741H/20Jul2011	194	20	8
A3 Guevarra Area	0905-1005H/20Jul2011	164	21	7
	1630-1730H/20Jul2011	211	24	6
A4 Aliaga Area	0805-0905H/21Jul2011	85	15	3
	1546-1646H/21Jul2011	106	17	2
A5 Maharlika Highway	0716-0816H/22Jul2011	299	30	11
	1340-1440H/21Jul2011	247	27	10
DENR Standard	1-hour sampling period	300	340	260

Table 3.9 National Ambient Air Quality Guidelines/Standards for Selected Air Pollutants			
Pollutant	Standard Maximum GLC		Averaging Time
	µg/Ncm	Ppm	
Sulfur Dioxide (SO2)	180	0.07	24 hrs
	340	0.13	1 hr
	470	0.18	30 min
Nitrogen Dioxide (NO2)	150	0.08	24 hrs
	260	0.14	1 hr
	375	0.20	30 min
Total Suspended Particulates (TSP)	230	---	24 hrs
	300	---	1 hr



**Photo No. 11** Air Sampling Station A1 (SCTEX) while experiencing heavy rains.



**Plate No. 12** Photo showing the TSP level monitoring at Station A2 (Laungcupang)



**Photo No. 13** Air sampling at Sampling Station A3 (Guevarra)



**Photo No. 14** Air Sampling Photo Taken at Station A4 (Aliaga) near Trading Center



**Photo No. 15** Air Sampling Photo Taken at Sampling Station A5 (Maharlika) Cabanatuan City

### 3.3.3 Existing Noise Level Conditions

The noise measurements were conducted using a Center 322 Data logging sound level meter on A-weighting scale. The observed 30-seconds average noise levels is shown in **Table 3.10**.

The location of air and noise sampling stations are similar to the air quality stations shown in **Figure 3-6**. The noise levels along the location of station A1 (SCTEX) proposed Central Luzon Link Expressway road project are typical for an urban area due to heavy traffic volume with the exemption of station A1 (SCTEX). Station A1 (SCTEX) is located in an agricultural field about 150 meter from the SCTEX expressway. The average noise levels for the five sampling stations ranged from 48.8 to 70.9 dB(A) during daytime per period of 1-hr air sampling measurement. The morning/evening period noise levels ranges from 49.8 to 65.7 dBA while the nighttime period noise levels ranged from 53.7 to 62.3 dBA. Considering a Class C noise category which is reserved as light industrial area, the daytime limit is 70 dBA, morning/evening period limit is 65 dBA and for nighttime period limit is 60 dBA (see **Table 3.11, NPCC Noise Standard in General Areas**). Station A5 (Maharlika) exceeded the allowable noise limit of 70 dBA with observed 1-hr daytime average of 70.9 dBA. For morning or period, the station A2 (Laungcupang) and station A5 (Maharlika) exceeded the measured 1-hr average of 65 dBA limit with average values of 65.7 and 65.2 dBA, respectively. For the nighttime period, station A5 (Maharlika) exceeded the limit of 60



dBA with measured average noise level of 62.3 dBA. The station A5 (Maharlika) exceed all the time period categories which is very likely for a road section with heavy traffic volume. The four stations (A2, A3, A4 and A5) are located adjacent to road network 5-10 meters from road edges while station A1 is located about 150 meters from SCTEX expressway.

**Table 3.10 Results of the Ambient Noise Quality Sampling, July 2011 for CLLEX**

Sampling Station	Location	Period	Time/Date	Average Noise Level(dBA)	NPCC Standard for Class C/ <b>Class B</b> Categories
A1	Near SCTEX located at Mr. Jamin David Residence and agricultural farm	Morning/Evening	0821H 7/22	49.8	65 / 60
		Daytime	1105H 7/22	48.8	70 / 65
		Nighttime	2228H 7/21	54.7	60 / 55
A2	Along the Sta Rosa-Tarlac Road in Brgy Laungcupang La Paz Tarlac	Morning/Evening	0754H 7/20	65.7	65 / 60
		Daytime	1212H 7/20	65.1	70 / 65
		Nighttime	0024H 7/21	53.7	60 / 55
A3	Along La Paz-Victoria Road in Brgy Guevarra La Paz Tarlac	Morning/Evening	1837H 7/20	61.2	65 / 60
		Daytime	1037H 7/20	61.0	70 / 65
		Nighttime	2236H 7/20	55.7	60 / 55
A4	Along Guimba-Aliaga Road in Brgy Sto Rosario Aliaga Nuve Ecija	Morning/Evening	0822H 7/21	63.2	65 / 60
		Daytime	1621H 7/21	59.6	70 / 65
		Nighttime	0021H 7/22	56.3	60 / 55
A5	Along Maharlika Highway at the Cabanatuan-Talavera Boundary near the Iglesia Ni Kristo Church	Morning/Evening	0603H 7/22	65.2	65 / 60
		Daytime	1305H 7/21	70.9	70 / 65
		Nighttime	0145H 7/22	62.3	60 / 55

**Table 3.11 Rules and Regulations of the National Pollution Control Commission "Noise Standards in General Areas"**

Category of Area	Daytime	Morning/Evening	Night Time
	9AM to 6PM	5AM to 9AM /6PM to 10PM	10PM to 5AM
<b>AA</b> A section or contiguous area that require Quietness such school sites, hospitals, and special homes for the aged	50 dBA	45 dBA	40 dBA
<b>B</b> A section or contiguous area which is primarily use as a residential purposes	65	60	55
<b>C</b> A section which is primarily reserved as a light industrial area	70	65	60
<b>D</b> A section which is primarily reserved as a heavy industrial area	75	70	65



**Photo No. 16** Noise sampling at Station A1 (SCTEX) nighttime



**Photo No. 17** Ambient SO<sub>2</sub> and NO<sub>2</sub> level monitoring at Station A2 (Laungcupang)





**Photo No. 18** Noise sampling at Station A3 (Guevara)



**Photo No. 19** Noise sampling at Station A4 (Aliaga)



**Photo No. 20** Noise sampling at Station A5 (Maharlika)

### 3.3.4 Noise Modelling

Noise modeling was conducted last August 1-12, 2011 using the available maps and site investigations. An inventory of the structures located within 1000 meters from the expressway alignment areas had been made. It is estimated that about 9 school buildings, 4 churches/chapels and about 19 clustered residential areas are located within the study area. **Table 3.12** contains the inventory of sensitive receptors and its approximate location. **Table 13** shows the residential areas exposed to expressway alignment. The presentation of Noise Modeling for the Proposed CLLEX Project Phase 1 is attached in **Appendix C**.

**Table 3.12 Sensitive Receptors (Churches & Schools) along the CLLEX Alignment**

<b>Sensitive Receptor Along Expressway Alignment</b>	<b>Station Position and Location of Receptor from Alignment</b>	<b>Expressway Road Elevation (m)</b>	<b>Ground Elevation (m)</b>	<b>Source to Receptor Reference Distance (m)</b>
<b>Churches:</b>				
Iglesia Ni Kristo	30+300 North	40.590	32.629	50
Iglesia Ni Kristo	29+200 South	34.110	31.656	260
First Church of God	28+900 South	35.010	31.427	280
Bucot Chapel	23+700 South	29.749	23.474	250
<b>Schools:</b>				
Umangan Elem School	28+900 South	34.110	31.656	280
Umangan Day Care Center and Barangay Hall	28+860 South	35.130	31.039	280
Dona Elena (Bibiclat) Elem School	22+000 North	23.355	21.491	480
Aliaga High School	20+800 South	26.859	21.666	800
Regina Children Institute	20+700 South	25.759	21.008	350
Sto Rosario Elem School	19+500 South	28.519	20.063	750
Magsaysay Elem School	17+000 South	22.737	18.202	1000
Sta Monica Elem School	14+900 North	20.607	16.611	300
Macalong Elem School	5+500 South	21.422	15.740	700
Guevarra Elem School	5+000 North	24.491	16.249	450
Amucao Elem School	1+000 North	25.150	21.530	1200

**Table 3.13. Clustered Residential Receptors along the CLLEX Alignment**

Residential Receptor Along Expressway Alignment	Station Position and Location of Receptor from Alignment	Expressway Road Average Elevation (m)	Ground Average Elevation (m)	Source to Receptor Reference Distance (m)
Clustered Residential:				
Amucao	1+100 to 1+500 North	24.3	20.7	480
Laungcupang	1+800 to 3+000 South	26.4	20.2	650
Guevarra	4+700 to 5+400 North	23.7	16.2	180
Macalong	4+900 to 5+000 South	24.4	16.5	220
Macalong	5+500 to 5+700 South	20.7	15.5	600
Bibiclat	11+000 to 11+500 North	20.6	14.8	600
Sta Monica	14+000 to 15+400 North	20.3	16.4	160
San Eutascio	15+800 to 16+800 North	20.5	17.6	380
Sto Rosario	19+100 to 19+500 South	27.1	20.3	100
Aliaga Poblacion	20+000 to 20+400 South	23.7	20.8	350
Aliaga Poblacion	20+600 to 20+900 South	26.3	21.5	160
Aliaga Poblacion	21+000 to 21+100 South	28.8	20.0	80
Pantoc	21+600 to 21+700 North	26.1	21.6	250
Bibiclat	21+900 to 22+200 North	23.9	21.5	400
Bucot	23+400 to 23+500 South	27.6	23.4	120
Bucot	23+600 to 23+900 South	29.7	23.5	250
Bactog, San Juan De Dios	24+100 to 25+400 South	30.9	24.3	500
Umangan	29+800 to 29+960 North	38.7	32.0	20
Umangan	28+00 to 29+000 South	33.5	29.7	250
Umangan	29+100 to 29+800 South	34.6	31.8	200
Umangan	29+900 to 29+960 South	39.2	32.8	25





**Photo No. 21** Noise modeling sampling at Regina Children Institute at Aliaga, Poblacion



**Photo No. 22** Noise modeling sampling at residential houses within the CLLEX ROW at Sta. 24+100



**Photo No. 23** Noise modeling sampling at Iglesia ni Kristo Church at Brgy. Umangan, Aliaga

### **3.4 TERRESTRIAL BIOLOGY**

#### **3.4.1 Flora**

Majority of the land in Tarlac and Nueva Ecija are predominantly an agricultural system (ricefields), with patches of shrubs and miniaturize tress distributed along the area.

The present use of the land area will explain why the existing ecosystems are characterized by relatively ‘low’ to ‘very low’ diversity of species and impaired rates of ecological functioning due to severe human interventions and disruptions due to several various farming activities. The proposed Project’s site and its surrounding areas represent a region of ‘low’ ecological significance or importance in terms species diversity.

**Table 3.14** showing the result of the surveyed tree species found at the project vicinity and **Table 3.15** showing the Surveyed Shrubs, Herbs, and Grasses Found at the Project Vicinity conducted in October 2009 by LIVCOR.



**Table 3.14 Surveyed Tree Species Found at the Project Vicinity, October 2009**

Family	Scientific Name	Common/Local Name	Distribution	Economic Importance/Uses
Leguminosae	<i>Leucaena Leucocephala</i>	Ipil-Ipil	Very Common	Fuel
Anacardiaceae	Mangifera Indica	Mango	Very Common	Food
Myrtaceae	Syzygium Cumingii	Duhat	Common	Food
Myrtaceae	Syzygium Samargense	Makopa	Common	Food
Palmae	Cocos Nucifera	Coconut	Very Common	Food
Rutaceae	Psidium Guajava	Guava	Very Common	Food
Tiliaceae	Muntingia Calabura	Aratiles	Very Common	Food
Verbenaceae	Gmelina Arborea	Yemane	Common	Wood
Caricaceae	Carica Papaya	Papaya	Very Common	Food
Annonaceae	Annona Aquamosa	Atis	Common	Food
Leguminosae	Pithecolobium	Camachile	Common	Food
Moraceae	Artocarpus Altilis	Kamansi	Common	Food
Leguminosae	Cassia Alata	Akapulko	Common	Medicinal
Bombacaceae	Ceiba Pentandra	Kapok	Common	Pillow
Sapotaceae	Chrysophyllum Cainito	Kaimito	Common	Food
Rutacea	Citrus Mitis	Kalamansi	Common	Food
Bixaceae	Bixa Orellana	Achuete	Common	Condiment
Leguminoseae	Deonix Reia	Firetree	Common	Wood
Dilleniaceae	Dillinea Philippinesis	Katmon	Common	Wood
Moraceae	Ficus Benjamina	Balete	Common	Wood
Moraceae	Ficus Variegata	Tangisang-Bayawak	Common	Wood
Leguminoseae	Gliricidia Sepium	Kakawate/ Madre Cacao	Very Common	Fence
Lythraceae	Lagerstroemia Speciosa	Banaba	Very Common	Medicinal, Wood
Leguminoseae	Pterocarpus Indicus	Narra	Very Common	Wood
Leguminoseae	Samanea Saman	Akasya	Very Common	Wood
Lauraceae	Persea Americana	Avocado	Common	Food
Moringaceae	Moringa Oliefera	Malunggay	Very Common	Food
Dipterocarpaceae	Sweitenia Macrophylla	Mahogany	Common	Wood
Moraceae	Artocarpus Blancoi	Antipolo	Common	Wood
Combretaceae	Terminalia Catappa	Talisay	Common	Wood, Shade
Leguminoseae	Sesbania Grandiflora	Katuray	Common	Food
Sapotaceae	Chrysophyllum Cainito	Kaimito	Common	Food
Averrhoaceae	Averrhoa Carambola	Balimbing	Common	Food
Averrhoaceae	Averrhoa Bilimbi	Kamias	Common	Food
Apocynaceae	Plumeria Alba	Kalachuchi	Common	Ornamental
Leguminasea	Pterocarpus Indicus	Narra	Common	Wood

Modified from EIS of LIVCOR Consulting Inc., 2010

**Table 3.15      Surveyed Shrubs, Herbs, and Grasses Found at the Project Vicinity, October 2009 (1/2)**

<b>Family</b>	<b>Scientific Name</b>	<b>Common/Local Name</b>	<b>Distribution</b>	<b>Economic Importance/Uses</b>
Graminae	Saccharum, Spontaneum	Talahib	Very Common	Weed
Graminae	Chloris polydactyla	Fingergrass	Very Common	Weed
Graminae	Paspalum Conjugatum	Sourgrass	Very Common	Weed
Graminae	Rynchelytrum repens	Natalgrass	Common	Weed
Graminae	Pennisetum purpureum	Napier Grass	Very Common	Weed
Graminae	Panicum Maximum	Guinea grass	Very Common	Fodder
Graminae	Axonopus Compressus	Carabao Grass	Very common	Weed
Graminae	Eleusine indica	Yard grass	Common	Weed
Graminae	Dactyloctenium aegyptium	Crowfoot grass	Very Common	Weed
Graminae	Cynodon Dactylon	Bermuda Grass	Very Common	Weed
Graminae	Digitario Sanguinalis	Crabgarss	Common	Weed
Graminae	Imperata Cylindrica	Cogon	Very common	Weed
Graminae	Bambusa blumeana	Kawayang-tinik	Very common	Fence
Cyperaceae	Cyperus rotundus	Mutha	Common	Weed
Labiatae	Hyptis suaveolens	Suab-kabayo	Common	Medicinal
Leguminosae	Mimosa invisa	Makahiyang-lalake	Common	Weed
Leguminosae	Mimosa pudica	Makahiya	Common	Weed
Leguminosae	Desmodium procumbens	Desmodium	Common	Weed
Convolvulaceae	Ipomea triloba	Morning glory	Very common	Weed
Leguminosae	Cassia torra	Sickle pod	Common	Medicinal
Leguminosae	Crotolaria striata	Mani-mani	Common	Weed
Compositae	Mikania cordata	Mikania	Very common	Weed
Portulacaceae	Portulaca oleracea	Purslane	Common	Weed
Musaceae	Musa sapientum	Banana	Very common	Food
Commelinaceae	Commelina benghalensis	Alikbangon	Common	Weed
Compositae	Chromolaena	Hagonoy	Very common	Weed
Compositae	Sphaeranthus africanus	Boto-botonisan	Common	Weed
Compositae	Eclipta prostrata	Tinta-tintahan	Common	Weed
Boraginaceae	Heiotropium indicum	Trompang elepante	Very common	Weed
Acanthaceae	Blechum pyramidatum	Wild hops	Common	Weed
Verbenaceae	Lantana camara	Sapinit	Common	Weed
Compositae	Ageratum conyzoides	Bluesprangletop	Very common	Weed
Compositae	Bidens pilosa	Beggartick	Common	Weed
Compositae	Emilia sonchifolia	Tasselflower	Common	Weed
Compositae	Synedrella nodiflora	Nodeweed	Common	Weed
Compositae	Tridax procumbens	Wild sunflower	Common	Weed
Euphorbiaceae	Euphorbia hirta	Milkweed	Very common	Weed
Euphorbiaceae	Phyllanthus niruri	Gripeweed	Very common	Weed
Euphorbiaceae	Ricinus communis	Castorbean	Common	Medicinal
Malvaceae	Sida acuta	Broomweed	Very common	Weed

**Table 3.15      Surveyed Shrubs, Herbs, and Grasses Found at the Project Vicinity, October 2009 (2/2)**

<b>Family</b>	<b>Scientific Name</b>	<b>Common/Local Name</b>	<b>Distribution</b>	<b>Economic Importance /Uses</b>
Rubiaceae	Borreria laevis	Buttonweed	Very common	Weed
Solanaceae	Physalis Angulata	Hogweed	Common	Weed
Verbenaceae	Stachytarpheta jamaicensis	Verbena	Very common	Weed
Compositae	Elephantopus scaber	Pang elepante	Common	Weed
Polypodiaceae	Drynaria querciflora	Pakapak lawin	Common	Ornamental
Polypodiaceae	Pteridium aquilinum	Pteridium	Common	Ornamental
Polypodiaceae	Pteris vittata	Pteris	Common	Ornamental
Polypodiaceae	Asplenium nidus	Fern	Common	Ornamental
Polypodiaceae	Ceratopteris thalictroides	Fern	Common	Ornamental
Polypodiaceae	Nephrolepis hirsutula	Fern	Common	Ornamental
Araceae	Philodentron sp.	Philodntron	Common	Ornamental
Cyperaceae	Cyperus rotundus	Purple nutedge	very common	Weed
Pandanaceae	Pandanus sp.	Pandan	Common	Tea, flavoring
Graminae	Cenchrus echinatus	Barbgrass	Common	Weed
Graminae	Scleria sp.	Scleria	Common	Weed
Zingiberaceae	Zingiber officinale	Ginger	Common	Spice
Graminae	Setaria genticulata	Setaria	Common	Weed
Convolvulaceae	Ipomea batatas	Camote	Common	Food
Eupgorbiaceae	Manihot esculenta	Cassava	Common	Food
Graminaceae	Leptochloa filiformis	Feathergrass	Common	Weed
Verbenacea	Stachytarpheta	Verbena	Common	Wed
Verbenaceae	Stachytarpheta jamaicensis	Verbena	Common	Weed
Convolvulaceae	Ipomea aquatica	Kangkong	Very common	Food
Solanaceae	Solanum melongena	Talong	Very common	Food
Sapindaceae	Cardiospermum halicacabum	Ballon vine	Common	Weed
Graminae	Oryza sativa	Palay/rice	Very common	Food
Graminae	Zea mays	Corn/mais	Very common	food

*Modified from EIS of LIVCOR Consulting Inc., 2010*

### 3.4.2 Fauna

The assessment of faunal conditions in the area is characterized by relatively ‘low’ to ‘very low’ diversity of species due to the long history of human intervention. There are no identified critical wildlife habitat areas that will be affected or disturbed by the project. Most of the areas surrounding the proposed Project are classified as agricultural and mostly have domesticated animals. These animals are either used for pets, poultry, farming, and livestock feeding.

The presence of a ‘moderately low’ number of bird species, can be attributed to the presence of highly disturbed ecosystem due to the absence of appropriate and desirable floral components which provides good sanctuary and nesting place for most bird species.

There are no rare, threatened and endangered endemic species of wildlife in the area based on the inventory. All animals recorded in the proposed project’s vicinity are either common throughout the Philippines or in the island of Luzon.

**Table 3.16      Surveyed Animal Species Found at the Project Vicinity, October 2009 (1/3)**

Common Name	Scientific Name	Distribution
<b>A. Birds</b>		
Wild Chicken/Labuyo	Gallus Sp.	Very Common
Uwak (Phil. Crow)	Corvus macrorhynchos	Very common
Alimokon	Phapitreron Leucotis nigrorum	Very common
Maya (Chestnut Mannikin)	Lonchura mallaa jagori	Very common
Layang-Layang	Collocalia troglodytes	Very Common
Pugo	Turnix suscitator	Very common
Lawin (Hawk)	Haliastur Indus Intermedius	Less common
Pipit	Nectarinia sperata sperata	Very common
Tikling	Rallus striatus striatus	Very common
Palago, kulkul	Pycnonotus goiaver goiaver	Common
Punay	Treron pompadora axillaris	Common
Oriole	Oriolus chinensis chinensis	Common
Korokokok/kokok	Centrops viridis viridis	Common
Arat San Diego	Lanius schach nasutus	Very Common
Kasay-kasay (white-collared kingfisher)	Halcyon chloris collaris	Common
Agak kalakabaw/Talabong	Bubulcus ibis coromandus	Very common
<b>B. Reptiles</b>		
Snake/Sawa	Phyton reticulates	Common
Cobra	Naja Naja	Common
Pagong		
Common Snakes	Lycodon aulicus	Very common
Bubuli	Mabuya multifasciata	Very common
Bayawak	Geckko gecko	Very common
House Lizard	Sphenomorphus sp.	Very common
Monitor Lizard	Varanus salvator	Very common

**Table 3.16      Surveyed Animal Species Found at the Project Vicinity, October 2009 (2/3)**

Common Name	Scientific Name	Distribution
<b>C. Amphibians</b>		
Toad	Bufo marinus	Very common
Frog	Rana Sp.	Very common
<b>D. Mammals</b>		
Bat/Kabag	Ptenochirus jagori	Very common
Daga	Rattus norvegicus	Very common
Large Field Rat	Rattus mindanensis	Very common
Small field Rat	Rattus exulans	Very common
House Mouse	Mus masculus	Very common
Long tailed macaque/unggoy	Macaca sp.	Common
Wild Pig	Sus sp.	Common
<b>E. Domesticated Farm Animals (Mammals)</b>		
Cattle (Domesticated)	Bovidae	Very common
Cat (Domesticated)	Felis domestica	Very common
Dog (Domesticated)	Canis familiaris	Very common
Chicken (Domesticated)	Gallus gallus	Very common
Goat (Domesticated)	Capra Hircus	Very Common
Pig (Domesticated)	Sus sp.	Very Common
Carabao (Domesticated)	Bulbalus bubalis	Common
Horse (Domesticated)	Caballo sp.	Common
<b>F. Insects</b>		
Bee	Apis indica	Very common
Grasshopper	Gastrimargus marmoratus	Very common
Dragonfly	Labellia sp.	Very common
Wasp	Vespa sp.	Very common
Common Housefly	Musca Domestica	Very common
Mosquitoes	Culex sp.	Very common
Ants	Formica sanguine	Very Common



**Table 3.16      Surveyed Animal Species Found at the Project Vicinity, October 2009 (3/3)**

Common Name	Scientific Name	Distribution
<b>F. Insects</b>		
Spider	Theridion sp.	Very Common
Butterfly	Papilio sp.	Very common
<i>Modified from EIS of LIVCOR Consulting Inc., 2010</i>		

### **3.4.3      Agriculture**

Central Luzon contains the largest plain in the country and produces most of the country's rice supply. This is why it is traditionally referred to as the "Rice Bowl of the Philippines".

The economy of Tarlac is dominantly agricultural. Principal crops are rice and sugarcane. Other major crops are corn and coconut; vegetables such as eggplant, garlic, and onion; and fruit trees like mango, banana, and calamansi. It is among the biggest producers of rice and sugarcane notably grown in Hacienda Luisita in Barangay San Miguel, Tarlac City..

Nueva Ecija is one of the top producers of agricultural products in the country. Its principal crop is mainly rice but corn and onion are also produced in significant quantities. The province is often referred to as the "Rice Granary of the Philippines." Other major crops are onion, mango, calamansi (calamondin orange), banana, garlic, and vegetables. The town of Bongabon at the eastern part of the province at the foot of the Sierra Madre mountains and its neighboring Laur and Rizal are the major producers of onion and garlic. Bongabon is referred to as the "Onion Capital of the Country".

The Department of Agriculture estimated rice production in 2010 for the provinces of Tarlac and Nueva Ecija (Please refer to **Table 3.17**).

<b>Table 3.17 Estimated Production in 2010, Area harvested and Yield per Hectare, by Farm Type</b>			
	<b>Production (MT)</b>	<b>Area Harvested (Ha)</b>	<b>Yield/Hectare (MT)</b>
<b>Tarlac</b>			
Irrigated	527,609	124,353	4.24
Rainfed	34,571	9,071	3.81
Upland	-	-	-
<b>Sub-total 1</b>	<b>562,180.00</b>	<b>133,424</b>	<b>4.21</b>
<b>Nueva Ecija</b>			
Irrigated	1,275,979	261,034	4.89
Rainfed	98,194	38,810	2.53
Upland	-	-	-
<b>Sub-total 2</b>	<b>1,374,173</b>	<b>299,844</b>	<b>4.58</b>
<b>Grand total</b>	<b>1,936,353</b>	<b>433,268</b>	<b>8.79</b>

#### Network of Protected Areas for Agriculture

Network of Protected Areas for Agricultural and Agro-industrial Development (NPAAD) refers to agricultural areas identified by the Department of Agriculture through the Bureau of Soils and Water Management in coordination with the National Mapping and Resources Information Authority. The NPAAD ensures the efficient utilization of land for agriculture and Agro-industrial development and promotion of sustainable growth.

#### **The NPAAD covers the following:**

- i. All irrigated areas and all irrigable lands already covered by irrigation projects with firm funding commitments;
- ii. All alluvial plain land highly suitable for agriculture whether irrigated or not;
- iii. Agro-industrial crop lands or lands presently planted to industrial crops that support the viability of existing agricultural infrastructure and agro-based enterprises;
- iv. Highlands, areas located at an elevation of five hundred (500) meters or above and have the potential for growing semi temperate and high-value crops;
- v. All agricultural lands that are ecologically fragile, the conversion of which will result in serious environmental degradation; and
- vi. Mangrove areas and fish sanctuaries.

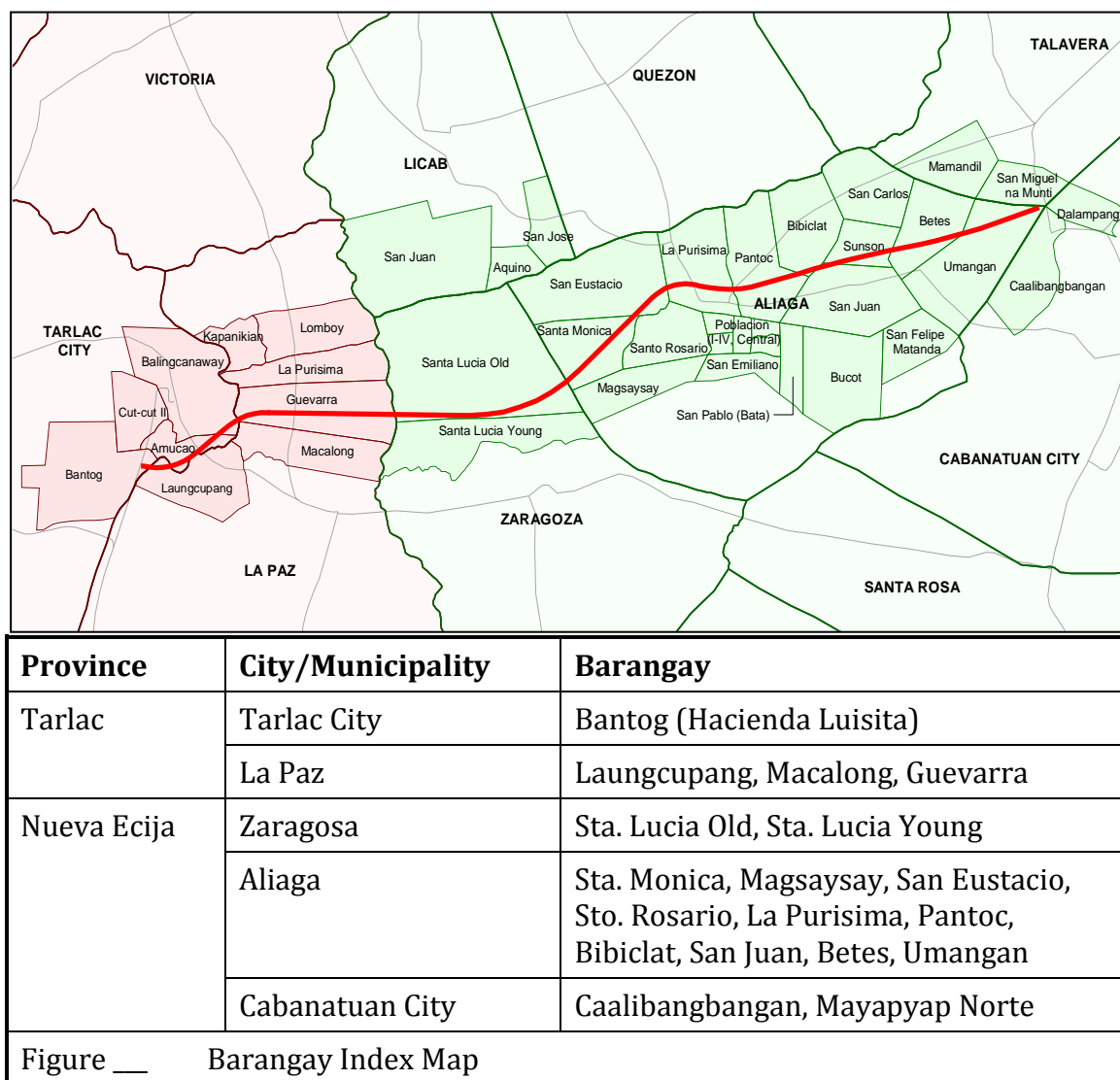
As stated in Section 6 of Republic Act 8435 (Agriculture and Fisheries Modernization Act of 1997) the identification of NPAAAs have been devolved to the LGUs. Since the LGUs are more familiar with their area of jurisdiction, they were given the responsibility to identify NPAAAs in their respective cities/municipalities.

It was learned through coordination with project affected LGUs of Zaragosa, Aliaga and Cabanatuan City in Nueva Ecija Province, as well as Tarlac City and La Paz in Tarlac, as corroborated by the respective Comprehensive Land Use Plans (CLUPs), that there are no declared NPAAAs within their jurisdiction. In addition, based on the letter issued by the Department of Agrarian Reform (DAR) of Tarlac Province, there is no available data/information with regards to NPAAAs in their area of responsibility. Similarly, DAR Nueva Ecija has also declared that they do not have NPAAAs in the province as stated in their letter (Please refer to **Appendix D** for a copy of said letters).

### **3.5 PEOPLE**

#### **3.5.1 The Impact Areas**

The direct impact area (DIA) of the proposed CLLEX is composed of two (2) types: **Type A** Structure owners and **Type B** Landowners to be affected by the project. There are one (1) city and one (1) municipality in the province of Tarlac namely Tarlac City (Hacienda Luisita) and La Paz. There are two (2) municipalities and 1 city in the province of Nueva Ecija namely Zaragosa, Aliaga and Cabanutan City.



The **Indirect Impact Areas** (IIA-Type C) are areas that would be indirectly affected through air and noise pollution, traffic congestion, and other related environmental impacts during the implementation of the project. A perception survey interview is used for the IIA in five (5) sectors: youth, women's, farmers, business and transport. The Youth sector is composed of students and out of school youth, the women's sector includes housewives and working mothers. The farmer's group is the tenants and hired farmers, business sectors are from gasoline stations, rice milling and other related commerce. While the transport sector includes drivers and commuters. Sample of Perception Survey Form is in **Appendix E**.



**Photo 24** Survey interview of DIA(Type A) house to house interview at Caalibangbangan, Cabanatuan City, Nueva Ecija



**Photo 25** Survey interview of DIA(Type B)Barangay Level wherein an open discussion is conducted before the survey interview





**Photo 26** Survey interview of DIA(Type B) on site interview



**Photo 27** Survey interview of IIAYouth Sector





**Photo 28** Survey interview of IIAFarmer's Sector



**Photo 29** Survey interview of IIAWomen's Sector



**Photo 30** Survey interview of IIA Business Sector



**Photo 31** Survey interview of IIA Transport Sector

## **The Direct Impact Area (DIA)**

### Population

There were 224 households interviewed during the course of the study. Among the households, 52.9% has an average household size of 1-4 persons. 2.2% has more than ten (10) persons per household and 44.6% has an average household size of 5-10 persons. The distribution of the household size is presented in **Table 3.18**.

<b>Table 3.18 Household Size of the Respondents Based on Survey/Interview</b>					
<b>City/Municipality</b>		<b>1-4</b>	<b>5-10</b>	<b>More than 10</b>	<b>Total</b>
<b>Type A – Structure Owner</b>					
<b>TARLAC</b>					
La Paz	Count	2	1	-	3
	%	66.7%	33.3%	-	100.0%
<b>NUEVA ECIJA</b>					
Aliaga	Count	15	17	-	32
	%	46.9%	53.1%	-	100.0%
Cabanatuan	Count	11	15	2	28
	%	39.3%	53.6%	7.1%	100.0%
<b>Sub-total 1</b>	<b>Count</b>	<b>29</b>	<b>33</b>	<b>2</b>	<b>63</b>
	<b>%</b>	<b>44.4%</b>	<b>52.4%</b>	<b>3.1%</b>	<b>100.0%</b>
<b>Type B – Landowner</b>					
<b>TARLAC</b>					
La Paz	Count	19	26	-	45
	%	42.2%	57.8%	-	100.0%
<b>NUEVA ECIJA</b>					
Zaragoza	Count	19	6	-	25
	%	76.0%	24.0%	-	100.0%
Aliaga	Count	50	33	2	85
	%	58.8%	38.8%	2.4%	100.0%
Cabanatuan	Count2	2	2	1	5
	%	40.0%	40.0%	20.0%	100.0%
<b>Sub-total 2</b>	<b>Count</b>	<b>90</b>	<b>67</b>	<b>3</b>	<b>160</b>
	<b>%</b>	<b>56.3%</b>	<b>41.9%</b>	<b>1.9%</b>	<b>100.0%</b>
<b>Grand Total</b>	<b>Count</b>	<b>118</b>	<b>100</b>	<b>5</b>	<b>223</b>
	<b>%</b>	<b>52.9%</b>	<b>44.6%</b>	<b>2.2%</b>	<b>100.0%</b>

### Income

Majority or 50.2% of the households sourced their income primarily from farming. While the remaining 38.8% and 10.8% earn their income from employment and commerce respectively. Majority or 48.9% of the respondents does not have any other (secondary) sources of income, while 8.5% of the respondents' secondary income comes from small scale businesses such as “sari-sari” store. Income from employment constituted 16.1% of the secondary income source. The primary and secondary sources of income of the households are summarized on **Tables 3.19 and 3.20** respectively.

Table 3.19 Primary Source of Income of DIA Based on Survey/Interview					
City/Municipality		Farming	Employment	Commerce	Total
Type A – Structure Owner					
TARLAC					
La Paz	Count	3	-	-	3
	%	100.0%	-	-	100.0%
NUEVA ECIJA					
Aliaga	Count	9	20	3	32
	%	28.1	62.5%	9.4%	100.0%
Cabanatuan	Count	-	20	8	28
	%	-	71.4%	28.6%	100.0%
Sub-total 1	Count	12	40	11	63
	%	19%	63.5%	17.5%	100.0%
Type B – Landowner					
TARLAC					
La Paz	Count	37	5	3	45
	%	82.2%	11.1%	6.7%	100.0%
NUEVA ECIJA					
Zaragosa	Count	-	20	5	25
	%	-	80.0%	20.0%	100.0%
Aliaga	Count	59	21	5	85
	%	69.4%	24.7%	5.9%	100.0%
Cabanatuan	Count	4	1	-	5
	%	80.0%	20.0%	-	100.0%
Sub-total 2	Count	100	47	13	160
	%	62.5%	29.4%	8.1%	100.0%
Grand Total	Count	112	87	24	223
	%	50.2%	39.0%	10.8%	100%

<b>Table 3.20 Secondary Source of Income of DIA Based on Survey/Interview</b>						
City/Municipality		Farming	Employment	Commerce	none	Total
<b>Type A – Structure Owner</b>						
TARLAC						
La Paz	Count	-	-	1	2	3
	%	-	-	33.3%	66.7%	100.0%
NUEVA ECIJA						
Aliaga	Count	-	1	5	26	32
	%	-	3.1%	15.6%	81.3%	100.0%
Cabanatuan	Count	1	4	2	21	28
	%	3.6%	14.3%	7.1%	75.0%	100.0%
<b>Sub-total 1</b>	<b>Count</b>	<b>1</b>	<b>5</b>	<b>8</b>	<b>49</b>	<b>63</b>
	<b>%</b>	<b>1.6%</b>	<b>7.8%</b>	<b>12.7%</b>	<b>77.8%</b>	<b>100.0%</b>
<b>Type B – Landowner</b>						
TARLAC						
La Paz	Count	6	20	2	17	45
	%	13.3%	44.4%	4.4%	37.8%	100.0%
NUEVA ECIJA						
Zaragosa	Count	24	-	-	-	24
	%	100.0%	-	-	-	100.0%
Aliaga	Count	27	10	8	40	85
	%	31.8%	11.8%	9.4%	47.1%	100.0%
Cabanatuan	Count	-	1	1	3	5
	%	-	20.0%	20.0%	60.0%	100.0%
<b>Sub-total 2</b>	<b>Count</b>	<b>58</b>	<b>31</b>	<b>11</b>	<b>60</b>	<b>159</b>
	<b>%</b>	<b>35.8%</b>	<b>19.5%</b>	<b>6.9%</b>	<b>37.7%</b>	<b>100.0%</b>
<b>Grand Total</b>	<b>Count</b>	<b>59</b>	<b>36</b>	<b>19</b>	<b>109</b>	<b>223</b>
	<b>%</b>	<b>26.4%</b>	<b>16.1%</b>	<b>8.5%</b>	<b>48.9%</b>	<b>100%</b>

The income brackets of the household income shows **Table 3.21** around 58.7% of the households earn below P 43,588.00 annually, while some 4.0% earn between P 43,588.00 to P 69,192.00 per annum. There are also approximately 37.2% that earn more than P 69,192.00. National Statistical Yearbook 2010.

**Table 3.21 Household Income Based on Survey/Interview of the DIA-Type A and Type B**

City/Municipality		<P43,588	P43,588 to P69,192	>P69,192	Total
<b>Type A – Structure Owner</b>					
TARLAC					
La Paz	Count	2	-	1	3
	%	66.7%	-	33.3%	100.0%
NUEVA ECIJA					
Aliaga	Count	18	3	11	32
	%	56.3%	9.4%	34.4%	100.0%
Cabanatuan	Count	2	5	21	28
	%	7.1%	17.9%	75.0%	100.0%
<b>Sub-total 1</b>	<b>Count</b>	<b>22</b>	<b>8</b>	<b>32</b>	<b>63</b>
	<b>%</b>	<b>34.9%</b>	<b>12.7%</b>	<b>50.8%</b>	<b>100.0%</b>
<b>Type B - Landowners</b>					
TARLAC					
La Paz	Count	24	1	20	45
	%	53.3%	2.2%	44.4%	100.0%
NUEVA ECIJA					
Zaragoza	Count	25	-	-	25
	%	100.0%	-	-	100.0%
Aliaga	Count	59	-	26	85
	%	69.4%	-	30.6%	100.0%
Cabanatuan	Count	1	-	4	5
	%	20.0%	-	80.0%	100.0%
<b>Sub-total 2</b>	<b>Count</b>	<b>109</b>	<b>1</b>	<b>50</b>	<b>160</b>
	<b>%</b>	<b>68.1%</b>	<b>0.6%</b>	<b>31.3%</b>	<b>100.0%</b>
<b>Grand Total</b>	<b>Count</b>	<b>131</b>	<b>9</b>	<b>83</b>	<b>223</b>
	<b>%</b>	<b>58.7%</b>	<b>4.0%</b>	<b>37.2%</b>	<b>100.0%</b>

### Land Tenure

The respondents from Caalibangbangan, Cabanatuan City was given permission to stay by the landowners. Dwellers at Barangay Umangan, Aliaga are children of the original EP Holder. Majority or 68.6% of the respondents are land owners, however, most respondents won't have any available land for them to relocate, transfer, or farm if they are moved or relocated. Distribution of land ownership is presented in **Table 3.22**.



**Table 3.22 Land Tenure of the Respondents**

City/Municipality		Own	Tenant	Free occupation w/ permit	Total
<b>Type A – Structure Owner</b>					
TARLAC					
Tarlac City	Count	-	-	-	-
	%	-	-	-	-
La Paz	Count	-	-	3	3
	%	-	-	100.0%	100.0%
NUEVA ECIJA					
Aliaga	Count	-	-	32	32
	%		-	100.0%	100.0%
Cabanatuan	Count	-	-	27	28
	%	-	-	100.0%	100.0%
<b>Total</b>	<b>Count</b>	<b>-</b>	<b>1</b>	<b>62</b>	<b>63</b>
	<b>%</b>	<b>-</b>	<b>1.6%</b>	<b>98.4%</b>	<b>100.0%</b>
<b>Type B - Landowners</b>					
TARLAC					
Tarlac City	Count	-	-	-	-
	%	-	-	-	-
La Paz	Count	43	2	-	45
	%	95.6%	4.4%	-	100.0%
NUEVA ECIJA					
Zaragoza	Count	25	-	-	25
	%	100.0%	-	-	100.0%
Aliaga	Count	80	-	5	85
	%	100.0%	-	-	100.0%
Cabanatuan	Count	5	-	-	5
	%	100.00%	-	-	100.0%
<b>Sub-total 2</b>	<b>Count</b>	<b>153</b>	<b>2</b>	<b>5</b>	<b>160</b>
	<b>%</b>	<b>96.6%</b>	<b>1.3%</b>	<b>3.1%</b>	<b>100.0%</b>
<b>Grand Total</b>	<b>Count</b>	<b>153</b>	<b>3</b>	<b>67</b>	<b>223</b>
	<b>%</b>	<b>68.6%</b>	<b>1.3%</b>	<b>30.0%</b>	<b>100.0%</b>

## **Education**

**Table 3.23** shows the distribution of educational attainment of the women respondents. **43.9%** of the respondents were able to complete their primary education, **30.9%** were able to complete their secondary education, while **20.2%** were able to finish their Tertiary education and complete a course in teaching and business administration, and **4.9%** took vocational courses.

Majority or **71.9%** of the male respondents were able to complete their primary education (**Table 3.24**), while **15.2%** of male household heads were able to finish or reach secondary education. **8.9%** of the respondents were able to reach and finish college, completing courses in civil engineering or mechanical engineering; **4.0%** of the respondents were able to finish a vocational in auto mechanic work and welding.

As shown in **Table 3.25**, around **53.1%** of the respondents were not able to complete their education so that they can either concentrate on farming or get married at very early stage. About **23.2%** of the children are still going to school, **23.7%** have successfully completed their college or tertiary education.

Table 3.23 Educational Attainment of Women in the DIA Based on Survey/Interview						
City/Municipality		Primary	Secondary	Tertiary	Vocational	Total
<b>Type A – Structure Owner</b>						
TARLAC						
La Paz	Count	2	1	-	-	3
	%	66.7%	33.3%	-	-	100.0%
NUEVA ECIJA						
Aliaga	Count	12	16	1	3	32
	%	37.5%	50.0%	3.1%	9.4%	100.0%
Cabanatuan	Count	14	9	4	1	28
	%	50.0%	32.1%	14.3%	3.6%	100.0%
<b>Sub-total 1</b>	<b>Count</b>	<b>28</b>	<b>26</b>	<b>5</b>	<b>4</b>	<b>63</b>
	<b>%</b>	<b>44.4%</b>	<b>41.3%</b>	<b>7.9%</b>	<b>6.3%</b>	<b>100.0%</b>
<b>Type B – Landowner</b>						
TARLAC						
La Paz	Count	10	10	20	5	45
	%	22.2%	22.2%	44.4%	11.1%	100.0%
NUEVA ECIJA						
Zaragoza	Count	12	7	5	1	25
	%	48.0%	28.0%	20.0%	4.0%	100.0%
Aliaga	Count	48	23	13	1	85
	%	56.5%	27.1%	15.3%	1.2%	100.0%
Cabanatuan	Count	-	3	2	-	5
	%	-	60.0%	40.0%	-	100.0%
<b>Sub-total 2</b>	<b>Count</b>	<b>70</b>	<b>43</b>	<b>40</b>	<b>7</b>	<b>160</b>
	<b>%</b>	<b>35.8%</b>	<b>19.5%</b>	<b>6.9%</b>	<b>37.7%</b>	<b>100.0%</b>
<b>Grand Total</b>	<b>Count</b>	<b>98</b>	<b>69</b>	<b>45</b>	<b>11</b>	<b>223</b>
	<b>%</b>	<b>43.9%</b>	<b>30.9%</b>	<b>20.2%</b>	<b>4.9%</b>	<b>100.0%</b>

Table 3.24 Educational Attainment of Men in Based on Survey/Interview						
City/Municipality		Primary	Secondary	Tertiary	Vocational	Total
<b>Type A – Structure Owner</b>						
TARLAC						
La Paz	Count	2	1	-	-	3
	%	66.7%	33.3%	-	-	100.0%
NUEVA ECIJA						
Aliaga	Count	20	9	9	1	32
	%	62.5%	28.1%	6.3%	3.1%	100.0%
Cabanatuan	Count	16	9	2	1	28
	%	50.0%	32.1%	14.3%	3.6%	100.0%
<b>Sub-total 1</b>	<b>Count</b>	<b>38</b>	<b>19</b>	<b>11</b>	<b>2</b>	<b>64</b>
	<b>%</b>	<b>59.4%</b>	<b>29.7%</b>	<b>7.8%</b>	<b>3.1%</b>	<b>100.0%</b>
<b>Type B – Landowner</b>						
TARLAC						
La Paz	Count	28	5	9	3	45
	%	62.2%	11.1%	20.0%	6.7%	100.0%
NUEVA ECIJA						
Zaragosa	Count	24	-	1	-	25
	%	96.0%	-	40.0%	-	100.0%
Aliaga	Count	68	9	4	4	85
	%	80.0%	10.6%	4.7%	4.7%	100.0%
Cabanatuan	Count	3	1	1	-	5
	%	60.0%	20.0%	20.0%	-	100.0%
<b>Sub-total 2</b>	<b>Count</b>	<b>123</b>	<b>15</b>	<b>15</b>	<b>7</b>	<b>160</b>
	<b>%</b>	<b>76.9%</b>	<b>9.4%</b>	<b>9.4%</b>	<b>4.4%</b>	<b>100.0%</b>
<b>Grand Total</b>	<b>Count</b>	<b>161</b>	<b>34</b>	<b>20</b>	<b>9</b>	<b>224</b>
	<b>%</b>	<b>71.9%</b>	<b>15.2%</b>	<b>8.9%</b>	<b>4.0%</b>	<b>100.0%</b>

Table 3.25 Educational Attainment of the Children Based on Survey/Interview					
City/Municipality		College	Still in school	Dropped out	Total
Type A – Structure Owner					
TARLAC					
La Paz	Count	-	-	-	-
	%	-	-	-	-
NUEVA ECIJA					
Aliaga	Count	4	26	3	33
	%	12.0%	79.0%	9.0%	100%
Cabanatuan	Count	9	27	36	72
	%	13.0%	38.0%	50.0%	100%
Sub-total 1	Count	13	54	39	106
	%	12.0%	51.0%	37.0%	100%
Type B – Landowner					
TARLAC					
La Paz	Count	44	24	73	141
	%	31.0%	17.0%	52.0%	100%
NUEVA ECIJA					
Zaragoza	Count	23	12	23	58
	%	40.0%	21.0%	40.0%	100%
Aliaga	Count	59	58	190	307
	%	19.0%	19.0%	62.0%	100%
Cabanatuan	Count	13	1	15	29
	%	45.0%	3.0%	52.0%	100%
Sub-total 2	Count	139	95	301	535
	%	26.0%	18.0%	56.0%	100%
Grand Total	Count	152	149	340	641
	%	23.7%	23.2%	53.1%	100.0%

### Dialect

Since the areas traversed by the proposed project are in the northern part of Luzon, the most common dialect is Tagalog. This dialect is used by 48.7% of the respondents, followed by ‘Ilocano’ with 45.5%. The remaining 5.8% are shared among ‘Kapangpangan’ and ‘Ilongo’ dialects. The dialect used by the respondents is shown in Table 3.26.

Table 3.26 Mother Tongue of the Respondents Based on Survey/Interview						
City/Municipality		Tagalog	Kapampangan	Ilocano	Ilongo	Total
<b>Type A – Structure Owner</b>						
TARLAC						
La Paz	Count	-	1	1	1	3
	%	-	33.33%	33.33%	33.33%	100.0%
NUEVA ECIJA						
Zaragosa	Count	-	-	-	1	1
	%	-	-	-	100.0%	100.0%
Aliaga	Count	1	-	30	1	32
	%	3.1%	-	93.8%	3.1%	100.0%
Cabanatuan	Count	-	-	28	-	28
	%	-	-	100.0%	-	100.0%
<b>Sub-total 1</b>	<b>Count</b>	<b>1</b>	<b>1</b>	<b>59</b>	<b>3</b>	<b>64</b>
	<b>%</b>	<b>1.6%</b>	<b>1.6%</b>	<b>92.2%</b>	<b>4.7%</b>	<b>100.0%</b>
<b>Type B – Landowner</b>						
TARLAC						
La Paz	Count	32	-	7	6	45
	%	71.1%	-	15.6%	13.3%	100.0%
NUEVA ECIJA						
Zaragosa	Count	23	1	1	-	25
	%	92.0%	4.0%	4.0%	-	100.0%
Aliaga	Count	53	-	31	1	85
	%	62.4%	-	36.5%	1.2%	100.0%
Cabanatuan	Count	-	1	4	-	5
	%	-	20.0%	80.0%	-	100.0%
<b>Sub-total 2</b>	<b>Count</b>	<b>108</b>	<b>2</b>	<b>43</b>	<b>7</b>	<b>160</b>
	<b>%</b>	<b>67.5%</b>	<b>1.3%</b>	<b>26.9%</b>	<b>4.4%</b>	<b>100.0%</b>
<b>Grand Total</b>	<b>Count</b>	<b>109</b>	<b>3</b>	<b>102</b>	<b>10</b>	<b>224</b>
	<b>%</b>	<b>48.7%</b>	<b>1.3%</b>	<b>45.5%</b>	<b>4.5%</b>	<b>100%</b>



## **Religion**

Different kinds of religions can be identified in the households in the direct impact area. Roman Catholics is the majority at 82.1%. About 5.8% are members of Iglesia ni Kristo while Baptist and Born Again composed of 6.7% and 5.3% respectively. The religions of the respondents are exhibited in **Table 3.27**.

<b>Table 3.27 Religion of Respondents Based on Survey/Interview</b>						
<b>City/Municipality</b>		<b>Roman Catholic</b>	<b>Iglesia ni Cristo</b>	<b>Baptist</b>	<b>Born Again Christian</b>	<b>Total</b>
<b>Type A – Structure Owner</b>						
TARLAC						
La Paz	Count	3				3
	%	100%				100%
NUEVA ECIJA						
Zaragosa	Count	-	-	1	-	1
	%	-	-	100.0%	-	100.0%
Aliaga	Count	27	3	2		32
	%	84.4%	94.4%	6.3%		100%
Cabanatuan	Count	28				28
	%	100.0%				100.0%
<b>Sub-total 1</b>	<b>Count</b>	<b>58</b>	<b>3</b>	<b>1</b>	<b>1</b>	<b>63</b>
	<b>%</b>	<b>90.6%</b>	<b>4.7%</b>	<b>3.1%</b>	<b>1.6%</b>	<b>100.0%</b>
<b>Type B – Landowner</b>						
TARLAC						
La Paz	Count	36		7	2	45
	%	80.0%		15.6%	4.4%	100.0%
NUEVA ECIJA						
Zaragosa	Count	12	4	3	6	25
	%	48.0%	16.0%	12.0%	24.0%	100.0%
Aliaga	Count	73	6	3	3	85
	%	85.9%	7.1%	3.5%	3.5%	100.0%
Cabanatuan	Count	28				28
	%	100.0%				100.0%
<b>Sub-total 2</b>	<b>Count</b>	<b>126</b>	<b>10</b>	<b>13</b>	<b>11</b>	<b>160</b>
	<b>%</b>	<b>78.8%</b>	<b>6.3%</b>	<b>8.1%</b>	<b>6.9%</b>	<b>100.0%</b>
<b>Grand Total</b>	<b>Count</b>	<b>184</b>	<b>13</b>	<b>15</b>	<b>12</b>	<b>224</b>
	<b>%</b>	<b>82.1%</b>	<b>5.8%</b>	<b>6.7%</b>	<b>5.3%</b>	<b>100%</b>

### 3.5.2 Social Acceptability of Directly and Indirectly Affected Areas

There are several criteria used for evaluating the social acceptability of a project. These criteria are: environmental soundness, poverty alleviation, concurrence to land use plans and conflict resolution. A more direct way however, is through perception survey wherein the PAPs are asked whether they are in favor of the proposed project or not. There are **64** and **160** respondents in the **DIA Type A** and **B** respectively and **100** respondents in the **IIA** were interviewed.

#### Economic Development

During the survey, the respondents were asked if they perceived negative impacts on the Economic Development of the Host City/Municipality during CLLEX Project implementation. Majority of them (53.3%) believed that the project will have a negative impact on the development of their city/municipality particularly on environment (37.8%) and farming activity (26.2%). In La Paz and Zaragoza, they believe that CLLEX will not contribute any positive impact to their economic development since the said municipalities has no interchange and/or on and off ramps. The result of the survey on perception of impact on economic development is presented in **Tables 3.28** and **3.29**.

<b>Table 3.28 Perception on the Negative Impact of the Project on the Economic Development of the Host City/Municipality Based on Survey/Interview (1/2)</b>				
<b>Type A – Structure Owner</b>				
<b>City/Municipality</b>		<b>Yes</b>	<b>No</b>	<b>Total</b>
<b>TARLAC</b>				
Tarlac City	Count	-	-	-
	%	-	-	-
La Paz	Count	1	2	3
	%	33.3%	66.7%	100.0%
<b>NUEVA ECIJA</b>				
Aliaga	Count	25	7	32
	%	78.1%	21.9%	
Cabanatuan	Count	17	11	28
	%	60.7%	39.3%	100.0%
<b>Sub-total 1</b>	<b>Count</b>	<b>43</b>	<b>20</b>	<b>63</b>
	<b>%</b>	<b>68.3%</b>	<b>31.7%</b>	<b>100%</b>

**Table 3.28 Perception on the Negative Impact of the Project on the Economic Development of the Host City/Municipality Based on Survey/Interview (2/2)**

City/Municipality		Yes	No	Total
<b>Type B – Landowner</b>				
TARLAC				
Tarlac City	Count	-	-	-
	%	-	-	-
La Paz	Count	35	10	45
	%	77.8%	22.2%	100.0%
NUEVA ECIJA				
Zaragosa	Count	19	6	25
	%	76.0%	24.0%	100.0%
Aliaga	Count	60	25	85
	%	70.6%	29.4%	100.0%
Cabanatuan	Count	5	-	5
	%	100.0%	-	100.0%
<b>Sub-total 2</b>	<b>Count</b>	<b>119</b>	<b>41</b>	<b>160</b>
	<b>%</b>	<b>74.4%</b>	<b>25.6%</b>	<b>100.0</b>
<b>Type C – Indirectly Affected</b>				
Women's Sector	Count	1	19	20
	%	5.0%	95.0%	100.0%
Youth Sector	Count	4	16	20
	%	20.0%	80.0%	100.0%
Farmer's Sector	Count	5	15	20
	%	25.0%	75.0%	100.0%
Business Sector	Count	-	20	20
	%	-	100.0%	100.0%
Transport Sector	Count	-	20	20
	%	-	100.0%	100.0%
<b>Sub-total 3</b>	<b>Count</b>	<b>10</b>	<b>90</b>	<b>100</b>
	<b>%</b>	<b>10.0%</b>	<b>90.0%</b>	<b>100.0%</b>
<b>Grand-Total</b>	<b>Count</b>	<b>172</b>	<b>151</b>	<b>323</b>
	<b>%</b>	<b>53.3%</b>	<b>46.7%</b>	<b>100%</b>

Table 3.29 Perceived Negative Impact on the Economic Development of the Host City/Municipality Based on Survey/Interview (1/2)						
City/Municipality		Farming Activity	Land	Daily Life Activity	Environment	Total
Type A – Structure Owner						
TARLAC						
Tarlac City	Count	-	-	-	-	-
	%	-	-	-	-	-
La Paz	Count	-	-	-	1	1
	%	-	-	-	100.0%	100.0%
NUEVA ECIJA						
Aliaga	Count	2	2	16	5	25
	%	8.0%	8.0%	64.0%	20.0%	100.0%
Cabanatuan	Count	-	1	9	7	17
	%	-	5.9%	52.9%	41.2%	100.0%
Sub-total 1	Count	2	3	25	13	43
	%	4.7%	7.0%	58.1%	30.2%	100.0%
Type B – Landowners						
TARLAC						
Tarlac City	Count	-	-	-	-	-
	%	-	-	-	-	-
La Paz	Count	18	2	9	6	35
	%	51.4%	5.7%	25.7%	17.1%	100.0%
NUEVA ECIJA						
Zaragosa	Count	7	5	3	4	19
	%	36.8%	26.3%	15.8%	21.1%	100.0%
Aliaga	Count	12	8	5	35	60
	%	20.0%	13.3%	8.3%	58.3%	100.0%
Cabanatuan	Count	3	1	-	1	5
	%	60.0%	20.0%	-	20.0%	100.0%
Sub-total 2	Count	40	16	17	46	119
	%	33.6%	13.4%	14.3%	38.7%	100.0%

Table 3.29 Perceived Negative Impact on the Economic Development of the Host City/Municipality Based on Survey/Interview (2/2)						
City/Municipality		Farming Activity	Land	Daily Life Activity	Environment	Total
Type C – Indirectly Affected						
Women's Sector	Count	1	-	-	-	1
	%	100.0%	-	-	-	100.0%
Youth Sector	Count	-	-	1	3	4
	%	-	-	25.0%	75.0%	100.0%
Farmer's Sector	Count	2	-	-	3	5
	%	40.0%	-	-	60.0%	100.0%
Business Sector	Count	-	-	-	-	-
	%	-	-	-	-	-
Transport Sector	Count	-	-	-	-	-
	%	-	-	-	-	-
<b>Sub-total 3</b>	<b>Count</b>	<b>3</b>	<b>-</b>	<b>1</b>	<b>6</b>	<b>10</b>
	<b>%</b>	<b>30.0%</b>	<b>-</b>	<b>10.0%</b>	<b>60.0%</b>	<b>100.0%</b>
<b>Grand Total</b>	<b>Count</b>	<b>45</b>	<b>19</b>	<b>43</b>	<b>65</b>	<b>172</b>
	<b>%</b>	<b>26.2%</b>	<b>11.0%</b>	<b>25.0%</b>	<b>37.8%</b>	<b>100%</b>

## **Land Conversion**

Since the project will traverse a large portion of agricultural land. The effect of the project on the farming activity and perception on land conversion is asked during the survey. As presented in **Table 3.30**, majority of the respondents are in favor (64.1%) of land conversion but for those respondents who oppose to land conversion (35.9%) believe that it will cause great loss on rice production wherein Central Luzon is the rice granary of the Philippines. Perceived positive and negative impact on land conversion is presented in **Tables 3.31 and 3.32** respectively.

<b>Table 3.30 Respondents Acceptability on Land Conversion Based on Survey/Interview (1/2)</b>				
<b>City/Municipality</b>		<b>Yes</b>	<b>No</b>	<b>Total</b>
<b>Type A – Structure Owner</b>				
TARLAC				
Tarlac City	Count	-	-	-
	%	-	-	-
La Paz	Count	-	3	3
	%	-	100.0%	100.0%
NUEVA ECIJA				
Aliaga	Count	23	9	32
	%	71.9%	28.1%	100.0%
Cabanatuan	Count	22	6	28
	%	78.6%	21.4%	100.0%
<b>Sub-total 1</b>	<b>Count</b>	<b>45</b>	<b>18</b>	<b>63</b>
	<b>%</b>	<b>71.9%</b>	<b>28.1%</b>	<b>100.0%</b>
<b>Type B – Landowner</b>				
TARLAC				
Tarlac City	Count	-	-	-
	%	-	-	-
La Paz	Count	28	17	45
	%	62.2%	37.8%	100.0%
NUEVA ECIJA				
Zaragoza	Count	18	7	25
	%	72.0%	28.0%	100.0%
Aliaga	Count	62	23	85
	%	72.9%	27.1%	100.0%
Cabanatuan	Count	2	3	5
	%	40.0%	60.0%	100.0%
<b>Sub-total 2</b>	<b>Count</b>	<b>110</b>	<b>50</b>	<b>160</b>
	<b>%</b>	<b>68.8%</b>	<b>31.3%</b>	<b>100.0%</b>



Table 3.30 Respondents Acceptability on Land Conversion Based on Survey/Interview (2/2)				
City/Municipality		Yes	No	Total
<b>Type C – Indirectly Affected</b>				
Women's Sector	Count	11	9	20
	%	55.0%	45.0%	100.0%
Youth Sector	Count	12	8	20
	%	60.0%	40.0%	100.0%
Farmer's Sector	Count	6	14	20
	%	30.0%	70.0%	100.0%
Business Sector	Count	11	9	20
	%	55.0%	45.0%	100.0%
Transport Sector	Count	12	8	20
	%	60.0%	40.0%	100.0%
<b>Sub-total 3</b>	<b>Count</b>	<b>52</b>	<b>48</b>	<b>100</b>
	<b>%</b>	<b>52.0%</b>	<b>48.0%</b>	<b>100.0%</b>
<b>Grand Total</b>	<b>Count</b>	<b>207</b>	<b>116</b>	<b>323</b>
	<b>%</b>	<b>64.1%</b>	<b>35.9%</b>	<b>100%</b>

Table 3.31 Perceived Positive Impact of Land Conversion Based on Survey/Interview (1/2)							
City/Municipality		Will improve quality	Increase job opportunity	Will increase land valuation	Will improve accessibility	none	Total
<b>Type A – Structure Owner</b>							
TARLAC							
Tarlac City	Count	-	-	-	-	-	-
	%	-	-	-	-	-	-
La Paz	Count	-	-	2	-	1	3
	%	-	-	66.7%	-	33.3%	100.0%
NUEVA ECIJA							
Aliaga	Count	12	8	2	8	2	32
	%	37.5%	25.0%	6.3%	25.0%	6.0%	100.0%
Cabanatuan	Count	6	10	2	6	4	28
	%	21.4%	35.7%	7.1%	21.4%	14.3%	100.0%
<b>Sub-total 1</b>	<b>Count</b>	<b>18</b>	<b>18</b>	<b>6</b>	<b>14</b>	<b>7</b>	<b>63</b>
	<b>%</b>	<b>28.6%</b>	<b>28.6%</b>	<b>9.5%</b>	<b>22.2%</b>	<b>11.1%</b>	<b>100.0%</b>
<b>Type B – Landowners</b>							
TARLAC							
Tarlac City	Count	-	-	-	-	-	-
	%	-	-	-	-	-	-
La Paz	Count	25	4	4	2	10	45
	%	55.6%	8.9%	8.9%	4.4%	22.2%	100.0%

Table 3.31 Perceived Positive Impact of Land Conversion Based on Survey/Interview (2/2)							
City/Municipality		Will improve quality	Increase job opportunity	Will increase land valuation	Will improve accessibility	none	Total
NUEVA ECIJA							
Zaragosa	Count	19	-	1	-	5	25
	%	76.0%	-	4.0%	-	20.0%	100.0%
Aliaga	Count	66	2	-	1	16	85
	%	77.6%	2.4%	-	1.2%	18.8%	100.0%
Cabanatuan	Count	4	1	-	-	-	5
	%	80.0%	20.0%	-	-	-	100.0%
<b>Sub-total 2</b>	<b>Count</b>	<b>114</b>	<b>7</b>	<b>5</b>	<b>3</b>	<b>31</b>	<b>160</b>
	<b>%</b>	<b>71.3%</b>	<b>4.4%</b>	<b>3.1%</b>	<b>1.9%</b>	<b>19.4%</b>	<b>100.0%</b>
Type C – Indirectly Affected							
Women's Sector	Count	3	6	5	5	1	20
	%	15.0%	30.0%	25.0%	25.0%	5.0%	100.0%
Youth Sector	Count	4	7	4	5	-	20
	%	20.0%	35.0%	20.0%	25.0%	-	100.0%
Farmer's Sector	Count	3	4	10	2	1	20
	%	15.0%	20.0%	50.0%	10.0%	5.0%	100.0%
Business Sector	Count	1	4	11	4	-	20
	%	5.0%	20.0%	55.0%	20.0%	-	100.0%
Transport Sector	Count	-	5	10	4	1	20
	%	-	25.0%	50.0%	20.0%	5.0%	100.0%
<b>Sub-total 3</b>	<b>Count</b>	<b>11</b>	<b>26</b>	<b>40</b>	<b>20</b>	<b>3</b>	<b>100</b>
	<b>%</b>	<b>11.0%</b>	<b>26.0%</b>	<b>40.0%</b>	<b>20.0%</b>	<b>3.0%</b>	<b>100.0%</b>
<b>Grand Total</b>	<b>Count</b>	<b>143</b>	<b>51</b>	<b>51</b>	<b>37</b>	<b>41</b>	<b>323</b>
	<b>%</b>	<b>44.3%</b>	<b>15.8%</b>	<b>15.8%</b>	<b>11.4%</b>	<b>12.7%</b>	<b>100%</b>

**Table 3.32 Perceived Negative Impact of Land Conversion Based on Survey/Interview (1/2)**

City/Municipality		Will increase noise/air pollution	Will generate more waste	Will cause heavy traffic	Will cause unfavorable change of lifestyle	none	Total
<b>Type A – Structure Owner</b>							
TARLAC							
Tarlac City	Count	-	-	-	-	-	-
	%	-	-	-	-	-	-
La Paz	Count	-	-	-	1	2	3
	%	-	-	-	33.3%	66.7%	100.0%
NUEVA ECIJA							
Aliaga	Count	15	4	2	7	4	32
	%	46.9%	12.5%	6.3%	21.9%	12.5%	100.0%
Cabanatuan	Count	13	3	-	8	4	28
	%	46.4%	10.7%	-	28.6%	14.3%	100.0%
<b>Sub-total 1</b>	<b>Count</b>	<b>28</b>	<b>7</b>	<b>2</b>	<b>16</b>	<b>10</b>	<b>63</b>
	<b>%</b>	<b>44.4%</b>	<b>11.1%</b>	<b>3.2%</b>	<b>25.4%</b>	<b>15.9%</b>	<b>100.0%</b>
<b>Type B – Landowners</b>							
TARLAC							
Tarlac City	Count	-	-	-	-	-	-
	%	-	--	-	-	-	-
La Paz	Count	30	1	3	6	5	45
	%	66.7%	2.2%	6.7%	13.3%	11.1%	100.0%
NUEVA ECIJA							
Zaragoza	Count	23	2	-	-	-	25
	%	92.0%	8.0%	-	-	-	100.0%
Aliaga	Count	81	2	-	-	2	85
	%	95.3%	2.4%	-	-	2.4%	100.0%
Cabanatuan	Count	5	-	-	-	-	5
	%	100.0%	-	-	-	-	100.0%
<b>Sub-total 2</b>	<b>Count</b>	<b>139</b>	<b>5</b>	<b>3</b>	<b>6</b>	<b>7</b>	<b>160</b>
	<b>%</b>	<b>86.9%</b>	<b>3.1%</b>	<b>1.9%</b>	<b>3.8%</b>	<b>4.0%</b>	<b>100.0%</b>

**Table 3.32 Perceived Negative Impact of Land Conversion Based on Survey/Interview (2/2)**

City/Municipality		Will increase noise/air pollution	Will generate more waste	Will cause heavy traffic	Will cause unfavorable change of lifestyle	none	Total
<b>Type C – Indirectly Affected</b>							
Women's Sector	Count	4	5	-	6	5	20
	%	20.0%	25.0%	-	30.0%	25.0%	100.0%
Youth Sector	Count	6	5	2	5	2	20
	%	30.0%	25.0%	10.0%	25.0%	10.0%	100.0%
Farmer's Sector	Count	2	1	2	3	12	20
	%	10.0%	5.0%	10.0%	15.0%	60.0%	100.0%
Business Sector	Count	2	4	-	5	9	20
	%	10.0%	20.0%	-	25.0%	45.0%	100.0%
Transport Sector	Count	5	5	-	4	6	20
	%	25.0%	25.0%	-	20.0%	30.0%	100.0%
<b>Sub-total 3</b>	<b>Count</b>	<b>19</b>	<b>20</b>	<b>4</b>	<b>23</b>	<b>34</b>	<b>100</b>
	<b>%</b>	<b>19.0%</b>	<b>20.0%</b>	<b>4.0%</b>	<b>23.0%</b>	<b>34.0%</b>	<b>100.0%</b>
<b>Grand Total</b>	<b>Count</b>	<b>186</b>	<b>32</b>	<b>9</b>	<b>45</b>	<b>52</b>	<b>323</b>
	<b>%</b>	<b>57.6%</b>	<b>9.9%</b>	<b>2.8%</b>	<b>13.9%</b>	<b>16.0%</b>	<b>100%</b>

### **Knowledge About the Project**

The survey conducted indicated that 58.5% of the respondents in the Impact Area have knowledge of the project the remaining 41.5% have not heard of the proposed project.

**Table 3.33** presents the results of the Survey/Interview regarding the knowledge about the project.

<b>Table 3.33 Knowledge About the Project of the Respondents Based on Survey/Interview (1/2)</b>				
<b>City/Municipality</b>		<b>Yes</b>	<b>No</b>	<b>Total</b>
<b>Type A – Structure Owner</b>				
TARLAC				
Tarlac City	Count	-	-	-
	%	-	-	-
La Paz	Count	2	1	3
	%	66.7%	33.3%	100.0%
NUEVA ECIJA				
Aliaga	Count	22	10	32
	%	68.8%	31.3%	100.0%
Cabanatuan	Count	23	5	28
	%	82.1%	17.9%	100.0%
<b>Sub-total 1</b>	<b>Count</b>	<b>47</b>	<b>16</b>	<b>63</b>
	<b>%</b>	<b>74.6%</b>	<b>25.4%</b>	<b>100.0%</b>
<b>Type B – Landowner</b>				
TARLAC				
Tarlac City	Count	-	-	-
	%	-	-	-
La Paz	Count	30	15	45
	%	66.7%	33.3%	100.0%
NUEVA ECIJA				
Zaragoza	Count	-	25	25
	%	-	100.0%	100.0%
Aliaga	Count	45	40	85
	%	52.9%	47.1%	100.0%
Cabanatuan	Count	3	2	5
	%	60.0%	40.0%	100.0%
<b>Sub-total 2</b>	<b>Count</b>	<b>78</b>	<b>82</b>	<b>160</b>
	<b>%</b>	<b>48.8%</b>	<b>51.3%</b>	<b>100.0%</b>

**Table 3.33 Knowledge About the Project of the Respondents Based on Survey/Interview (2/2)**

City/Municipality		Yes	No	Total
<b>Type C – Indirectly Affected</b>				
Women's Sector	Count	12	8	20
	%	60.0%	40.0%	100.0%
Youth Sector	Count	8	12	20
	%	40.0%	60.0%	100.0%
Farmer's Sector	Count	18	2	20
	%	90.0%	10.0%	100.0%
Business Sector	Count	14	6	20
	%	70.0%	30.0%	100.0%
Transport Sector	Count	12	8	20
	%	60.0%	40.0%	100.0%
<b>Sub-total 3</b>	<b>Count</b>	<b>64</b>	<b>36</b>	<b>100</b>
	<b>%</b>	<b>64.0%</b>	<b>36.0%</b>	<b>100.0%</b>
<b>Grand Total</b>	<b>Count</b>	<b>189</b>	<b>134</b>	<b>323</b>
	<b>%</b>	<b>58.5%</b>	<b>41.5%</b>	<b>100%</b>



### Sources of Information about the Project

Out of the 190 respondents who have knowledge about the CLLEX Project, 37.6% of the respondents got the project's information from the EIA/RAP Consultant (ECOSYSCORP, INC.) through the Information Education and Communication (IEC) meetings conducted by the Consultant. Other sources are the barangay officials, neighbors/friends and relatives; and the surveyors during their staking of the alignment.

The distributions of the sources of information about the project are presented in **Table 3.34**.

<b>Table 3.34 Source of Information About the Project Based on Survey/Interview (1/2)</b>							
City/Municipality		LGUs	Ecosyscorp Inc	Relatives	Neighbors/Friends	Surveyors	Total
<b>Type A – Structure Owner</b>							
TARLAC							
Tarlac City	Count	-	-	-	-	-	-
	%	-	-	-	-	-	-
La Paz	Count	1	-	-	-	1	2
	%	50.0%	-	-	-	50.0%	100.0%
NUEVA ECIJA							
Aliaga	Count	13	6	-	-	3	22
	%	59.1%	27.3%	-	-	13.6%	100.0%
Cabanatuan	Count	3	13	2	3	2	23
	%	13.0%	56.5%	8.7%	13.0%	8.7%	100.0%
<b>Sub-total 1</b>	<b>Count</b>	<b>17</b>	<b>19</b>	<b>2</b>	<b>3</b>	<b>6</b>	<b>47</b>
	<b>%</b>	<b>36.2%</b>	<b>40.4%</b>	<b>4.3%</b>	<b>6.4%</b>	<b>12.8%</b>	<b>100.0%</b>
<b>Type B – Landowners</b>							
TARLAC							
Tarlac City	Count	-	-	-	-	-	-
	%	-	-	-	-	-	-
La Paz	Count	8	17	1	3	1	30
	%	26.7%	56.7%	3.3%	10.0%	3.3%	100.0%
NUEVA ECIJA							
Zaragosa	Count	-	-	-	-	-	-
	%	-	-	-	-	-	-
Aliaga	Count	4	19	10	6	6	45
	%	8.09%	42.2%	22.2%	13.3%	13.3%	100.0%
Cabanatuan	Count	-	-	2	-	1	3
	%	-	-	66.7%	-	33.3%	100.0%
<b>Sub-total 2</b>	<b>Count</b>	<b>12</b>	<b>36</b>	<b>13</b>	<b>9</b>	<b>8</b>	<b>78</b>
	<b>%</b>	<b>15.4%</b>	<b>46.2%</b>	<b>16.7%</b>	<b>11.5%</b>	<b>10.3%</b>	<b>100.0%</b>

Table 3.34 Source of Information About the Project Based on Survey/Interview (2/2)							
City/Municipality		LGUs	Ecosyscorp Inc	Relatives	Neighbors/Friends	Surveyors	Total
<b>Type C – Indirectly Affected</b>							
Women's Sector	Count	6	3	-	2	1	12
	%	50.0%	25.0%	-	16.7%	8.0%	100.0%
Youth Sector	Count	2	4	2	-	-	8
	%	25.0%	50.0%	25.0%	-	-	100.0%
Farmer's Sector	Count	8	4	1	4	1	18
	%	44.4%	22.2%	5.6%	22.2%	5.6%	100.0%
Business Sector	Count	4	2	2	6	-	14
	%	28.6%	14.3%	14.3%	42.9%	-	100.0%
Transport Sector	Count	4	3	-	5	-	12
	%	33.3%	25.0%	-	41.7%	-	100.0%
<b>Sub-total 3</b>	<b>Count</b>	<b>24</b>	<b>16</b>	<b>5</b>	<b>17</b>	<b>2</b>	<b>64</b>
	<b>%</b>	<b>37.5</b>	<b>25.0%</b>	<b>7.8%</b>	<b>26.6%</b>	<b>3.1%</b>	<b>100.0%</b>
<b>Grand Total</b>	<b>Count</b>	<b>53</b>	<b>71</b>	<b>20</b>	<b>29</b>	<b>16</b>	<b>190</b>
	<b>%</b>	<b>28.0%</b>	<b>37.6%</b>	<b>10.6%</b>	<b>15.3%</b>	<b>8.5%</b>	<b>100%</b>

### **Concurrence to the Project**

A relatively high percentage of 68.1% are in favor of the project. The remaining 31.9% are not in favor due to the negative impact the project will bring to their livelihood, particularly with the loss of income and land in farming. The distribution of the respondents' concurrence to the project is presented in **Table 3.35**.

<b>Table 3.35 Community Concurrence to the Proposed Project of the Respondents Based on Survey/Interview (1/2)</b>				
<b>City/Municipality</b>		<b>Yes</b>	<b>No</b>	<b>Total</b>
<b>Type A – Structure Owner</b>				
TARLAC				
Tarlac City	Count	-	-	-
	%	-	-	-
La Paz	Count	2	1	3
	%	66.7%	33.3%	100.0%
NUEVA ECIJA				
Zaragosa	Count	1	-	1
	%	100.0%	-	100.0%
Aliaga	Count	17	15	32
	%	53.1%	46.9%	100.0%
Cabanatuan	Count	19	9	28
	%	71.4%	28.6%	100.0%
<b>Sub-total 1</b>	<b>Count</b>	<b>40</b>	<b>24</b>	<b>64</b>
	<b>%</b>	<b>60.3%</b>	<b>39.7%</b>	<b>100.0%</b>
<b>Type B – Landowner</b>				
TARLAC				
Tarlac City	Count	-	-	-
	%	-	-	-
La Paz	Count	27	18	45
	%	60.0%	40.0%	100.0%
NUEVA ECIJA				
Zaragosa	Count	13	12	25
	%	52.0%	48.0%	100.0%
Aliaga	Count	45	40	85
	%	52.9%	47.1%	100.0%
Cabanatuan	Count	5	-	5
	%	100.0%	-	100.0%
<b>Sub-total 2</b>	<b>Count</b>	<b>90</b>	<b>70</b>	<b>160</b>
	<b>%</b>	<b>56.3%</b>	<b>43.8%</b>	<b>100.0%</b>

Table 3.35 Community Concurrence to the Proposed Project of the Respondents Based on Survey/Interview (2/2)				
City/Municipality		Yes	No	Total
Type C – Indirectly Affected				
Women's Sector	Count	18	2	20
	%	90.0%	10.0%	100.0%
Youth Sector	Count	20	-	20
	%	100.0%	-	100.0%
Farmer's Sector	Count	17	3	20
	%	85.0%	15.0%	100.0%
Business Sector	Count	18	2	20
	%	90.0%	10.0%	100.0%
Transport Sector	Count	19	1	20
	%	95.0%	5.0%	100.0%
<b>Ssub-total 3</b>	<b>Count</b>	<b>92</b>	<b>8</b>	<b>100</b>
	<b>%</b>	<b>92.0%</b>	<b>8.0%</b>	<b>100.0%</b>
<b>Grand Total</b>	<b>Count</b>	<b>220</b>	<b>103</b>	<b>323</b>
	<b>%</b>	<b>68.1%</b>	<b>31.9%</b>	<b>100%</b>

### **Perceived Positive Impact**

When asked about perceived positive impact of the proposed project, the respondents' top three (3) answers are (i) it will improve accessibility (30.9%) (ii) it will improve farm products delivery (21.7%) and (iii) will improve quality of life. Others still believe that the project will not generate any positive impact (3.4%).

**Table 3.36 Perceived Positive Impact of CLLEX Project Based on Survey/Interview (1/3)**

City/Municipality		Will improve quality of life	Will improved accessibility	Increase job opportunity	Improve farm products delivery	Will increase land valuation	None	Total
<b>Type A – Structure Owner</b>								
<b>TARLAC</b>								
Tarlac City	Count	-	-	-	-	-	-	-
	%	-	-	-	-	-	-	-
La Paz	Count	-	1	-	-	1	1	3
	%	-	33.3%	-	-	33.3%	33.3%	100.0 %
<b>NUEVA ECIJA</b>								
Aliaga	Count	9	9	5	4	1	4	32
	%	28.1%	28.1%	15.6%	12.5%	3.1%	12.5%	100.0 %
Cabanatuan	Count	5	16	2	-	1	4	28
	%	17.9%	57.1%	7.1%	-	3.6%	14.3%	100.0 %
<b>Sub-total 1</b>	<b>Count</b>	<b>14</b>	<b>26</b>	<b>7</b>	<b>4</b>	<b>3</b>	<b>9</b>	<b>64</b>
	<b>%</b>	<b>22.2%</b>	<b>41.3%</b>	<b>11.1%</b>	<b>6.3%</b>	<b>4.8%</b>	<b>14.3%</b>	<b>100.0 %</b>

**Table 3.36 Perceived Positive Impact of CLLEX Project Based on Survey/Interview (2/3)**

City/Municipality		Will improve quality of life	Will improved accessibility	Increase job opportunity	Improve farm products delivery	Will increase land valuation	None	Total
<b>Type B – Landowners</b>								
TARLAC								
Tarlac City	Count	-	-	-	-	-	-	-
	%	-	-	-	-	-	-	-
La Paz	Count	13	11	8	7	6	-	45
	%	28.9%	24.4%	17.8%	15.6%	13.3%	-	100.0 %
NUEVA ECIJA								
Zaragosa	Count	1	12	2	6	4	-	25
	%	4.0%	48.0%	8.0%	24.0%	16.0%	-	100.0 %
Aliaga	Count	17	16	13	28	11	-	85
	%	20.0%	18.8%	15.3%	32.9%	12.9%	-	100.0 %
Cabanatuan	Count	3	1	1	-	-	-	5
	%	60.0%	20.0%	20.0%	-	-	-	100.0 %
<b>Sub-total 2</b>	<b>Count</b>	<b>34</b>	<b>40</b>	<b>24</b>	<b>41</b>	<b>21</b>	<b>-</b>	<b>160</b>
	<b>%</b>	<b>21.3%</b>	<b>25.0%</b>	<b>15.0%</b>	<b>25.6%</b>	<b>13.1%</b>	<b>-</b>	<b>100.0 %</b>



**Table 3.36 Perceived Positive Impact of CLLEX Project Based on Survey/Interview (3/3)**

City/Municipality		Will improve quality of life	Will improved accessibility	Increase job opportunity	Improve farm products delivery	Will increase land valuation	None	Total
<b>Type C – Indirectly Affected</b>								
Women's Sector	Count	3	10	2	3	2	-	20
	%	15.0%	50.0%	10.0%	15.0%	10.0%	-	100.0%
Youth Sector	Count	1	6	6	4	3	-	20
	%	5.0%	30.0%	30.0%	20.0%	15.0%	-	100.0%
Farmer's Sector	Count	2	4	1	6	5	2	20
	%	10.0%	20.0%	5.0%	30.0%	25.0%	10.0%	100.0%
Business Sector	Count	3	8	3	4	2	-	20
	%	15.0%	40.0%	15.0%	20.0%	10.0%	-	100.0%
Transport Sector	Count	-	6	4	8	2	-	20
	%	-	30.0%	20.0%	40.0%	10.0%	-	100.0%
<b>Sub-total 3</b>	<b>Count</b>	<b>9</b>	<b>34</b>	<b>16</b>	<b>25</b>	<b>14</b>	<b>2</b>	<b>100</b>
	<b>%</b>	<b>9.0%</b>	<b>34.0%</b>	<b>16.0%</b>	<b>25.0%</b>	<b>14.0%</b>	<b>2.0%</b>	<b>100.0%</b>
<b>Grand Total</b>	<b>Count</b>	<b>57</b>	<b>100</b>	<b>47</b>	<b>70</b>	<b>38</b>	<b>11</b>	<b>323</b>
	<b>%</b>	<b>17.6%</b>	<b>30.9%</b>	<b>14.6%</b>	<b>21.7%</b>	<b>11.8%</b>	<b>3.4%</b>	<b>100%</b>

### Perceived Negative Impact

When asked what negative impacts they perceived during implementation of the Proposed CLLEX Phase I Project, the main answers are (i) it will cause increase in noise and air pollution during its construction and operational activities (38.7%), followed by (ii) displacement of people (29.7%) and (iii) loss of income/land (23.2%). Please refer to **Table 3.37** for the distribution of perceived negative impact of the project.

<b>Table 3.37 Perceived Negative Impact of CLLEX Project Based on Survey/Interview (1/2)</b>							
City/Municipality		Will increase noise/air pollution	Will displace people	Will entail loss income/land	Will cause division of community	Land conversion	Total
<b>Type A – Structure Owner</b>							
TARLAC							
Tarlac City	Count	-	-	-	-	-	-
	%	-	-	-	-	-	-
La Paz	Count	-	-	3	-	-	3
	%	-	-	100.0%	-	-	100.0%
NUEVA ECIJA							
Aliaga	Count	3	12	15	1	1	32
	%	9.4%	37.5%	46.9%	3.1%	3.1%	100.0%
Cabanatuan	Count	7	13	4	4	-	28
	%	25.0%	42.9%	17.9%	14.3%	-	100.0%
<b>Sub-total 1</b>	<b>Count</b>	<b>10</b>	<b>25</b>	<b>22</b>	<b>5</b>	<b>1</b>	<b>63</b>
	<b>%</b>	<b>15.9%</b>	<b>39.7%</b>	<b>34.9%</b>	<b>7.9%</b>	<b>1.6%</b>	<b>100.0%</b>
<b>Type B – Landowners</b>							
TARLAC							
Tarlac City	Count	-	-	-	-	-	-
	%	-	-	-	-	-	-
La Paz	Count	25	8	10	2	-	45
	%	55.6%	17.8%	22.2%	4.4%	-	100.0%
NUEVA ECIJA							
Zaragoza	Count	16	9	-	-	-	25
	%	64.0%	36.0%	-	-	-	100.0%
Aliaga	Count	48	36	1	-	-	85
	%	56.5%	42.4%	1.2%	-	-	100.0%
Cabanatuan	Count	4	1	-	-	-	5
	%	80.0%	20.0%	-	-	-	100.0%
<b>Sub-total 2</b>	<b>Count</b>	<b>93</b>	<b>54</b>	<b>11</b>	<b>2</b>	<b>-</b>	<b>160</b>
	<b>%</b>	<b>58.1%</b>	<b>33.8%</b>	<b>6.9%</b>	<b>1.3%</b>	<b>-</b>	<b>100.0%</b>

Table 3.37 Perceived Negative Impact of CLLEX Project Based on Survey/Interview (2/2)							
City/Municipality		Will increase noise/air pollution	Will displace people	Will entail loss income/land	Will cause division of community	Land conversion	Total
<b>Type C – Indirectly Affected</b>							
20Women's Sector	Count	7	1	9	1	2	20
	%	35.0%	5.0%	45.0%	5.0%	10.0%	100.0%
Youth Sector	Count	9	6	3	1	1	20
	%	45.0%	30.0%	15.0%	5.0%	5.0%	100.0%
Farmer's Sector	Count	1	2	13	3	1	20
	%	5.0%	10.0%	65.0%	15.0%	5.0%	100.0%
Business Sector	Count	4	3	7	1	5	20
	%	20.0%	15.0%	35.0%	5.0%	25.0%	100.0%
Transport Sector	Count	1	5	10	1	3	20
	%	5.0%	25.0%	50.0%	5.0%	15.0%	100.0%
<b>Sub-total 3</b>	<b>Count</b>	<b>22</b>	<b>17</b>	<b>42</b>	<b>7</b>	<b>12</b>	<b>100</b>
	<b>%</b>	<b>22.0%</b>	<b>17.0%</b>	<b>42.0%</b>	<b>7.0%</b>	<b>12.0%</b>	<b>100.0%</b>
<b>Grand Total</b>	<b>Count</b>	<b>125</b>	<b>96</b>	<b>75</b>	<b>14</b>	<b>13</b>	<b>323</b>
	<b>%</b>	<b>38.7%</b>	<b>29.7%</b>	<b>23.2%</b>	<b>4.3%</b>	<b>4.0%</b>	<b>100%</b>

### **3.5.3 Social Development Program (SDP) for DIA**

The DPWH must support a Social Development Program (SDP) that will ensure that affected communities get compensated for the disturbance to their normal lives, not only in terms of monetary settlement for the damages. It is just fair that they be assisted so that the processing of payment due them can be expedited. Aside from these, DPWH must also make sure that the relocation plan is sustainable; i.e., aside from the basic amenities at the resettlement area, an alternative livelihood assistance program must be included.

The criteria used for identifying beneficiaries who would be eligible to the SDP for the CLLEX Project Phase 1 are those:

- (i) informal settlers who have no awarded land from government housing project;
- (ii) informal settlers who no other place to thrive in;
- (iii) who do not have other means of livelihood;
- (iv) farmers who will loss income and land.

#### **Employment Opportunities and Livelihood Assistance**

Qualified, residents of the DIA must be given first priority in hiring during the pre-construction and construction stage of the project.

The survey showed that most of the male household members can also work as driver (29.9%) aside from their present occupation, and also as laborers (37.5%), carpenters (14.7%), mason (6.3%), mechanic (3.6%) and utility (1.8%).

Table 3.38 Skills of Men in the DIA Based on Survey/Interview									
City/Municipality		Laborer	Carpenter	Mason	mechanic	driver	Utility	none	Total
<b>Type A – Structure Owner</b>									
TARLAC									
La Paz	Count	-	2	-	-	-	-	1	3
	%	-	66.7%	-	-	-	-	33.3%	100.0%
NUEVA ECIJA									
Zaragoza	Count	1	-	-	-	-	-	-	1
	%	100.0%	-	-	-	-	-	-	100.0%
Aliaga	Count	10	5	-	2	12	-	3	32
	%	31.3%	15.6%	-	6.3%	37.5%	-	9.4%	100.0%
Cabanatuan	Count	6	3	3	-	14	1	1	28
	%	21.4%	10.7%	10.7%	-	50.0%	3.6%	3.6%	100.0%
<b>Sub-Total 1</b>	<b>Count</b>	<b>17</b>	<b>10</b>	<b>3</b>	<b>2</b>	<b>26</b>	<b>1</b>	<b>5</b>	<b>64</b>
	<b>%</b>	<b>26.6%</b>	<b>15.6%</b>	<b>4.7%</b>	<b>3.1%</b>	<b>40.6%</b>	<b>1.6%</b>	<b>7.9%</b>	<b>100.0%</b>
<b>Type B – Landowner</b>									
TARLAC									
La Paz	Count	23	5	2		8	2	5	45
	%	51.1%	11.1%	4.4%		17.8%	4.4%	11.1%	100.0%
NUEVA ECIJA									
Zaragoza	Count	6	6	4	3	4	1	1	25
	%	24.0%	24.0%	16.0%	12.0%	16.0%		4.0%	100.0%
Aliaga	Count	36	12	5	3	26		3	85
	%	42.4%	14.1%	5.9%	3.5%	30.6%		3.6%	100.0%
Cabanatuan	Count	2				3			5
	%	40.0%				60.0%			100.0%
<b>Sub-Total 2</b>	<b>Count</b>	<b>67</b>	<b>23</b>	<b>11</b>	<b>6</b>	<b>41</b>	<b>3</b>	<b>9</b>	<b>160</b>
	<b>%</b>	<b>41.9%</b>	<b>14.4%</b>	<b>6.9%</b>	<b>3.8%</b>	<b>25.6%</b>	<b>1.9%</b>	<b>5.6%</b>	<b>100.0%</b>
<b>Grand Total</b>	<b>Count</b>	<b>84</b>	<b>33</b>	<b>14</b>	<b>8</b>	<b>67</b>	<b>4</b>	<b>14</b>	<b>224</b>
	<b>%</b>	<b>37.5%</b>	<b>14.7%</b>	<b>6.3%</b>	<b>3.6%</b>	<b>29.9%</b>	<b>1.8%</b>	<b>6.3%</b>	<b>100.0%</b>

If the proposed relocation site for affected families is proximal to their present location, they should still be able to continue with their present source of livelihood. However, if the relocation site is far from the community's main source of livelihood, technical training must be provided to the beneficiaries to equip them in acquiring alternative means of livelihood.

Among the target female beneficiaries, the result of the survey showed that most of the available skills are cooking, seedling nursery and manufacturing **Table 3.39**.

<b>Table 3.39 Skills of Women in the DIA Based on Survey/Interview</b>									
City/Municipality		Cook maintenan ce	sewer	Timekeeper clerk	Seedling nursery caretaker	Factory worker	house help	none	Total
<b>Type A – Structure Owner</b>									
TARLAC									
La Paz	Count	1	1	-	-	-	-	1	3
	%	33.3%	33.3%	-	-	-	-	33.3%	100.0%
NUEVA ECIJA									
Zaragoza	Count	1							1
	%	100.0%							100.0%
Aliaga	Count	11	6	1		6	4	4	32
	%	34.4%	18.8%	3.1%		3.1%	12.5%	12.5%	100.0%
Cabanatuan	Count	12	2	1		8	4	1	28
	%	42.9%	7.1%	3.6%		28.6%	14.3%	3.6%	100.0%
<b>Sub-total 1</b>	<b>Count</b>	<b>25</b>	<b>9</b>	<b>2</b>		<b>14</b>	<b>8</b>	<b>6</b>	<b>64</b>
	<b>%</b>	<b>39.1%</b>	<b>14.1%</b>	<b>3.1%</b>		<b>21.9%</b>	<b>12.5%</b>	<b>9.4%</b>	<b>100.0%</b>
<b>Type B – Landowner</b>									
TARLAC									
La Paz	Count	7	5		9	9	5	10	45
	%	15.6	11.1		20.0	20.0	11.1	22.2	100.0
NUEVA ECIJA									
Zaragoza	Count				12	5	6	2	25
	%				48.0%	20.0%	24.0%	11.8%	100.0%
Aliaga	Count	4	10		42	19	10		85
	%	4.7%	11.8%		49.4%	22.4%	11.8%		100.0%
Cabanatuan	Count	2	1			2			5
	%	40.0%	20.0%		40.0%				100.0%
<b>Sub-total 2</b>	<b>Count</b>	<b>13</b>	<b>16</b>		<b>63</b>	<b>35</b>	<b>21</b>	<b>12</b>	<b>160</b>
	<b>%</b>	<b>8.1%</b>	<b>10.0%</b>		<b>39.4%</b>	<b>21.9%</b>	<b>13.1%</b>	<b>7.5%</b>	<b>100.0%</b>
<b>Grand Total</b>	<b>Count</b>	<b>13</b>	<b>16</b>		<b>63</b>	<b>35</b>	<b>21</b>	<b>12</b>	<b>160</b>
	<b>%</b>	<b>8.1%</b>	<b>10.0%</b>		<b>39.4%</b>	<b>21.9%</b>	<b>13.1%</b>	<b>7.5%</b>	<b>100.0%</b>



Such being the case, it is deemed necessary that female spouses are provided with additional livelihood training activities so that they can help their husbands in augmenting their family income. Some of these are:

- (i) Livelihood Seminars on Dressmaking, Food Processing, Handicraft making, and Crop Production enhancement;
- (ii) Productivity Skills Training; and
- (iii) Gender Awareness and Self enhancement Skills Development

The DPWH, the LGUs, the DSWD, the NGOs operating in the area, and other concerned private entities must join hands in the realization of these proposed training programs. For example skills training in coordination with the Technical and Educational Skills Development Administration (TESDA) can be arranged so that qualified beneficiaries may be able to avail of said trainings, without incurring too much cost on the part of the government.

---

## **Chapter 4**

# **Environmental Impacts, Mitigation and Enhancement Measures**

---

## **4 ENVIRONMENTAL IMPACTS, MITIGATION AND ENHANCEMENT MEASURES**

---

### **4.1 ENVIRONMENTAL IMPACTS, MITIGATION AND ENHANCEMENT MEASURES**

Presented in **Table 4.1-1** are the potential impacts that may affect the receiving environment during implementation of the proposed CLLEX Phase I Project. Also discussed in the Table are the recommended mitigation (if negative) and enhancement (if positive) measures for each identified impact. The duration and types of impacts are likewise presented.

Table 4.1-1 Environmental Impacts and Mitigation/Enhancement Measures			
Environmental Component Likely to be Affected	Potential Impact	Duration and Type of impacts	Mitigation/Enhancement Measures
PRE-CONSTRUCTION AND CONSTRUCTION PHASES			
THE LAND			
<b>Geology</b>	<p><i>Ground shaking</i></p> <p>The project area, in a lower intensity, will be affected by earthquakes from known earthquake generators within the region such as <i>Philippine Fault</i>, etc. It will experience <b>ground shaking</b> during an earthquake event, where in the intensity will be influenced by the magnitude of the earthquake, distance from of the site from earthquake generator, and the modifying effects of subsoil conditions. In a worst-case scenario, the site would experience higher ground shaking due to earthquakes that might be generated by the Philippine Fault, particularly the Digdig fault, the San Jose Fault and Gabaldon fault, which are the closest major faults to the project site.</p>	<i>Long-term, negative</i>	<ul style="list-style-type: none"> <li>• Undertake a site specific Probabilistic Seismic Hazard Assessment (PSHA) to determine the Maximum Considered Earthquake (MCE) Design Basis Earthquake (DBE);</li> <li>• Proper engineering, planning and design of the elevated roadway structures and foundations must strictly consider seismic factors and loadings for an earthquake so that they can resist at least <b>0.4-0.5 g</b> peak horizontal ground acceleration; and</li> <li>• Specialized or additional engineering foundation design should be taken into consideration for the whole stretch of the alignment;</li> <li>• Structural designs will strictly comply with engineering standards to withstand loads and earthquakes; and</li> <li>• During Detailed Engineering Design, there will be a study on this matter to surface if there's really a possibility of liquefaction. If there's any, the designer will properly address and consider this in the design.</li> <li>• Closer inspection and consultation with PHIVOLCS or a qualified local structural geology expert to check if there are any splays of the major faults crossing the highway alignment. If there are any, then necessary provisions will be made.</li> <li>• Ensure that the design of the bridge and other structures consider the seismic force magnification factors due to potential large magnitude (<math>M &gt; 7.0</math>) earthquakes that can be generated by the faults.</li> </ul>
	<p><i>Ground Water Contamination</i></p> <p>There is groundwater aquifer from 0.5m to 4.3m (below ground level) which may be too shallow to be affected by construction activities specifically from construction as well as domestic waste water discharges, oil and grease leaks and spillages.</p>	<i>Short-Term; negative</i>	<ul style="list-style-type: none"> <li>• Portable toilets and garbage bins must be provided at the construction areas to ensure that further of contamination of the waterways will not occur; and</li> <li>• Wastes generated, particularly from the portable toilets must be regularly hauled and disposed to host LGU's-approved disposal site/s, identified disposal sites is presented in <b>Appendix F</b>.</li> <li>• Weekly inspection of the construction areas must be conducted to</li> </ul>

Table 4.1-1 Environmental Impacts and Mitigation/Enhancement Measures			
Environmental Component Likely to be Affected	Potential Impact	Duration and Type of impacts	Mitigation/Enhancement Measures
PRE-CONSTRUCTION AND CONSTRUCTION PHASES			
THE LAND			
			<p>ensure proper waste management</p> <ul style="list-style-type: none"> <li>• Maintenance and repair of construction of equipment and machineries will not be done at the construction sites to prevent unnecessary oil and grease discharges; and</li> <li>• Periodic Maintenance Servicing (PMS) of construction equipment and machineries must be regularly conducted to ensure these are in good working condition; and</li> <li>• Use of waterproof construction method.</li> </ul>
<b>Topography</b>	<p><i>Quarry</i></p> <p><i>Minor geographical changes are anticipated at CLLEX construction site, quarry, and disposal site of earth materials. Topographical changes by embankment cause flow and/or retention of surface water.</i></p>	<i>Short-Term; negative</i>	<ul style="list-style-type: none"> <li>• More quarries are available in the adjacent province and towns in the location of the proposed project. During Detailed Engineering, the possible quarries will be identified base on the quality and quantity needed in the project.</li> <li>• The location of the flood prone areas were identified and proper installation of a long bridge and equalizer canals (box culverts), cross pipes and other structures to allow free flow of floodwaters through or across the highway to prevent accumulation of floodwaters.</li> </ul>
<b>Land Use/Utilization</b>	About 205.55 hectares of rice lands will be lost to project's implementation. This will translate to a reduction of about 1,644.44 metric tons in our yearly palay production.	<i>Long Term, negative</i>	<ul style="list-style-type: none"> <li>• Provision for alternative farmland to PAPs (DPWH in close coordination with the DENR and concerned LGUs, if possible and existing laws would permit);</li> <li>• Introduction of other farming methods for efficiency and increased productivity;</li> <li>• May shift to planting high value crops;</li> </ul>
<b>Terrestrial Biology (Flora and Fauna)</b>	Massive stripping of rice lands and orchards' top cover which are categorized as unsuitable soils along the medians and road sides traversed by the expressway alignment may alter its terrestrial biology. This will cause migration of farm pests, insects, and other wild animals to adjoining and distant areas.	<i>Short and Long-term, negative</i>	<ul style="list-style-type: none"> <li>• "Permit To Cut" will be secured prior to tree cutting activities along the alignment;</li> <li>• Tree cutting will be limited to the required ROW;</li> <li>• Balling and relocation of trees will be carefully undertaken;</li> <li>• Reforestation at areas designated by the DENR-FMB to replace cut tree species. Replacement ratio and species to be introduced will be</li> </ul>

Table 4.1-1 Environmental Impacts and Mitigation/Enhancement Measures			
Environmental Component Likely to be Affected	Potential Impact	Duration and Type of impacts	Mitigation/Enhancement Measures
PRE-CONSTRUCTION AND CONSTRUCTION PHASES			
THE LAND			
	Benefits (economic as well as ecological) from fruit-bearing and non-fruit bearing trees will be decreased.		determined by the DENR-FMB

Table 4.1-1 Environmental Impacts and Mitigation/Enhancement Measures			
Environmental Component Likely to be Affected	Potential Impact	Duration and Type of impacts	Mitigation/Enhancement Measures
PRE-CONSTRUCTION AND CONSTRUCTION PHASES			
THE WATER			
<b>Hydrology</b>	<p><i>Flooding along the route corridor</i></p> <p>Possible aggravation of flooding traversed by the proposed CLLEX Expressway Phase I Project, in portions of La Paz, Tarlac, Sta. Lucia Old, Zaragosa; portions of Brgys. Sta. Monica, Pantoc, Bibiclat, and San Juan in Aliaga which are highly prone to such occurrence during thunderstorms or heavy downpours, and seasonal flooding due to flood control dike breaches along Talavera River during rainy season.</p> <p>Worst case flooding conditions can occur as a result of climate change just as what have occurred during the recent past typhoons Ondoy, Pepeng, Falcon and Pedring. The potential for flooding can be aggravated by simultaneous release of dams.</p>	<i>Long-term, negative</i>	<ul style="list-style-type: none"> <li>• To avoid contributing to the present flooding problems along the road alignment, location of the existing drainage systems will be established. Assessment of the facilities' condition will be undertaken to avoid damage and determine which are due for cleaning/declogging or upgrading or replacement;</li> <li>• Drainage upgrading and rehabilitation plans will be prepared and submitted to DPWH for approval;</li> <li>• Temporary stockpiles of excavated materials and construction spoils will be located at or along present flood control dikes in the Municipalities of Zaragosa and Aliaga to reinforce and strengthen them to avoid dike failures and prevent aggravation of the said area's present flooding situation, particularly during high precipitation periods;</li> <li>• Natural and engineered drainage lines will be kept free of obstructions at all times;</li> <li>• The location of the flood prone areas were identified and proper installation of a long bridge and the equalizer canals (Culvert), cross pipes and other structures will prevent the accumulation of floodwaters;</li> <li>• For the particular flooding problem in the area, the DPWH through the PMO-Flood Control Office will be having separate proposed project to address the wide spread flooding. Consideration and Integration of these proposed flood control projects in this area;</li> <li>• The climate change consideration for flood will be incorporated during the Detailed Engineering Design (DED) and this will be included in the TOR of the DED consultant.</li> </ul>
<b>Water Quality</b>	Possible increase in the bacteriological content of Talavera and Rio Chico Rivers and its tributaries within and near project alignment due to domestic wastes to be generated by the	<i>Short-term, negative</i>	<ul style="list-style-type: none"> <li>• Portable toilets and garbage bins must be provided at the construction areas to ensure that further of contamination of the waterways will not occur; and</li> <li>• Wastes generated, particularly from the portable toilets must be</li> </ul>



Table 4.1-1 Environmental Impacts and Mitigation/Enhancement Measures			
Environmental Component Likely to be Affected	Potential Impact	Duration and Type of impacts	Mitigation/Enhancement Measures
PRE-CONSTRUCTION AND CONSTRUCTION PHASES			
THE WATER			
	construction personnel		<p>regularly hauled and disposed to host LGU's-approved disposal site/s; and</p> <ul style="list-style-type: none"> <li>Weekly inspection of the construction areas must be conducted to ensure proper waste management</li> </ul>
	Possible increase in the oil & grease content of Talavera and Rio Chico Rivers and its tributaries within and near project alignment due to construction equipment and machineries operation.	<i>Short-term, negative</i>	<ul style="list-style-type: none"> <li>Washing of construction equipment and machineries along all natural drainage routes (Talavera and Rio Chico Rivers and its tributaries) within and near project alignment will be prohibited;</li> <li>Maintenance and repair of construction of equipment and machineries will not be done at the construction sites to prevent unnecessary oil and grease discharges; and</li> <li>Periodic Maintenance Servicing (PMS) of construction equipment and machineries must be regularly conducted to ensure these are in good working condition</li> </ul>
	Possible increase in pH level of Talavera and Rio Chico Rivers and its tributaries within and near project alignment due to concrete spillage	<i>Short-term, negative</i>	<ul style="list-style-type: none"> <li>Washing of concrete mixers along natural drainage routes will be prohibited; and</li> <li>Concrete pouring during foundation works of expressway sections near natural drainage ways must be closely supervised</li> </ul>
	<p>Possible increase in TSS content of Talavera and Rio Chico Rivers and its tributaries within and near project alignment.</p> <p>Possible siltation and sedimentation of natural drainage channels thus reducing its carrying capacity thus may lead to overflowing &amp; eventually flooding.</p>	<i>Short-term, negative</i>	<ul style="list-style-type: none"> <li>Temporary stockpile of excavated materials and construction spoils will not be located anywhere near all natural drainage routes to prevent surface run-off during high precipitation periods;</li> <li>Temporary stockpile of un-recycled excavated materials must be covered with tarpaulin or sack material to prevent surface run-off during high precipitation periods</li> </ul>
	Possible decommissioning of irrigation canals/channels in cases where they run parallel with the CLLEX alignment and within the required RROW.	<i>Short-term, negative</i>	<ul style="list-style-type: none"> <li>Shifting of irrigation canals/channels outside the required RROW even before expressway construction commences;</li> <li>Close coordination with NIA and local irrigation cooperatives;</li> </ul>

Table 4.1-1 Environmental Impacts and Mitigation/Enhancement Measures			
Environmental Component Likely to be Affected	Potential Impact	Duration and Type of impacts	Mitigation/Enhancement Measures
PRE-CONSTRUCTION AND CONSTRUCTION PHASES			
THE AIR			
Air Quality	Possible increase the TSP levels of due to re-suspension of dust particulates	Short-term, negative	<ul style="list-style-type: none"> <li>Exposed and cleared construction areas will be regularly sprayed with water to minimize dust re-suspension;</li> <li>Temporary stockpiles of excavated materials and construction spoils must be covered with tarpaulin or sack materials to prevent re-suspension of particulate matters;</li> <li>Construction spoils will be regularly hauled and disposed to areas duly-approved by the DENR/LGUs</li> </ul>
	Possible increase in the ambient concentration levels of NO <sub>2</sub> and SO <sub>2</sub> due to operation of various construction vehicles, equipment, and machineries	Short-term, negative	<ul style="list-style-type: none"> <li>Periodic Maintenance Service (PMS) of construction vehicles, heavy equipment and machineries must be regularly conducted to ensure these are in good working condition; and</li> <li>Daily routine check-up of construction vehicles, equipment, and machineries must be strictly complied with</li> </ul>
Noise Level	Possible increase in the noise level in the area due to operation of various construction equipment and machineries	Short-term, negative	<ul style="list-style-type: none"> <li>Bored piles using a special boring equipment will be adopted during foundation works instead of pile driving;</li> <li>Noise suppressors will be installed to maintain noise generated by various heavy equipment and construction machineries at permissible limit;</li> <li>High noise generating activities will be done during the daytime to minimize noise disturbance to adjacent residential areas; and</li> <li>Temporary noise barriers will be installed at noise sensitive areas such as residential, schools, and places of worships to maintain noise level at permissible limit</li> </ul>

Table 4.1-1 Environmental Impacts and Mitigation/Enhancement Measures			
Environmental Component Likely to be Affected	Potential Impact	Duration and Type of impacts	Mitigation/Enhancement Measures
PRE-CONSTRUCTION AND CONSTRUCTION PHASES			
THE PEOPLE			
<b>Informal settlers</b>	Displacement of qualified informal settlers in La Paz, Tarlac (3 families); Aliaga, Nueva Ecija (32 families) and Cabanatuan City, Nueva Ecija (32 families).	<i>Long-term, negative</i>	<ul style="list-style-type: none"> <li>During the Detailed Engineering Design Stage it would be necessary to update the <b>Resettlement Action Plan</b> (RAP) that was prepared as part of the Preparatory Survey;</li> <li>RAP will be implemented prior to any demolition works which would entail displacement of informal settlers; and</li> <li>Resettlement cost (computed during preparation of the updated RAP) must be included/adjusted in the <b>Total Project Cost</b> prior to Project implementation.</li> </ul>
<b>Basic social services</b>	Easy access to basic social services such as health centers, public transport, markets, schools, government centers and maybe water power and telecommunication utilities may be disrupted.	<i>Short-term, negative</i>	<ul style="list-style-type: none"> <li>Relocation of affected basic social service utilities must be undertaken in the shortest possible time to limit interruption period;</li> <li>Affected parties must be properly notified to enable them to prepare and adopt the necessary measures to minimize effects of interruption; and</li> <li>Close coordination with concerned utility companies will be undertaken to expedite relocation of the affected utilities</li> </ul>
<b>Safety</b>	Safety of motorists along the SCTEX, Tarlac-Sta. Rosa Road, Maharlika Highway at the boundary of Talavera and Cabanatuan City and all other existing provincial, municipal and barangay roads intersected by the proposed CLLEX project.	<i>Short-term, negative</i>	<ul style="list-style-type: none"> <li>Adequate lighting and reflectorized traffic and construction warning signs must be installed at the construction areas most specially on mentioned road intersections to ensure safety of motorists, especially during nighttime;</li> <li>Detour and other warning signs must be strategically installed specially on construction area approaches and re-routing schemes will be strictly implemented to minimize effects of traffic;</li> </ul>
<b>Stakeholders/ Genders, Tenant Owners</b>	A public interest monitoring system that ensures issues and concerns shall be part of the Planning and Implementation.	<i>Short-term, negative</i>	<ul style="list-style-type: none"> <li>There will be a close monitoring with regards to stakeholders to assess the outcome of this project in their community and to public. The public interest will always be considered and address all the right issues for the better development of the area. Affected household were identified in this project and preparations of Resettlement Action Plan will be undertake to address and observe the satisfaction by both parties to have a smooth implementation of</li> </ul>

Table 4.1-1 Environmental Impacts and Mitigation/Enhancement Measures			
Environmental Component Likely to be Affected	Potential Impact	Duration and Type of impacts	Mitigation/Enhancement Measures
PRE-CONSTRUCTION AND CONSTRUCTION PHASES			
THE PEOPLE			
	<p>Settlement considerations and relocation Gender Considerations especially for women.</p> <p>Tenant-land owner relations shall be considered with regards to compensation</p> <p>Active and Close coordination and monitoring between LGU and DPWH and Public Offices to ensure quality materials</p>		<p>this project. ;</p> <ul style="list-style-type: none"> <li>• For the information of the committee, the DPWH has now implementing the “Magna Carta for Women” whereas consideration of the gender sensitivity of the project and gender equality in the project not only during implementation but in all stages of the project cycle. Final RAP will be prepared during the detailed design and the matters will be fully considered.</li> <li>• The DPWH has the Resettlement Policy (LARIP) that address to this tenant-land owner relation with regards to their compensation and other entitlements;</li> <li>• Coordination, Orientation, Information and Education dissemination will be implemented in the RAP. This will be all throughout the duration of the project and assured the stakeholders and the public the quality materials subscribe to this project</li> </ul>

Table 4.1-1 Environmental Impacts and Mitigation/Enhancement Measures			
Environmental Component Likely to be Affected	Potential Impact	Duration and Type of impacts	Mitigation/Enhancement Measures
PRE-CONSTRUCTION AND CONSTRUCTION PHASES			
THE PEOPLE			
<b>Safety</b>	Safety of motorists along the SCTEX, Tarlac-Sta. Rosa Road (CLLEX intersecting at Brgy. Laungcupang, La Paz, Tarlac), Maharlika Highway at the boundary of Talavera and Cabanatuan City and all other existing provincial, municipal and barangay roads intersected by the proposed CLLEX project.	<i>Short-term, negative</i>	<ul style="list-style-type: none"> <li>• Excavation areas must be enclosed with corrugated metal sheets and where applicable, concrete impact barriers must be installed;</li> <li>• Well-trained traffic aides/flagmen must be designated at critical construction areas to guide motorists and prevent untoward accidents; and</li> <li>• Parking time of idle construction vehicles and equipment along the major roads will be limited</li> </ul>
	Safety of pedestrians, passersby, and residents near the construction site	<i>Short-term, negative</i>	<ul style="list-style-type: none"> <li>• Pedestrian crosswalks must be provided near residential and commercial areas, schools, and busy areas along the construction site;</li> <li>• Excavation areas must be enclosed with corrugated metal sheets to limit access;</li> <li>• Well-trained traffic aides/flagmen will be designated along busy portions of the construction sites (for pedestrians);</li> <li>• Adequate lighting and reflectorized construction warning signs must be installed around the construction areas to ensure safety of pedestrians, particularly during nighttime</li> </ul>
<b>Traffic</b>	Traffic congestion at CLLEX section intersecting Tarlac-Sta. Rosa Road at Brgy. Laungcupang, La Paz, Tarlac and Maharlika Highway at and near the boundary of Cabanatuan City and Talavera, Nueva Ecija where the Cabanatuan Interchange will be constructed.	<i>Short-term, negative</i>	<ul style="list-style-type: none"> <li>• Approved Traffic management Plan (TMP) and re-routing schemes will be strictly implemented to minimize traffic congestion on said road junctions;</li> <li>• Parking time of idle construction vehicles and equipment along the major roads will be limited, especially during rush hours;</li> <li>• Transport of fabricated construction materials will be done during nighttime;</li> </ul>

**Table 4.1-1 Environmental Impacts and Mitigation/Enhancement Measures**

Environmental Component Likely to be Affected	Potential Impact	Duration and Type of impacts	Mitigation/Enhancement Measures
<b>PRE-CONSTRUCTION AND CONSTRUCTION PHASES</b>			
<b>THE PEOPLE</b>			
<b>Traffic</b>	Traffic congestion at CLLEX section intersecting Tarlac-Sta. Rosa Road at Brgy. Laungcupang, La Paz, Tarlac and Maharlika Highway at and near the boundary of Cabanatuan City and Talavera, Nueva Ecija where the Cabanatuan Interchange will be constructed.	<i>Short-term, negative</i>	<ul style="list-style-type: none"> <li>• Work will be performed during nighttime to the extent possible to minimize traffic disruption;</li> <li>• Well-trained traffic aides/flagmen be designated at critical construction areas along the major roads to guide motorists; and</li> <li>• All roads for the resident and motorist will be address to a have a balance and minimized the inconvenience of the public especially during construction. There will be other consultation meetings with LGU's, PO and PASSs during the detailed design and construction stage.</li> <li>• In this study, three (3) alternative routes were studied. Based on the following reasons, proposed alignment was selected. <ul style="list-style-type: none"> <li>• The most preferred alignment for traffic between Manila and Cabanatuan which is dominant traffic on CLLEX</li> <li>• Passes through shorter frequent flood prone area</li> <li>• From the view point of river crossing location is better than previous alignment</li> <li>• Number of affected house is the least</li> <li>• Construction cost is the least</li> </ul> </li> </ul> <p>The detailed design will address the above objectives.</p> <ul style="list-style-type: none"> <li>• The detailed design will assure the crossing of minor existing roads under the proposed expressway using box-culverts or over viaduct bridges.</li> </ul>
<b>Employment</b>	Generation of temporary employment	<i>Short-term, positive</i>	<ul style="list-style-type: none"> <li>• Qualified skilled workers and laborers in the Direct Impact Areas (DIA) duly endorsed by the Brgy. Captains will be given priority in hiring during implementation of the project</li> </ul>
<b>Public health</b>	Possible spread of communicable diseases due to solid and domestic wastes generated by the construction personnel	<i>Short-term, negative</i>	<ul style="list-style-type: none"> <li>• Temporary sanitation facilities such as garbage bins and portable toilets must be provided by the Contractor at the construction area;</li> </ul>

**Table 4.1-1 Environmental Impacts and Mitigation/Enhancement Measures**

Environmental Component Likely to be Affected	Potential Impact	Duration and Type of impacts	Mitigation/Enhancement Measures
<b>PRE-CONSTRUCTION AND CONSTRUCTION PHASES</b>			
<b>THE PEOPLE</b>			
			<ul style="list-style-type: none"> <li>• Regular disposal of the solid and domestic wastes to the designated disposal areas duly-approved by the host and affected LGUs must be strictly complied with; and</li> <li>• Weekly inspection of the work sites must be undertaken to ensure proper management of the solid and domestic wastes generated</li> </ul>
<b>Occupational health</b>	Construction personnel, particularly operators of heavy equipment and machineries may experience upper respiratory ailments and may likewise experience temporary hearing problems	<i>Short-term, negative</i>	<ul style="list-style-type: none"> <li>• Construction personnel will be provided with Personal Protective Equipment (PPE) such as protective masks, ear muffs, and hard hats, and related gears;</li> <li>• First aid stations supervised by the Environment and Safety Health Officer (ESHO) of the Contractor will be located within the construction site; and</li> <li>• Emergency vehicles will be on stand-by within the construction area at all times</li> </ul>



**Table 4.1-1 Environmental Impacts and Mitigation/Enhancement Measures**

Environmental Component Likely to be Affected	Potential Impact	Duration and Type of impacts	Mitigation/Enhancement Measures
<b>PRE-CONSTRUCTION AND CONSTRUCTION PHASES</b>			
<b>DEMOBILIZATION</b>			
<b>THE LAND</b>			
<b>Flora</b>	Replacement of cut trees and landscaping of exposed areas	<i>Long-term, negative</i>	<ul style="list-style-type: none"> <li>• The Contractor must ensure that replacement of the cut trees will be undertaken at the reforestation areas designated by DENR-FMB; and</li> <li>• The Contractor must ensure that landscaping of exposed areas are completed and in place</li> </ul>
<b>THE WATER</b>			
<b>Hydrology</b>	Possible aggravation of flooding in all flood-prone areas of La Paz, Tarlac; Zaragosa and Aliaga, Nueva Ecija.	<i>Long-term, negative</i>	<ul style="list-style-type: none"> <li>• The Contractor must ensure that all temporary stockpiles of un-recycled excavated materials and construction spoils and debris are properly disposed to the designated disposal sites and not abandoned; and</li> <li>• The Contractor must ensure that all natural and engineered drainage facilities are unobstructed and free of construction spoils and debris</li> </ul>
<b>THE AIR</b>			
<b>Air Quality</b>	Re-suspension of dust particulates	<i>Short-term, negative</i>	<ul style="list-style-type: none"> <li>• The Contractor must ensure that remaining stockpiles of un-recycled excavated materials and construction spoils are disposed to the designated disposal sites; and</li> <li>• The Contractor must ensure that construction areas are cleared of construction spoils and debris</li> </ul>
<b>THE PEOPLE</b>			
<b>Basic social services</b>	Extended disruption of power and water supplies, and telecommunication service as well as access to health centers, government centers, school, markets and public transport facilities/routes.	<i>Short-term, negative</i>	<ul style="list-style-type: none"> <li>• The Contractor must ensure that all affected basic social service utilities are properly relocated and fully restored to their normal functions.</li> <li>• Existing provincial, municipal and barangay roads must be opened and free from obstructions.</li> </ul>

Table 4.1-1 Environmental Impacts and Mitigation/Enhancement Measures			
Environmental Component Likely to be Affected	Potential Impact	Duration and Type of impacts	Mitigation/Enhancement Measures
<b>PRE-CONSTRUCTION AND CONSTRUCTION PHASES</b>			
<b>DEMOBILIZATION</b>			
<b>THE PEOPLE</b>			
Public health	Possible spread of communicable diseases	<i>Short-term, negative</i>	<ul style="list-style-type: none"> <li>• The Contractor must ensure that all temporary sanitation facilities, particularly portable toilets are properly and completely dismantled;</li> <li>• The Contractor must ensure that all remaining solid and domestic wastes are properly disposed to the approved disposal sites;</li> <li>• The Contractor must ensure that all construction areas are free of solid and domestic wastes</li> </ul>
<b>AESTHETICS</b>			
	Abandoned temporary construction facilities may cause eyesore to the public	<i>Short-term, negative</i>	<ul style="list-style-type: none"> <li>• The Contractor must ensure that all temporary construction facilities are completely dismantled which may cause eye sore to the public</li> </ul>
<b>OPERATIONAL AND MAINTENANCE PHASES</b>			
<b>THE PEOPLE</b>			
	In the near future, CLLEX will connect the regional growth poles of Tarlac and Cabanatuan Cities and enhance economic and social development of all municipalities traversed by it. The CLLEX will be an efficient alternate route to and from the food baskets of Cagayan Valley and the province of Aurora as well as the eastern corridor of the Cordillera Administrative Region (CAR) that would ensure safe and faster movement of goods as well as support and develop urban growth such as that of Tarlac and Cabanatuan Cities.	<i>Long-term, positive</i>	<ul style="list-style-type: none"> <li>• To maintain optimum level of road service to motorists, the selected Concessionaire/GOP-DPWH must ensure that the following activities are periodically undertaken: <ul style="list-style-type: none"> <li>➤ inspection and maintenance of the expressway's structural integrity;</li> <li>➤ inspection and maintenance of all drainage facilities installed along the expressway;</li> <li>➤ inspection and maintenance of pavement and pavement markings;</li> <li>➤ inspection and maintenance of traffic signs and related facilities;</li> <li>➤ inspection and maintenance of tubular steel railings and related safety structures; and</li> <li>➤ inspection and maintenance of toll plazas and all ancillary facilities</li> </ul> </li> </ul>

Table 4.1-1 Environmental Impacts and Mitigation/Enhancement Measures			
Environmental Component Likely to be Affected	Potential Impact	Duration and Type of impacts	Mitigation/Enhancement Measures
<b>OPERATIONAL AND MAINTENANCE PHASES</b>			
<b>THE LAND</b>			
<b>Flora</b>	Landscaping improvements of exposed areas and continuing tree planting activities (where still possible) along and within the CLLEX RROW.	<i>Long term, positive</i>	<ul style="list-style-type: none"> <li>The Concessionaire/GOP-DPWH to ensure that landscaping of exposed areas are regularly maintained;</li> <li>All plants/trees planted along the expressway must be regularly pruned so that they would not create any visual and physical obstructions to motorists;</li> </ul>
<b>THE WATER</b>			
<b>Hydrology</b>	Flooding due to expressway's clogged drainage provisions/"equalizers" that may affect structural integrity of embankment and other expressway structures.	<i>Seasonal/Long Term, negative</i>	<ul style="list-style-type: none"> <li>Selected Concessionaire/GOP-DPWH to undertake regular inspection and maintenance of all drainage facilities installed along expressway;</li> <li>Religiously enforce the project's EMoP;</li> </ul>
<b>THE AIR</b>			
<b>Air Quality</b>	Possible rise in TSP levels with the re-suspension of dust particulates due to increased traffic volume.	<i>Seasonal/Long-term, negative</i>	<ul style="list-style-type: none"> <li>Trees planted along the expressway may act as traps preventing dust particulates to affect nearby populated areas;</li> <li>Most especially during the dry season, the expressway will be regularly sprayed with water to minimize dust re-suspension;</li> <li>Religiously enforce the project's EMoP;</li> </ul>
	Possible rise in the ambient concentration levels of NO <sub>2</sub> and SO <sub>2</sub> due to increased traffic volume.	<i>Long-term, negative</i>	<ul style="list-style-type: none"> <li>Trees planted along the expressway may act as traps preventing NO<sub>2</sub> and SO<sub>2</sub> emissions to affect nearby populated areas;</li> <li>Impose Clean Air Act provision regarding smoke belching for all vehicles using the CLLEX. Concessionaire/GOP-DPWH to refuse entry to the expressway of smoke-belching vehicles;</li> <li>Religiously enforce the project's EMoP;</li> </ul>
<b>Noise Levels</b>	Possible rise in the noise levels in areas traversed by the CLLEX due to increased traffic volume.	<i>Long-term, negative</i>	<ul style="list-style-type: none"> <li>Trees planted along the expressway may act as noise barriers minimizing its effect to nearby populated areas;</li> <li>Religiously enforce the EMoP.</li> </ul>

---

## **Chapter 5**

### **Analysis of Alternatives**

---

## 5 ANALYSIS OF ALTERNATIVES

---

### 5.1 MAIN ALIGNMENTS

Previous studies had identified and studied several options for the proposed route and alignment of CLLEX project Phase 1. The alternatives are discussed in the following sections.

#### 5.1.1 Alternative Alignment 1

Alternative 1 passes the confluence of two Rivers. It's 28.23 kilometers long and has a bridge length of 3,000 meters. Equalizing zone for flood area at 6,584 meters and a total cost of 14.45 billion pesos excluding the cost of the interchange making this option the most expensive Alternative Alignment. Alternative 1 passes through the worst condition area and compared to Alternative 2 and 3, has the longest bridge length and longest equalizing zone. Alternative 1's connectivity and continuity to the expressway is poor. The connection from Cabanatuan to Manila is also unfavorable. The Social environmental impact is also the least favorable compared to Alignments 2 and 3. Alignment 1 will hit the highest number of houses and structures that would be affected by the project with 56 houses hit. A community will also be divided by the alignment at La Paz. The Natural Environment impact will be minimal with land take of agri-land being the smallest compared to the other alignments. The alignment's constructability is seriously affected by flood. This Alternative Alignment is ranked three (3) making it the least favorable alignment.

### **5.1.2 Alternative Alignment 2**

Alternative 2 passes at downstream of the confluence point. It's 30.31 kilometers long and has 1 bridge that has the length of 1,500 meters. Equalizing zone for flood area is at 3,720 m, and has a total cost of 11.73 billion pesos making it the lowest construction cost compared to Alternative 1 and Alternative 3. Alternative 2 crosses the downstream side of the confluent point of Rio Chico River and Talavera River. It is located within the range of back flow from Rio Chico Bridge.

Alternative Alignment 2 is longer than that of Alternative 3, it's shorter compared to Alternative 1. Alternative 2 also passes through fewer and shorter frequent flood areas compared to Alternative 1, but passes longer frequent flood areas compared to Alternative 3. It's connectivity to SCTEX is direct and very favorable as it provides the best transport efficiency. The Social Environmental impact is the most favorable compared to the other alignment options with the least impact on houses and structures affected by the project. The Natural Environment impact has the highest land take of agri-land. Alternative Alignment 2 passes through the second longest frequent flood area and has to lowest construction cost. Alternative Alignment 2 is ranked 1 and is the top choice for CLLEX.

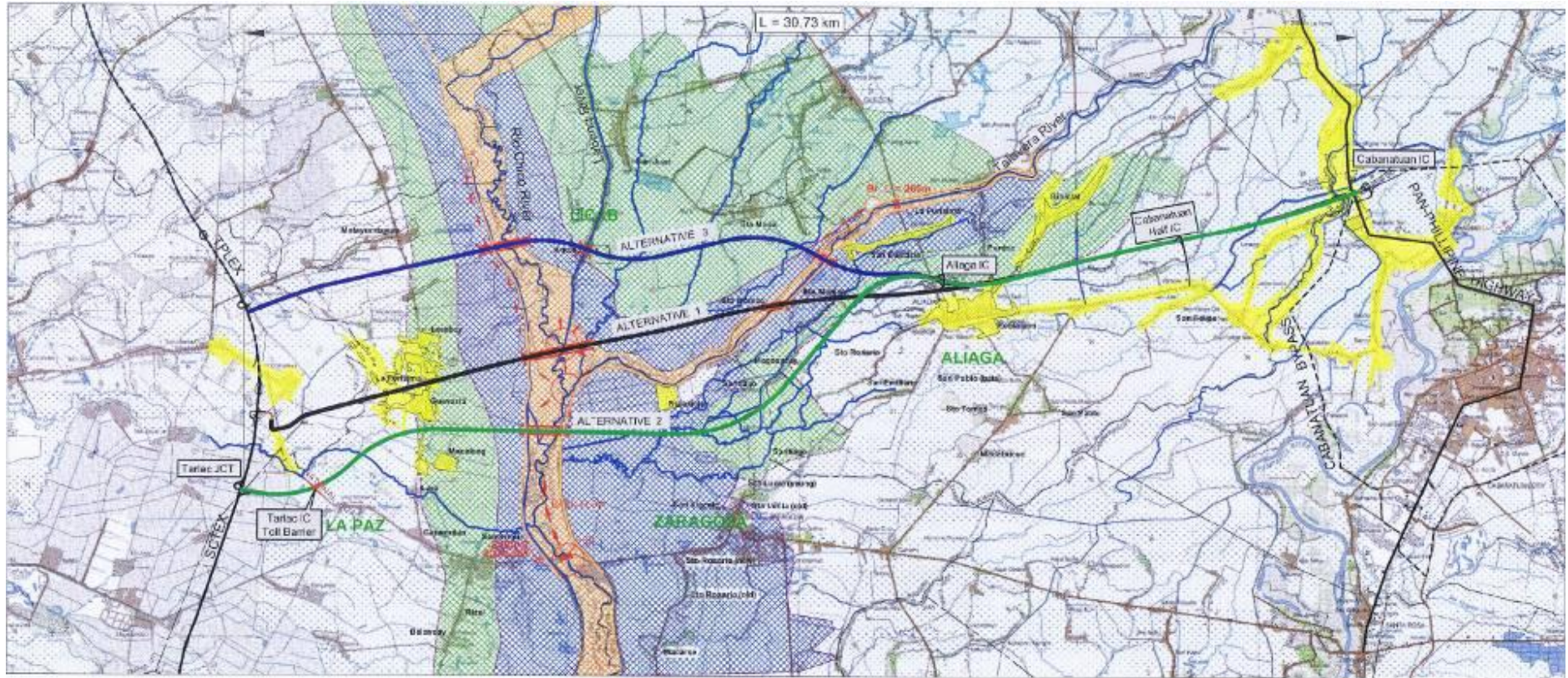
### **5.1.3 Alternative Alignment 3**

Alternative Alignment 3 passes at upper stream of the confluence point of two rivers crossing two rivers independently. The Alignment is 28.48 km long and has two(2) bridges with the length of 1,740 m. Alternative -3 has an equalizing zone for flood area 2,930 meters long. Alternative -3 Crosses two rivers independently. The required bridge length is shorter compared to Alternative 1, but is longer compared to alternative 2. Alternative Alignment 3 passes through the shortest frequent flood area making it the best location from the viewpoint of river/flood area crossing. Alternative Alignment 3's connectivity to TPLEX is direct, but the Manila-Cabanatuan connection is the longest compared to Alternative Alignment 1 and 2. The Social Environmental impact is the second highest compared to other Alternative Alignments with 33 houses impacted by the alignment. Natural Environmental Impact is favorable with the least land take of agri-land. Alternative Alignment -3 is ranked 2<sup>nd</sup> among the Alternative Alignment options.

Table 5.1 Alignment Alternatives			
	Alternative 1	Alternative 2	Alternative3
Concept	<ul style="list-style-type: none"> <li>• Passing Confluence Point of 2 Rivers</li> </ul>	<ul style="list-style-type: none"> <li>• Passing at Downstream of Confluence Point.</li> </ul>	<ul style="list-style-type: none"> <li>• Passing at upper stream Confluence Point of 2 Rivers (Crossing 2 Rivers independently)</li> </ul>
Road Length	<ul style="list-style-type: none"> <li>• 28.23 km</li> </ul>	<ul style="list-style-type: none"> <li>• 30.31 km</li> </ul>	<ul style="list-style-type: none"> <li>• 28.84 km</li> </ul>
Bridge Length	<ul style="list-style-type: none"> <li>• 3,000 m (2 Bridges)</li> </ul>	<ul style="list-style-type: none"> <li>• 1,500 m (1 Bridge)</li> </ul>	<ul style="list-style-type: none"> <li>• 1,740 m (2 Bridges)</li> </ul>
Equalizing Zone for Flood Area	<ul style="list-style-type: none"> <li>• 6,584 m</li> </ul>	<ul style="list-style-type: none"> <li>• 3,720 m</li> </ul>	<ul style="list-style-type: none"> <li>• 2,930 m</li> </ul>
Length passing Flood Area	<ul style="list-style-type: none"> <li>• Max. in the past: 11,950m, Frequent: 9,580 m</li> </ul>	<ul style="list-style-type: none"> <li>• Max. in the past 9,220 m, Frequent : 5,220 m</li> </ul>	<ul style="list-style-type: none"> <li>• Max. in the Past 13,190 m, Frequent: 4,670 m</li> </ul>
Total Cost (Not Including IC)	<ul style="list-style-type: none"> <li>• Php 14.45 B</li> </ul>	<ul style="list-style-type: none"> <li>• Php 11.73 B</li> </ul>	<ul style="list-style-type: none"> <li>• Php 11.80 B</li> </ul>
Number of affected house/structure	<ul style="list-style-type: none"> <li>• 56</li> </ul>	<ul style="list-style-type: none"> <li>• 28</li> </ul>	<ul style="list-style-type: none"> <li>• 33</li> </ul>
Appropriateness of CLLEX Location at River/Flood Area Crossing	<ul style="list-style-type: none"> <li>• Passes through the worst condition area</li> <li>• Requires longest bridge length</li> <li>• Requires longest equalizing zone</li> </ul>	<ul style="list-style-type: none"> <li>• Crosses the downstream side of confluent point of Rio Chico River and Talavera River.</li> <li>• Although Required bridge is longer than Alternative-3, but is shorter than Alternative-1</li> <li>• Passes through shorter frequent flood area compared to Alternative-1, but longer than Alternative-3</li> <li>• Located within the range of back flow from Rio Chico Bridge along Tarlac-Sta Rosa Road.</li> </ul>	<ul style="list-style-type: none"> <li>• Crosses two rivers independently.</li> <li>• Required bridge length is shorter than Alternative-1, but longer than Alternative-2.</li> <li>• Passes through shortest frequent flood area, thus the best location from the viewpoint of river/flood area crossing.</li> </ul>
Expressways Connectivity	<ul style="list-style-type: none"> <li>• Continuity of an expressway is poor.</li> <li>• Connection from Cabanatuan to Manila is bad.</li> </ul>	<ul style="list-style-type: none"> <li>• SCTEX and CLLEX are directly connected.</li> <li>• Best transport efficiency.</li> </ul>	<ul style="list-style-type: none"> <li>• TPLEX and CLLEX are directly connected.</li> <li>• Manila Cabanatuan connection is the longest in terms of distance.</li> </ul>

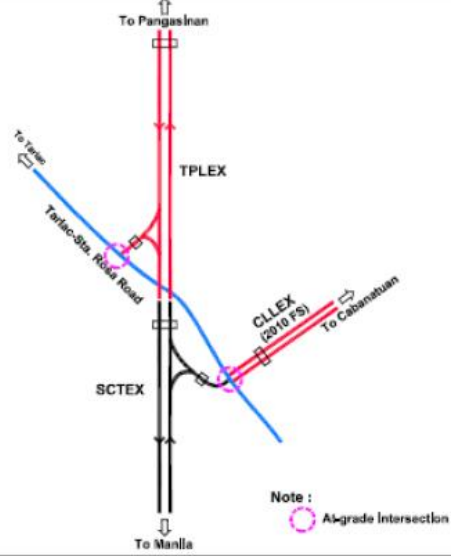

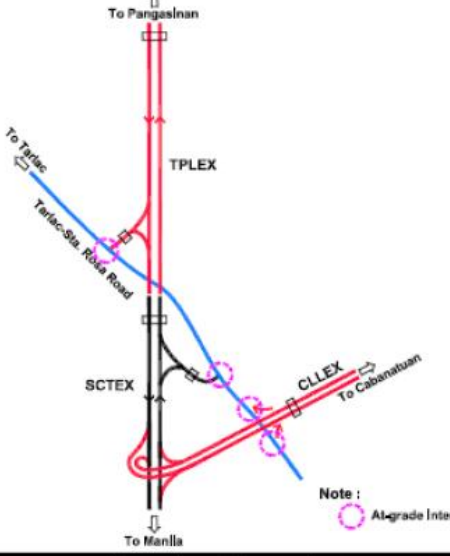

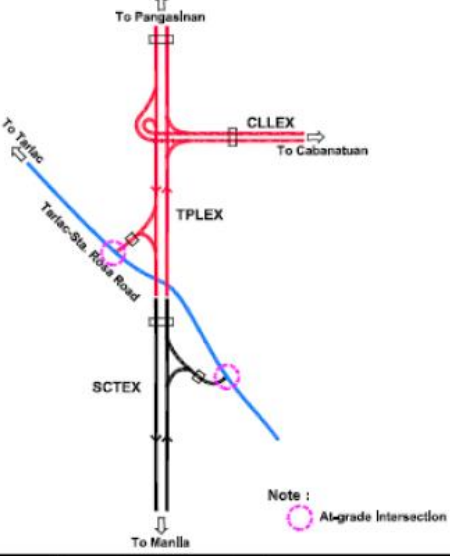

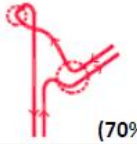
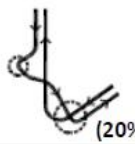

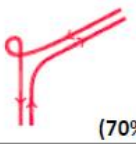
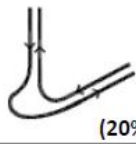
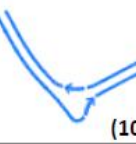
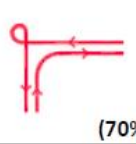
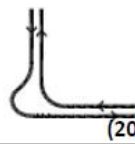
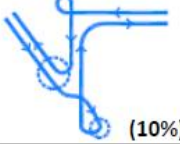


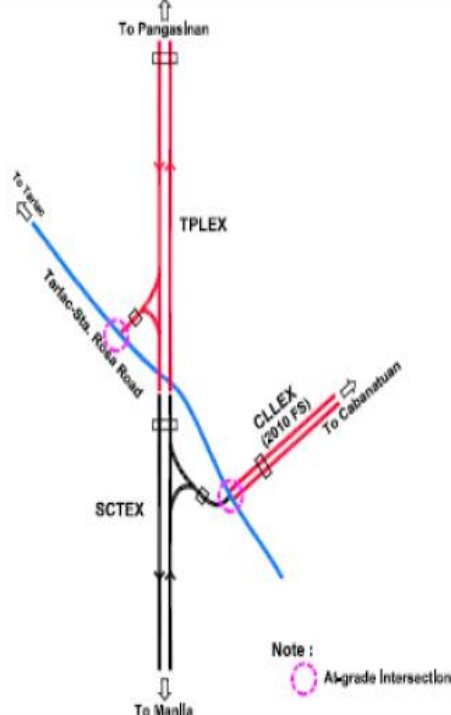
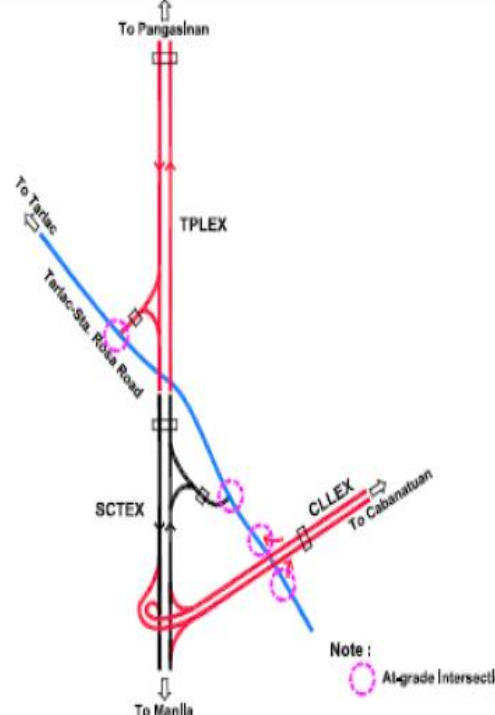
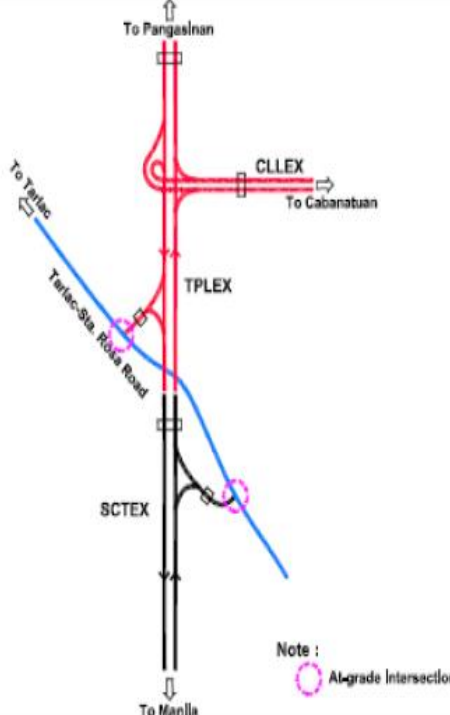
Social Environment Impact	<ul style="list-style-type: none"> <li>Highest number of houses/structures affected.</li> <li>Community is divided by CLLEX at La Paz</li> </ul>	<ul style="list-style-type: none"> <li>Least number of houses/structures affected.</li> </ul>	<ul style="list-style-type: none"> <li>Second highest number of houses/structures affected.</li> </ul>
Natural Environment Impact	<ul style="list-style-type: none"> <li>Land takes of agri-land smallest.</li> </ul>	<ul style="list-style-type: none"> <li>Land take of agri-land highest</li> </ul>	<ul style="list-style-type: none"> <li>Land take of agri-land smallest.</li> </ul>
Constructability	<ul style="list-style-type: none"> <li>Construction work is seriously affected by floods.</li> <li>Highest construction cost.</li> </ul>	<ul style="list-style-type: none"> <li>Passes through the second longest frequent flood area.</li> <li>Lowest Construction cost</li> </ul>	<ul style="list-style-type: none"> <li>Passes through the shortest frequent flood area.</li> <li>Lowest construction cost.</li> </ul>
Rank	<ul style="list-style-type: none"> <li>3</li> </ul>	<ul style="list-style-type: none"> <li>1</li> </ul>	<ul style="list-style-type: none"> <li>2</li> </ul>



Route	Alternative Alignment 1	Alternative Alignment 2	Alternative Alignment 3
From Manila going to Cabanatuan City	<p>SCTEX off-ramp =&gt; Intersection with national road =&gt; CLLEX</p> <p>(Travel distance is longer by 2 km than Alternative -2)</p> <p>Passes 2 toll booths (or 2 stops)</p>	<p>SCTEX=&gt; CLLEX (direct), shortest distance.</p> <p>Passes 1 toll booth (or 1 stop)</p>	<p>TPLEX=&gt; CLLEX (Direct), Longer by 7.1 km than Alternative-2</p> <p>Passes 2 toll booths(or 2 stops)</p>
From Cabanatuan going to Manila	<p>CLLEX=&gt; National Road (2.2 km) =&gt;TPLEX I/C</p> <p>Longer by 8.2 km than Alternative2.</p> <p>Passes 3 toll booths (or 3 stops)</p>	<p>CLLEX=&gt; SCTEX (Direct), shortest distance.</p> <p>Passes 1 toll booth (or 1 stop)</p>	<p>CLLEX=&gt; TPLEX (Direct), Longer by 7.1 km.</p> <p>Passes 2 toll booths(or 2 stops)</p>
From Pangasinan going to Cabanatuan	<p>TPLEX off-ramp =&gt; National road (2.2 km)=&gt; CLLEX</p> <p>Passes 2 toll booths (or 2 stops)</p>	<p>TPLEX =&gt; SCTEX=&gt; CLLEX (direct), Longer by 7.1 km than Alternative 3.</p> <p>Passes 3 toll booths (or 3 stops)</p>	<p>TPLEX=&gt; CLLEX (Direct) Shortest</p> <p>Passes 1 toll booth (or 1 stop)</p>
From Cabanatuan City going to Pangasinan	<p>CLLEX =&gt; Intersection with National Road=&gt; TPLEX</p> <p>Passes 2 toll booths(or 2 stops)</p>	<p>CLLEX=&gt; TPLEX (Direct), longer by 7.1 km than Alternative 3.</p> <p>Passes 2 toll booths(or 2 stops)</p>	<p>CLLEX =&gt; TPLEX=&gt; (Direct) Shortest</p> <p>Passes 1 toll booth (or 1 stop)</p>
From Tarlac going to Cabanatuan City	<p>National Road=&gt; CLLEX</p> <p>Passes 1 toll booth (or 1 stop)</p>	<p>National Road=&gt;CLLEX</p> <p>Passes 1 toll booth (or 1 stop)</p>	<p>National Road =&gt; SCTEX=&gt; TPLEX=&gt;CLLEX</p> <p>Passes 2 toll booths(or 2 stops)</p>
From Cabanatuan city going to Tarlac	<p>CLLEX=&gt; National Road</p> <p>-Passes 1 toll booth (or 1 stop)</p>	<p>CLLEX=&gt; National Road</p> <p>Passes 1 toll booth (or 1 stop)</p>	<p>CLLEX=&gt; TPLEX =&gt; National Road</p> <p>Passes 2 toll booths(or 2 stops)</p>
Overall Evaluation	X-Not recommended	O-Recommended	X- Not recommended.



<b>Concept :</b> <ul style="list-style-type: none"> <li>Proposed plan by 2010 FS.</li> <li>CLLEX is connected with SCTEX via Intersection.</li> </ul>			<b>Concept :</b> <ul style="list-style-type: none"> <li>CLLEX is directly connected with SCTEX.</li> <li>On and off ramps is provided from/to Tarlac-Sta. Rosa Road for better linkage between Tarlac and Cabanatuan.</li> </ul>			<b>Concept :</b> <ul style="list-style-type: none"> <li>CLLEX is directly connected with TPLEX.</li> </ul>		
 <p>Note :  At-grade Intersection</p>			 <p>Note :  At-grade Intersection</p>			 <p>Note :  At-grade Intersection</p>		
Manila ↔ Cabanatuan	Pangasinan ↔ Cabanatuan	Tarlac ↔ Cabanatuan	Manila ↔ Cabanatuan	Pangasinan ↔ Cabanatuan	Tarlac ↔ Cabanatuan	Manila ↔ Cabanatuan	Pangasinan ↔ Cabanatuan	Tarlac ↔ Cabanatuan
 (70%)	 (20%)	 (10%)	 (70%)	 (20%)	 (10%)	 (70%)	 (20%)	 (10%)
<ul style="list-style-type: none"> <li>All via national road</li> <li>Longer than Alternative-2</li> </ul>	<ul style="list-style-type: none"> <li>All via national road</li> </ul>	<ul style="list-style-type: none"> <li>All via national road</li> <li>Shortest connection</li> </ul>	<ul style="list-style-type: none"> <li>Shortest connection</li> <li>Best linkage</li> </ul>	<ul style="list-style-type: none"> <li>Longer than Alternative-3, but traffic is not so high</li> </ul>	<ul style="list-style-type: none"> <li>Good connection</li> <li>Longer than Alternative-1</li> </ul>	<ul style="list-style-type: none"> <li>Longest connection</li> </ul>	<ul style="list-style-type: none"> <li>Shortest connection</li> </ul>	<ul style="list-style-type: none"> <li>Complicated</li> </ul>
X	X	O	O	△	O	△	O	X
Not Recommended			Recommended			Not Recommended		

ALTERNATIVE - 1	ALTERNATIVE - 2	ALTERNATIVE - 3
<b>Concept :</b> <ul style="list-style-type: none"> <li>Proposed plan by 2010 FS.</li> <li>CLLEX is connected with SCTEX via Intersection.</li> </ul>	<b>Concept :</b> <ul style="list-style-type: none"> <li>CLLEX is directly connected with SCTEX.</li> <li>On and off ramps is provided from/to Tarlac-Sta. Rosa Road for better linkage between Tarlac and Cabanatuan.</li> </ul>	<b>Concept :</b> <ul style="list-style-type: none"> <li>CLLEX is directly connected with TPLEX.</li> </ul>
 <p>Note : At-grade Intersection</p>	 <p>Note : At-grade Intersection</p>	 <p>Note : At-grade Intersection</p>
Not Recommended	Recommended	Not Recommended



---

## **Chapter 6**

# **Environmental Management and Monitoring Plan**

---



## 6 ENVIRONMENTAL MANAGEMENT PLAN

---

The proposed environmental management plan during the construction phase is represented in **Table 6.1** below. These are environmental commitments that may be validated and assessed during the actual construction and operation of the project.

Table 6.1 Environmental Management Plan (1/4)						
Activity	Environmental Aspects	Environmental Impacts	Mitigation and Enhancement Measures	Responsibility	Cost	Guarantees
Implementation of major civil and construction activities along the proposed highway alignment	Earth- movement and other civil works	Modification of existing terrain	<ul style="list-style-type: none"> <li>Perform proper topographic surveys</li> <li>If possible, provide a highway design that will naturally-blend to the topography</li> </ul>	DPWH Contractor	Part of Feasibility Study Costs	MOA
		Depletion of land and soil resources	<ul style="list-style-type: none"> <li>Avoid material excesses during the construction of various facilities</li> <li>Implement proper inventory of construction materials</li> <li>Apply alternative construction materials (i.e. lahar, demolition debris) to non-critical infrastructures</li> <li>Use construction materials that are locally-available</li> </ul>	DPWH Contractor	Part of Feasibility Study Costs	MOA
		Increased erosion	<ul style="list-style-type: none"> <li>Minimize/prevent unnecessary earth-movement</li> <li>Avoid long exposure of excavated soil to rain and strong winds</li> <li>Establishment of construction buffer zones and containment barriers</li> <li>Construction of DPWH Contractor rip-raps and embankment protection</li> </ul>	DPWH Contractor	Part of Feasibility Study Costs	MOA
		Loss of soil nutrients	<ul style="list-style-type: none"> <li>Minimize/prevent unnecessary earth-movement</li> <li>Return/deliver unused excavated top soils to nearby agricultural lands</li> </ul>		Part of Feasibility Study Costs	MOA

Table 6.1 Environmental Management Plan (2/4)						
Activity	Environmental Aspects	Environmental Impacts	Mitigation and Enhancement Measures	Responsibility	Cost	Guarantees
Implementation of major civil and construction activities along the proposed highway alignment (cont'd.)	Earth- movement and other civil works (cont'd.)	Generation of solid wastes	<ul style="list-style-type: none"> <li>• Application of the SWMP</li> <li>• Segregation of solid waste according to recyclable and non-recyclables</li> <li>• Repair or re-use available construction materials and equipment</li> <li>• Hauling of discarded/recyclable items by duly-licensed traders</li> </ul>	DPWH Contractor	Part of Construction Costs	MOA
		Dust propagation and migration	<ul style="list-style-type: none"> <li>• Minimize/prevent unnecessary earth-movement</li> <li>• Regular watering of construction sites that have high dust concentration</li> <li>• Avoid long exposure of excavated soil and sand piles to strong winds by applying canvass covers</li> <li>• Establishment of construction buffer zones and containment barriers</li> <li>• Regular clean-up and housekeeping of construction areas</li> <li>• Equip trucks with canvass that haul dusty items (i.e. gravel and sand)</li> <li>• Provide construction personnel with PPE (i.e. goggles and masks)</li> </ul>	DPWH Contractor	Part of Construction Costs	MOA
		Restriction or alteration of stream flows	<ul style="list-style-type: none"> <li>• Fast-track construction activities (i.e. embankment protection, foundation-laying)</li> <li>• Provide alternative drainages or channeling for affected water bodies</li> <li>• Establishment of construction buffer zones and containment barriers</li> </ul>	DPWH Contractor	Part of Construction Costs	MOA

**Table 6.1 Environmental Management Plan (3/4)**

Activity	Environmental Aspects	Environmental Impacts	Mitigation and Enhancement Measures	Responsibility	Cost	Guarantees
Implementation of major civil and construction activities along the proposed highway alignment (cont'd.)	Earth- movement and other civil works (cont'd.)	Storm water run-off	<ul style="list-style-type: none"> <li>Avoid long exposure of excavated soil to Prevent/minimize chemical spills and unauthorized discharges Establishment of construction buffer zones and containment barriers</li> </ul>	DPWH Contractor	Part of Construction Cost	MOA
		Siltation and increased water turbidity	<ul style="list-style-type: none"> <li>Avoid long exposure of excavated soil to rain</li> <li>Establishment of construction buffer zones and containment barriers</li> </ul>	DPWH Contractor	Part of Construction Cost	MOA
		Disturbance/ displacement of flora and fauna	<ul style="list-style-type: none"> <li>Perform earth-balling for applicable trees</li> <li>Avoidance of unnecessary tree-cutting</li> <li>Establish plant nurseries Implement tree re-planting activities after</li> <li>the full-completion of the proposed Project</li> <li>Record/inventory of affected tree species in the proposed CLLEX alignment</li> </ul>	DPWH Contractor	Part of Construction Cost	MOA
		Modification and destruction of terrestrial habitats	<ul style="list-style-type: none"> <li>Provide a temporary habitat or 'safe-zones'for animals that may be affected by the construction works, in-coordination</li> <li>Coordinate with local environmental conservation groups</li> </ul>	DPWH Contractor	Part of Construction Cost	MOA
		Possible traffic congestion	<ul style="list-style-type: none"> <li>Provide alternative routes thru a Traffic Management Plan, in coordination with LGUs, for major constructions sites</li> <li>Provide directional signage and traffic marshals in major constructions sites</li> </ul>	DPWH Contractor	Part of Construction Cost	MOA

Table 6.1 Environmental Management Plan (4/4)						
Activity	Environmental Aspects	Environmental Impacts	Mitigation and Enhancement Measures	Responsibility	Cost	Guarantees
Implementation of major civil and construction activities along the proposed highway alignment	Use of heavy equipment	Ground vibration	<ul style="list-style-type: none"> <li>Apply non-vibrating methods (i.e. bored piles) in construction sites that are nearby residential areas</li> <li>If piling is necessary, perform monitoring for nearby concrete structures that may be affected</li> <li>Notify nearby residents about</li> <li>For hauling trucks, comply with road weight limit standards to avoid ground vibration</li> </ul>	DPWH Contractor	Part of Construction Costs	MOA
Implementation of Right-of-Way (ROW)	Clearing of obstacles for the highway alignment	Reduction of agricultural lands	<ul style="list-style-type: none"> <li>Perform additional consultations and IEC activities, with the coordination of the LGUs, with the affected land- owners/farmers about the acquisition/implementation of the ROW</li> <li>Provide rightful and immediate compensation to affected land- owners/farmers based on current land values</li> </ul>	DPWH, in coordination with LGUs	To be determined in RAP	RA 8974, DPWH Ministry Order No. 65
		Displacement on human settlements	<ul style="list-style-type: none"> <li>Perform additional consultations and IEC activities, with the coordination of the LGUs, with the affected residents about the acquisition/implementation of the ROW</li> <li>Give sufficient time (at least 1 year before the actual construction) for the affected residents to perform relocation</li> <li>Provide rightful and immediate compensation to affected residents</li> </ul>	DPWH, in coordination with LGUs	To be determined in RAP	RA 8974, DPWH Ministry Order No. 65

## ENVIRONMENTAL MONITORING PLAN

The Environmental Monitoring Plan or EMoP presents the framework upon which the DPWH, the CLLEX contractors, and the various stakeholders are willing to implement to continuously supervise the environmental protection measures during the Pre-construction/Construction, Operation, and Abandonment phases of the proposed CLLEX Project.

This EMoP provides the CLLEX stakeholders a guideline on monitoring, verification, and making of the necessary corrective actions on the Project's various environmental impacts. In addition, this will also provide the CLLEX Project Team some baseline information in recording and examining the long-term effects of the Project's different environmental aspects and corresponding impacts, upon which future strategies (i.e. remediation, clean-up activities, etc.) can be formulated and applied. **Table 6.2** presents the EMoP of the proposed Project.

**Table 6.2 Environmental Monitoring Plan (1/3)**

Concerns	Parameter to be Monitored	Sampling Measurement Plan			Responsibility	Estimated Cost
		Method	Frequency	Location		
A. Pre-construction/Construction						
Affected houses, farmlands, and trees	No. of houses and other establishments to be directly affected	Survey	Twice (Initial and Confirmatory)	Along the proposed highway alignment	DPWH Contractor	Part of Feasibility Study Costs
	Hectares of agricultural lands	Survey			DPWH Contractor	
	No. of trees	Terrestrial Survey/ Inventory			DPWH Contractor	
Air Quality	Dust	Visual observation	Daily	Immediate vicinity of construction sites	DPWH Contractor	Minimal
	NOx, SOx	Air sampler	Quarterly	Identified sampling stations	DPWH Contractor	PhP 10,000 per sampling station
	TSP	High volume sampler	Quarterly		DPWH Contractor	
	Noise	Digital sound level meter	Daily/Quarterly		DPWH Contractor	
Water Quality	TSS, Oil& Grease, color	Grab sampling	Monthly	Upstream and downstream portions of identified/affected water bodies	DPWH Contractor	PhP 5,000 per sampling activity
Solid Wastes	Tons/day, no. of items/day	Visual observation,	Daily	Construction field office/warehouse	DPWH Contractor	Part of Construction Costs
Hazardous Wastes	Liters/No. of drums (liquids) Kilograms (solids)	Visual inspection/ weighing	Monthly	Construction field office/warehouse	DPWH Contractor	Minimal
Public Perception/ Acceptability	No. of valid complaints	Consultations with local officials and residents	V ariable	Affected barangay/s	DPWH Contractor	To be determined



**Table 6.2 Environmental Monitoring Plan (2/3)**

Concerns	Parameter to be Monitored	Sampling Measurement Plan			Responsibility	Estimated Cost
		Method	Frequency	Location		
A. Pre-construction/Construction						
Occupational Safety	No. of work-related injuries No. of safety man- hours	Log-book registration	Daily	Immediate vicinity of the construction sites, command center	DPWH Contractor	Minimal
B. Operation						
Storm water Run-off	BOD, COD, pH, heavy metals, TPH	Grab sampling	Quarterly	Drainage outlets	CLLEX Operator, thru a sub-contractor	PhP 20,000 per sampling activity
Air Quality	NOx, SOx, TSP	Air sampler High volume sampler	Quarterly	To be determined	CLLEX Operator, thru a sub-contracto	PhP 10,000 per sampling station
	Noise	Digital sound level meter	Quarterly	To be determined		
Solid Wastes	kgs./day	Visual inspection/ weighing	Daily	Field Operations Center	CLLEX Operator	Part of Operations Costs
Hazardous Wastes	Liters/No. of drums (liquids) Kilograms (solids)	Visual inspection/ weighing	Quarterly	Field Operations Center	CLLEX Operator	Minimal
Occupational Safety	No. of work-related injuries No. of safety man- hours	Log-book/database registration	Daily	Field Operations Center	CLLEX Operator	Part of Operations Costs
Highway Safety	No. of vehicular accidents	Log-book/database registration	Daily	Field Operations Center	CLLEX Operator	Part of Operations Costs
Public Perception/ Acceptability	No. of valid complaints	Consultations with local officials, residents, and concerned citizens	V ariable	Affected barangay/s or concerned citizens	CLLEX Operator	Tobe determined

**Table 6.2 Environmental Monitoring Plan (3/3)**

Concerns	Parameter to be Monitored	Sampling Measurement Plan			Responsibility	Estimated Cost
		Method	Frequency	Location		
C. Abandonment						
Soil Quality	Total Petroleum Hydrocarbons (TPH), heavy metals	Grab/bore sampling	To be determined	To be determined	To be determined	To be determined
Air Quality	Dust	Visual observation	To be determined	To be determined	To be determined	To be determined
	Noise	Observation	To be determined	To be determined	To be determined	To be determined
Water Quality	BOD, TSS, Total coliforms,	Grab Sampling	To be determined	To be determined	To be determined	To be determined
Solid/Hazardous	Liters/No. of drums	Visual inspection/	To be determined	To be determined	To be determined	To be determined
Wastes	(liquids) Kilograms (solids)	weighing				
Termination of employees	No. of personnel affected	Check of employment record.	To be determined	To be determined	To be determined	To be determined

## **ENVIRONMENTAL COMPLIANCE CERTIFICATE**

The Environmental Compliance Certificate for the Proposed CLLEX Project was issued last March 30, 2010 which is attached in **Appendix G**.

---

## **Chapter 7**

### **Public Participation**

---

## 7 PUBLIC PARTICIPATION

---

The EIA Team completed **13 consultation meetings** consisting of the following:

- (i) **Two (2) City level and three (3) Municipal level meetings** - with the LGUs of Tarlac City (including PAPs) and La Paz in the Province of Tarlac, Zaragosa, Aliaga and Cabanatuan City in the Province of Nueva Ecija;
- (ii) **Five (5) Barangay level meetings with Project Affected Persons (PAPs)**—One (1) in the Municipality of La Paz (Barangays Amucao, Guevarra and Laungcupang), one (1) in the Municipality of Zaragosa (Barangays Sta. Lucia Young and Old), one (1) in the Municipality of Aliaga (Barangays Betes, Bibiclat, Bucot, Magsaysay, Pantoc, Poblacion East 1, San Juan, San Eustacio, Sta. Monica, Sto. Rosario), one (1) Barangay Umangan, Municipality of Aliaga, and one (1) in the City of Cabanatuan (Barangays Caalibangbangan and Mayapyap Norte); and
- (iii) **Three (3) Coordination meetings with other concerned agencies** – DPWH Region 3, NIA Tarlac Province and UPRIIS

Consultation meetings were undertaken to:

- Inform and generate awareness and understanding of the concerned public about the project;
- Provide the stakeholders and avenue to ventilate salient issues and concerns regarding the project;
- Give an opportunity to the stakeholders to have an open discussion with the Preparers, Proponent, and LGUs about the project;
- Educate the stakeholders of their rights and privileges; and
- Enable the stakeholders to effectively participate and make informed and guided decisions.

Complete and proper documentations of the proceedings were strictly observed. All participants of each activity were noted and proceedings were recorded on a digital voice recorder. Photographs were likewise taken during the consultations. The Attendance Sheets, photographs and Minutes of Meetings are presented in **Appendix H**. Summary of issues and concern raised during the IEC is present in **Table 7.1**.

<b>Table 7.1 Summary of Issues and Concerns Raised during IEC</b>	
<b>Agencies/Organization</b>	<b>Issues and Concerns</b>
LGUs of La Paz, Zaragosa, and PAPs of Aliaga, La Paz, Tarlac, Caalibangbangan, Umangan	What is the basis of computation on compensation on ROW acquisition
LGUs of Zaragosa, Cabanatuan and PAPs of Aliaga, Caalibangbangan	Right to refuse the project
PAPs of Aliaga, La Paz, Caalibangbangan	Requesting for disturbance compensation
LGUs of Cabanatuan, and PAPs of Aliaga, La Paz, Tarlac, Umangan	Affected people / areas are requesting if there is a possibility to move the alignment to avoid them or move to an area where there will be less affected
LGUs of Zaragosa and PAPs of Aliaga, Zaragosa	Guidelines and procedures in the payment of the landowner and tenants
LGUs of La Paz and PAPs of La Paz	Concerned that flooding problem might worsen with the construction of the CLLEX project
LGUs of La Paz and PAPs of La Paz, Zaragosa, Aliaga	Affected people are requesting for a passageway if ever their land will be divided by the project
LGUs of La Paz and PAPs of Caalibangbangan	Requesting for compensation for tenant beneficiaries of CARP
LGUs of Cabanatuan, and PAPs of La Paz, Caalibangbangan, Umangan, Zaragosa	Affected people are requesting for relocation. Some are concerned if the relocation is too far and asked their option to buy land instead of relocating.
LGUs of La Paz and PAPs La Paz	Affected people are requesting for higher compensation on ROW acquisition
PAPs of La Paz, Tarlac, Caalibangbangan, Umangan,	Land title and transfer of title problems; Some lands are mortgaged
PAPs of La Paz	Start of payment of the land and start of project
LGUs of Zaragosa, La Paz, Aliaga, and PAPs of Aliaga, La Paz, Umangan	Affected areas prefer interchanges, via ducts, bridges and off and on ramps rather than embankments.
LGUs of Zaragosa	Benefits of the CLLEX project
LGUs of Aliaga, Cabanatuan	Who will fund the project and source of funds for compensation
LGUs Aliaga, and PAPs of Caalibangbangan, Zaragosa	Proper identification of affected areas
LGUs of Aliaga and PAPs of Aliaga	Issues on Real Property Tax if payment is not updated
PAPs of Caalibangbangan	Requesting for a study on the agricultural effect of the project on rice production
PAPs Tarlac, Umangan,	Basis of compensation and compensation on affected trees, fruit-bearing trees, animal cages and pigpens
LGUs of La Paz and PAPs of La Paz	Requesting to provide livelihood to the affected people
PAPs of La Paz	Concerns that irrigation and pump system might be affected by the project causing flooding in the area

Scoping matrix as per JICA format was explained and filled up during the scheduled IEC with directly affected barangays. Please refer to **Appendix I** for the JICA Scoping Matrix.



City/Municipal Level



Consultation Meeting with City of Tarlac,  
Province of Tarlac



Consultation Meeting with Aliaga, Nueva  
Ecija



Consultation Meeting with La Paz, Tarlac City



Consultation Meeting with Cabanatuan City,  
Nueva Ecija



Consultation Meeting with Zaragoza, Nueva  
Ecija

## Barangay and PAPs Level



Coordination Meeting with Hacienda Luisita, Tarlac City



Consultation Meeting with Barangay and PAPs of Aliaga, Nueva Ecija



Consultation Meeting with Barangay and PAPs of La Paz, Tarlac



Consultation Meeting with Barangay and PAPs of Cabanatuan City, Nueva Ecija



Consultation Meeting with Barangay and PAPs of Zaragosa, Nueva Ecija



Consultation Meeting with PAPs in Barangay Umangan, Aliaga, Nueva Ecija

## Concerned Agencies



Coordination with DPWH Region 3 Director Antonio V. Molano, Jr.



Coordination Meeting with Engr. Prudencio B. Santos of NIA Tarlac



Coordination with Engr. Ethel Manalo of DPWH Region 3 Planning Department



Coordination Meeting with Engr. Reynaldo D. Puno of NIA-UPRIIS

---

## EXECUTIVE SUMMARY

---

# EXECUTIVE SUMMARY

---

## PROJECT BACKGROUND

The proposed Central Luzon Expressway (CLEX) Project is one of the components of the Pan-Philippines Highway (PPH) and is the proposed answer to the serious traffic congestions along the vicinity of the core urban areas along PPH. The Japan Bank for International Cooperation (JBIC) envisioned the construction of bypass roads in Plaridel, Bulacan, and Cabanatuan, Nueva Ecija under Loan No. PH-P236 of the Arterial Road Bypass Project, Phase I.

However, before the construction of the proposed bypass, several road developments in Central Luzon were already developed such as the Subic-Clark-Tarlac Expressway (SCTEX) and the in-city bypass of Cabanatuan. Japan International Cooperation Agency (JICA) requested Department of Public Works and Highways (DPWH) for the review of the implementation priority under JBIC Loan No. PH-P236. A quick assessment of the present road network with economic evaluation shows a reduction of the previous high economic benefits of the bypass roads. This means that a number of through traffic using the PPH in Cabanatuan City may have shifted to the SCTEX

Taking into consideration the completed SCTEX and its proposed extension, the Tarlac-Pangasinan-La Union Expressway (TPLEX), it would be necessary to include a lateral expressway that would complement both the major North-South Line of Luzon such as SCTEX and PPH.

On the overall, the project seeks to improve access to the food baskets of Cagayan Valley and the province of Aurora as well as eastern part of CAR (Cordillera Administrative Region) that would ensure safe and faster movements of goods as well as support tourism sector thrust and development directions.

Specifically, the project seeks the following objectives:

- i) Provide a free-flowing alternative route for through traffic along the PPH between San Jose and Cabanatuan Area in Nueva Ecija and Plaridel in Bulacan.



- ii) Provide a linkage between the existing SCTEX and PPH at some latitude above the Cities of Cabanatuan and San Jose.
- iii) Provide a highway of international standards with limited number of intersections.

## **PROJECT AREA AND LOCATION**

The proposed CLLEX is to be constructed in the provinces of Tarlac and Nueva Ecija, which are part of Region 3. The proposed Project has a ROW of 60 meters in width, and a length of 30.7 kilometers, from its connectin with the SCTex (in Brgy. Bantog, Tarlac City, Tarlac) to the PPH (in Brgy. Caalibangbangan, Cabanatuan City, Nueva Ecija, near tits boundary.

## **PROCESS DOCUMENTATION OF THE CONDUCT OF EIA**

Primary and secondary information were utilized in the preparation of this EIA Report. The baseline information required in the preparation of this report was established through series of field investigations and ocular inspections. Dissemination of project information was primarily done through conduct of consultation meetings with the affected people, and concerned government agencies and entities.

Secondary data presented in this Report were taken from Environmental and Engineering Studies conducted related to the project such as the Environmental Impact Assessment for the Central Luzon Expressway Project, 2010 (LIVCOR Consulting, Inc. et.al) and the Feasibility Study Report for the Proposed Central Luzon Expressway (CLEX) under the Consulancy Services for the Pre-Construction and Supervision of the Arterial Road Bypass Project, 2010 (Katahira & Engineers International, et.al). Additional data were obtained from various government agencies such as the Provincial/City/Municipal Planning and Development Office, Assessor's Office (Tarlac City, La Paz, Province of Tarlac and Zaragoza, Aliaga, Cabanatuan Province of Nueva Ecija), PAGASA, Department of Agriculture, Bureau of Soils and National Irrigation Authority.

## **THE EIA TEAM**

ECOSYSCORP, Inc is a private Environmental Consulting Firm who specializes in conduct and preparation of environmental researches, Resettlement Action Plan (RAP), and related

environmental studies has been involved numerous infrastructure projects for the since its incorporation in 1994. Team Leader Ms. Annabelle N. Herrera and experts specializing in various fields of environmental disciplines compose the EIA Team.

Table I briefly describes the Preparers' field of expertise and the EIA module assigned to each expert.

<b>Table I Preparers' Field of Expertise and EIA Module Assignment</b>		
<b>Preparers</b>	<b>Field of Expertise</b>	<b>EIA Module Assignment</b>
<b>Annabelle N. Herrera</b>	Team Leader, Environmental, Socio-Economic, and RAP Specialist	Socio-Economic
<b>Charlon A. Gonzales</b>	Air Quality Specialist	Air Sampling, and Noise Monitoring and Modeling
<b>Raul A. Fellizar</b>	Mining Engineer, Environmental and RAP Team Member	Socio-Economic Interviews and Survey
<b>Joseph T. Vargas</b>	RAP Team Member	Socio-Economic Interviews and Survey



## EIA STUDY SCHEDULE

**Table II** summarizes the EIA activities undertaken and completed by the Team in the duration of the study.

<b>Table II EIA Study Activities Completed by the Team (1/2)</b>		
<b>Activities</b>	<b>Areas of Concern</b>	<b>Date, Time, &amp; Venue</b>
<b>THE LAND</b>		
Survey on Terrestrial Biology (Flora and Fauna)	Along the entire stretch of the alignment the flora and fauna transect survey was conducted by LIVCOR	October 2009
<b>THE WATER</b>		
Surface Water Quality Sampling	San Miguel Na Munti Creek San Miguel Na Munti Creek Talavera River Talavera River Pantoc Creek Rio Chico River Rio Chico River	0945H21Jul2011  10:20H21Jul2011  11:30H21Jul2011 12:05H21Jul2011 12:35H21Jul2011 02:30H21 Jul2011 03:30H21Jul2011
<b>THE AIR</b>		
Baseline Air & Noise Quality Sampling	SCTEX Area  Laungcupang Area  Guevarra Area  Aliaga Area  Maharlika Highway (DENR Standard)	0934-1034H/22Jul2011 1810-1910H/21Jul2011 0830-0930H/20Jul2011 1641-1741H/20Jul2011 0905-1005H/20Jul2011 1630-1730H/20Jul2011 0805-0905H21Jul2011 1546-1646H21Jul2011 1340-1440H21Jul2011 1-hour sampling period
Noise Modelling Sensitivity Survey	Church, school, and residential areas in the following Cities/Municipalities: Tarlac, La Paz, Zaragosa, Aliaga, & Cabanatuan	August 01 to 12, 2011

**Table II IEC Study Activities Completed by the Team (2/2)**

Activities	Areas of Concern	Date, Time, & Venue
THE PEOPLE		
Information Education and Communication (IEC) meeting with the Municipal Level of Aliaga	Municipality of Aliaga, Province of Nueva Ecija	July 25, 2011, 2:00 pm Ground Floor, Kairos Hotel & Resort, Aliaga, Nueva Ecija
Information Education and Communication (IEC) meeting with the City Level of Cabanatuan City.	City of Cabanatuan, Province of Nueva Ecija	July 26, 2011, 10:00 am 2 <sup>nd</sup> Floor, Conference Hall, City Hall of Cabanatuan City
Information Education and Communication (IEC) meeting with the Barangay Level of Cabanatuan City.	Brgy. Caalibangbangan, Cabanatuan City, Province of Nueva Ecija	July 26, 2011, 2:00 pm Brgy. Hall of Brgy. Caalibangbangan, Cabanatuan City
Information Education and Communication (IEC) meeting with the Municipal Level of La Paz, Province of Tarlac.	Municipality of La Paz, Province of Tarlac	July 27, 2011, 10:0 am Mayor's Office of La Paz, Tarlac
Information Education and Communication (IEC) meeting with the City Level of Tarlac City	Tarlac City, Province of Tarlac	July 27, 2011, 2:00 pm, 2 <sup>nd</sup> Floor Conference Hall, City Hall of Tarlac City, Tarlac
Information Education and Communication (IEC) meeting with the Municipal Level of Zaragoza, Province of Nueva Ecija	Municipality of Zaragoza, Province of Nueva Ecija	July 28, 2011, 10:00 am 2 <sup>nd</sup> Floor, Conference Hall of Municipal Hall of Zaragoza, Nueva Ecija.
Information Education and Communication (IEC) meeting with the Barangay Level of La Paz, Province of Tarlac.	Brgy. Laungcupang, Guevarra, & Macalong,	July 28, 2011, 2:00 pm ABC Session Hall 3 <sup>rd</sup> Floor, La Paz, Tarlac
Information Education and Communication (IEC) meeting with the Barangay Level of Aliaga, Province of Nueva Ecija.	Brgy. Betes, Umangan, Pantoc, Bibiclat, La Purisima, Sta. Monica, Sto. Rosario, San Juan, Magsaysay, San Eustacio, Poblacion East 1	July 29, 2011, 10:00 am 2 <sup>nd</sup> Floor, Kairos Hotel & Resort, Aliaga, Nueva Ecija
Information Education and Communication (IEC) meeting with the Barangay Level of Zaragoza, Province of Nueva Ecija	Brgy. Sta. Lucia Old & Sta. Lucia Young	July 29, 2011 2:00 pm 2 <sup>nd</sup> Floor Conference Hall of Zaragoza, Province of Nueva Ecija
Information Education and Communication (IEC) meeting with the Barangay Level of Aliaga, Province of Nueva Ecija.	Barangay Umangan, Municipality of Aliaga, Province of Nueva Ecija.	August 06, 2011, 2:00 pm Purok 1, Brgy. Umangan, Aliaga, Nueva Ecija

## **EIA METHODOLOGY**

### The Land

#### Geology and Geomorphology

The Geological and Geomorphologic information presented in this report were taken primarily from existing EIA and Feasibility Study Reports.

### Terrestrial Biology

#### Flora

The assessment of the vegetation in the vicinity of the proposed CLLEX Project was conducted last October 8 to 9, 2009 by LIVCOR. The floral transect survey was undertaken by traversing the areas that will be affected by the proposed project alignment and making observation and listing down the plant species encountered using transect line.

#### Fauna (Avifauna)

Faunal transect survey was undertaken simultaneously with the floral species assessment of the proposed project which was conducted by LIVCOR. The assessment of animal species was done by making observations and listing down of species encountered along the way with the help of local guides.

### The Water

#### Water Quality

Water samples were taken from the upstream and downstream portions of the river and creeks along the alignment using a 1-liter sterilized mineral water bottle. Standard water sample preparation procedure was followed. The sample bottles were properly labeled; the caps were securely sealed with scotch tape, and placed in a chest filled with ice to preserve the samples. The samples were later brought to the laboratory for analysis of TSS, BOD, DO, TC and conductivity.

Field measurements of pH and temperature were also undertaken. A 400 ml sterilized beaker was filled with samples from the river and creeks. Using a portable pH and a laboratory thermometer, on-site measurements were taken. The pH meter was properly calibrated prior to use. Physical appearance of the water is also recorded.

## The Air

### Air Quality

The air quality parameters considered during the sampling were Sulfur Dioxide (SO<sub>2</sub>), Nitrogen Dioxide (NO<sub>2</sub>), and Total Suspended Particulates (TSP). The monitoring was based on a 1-hour sampling period and one (1) 24-hour period at Station 1.

The methods of analyses of air samples are Pararosaniline Method for SO<sub>2</sub> and Griess Saltzman Method for NO<sub>2</sub>. This method done is by bubbling the ambient air through an absorbing solution in the glass impingers using the AirChek Gas Sampler. For total suspended particulates (TSP), gravimetric method is adopted using a Staplex high-volume sampler with a filter paper that is weigh prior to and after sampling.

Analyses methods were adopted as specified in DENR DAO 14. The sampling was done in conformity with the National Ambient Air Quality Standards (NAAQS) of the Department of Environmental and Natural Resources (DENR)

### Noise Level

Noise level monitoring was simultaneously done with the conduct of the air quality sampling at the same sites. The noise level monitoring was conducted in accordance with the standard monitoring periods specified in the National Environmental Protection Council (NEPC) EIA Handbook. Averaging of the noise frequencies received by the portable noise meter within a 10-minute period was done. The noise meter was properly calibrated as specified in the manual prior to sampling.

## The People

Surveys were conducted in the areas traversed by the proposed Central Luzon Link Expressway Project Phase I particularly those who will be directly affected by the proposed project to establish socio-economic profile of the stakeholders (Tarlac City and La Paz in the Province of Tarla; Zaragosa, Aliaga and Cabanatuan City in the Province of Nueva Ecija).

## **PUBLIC PARTICIPATION**

### **Consultation Meetings**

The EIA Team organized consultation meetings: four (4) with the LGUs and six (6) with project affected persons.

Aside from the EIA Team, representative/s from implementing agency DPWH and representative/s from JICA Study Team were in attendance to provide responses and clarifications to queries on the engineering aspect.

## **SUMMARY OF BASELINE CHARACTERIZATION**

### **The Land**

#### **Land Use and Classification**

Central Luzon is the longest contiguous area of lowlands and is known as the central plains of Luzon. The Region produces one third of the country's total rice production. It is also called as the Rice Granary of the Philippines. Forty one percent of its total land area is agricultural plains with rice as the major crop.

#### **Topography**

Nueva Ecija. The terrain of Nueva Ecija begins with the southwestern marshes near the Pampanga border. It levels off and then gradually increases in elevation to rolling hills as it approaches the mountains of Sierra Madre in the east, and the Caraballo and Cordillera ranges in the north.

It is dominated by a broad expanse of alluvial plain covering more than one-half of the whole provinces. The only areas of high relief are the northern and eastern boundaries where the Sierra Madre, Cordillera and the Caraballo Mountains occur. The Sierra Madre constitutes one continuous topographic unit that forms an almost north-south trending block bordering the eastern boundary of the provinces of Quezon. The alluvial plain is gently undulating towards the east and rises abruptly to the Sierra Madre Cordillera.

Tarlac. The Tarlac province is situated in the Central Plain of Luzon and is bounded by Pangasinan Province on the north, Nueva Ecija Province on the east, Pampanga Province on the south, and the Zambales Province on the west. Its exact position is between 120°10' to 120°47' longitudes and 15°10' to 15°55' north latitude. The location of this province in Central Luzon is nearer to the Gulf of Lingayen than to Manila Bay. Tarlac, the provincial capital, is 131.3 kilometers from Manila.

There are two distinct geographical areas in the province. The northern and eastern parts consist of an extensive level plain of recent alluvial deposits of sand, silt and small amount of clay. The western and northwestern parts consist of hills and mountains comprising the eastern sides of the Zambales mountain range. There are three prominent mountains in this range, namely, Dome Peak (1,389 meters high), Iba Mountain (1,605 meters high) and Sawtooth Mountain (1,806 meters high). These mountains and the areas surrounding them consist of volcanic rocks of basalts and andesites. The andesites are mostly porphyritic.

### Physiography and Geomorphology

The Central plains is the main geomorphological feature between the gulf of Lingayen and Manila and this is where Nueva Ecija and Tarlac can be found. The central plains' lithology is mostly composed of alluvium deposits formed by the Agno River . . Agno River shows a braided channel pattern which then transforms into a southwest directed bend as it passes the Central Luzon Plain. The most dominant lithology in the Project area, as shown are the Late Oligocene to Pleistocene and quaternary alluvium deposited by the Agno River.

### **Geology**

Geologically, the plain of the provinces consists of recent alluvial deposits of various materials. The depths of these deposits vary in many places according to the elevation of the area. The absence of gravel, cobble-stones, and pebble in the substratum shows that these deposits were made by slow-moving streams. The mountains in the northern part consist of Tertiary undifferentiated rocks, while those on the eastern sides consist of Tertiary and later effusive rocks of rhyolites, dacites, and basalts. The foothills on the western flank of Sierra Madre Range consist of narrow strips of volcanic tuff material, sandstone, shales and limestones.

The rock formation in the province is represented by time units ranging in age from Pre-Cretaceous to Quaternary. Below is the Geology of Nueva Ecija presented in tabulated form. This is adopted from the Geology and Mineral Resources of Nueva Ecija by Leonardo R. Antonio.

## Terrestrial Biology

### Flora

The historic pre-development pattern of land use in the provinces of Tarlac and Nueva Ecija are predominantly an agricultural system (ricefields), with the scattered patches of shrubs and miniaturize tress.

The present conditions of the area explain that the existing ecosystems were most likely, characterized by relatively ‘very low’ to ‘low’ species diversity and an impaired rates of ecological functioning due primarily to a lot of human interventions and disturbances as a result of the various land and farming activities. The proposed Project’s site and its surrounding areas represent a region of ‘low’ ecological significance or importance in terms species diversity.

### Fauna (Avifauna)

The same with the floral condition of the Project area, the assessment of faunal conditions is characterized by relatively ‘very low’ to ‘low’ species diversity due to the long history of human intervention, such as farming and other agro-industrial activities. There are no critical wildlife habitat areas that will be encountered or disturbed, and, infact, most of the vicinity of the proposed Project are identified or been transformed to farmlands are classified as agricultural, have mostly domesticated animals. These animals are either used for pets, poultry, farming, and livestock feeding.



## The Water

### Water Quality

Pampanga River, the largest river draining into Manila Bay and the fourth largest river basin in the Philippines, is classified “Class A” under DENR standards (DAO 90-34) in its upstream and ‘Class C’ in its downstream. There are seven (7) water quality stations conducted with the parameters of Biological Oxygen Demand (BOD), total Suspended Solids (TSS), and Dissolved Oxygen (DO), Total Coliform and Conductivity last July 21, 2011. **Table 3.4** lists the results of the water sampling.

Meanwhile as of 2009, Talavera River which runs through Nueva Ecija is still listed as ‘Unclassified’ water body by EMB Region 3.

## The Air

### Air Quality

It was observed that the present 1-hour ambient ground level concentration of total suspended particulates (TSP) ranges from 47 to 299 µg/Ncm. The DENR standard of 300 µg/Ncm was not exceeded in all five sampling station. The station A5 (Maharlika) recorded the highest TSP level in the selected sampling station for both morning and afternoon sampling of 299 and 247 ug/Ncm, respectively.

The gaseous pollutants, sulfur dioxide (SO<sub>2</sub>) and nitrogen dioxide (NO<sub>2</sub>), shows the concentrations level ranging from 10 to 30 µg/Ncm for SO<sub>2</sub> and from 2 to 11 µg/Ncm for NO<sub>2</sub> for the 1-hour time averaging sampling. Station A5 (Maharlika) recorded the highest measured gaseous pollutant concentration for SO<sub>2</sub> and NO<sub>2</sub> for a 1-hour time average measurement for both morning and afternoon period. The 1-hr sampling observed concentration is way below the limit set by DENR standard (see **Table 3.9**). These values are well within DENR ambient standards of 340 µg/Ncm for SO<sub>2</sub> and 260 µg/Ncm for NO<sub>2</sub> for 1-hr sampling.

## Climatology

The prevailing climate in Nueva Ecija is 'Type I' and 'Type III' based on Philippine Atmospheric and Geophysical and Astronomical Services Administration's (PAGASA) Corona's Classification System, as shown in **Figure 3-7**. The Type I classification has dry season from December to May, and wet for the rest of the year. Type III has no pronounced maximum rain periods but with short dry season lasting from one (1) to three (3) months.

Nueva Ecija also has an average relative humidity of 87% while temperature ranges from 21.5°C to 35.7°C. The recorded average mean amount of rainfall for the year is 1597.1 mm, with highest amount of 4,304 mm during the month of August. (Nueva Ecija Provincial Profile, 2008).

Tarlac belongs to 'Type I' climate, and it experiences rainfall during the southwest monsoon period from June to November, which is the wet season. November to May is the dry season. The hottest part of the year is March to May and sometimes extends up to June. The heaviest rains come in July to November with August being the wettest month of the year.

## Noise Level

The noise measurements were conducted using a Center 322 Data logging sound level meter on A-weighting scale.

The noise levels along proposed Central Luzon Expressway road project are typical for an urban area due to heavy volume of traffic except at station A1 (SCTEX) where station is located in an agricultural field about 150 meter from the SCTEX expressway. The average noise levels for the five sampling stations ranged from 48.8 to 70.9 dB(A) during daytime period 1-hr air sampling measurement.

## The People

### Direct Impact Areas

There are 224 households interviewed. Among the households, 53.1% have an average household size of 1-4 persons. 2.2% have more than ten (10) persons per household and 44.6% have an average household size of 5-10 persons.

### Social Acceptability

There are several criteria used for evaluating the social acceptability of a project. Some of these are environmental soundness, poverty alleviation, concurrence to land use plans and conflict resolution. A more direct way however, is through perception survey wherein the PAPs are asked whether they are in favor of the proposed project or not. There are 64 and 160 respondents in the DIA Type A and B respectively and 100 respondents in the IIA were interviewed.

A relatively high percentage of 68.5% are in favor of the project. The remaining 31.4% are not in favor due to the negative impact the project will brought particularly in loss of income and land in farming

When asked about perceived positive impact of the proposed project, the respondents' top three (3) answers are (i) it will improve accessibility (30.6%); (ii) it will improve farm products delivery (21.9%) and (iii) will improve quality of life (17.6%). Others still believe that the project will not generate any positive impact (3.7%).

### **SOCIAL DEVELOPMENT PROGRAM (SDP)**

The DPWH must support a Social Development Program (SDP) that will ensure that affected communities get compensated for the disturbance to their normal lives, not only in terms of monetary settlement for the damages. It is just fair that they be assisted so that the processing of payment due them can be expedited. Aside from these, DPWH must also make sure that

the relocation plan is sustainable; i.e., aside from the basic amenities at the resettlement area, an alternative livelihood assistance program must be included.

The criteria used for identifying beneficiaries who would be eligible to the SDP for the CLLEX Project Phase 1 are those:

- (i) informal settlers who have no awarded land from government housing project;
- (ii) informal settlers who no other place to thrive in;
- (iii) who do not have other means of livelihood;
- (iv) farmers who will loss income and land.

## **IMPACT IDENTIFICATION, MITIGATION AND ENHANCEMENT**

Briefly, the following are considered significant adverse impacts:

- (i) Physical displacement of informal settler/landless families from La Paz, Tarlac (3), Zaragosa (1), Aliaga (32) and (28) Cabanatuan, Nueva Ecija;
- (ii) Socio-economic displacement of estimated 507 farm landowners;
- (iii) Noise pollution to noise sensitive receptors such as schools, churches and residential areas near the proposed CLLEX Project Phase 1; and
- (iv) Traffic congestion during construction stage;

For details on predicted impacts most likely to affect the Land, Water, Air, and People during the Pre-Construction, Construction, Operation, and Abandonment Phases of the Proposed Central Luzon Link Expressway Phase I Project, together with corresponding mitigation/enhancement of each identified impacts, please refer to **Table 4.1** in Chapter 4. The Environmental Management and Monitoring Plan is presented in **Table 6.1** of Chapter 6.

## **CONTINGENCY AND RESPONSE PLAN**

During the construction of the CLLEX Project Phase I, the Constructors must ensure that;

- (i) Adequate warning signs, barricades, warning light including traffic aides must be provided at all times during construction;
- (ii) Vehicles for emergency cases are provided;
- (iii) Ensure that all equipment are in good working condition;
- (iv) The construction crew are using the required safety procedures/methods and are always using their Personal Protective Equipment (PPE); and
- (v) Safety and emergency contingency programs are formulated and coordinated at all times

## **DECOMMISSIONING AND ABANDONEMENT**

Decommissioning and abandonment measures must be implemented after the construction activities. Upon completion of the project, all parties concerned, such as the DPWH, the DENR, and the LGUs must jointly inspect the area to check if:

- (i) Temporary structures, if not usable anymore are dismantled, and stockpiled materials are properly disposed of;
- (ii) Interrupted power, water, telecoms service connections are properly re-installed or re-commissioned, and in the usual functioning conditions;
- (iii) Construction equipment and used materials are transported back to the contractors; and
- (iv) Temporary camp of construction workers and facilities are dismantled and cleared of debris.

# APPENDICES

---

**Appendix A**  
**DENR Administrative Order No. 2003-30**

---





Republic of the Philippines  
Department of Environment and Natural Resources  
Visayas Avenue, Diliman, Quezon City, Philippines 1104

**DENR Administrative Order  
No. 2003-30**

**SUBJECT: Implementing Rules and Regulations (IRR) for the  
Philippine Environmental Impact Statement (EIS)  
System**

Consistent with the continuing effort of the Department of Environment and Natural Resources (DENR) to rationalize and streamline 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, the following rules and regulations are hereby promulgated;

**ARTICLE I  
BASIC POLICY, OPERATING PRINCIPLES, OBJECTIVES AND  
DEFINITION OF TERMS**

**Section 1. Basic Policy and Operating Principles**

Consistent with the principles of sustainable development, it is the policy of the DENR to implement a systems-oriented and integrated approach to the EIS system to ensure a rational balance between socio-economic development and environmental protection for the benefit of present and future generations.

The following are the key operating principles in the implementation of the Philippine EIS System:

- a. The EIS System is concerned primarily with assessing the direct and indirect impacts of a project on the biophysical and human environment and ensuring that these impacts are addressed by appropriate environmental protection and enhancement measures.
- b. The EIS System aids proponents in incorporating environmental considerations in planning their projects as well as in determining the environment's impact on their project.

- c. Project proponents are responsible for determining and disclosing all relevant information necessary for a methodical assessment of the environmental impacts of their projects;
- d. The review of the EIS by EMB shall be guided by three general criteria: (1) that environmental considerations are integrated into the overall project planning, (2) that the assessment is technically sound and proposed environmental mitigation measures are effective, and (3) that social acceptability is based on informed public participation;
- e. Effective regulatory review of the EIS depends largely on timely, full, and accurate disclosure of relevant information by project proponents and other stakeholders in the EIA process;
- f. The social acceptability of a project is a result of meaningful public participation, which shall be assessed as part of the Environmental Compliance Certificate (ECC) application, based on concerns related to the project's environmental impacts;
- g. The timelines prescribed by this Order, within which an Environmental Compliance Certificate must be issued or denied, apply only to processes and actions within the Environmental Management Bureau's (EMB) control and do not include actions or activities that are the responsibility of the proponent.

## **Section 2. Objective**

The objective of this Administrative Order is to rationalize and streamline the EIS System to make it more effective as a project planning and management tool by:

- a. Making the System more responsive to the demands and needs of the project proponents and the various stakeholders;
- b. Clarifying the coverage of the System, and updating it to take into consideration industrial and technological innovations and trends;
- c. Standardizing requirements to ensure focus on critical environment parameters;
- d. Simplifying procedures for processing ECC applications, and establishing measures to ensure adherence to ECC conditions by project proponents, and
- e. Assuring that critical environmental concerns are addressed during project development and implementation.

## **Section 3. Definition of Terms**

For the purpose of this Order, the following definitions shall be applied:

- a. Certificate of Non-Coverage – a certification issued by the EMB certifying that, based on the submitted project description, the project is not covered by the EIS System and is not required to secure an ECC.

- b. Co-located projects / undertakings – projects, or series of similar projects or a project subdivided to several phases and/or stages by the same proponent, located in contiguous areas.
- c. Environment – Surrounding air, water (both ground and surface), land, flora, fauna, humans and their interrelations.
- d. Environmental Compliance Certificate (ECC) - document issued by the DENR/EMB after a positive review of an ECC application, certifying that based on the representations of the proponent, the proposed project or undertaking will not cause significant negative environmental impact. The ECC also certifies that the proponent has complied with all the requirements of the EIS System and has committed to implement its approved Environmental Management Plan. The ECC contains specific measures and conditions that the project proponent has to undertake before and during the operation of a project, and in some cases, during the project's abandonment phase to mitigate identified environmental impacts.
- e. Environmentally Critical Area (ECA) - area delineated as environmentally sensitive such that significant environmental impacts are expected if certain types of proposed projects or programs are located, developed or implemented in it.
- f. Environmentally Critical Project (ECP) - project or program that has high potential for significant negative environmental impact.
- g. Environmental Guarantee Fund (EGF) – fund to be set up by a project proponent which shall be readily accessible and disburseable for the immediate clean-up or rehabilitation of areas affected by damages in the environment and the resulting deterioration of environmental quality as a direct consequence of a project's construction, operation or abandonment. It shall likewise be used to compensate parties and communities affected by the negative impacts of the project, and to fund community-based environment related projects including, but not limited to, information and education and emergency preparedness programs.
- h. Environmental Impact Assessment (EIA) – process that involves evaluating and predicting the likely impacts of a project (including cumulative impacts) on the environment during construction, commissioning, operation and abandonment. It also includes designing appropriate preventive, mitigating and enhancement measures addressing these consequences to protect the environment and the community's welfare. The process is undertaken by, among others, the project proponent and/or EIA Consultant, EMB, a Review Committee, affected communities and other stakeholders.

- i. Environmental Impact Assessment Consultant - a professional or group of professionals commissioned by the proponent to prepare the EIS/IEE and other related documents. In some cases, the person or group referred to may be the proponent's technical staff.
- j. Environmental Impact Assessment Review Committee (EIARC) - a body of independent technical experts and professionals of known probity from various fields organized by the EMB to evaluate the EIS and other related documents and to make appropriate recommendations regarding the issuance or non-issuance of an ECC.
- k. Environmental Impact Statement (EIS) - document, prepared and submitted by the project proponent and/or EIA Consultant that serves as an application for an ECC. It is a comprehensive study of the significant impacts of a project on the environment. It includes an Environmental Management Plan/Program that the proponent will fund and implement to protect the environment.
- l. Environmental Management Plan/Program (EMP) - section in the EIS that details the prevention, mitigation, compensation, contingency and monitoring measures to enhance positive impacts and minimize negative impacts and risks of a proposed project or undertaking. For operating projects, the EMP can also be derived from an EMS.
- m. Environmental Management Systems (EMS) - refers to the EMB PEPP EMS as provided for under DAO 2003-14, which is a part of the overall management system of a project or organization that includes environmental policy, organizational structure, planning activities, responsibilities, practices, procedures, processes and resources for developing, implementing, achieving, reviewing and maintaining an improved overall environmental performance.
- n. Environmental Monitoring Fund (EMF) –fund that a proponent shall set up after an ECC is issued for its project or undertaking, to be used to support the activities of the multi-partite monitoring team. It shall be immediately accessible and easily disbursable.
- o. Environmental Performance – capability of proponents to mitigate environmental impacts of projects or programs.
- p. Environmental Performance Report and Management Plan (EPRMP) - documentation of the actual cumulative environmental impacts and effectiveness of current measures for single projects that are already operating but without ECC's, i.e., Category A-3. For Category B-3 projects, a checklist form of the EPRMP would suffice.

- q. Environmental Risk Assessment (ERA) – assessment, through the use of universally accepted and scientific methods, of risks associated with a project. It focuses on determining the probability of occurrence of accidents and their magnitude (e.g. failure of containment or exposure to hazardous materials or situations.)
- r. EMS-based EMP - environmental management plan based on the environmental management system (EMS) standard as defined in the DAO 2003-14.
- s. Initial Environmental Examination (IEE) Report - document similar to an EIS, but with reduced details and depth of assessment and discussion.
- t. Initial Environmental Examination (IEE) Checklist Report - simplified checklist version of an IEE Report, prescribed by the DENR, to be filled up by a proponent to identify and assess a project's environmental impacts and the mitigation/enhancement measures to address such impacts.
- u. Multipartite Monitoring Team (MMT) - community-based multi-sectoral team organized for the purpose of monitoring the proponent's compliance with ECC conditions, EMP and applicable laws, rules and regulations.
- v. Programmatic Environmental Impact Statement (PEIS) - documentation of comprehensive studies on environmental baseline conditions of a contiguous area. It also includes an assessment of the carrying capacity of the area to absorb impacts from co-located projects such as those in industrial estates or economic zones (ecozones).
- w. Programmatic Environmental Performance Report and Management Plan (PEPRMP) - documentation of actual cumulative environmental impacts of co-located projects with proposals for expansion. The PEPRMP should also describe the effectiveness of current environmental mitigation measures and plans for performance improvement.
- x. Project Description (PD) - document, which may also be a chapter in an EIS, that describes the nature, configuration, use of raw materials and natural resources, production system, waste or pollution generation and control and the activities of a proposed project. It includes a description of the use of human resources as well as activity timelines, during the pre-construction, construction, operation and abandonment phases. It is to be used for reviewing co-located and single projects under Category C, as well as for Category D projects.
- y. Project or Undertaking - any activity, regardless of scale or magnitude, which may have significant impact on the environment.
- z. Proponent – any natural or juridical person intending to implement a project or undertaking.

- aa. Public Participation – open, transparent, gender-sensitive, and community-based process aimed at ensuring the social acceptability of a project or undertaking, involving the broadest range of stakeholders, commencing at the earliest possible stage of project design and development and continuing until post-assessment monitoring.
- bb. Procedural Review – phase in the ECC application review process to check for the completeness the required documents, conducted by EIAM Division at the EMB Central Office or Regional Office.
- cc. Process Industry – an industry whose project operation stage involves chemical, mechanical or other processes.
- dd. Scoping - the stage in the EIS System where information and project impact assessment requirements are established to provide the proponent and the stakeholders the scope of work and terms of reference for the EIS.
- ee. Secretary - the Secretary of the DENR.
- ff. Social Acceptability – acceptability of a project by affected communities based on timely and informed participation in the EIA process particularly with regard to environmental impacts that are of concern to them.
- gg. Stakeholders – entities who may be directly and significantly affected by the project or undertaking.
- hh. Substantive Review – the phase in the EIA process whereby the document submitted is subjected to technical evaluation by the EIARC.
- ii. Technology – all the knowledge, products, processes, tools, methods and systems employed in the creation of goods or providing services.

## **ARTICLE II**

### **ECC APPLICATION PROCESSING AND APPROVAL PROCEDURES**

#### **Section 4.        Scope of the EIS System**

**4.1** In general, only projects that pose potential significant impact to the environment shall be required to secure ECC's. In coordination with the Department of Trade and Industry (DTI) and other concerned government agencies, the EMB is authorized to update or make appropriate revisions to the technical guidelines for EIS System implementation.

**4.2** The issuance of ECC or CNC for a project under the EIS System does not exempt the proponent from securing other government permits and clearances as required by other laws.

In determining the scope of the EIS System, two factors are considered: (i) the nature of the project and its potential to cause significant negative environmental impacts, and (ii) the sensitivity or vulnerability of environmental resources in the project area.

**4.3** The specific criteria for determining projects or undertakings to be covered by the EIS System are as follows:

- a. Characteristics of the project or undertaking
  - Size of the project
  - Cumulative nature of impacts vis-à-vis other projects
  - Use of natural resources
  - Generation of waste and environment-related nuisance
  - Environment-related hazards and risk of accidents
- b. Location of the Project
  - Vulnerability of the project area to disturbances due to its ecological importance, endangered or protected status
  - Conformity of the proposed project to existing land use, based on approved zoning or on national laws and regulations
  - Relative abundance, quality and regenerative capacity of natural resources in the area, including the impact absorptive capacity of the environment
- c. Nature of the potential impact
  - Geographic extent of the impact and size of affected population
  - Magnitude and complexity of the impact
  - Likelihood, duration, frequency, and reversibility of the impact

The following are the categories of projects/undertakings under the EIS system:

*Category A.* Environmentally Critical Projects (ECPs) with significant potential to cause negative environmental impacts



*Category B.* Projects that are not categorized as ECPs, but which may cause negative environmental impacts because they are located in Environmentally Critical Areas (ECA's)

*Category C.* Projects intended to directly enhance environmental quality or address existing environmental problems not falling under Category A or B.

*Category D.* Projects unlikely to cause adverse environmental impacts.

**4.4** Proponents of co-located or single projects that fall under Category A and B are required to secure ECC. For co-located projects, the proponent has the option to secure a Programmatic ECC. For ecozones, ECC application may be programmatic based on submission of a programmatic EIS, or locator-specific based on submission of project EIS by each locator.

**4.5** Projects under Category C are required submit Project Description.

**4.6** Projects classified under Category D may secure a CNC. The EMB-DENR, however, may require such projects or undertakings to provide additional environmental safeguards as it may deem necessary.

**4.7** Projects/undertakings introducing new technologies or construction technique but which may cause significant negative environmental impacts shall be required to submit a Project Description which will be used as basis by EMB for screening the project and determining its category.

## **Section 5. Requirements for Securing Environmental Compliance Certificate (ECC) and Certificate of Non-Coverage (CNC)**

### **5.1 Documentary Requirements for Proponents**

ECC processing requirements shall focus on information needed to assess *critical environmental impacts of projects*. Processing requirements shall be customized based on the project categories.

The following is a summary of the required documents, the processing, endorsing and deciding authorities for ECC/CNC applications and timeframe for each project category:

The total maximum processing time reckons from the acceptance of the ECC/CNC application for substantive review up to the issuance of the decision

## **5.2 Forms and Contents of EIA Study Reports and Other Documents Required Under the EIS System**

The following are the different forms of EIA study reports and documents required under the EIS System. DENR employees are prohibited from taking part in the preparation of such documents.

The DENR/EMB shall limit to a maximum of two (2) official requests (in writing) to the project proponent for additional information, which shall be made within the first 75% of the processing timeframe shown in Section 5.1.1.

### **5.2.1. Environmental Impact Statement (EIS).**

The EIS should contain at least the following:

- a. EIS Executive Summary;
- b. Project Description;
- c. Matrix of the scoping agreement identifying critical issues and concerns, as validated by EMB;
- d. Baseline environmental conditions focusing on the sectors (and resources) most significantly affected by the proposed action;
- e. Impact assessment focused on significant environmental impacts (in relation to project construction/commissioning, operation and decommissioning), taking into account cumulative impacts;
- f. Environmental Risk Assessment if determined by EMB as necessary during scoping;
- g. Environmental Management Program/Plan;
- h. Supporting documents, including technical/socio-economic data used/generated; certificate of zoning viability and municipal land use plan; and proof of consultation with stakeholders;
- i. Proposals for Environmental Monitoring and Guarantee Funds including justification of amount, when required;
- j. Accountability statement of EIA consultants and the project proponent; and
- k. Other clearances and documents that may be determined and agreed upon during scoping.

### **5.2.2. Initial Environmental Examination (IEE) Report**

IEE Report is similar to an EIS, but with reduced details of data and depth of assessment and discussion.

It may be customized for different types of projects under Category B. The EMB shall coordinate with relevant government agencies and the private sector to customize and update IEE Checklists to further streamline ECC processing, especially for small and medium enterprises.

### **5.2.3. Programmatic Environmental Impact Statement (PEIS)**

The PEIS shall contain the following:

- a. Executive Summary;
- b. Project Description;
- c. Summary matrix of scoping agreements as validated by EMB;
- d. Eco-profiling of air, land, water, and relevant people aspects;
- e. Environmental carrying capacity analysis;
- f. Environmental Risk Assessment (if found necessary during scoping);
- g. Environmental Management Plan to include allocation scheme for discharge of pollutants; criteria for acceptance of locators, environmental management guidebook for locators, and environmental liability scheme;
- h. Duties of the Environmental Management Unit to be created;
- i. Proposals for Environmental Monitoring & Guarantee Funds and terms of reference for the Multi-partite Monitoring Team, and
- j. Other supporting documents and clearances that may be agreed during the scoping.

### **5.2.4. Programmatic Environmental Performance Report and Management Plan (PEPRMP).**

The PEPRMP shall contain the following:

- a. Project Description of the co-located projects;
- b. Documentation of the actual environmental performance based on current/past environmental management measures implemented, and
- c. An EMP based on an environmental management system framework and standard set by EMB.

### **5.2.5. Environmental Performance Report and Management Plan (EPRMP) .**

The EPRMP shall contain the following:

- a. Project Description;
- b. Baseline conditions for critical environmental parameters;
- c. Documentation of the environmental performance based on the current/past environmental management measures implemented;

- d. Detailed comparative description of the proposed project expansion and/or process modification with corresponding material and energy balances in the case of process industries, and
- e. EMP based on an environmental management system framework and standard set by EMB.

#### **5.2.6. Project Description (PD)**

The PD shall be guided by the definition of terms and shall contain the following:

- a. Description of the project;
- b. Location and area covered;
- c. Capitalization and manpower requirement;
- d. For process industries, a listing of raw materials to be used, description of the process or manufacturing technology, type and volume of products and discharges;
- e. For Category C projects, a detailed description on how environmental efficiency and overall performance improvement will be attained, or how an existing environmental problem will be effectively solved or mitigated by the project, and
- f. A detailed location map of the impacted site showing relevant features (e.g. slope, topography, human settlements).
- g. Timelines for construction and commissioning

#### **5.2.7. EMS-based EMP.**

The EMS-based EMP is an option that proponents may undertake in lieu of the EPRMP for single projects applying for ECC under Category A-3 and B-3.

### **5.3 Public Hearing / Consultation Requirements**

For projects under Category A-1, the conduct of public hearing as part of the EIS review is mandatory unless otherwise determined by EMB. For all other undertakings, a public hearing is not mandatory unless specifically required by EMB.

Proponents should initiate public consultations early in order to ensure that environmentally relevant concerns of stakeholders are taken into consideration in the EIA study and the formulation of the management plan. All public consultations and public hearings conducted during the EIA process are to be documented. The public hearing/ consultation Process report shall be validated by the EMB/EMB RD and shall constitute part of the records of the EIA process.

### **5.4 Documentation Requirements for DENR-EMB and EIA Reviewers**

The EMB Central Office as well as the EMB Regional Offices shall document the proceedings of the ECC application process and shall set up and maintain relevant information management systems. The documentation shall, at a minimum, include the following:

#### **5.4.1. Review Process Report**

This is to be prepared by the EMB Central or EMB RO. It is to be forwarded to the DENR Secretary or RD as reference for decision-making and maintained as part of the records on the ECC application. The report should contain at least the following:

- a. Summary of the environmental impacts of the undertaking, along with the proposed mitigation and enhancement measures;
- b. Key issues/concerns and the proponent's response to these;
- c. Documentation of compliance with procedural requirements;
- d. Acceptability of proposed EMP including the corresponding cost of mitigation, EGF and EMF if required;
- e. Key bases for the decision on the ECC application.

#### **5.4.2. EIARC Report**

This report, to be prepared by the EIA Review Committee, forms part of the EIS review documentation. The EIARC Report shall be written by the designated member of the EIARC and signed by all the members within five days after the final review meeting. If an EIARC member dissents, he or she must submit a memorandum to the EMB Director through the EIARC Chairman his or her reasons for dissenting.

At a minimum the EIARC report should contain:

- a. Detailed assessment of the proposed mitigation and enhancement measures for the identified environmental impacts and risks;
- b. Description of residual or unavoidable environmental impacts despite proposed mitigation measures;
- c. Documentation of compliance with technical/substantive review criteria;
- d. Key issues/concerns and the proponent's response to these, including social acceptability measures;
- e. Assessment of the proposed EMP (including risk reduction/management plan) and amounts proposed for the Environmental Guarantee Fund and the Environmental Monitoring Fund, and
- f. Recommended decision regarding the ECC application as well as proposed ECC conditions.

### 5.4.3. Decision Document

This is an official letter regarding the decision on the application. It may be in the form of an Environmental Compliance Certificate or a Denial Letter. The ECC shall contain the scope and limitations of the approved activities, as well as conditions to ensure compliance with the Environmental Management Plan. The ECC shall also specify the setting up of an EMF and EGF, if applicable. No ECC shall be released until the proponent has settled all liabilities, fines and other obligations with DENR.

A Denial Letter on the other hand shall specify the bases for the decision.

The ECC or Denial Letter shall be issued directly to the project proponent or its duly authorized representative, and receipt of the letter shall be properly documented.

The ECC of a project not implemented within five years from its date of issuance is deemed expired. The Proponent shall have to apply for a new ECC if it intends to pursue the project. The reckoning date of project implementation is the date of ground breaking, based on the proponent's work plan as submitted to the EMB.

## Section 6. Appeal

Any party aggrieved by the final decision on the ECC / CNC applications may, within 15 days from receipt of such decision, file an appeal on the following grounds:

- a. Grave abuse of discretion on the part of the deciding authority, or
- b. Serious errors in the review findings.

The DENR may adopt alternative conflict/dispute resolution procedures as a means to settle grievances between proponents and aggrieved parties to avert unnecessary legal action. Frivolous appeals shall not be countenanced.

The proponent or any stakeholder may file an appeal to the following:

<b>Deciding Authority</b>	<b>Where to file the appeal</b>
EMB Regional Office Director	Office of the EMB Director
EMB Central Office Director	Office of the DENR Secretary
DENR Secretary	Office of the President

## **Section 7. The EIA Process in Relation to the Project Planning Cycle**

Proponents are directed under AO 42 to conduct simultaneously the environmental impact study and the project planning or feasibility study. EMB may validate whether or not the EIS was integrated with project planning by requiring relevant documentary proofs, such as the terms of reference for the feasibility study and copies of the feasibility study report.

The EMB shall study the potential application of EIA to policy-based undertakings as a further step toward integrating and streamlining the EIS system.

## **Section 8. EIS System Procedures**

### **8.1 Manual of Procedures**

- 8.1.1. The procedures to enable the processing of ECC/CNC applications within the timeframes specified in AO 42 shall be prescribed in a Procedural Manual to be issued by the EMB Central Office within ninety (90) days from the date of this Order.
- 8.1.2. The Manual of Procedures shall be updated as the need arises to continually shorten the review and approval/denial timeframes where feasible. Formulation of said procedures shall conform to the following guidelines:

### **8.2 Processing Timeframe**

- 8.2.1. If no decision is made within the specified timeframe, the ECC/CNC application is deemed automatically approved and the approving authority shall issue the ECC or CNC within five (5) working days after the prescribed processing timeframe has lapsed. However, the EMB may deny issuance of ECC if the proponent fails to submit required additional information critical to deciding on the ECC/CNC application, despite written request from EMB and despite an adequate period for the proponent to comply with the said requirement;



- 8.2.2. In cases where ECC issuance cannot be decided due to the proponent's inability to submit required additional information within the prescribed period, the EMB shall return the application to the proponent. The project proponent may resubmit its application, including the required additional information, within one (1) year for Category A projects and six (6) months for Category B projects without having to pay processing and other fees. Otherwise, the matter shall be treated as a new application.
- 8.2.3. In cases where EMB and the project proponent have exhausted all reasonable efforts to generate the information needed for deciding on the ECC/CNC application, the responsible authority (Secretary or EMB Director / Regional Director) shall make a decision based on the available information so as to comply with the prescribed timeframe. The decision shall nonetheless reflect a thorough assessment of impacts taking into consideration (i) the significance of environmental impacts and risks; (ii) the carrying capacity of the environment; (iii) equity issues with respect to use of natural resources, (iv) and the proponent's commitment to institute effective environmental management measures.

### **8.3 Amending an ECC**

Requirements for processing ECC amendments shall depend on the nature of the request but shall be focused on the information necessary to assess the environmental impact of such changes.

- 8.3.1. Requests for minor changes to ECCs such as extension of deadlines for submission of post-ECC requirements shall be decided upon by the endorsing authority.
- 8.3.2. Requests for major changes to ECCs shall be decided upon by the deciding authority.
- 8.3.3. For ECC's issued pursuant to an IEE or IEE checklist, the processing of the amendment application shall not exceed thirty (30) working days; and for ECC's issued pursuant to an EIS, the processing shall not exceed sixty (60) working days. Provisions on automatic approval related to prescribed timeframes under AO 42 shall also apply for the processing of applications to amend ECC's.

## **Section 9. Monitoring of Projects with ECCs**

Post ECC monitoring of projects shall follow these guidelines. Other details on requirements for monitoring of projects with ECC's shall be stipulated in a procedural manual to be formulated by EMB.

### **9.1 Multipartite Monitoring Team**

For projects under Category A, a multi-partite monitoring team (MMT) shall be formed immediately after the issuance of an ECC. Proponents required to establish an MMT shall put up an Environmental Monitoring Fund (EMF) not later than the initial construction phase of the project.

The MMT shall be composed of representatives of the proponent and of stakeholder groups, including representatives from concerned LGU's, locally accredited NGOs/POs, the community, concerned EMB Regional Office, relevant government agencies, and other sectors that may be identified during the negotiations. The team shall be tasked to undertake monitoring of compliance with ECC conditions as well as the EMP. The MMT shall submit a semi-annual monitoring report within January and July of each year.

The EMB shall formulate guidelines for operationalizing area-based or cluster-based MMT. The Bureau may also develop guidelines for delegating monitoring responsibilities to other relevant government agencies as may be deemed necessary.

For projects whose significant environmental impacts do not persist after the construction phase or whose impacts could be addressed through other regulatory means or through the mandates of other government agencies, the operations of MMT may be terminated immediately after construction or after a reasonable period during implementation.

### **9.2 Self-monitoring and Third Party Audit**

The proponent shall also conduct regular self-monitoring of specific parameters indicated in the EMP through its environmental unit. The proponent's environmental unit shall submit a semi-annual monitoring report within January and July of each year.

For projects with ECCs issued based on a PEPRMP, EPRMP, or an EMS-based EMP, a third party audit may be undertaken by a qualified environmental or EMS auditor upon the initiative of the proponent and in lieu of forming an MMT. The said proponent shall submit to EMB a copy of the audit findings and shall be held

accountable for the veracity of the report. The EMB may opt to validate the said report.

### **9.3 Environmental Guarantee Fund**

An Environmental Guarantee Fund (EGF) shall be established for all co-located or single projects that have been determined by DENR to pose a significant public risk or where the project requires rehabilitation or restoration. An EGF Committee shall be formed to manage the fund. It shall be composed of representatives from the EMB Central Office, EMB Regional Office, affected communities, concerned LGU's, and relevant government agencies identified by EMB.

An integrated MOA on the MMT-EMF-EGF shall be entered into among the EMB Central Office, EMB Regional Office, the proponent, and representatives of concerned stakeholders.

### **9.4 Abandonment**

For projects that shall no longer be pursued, the proponent should inform EMB to relieve the former from the requirement for continued compliance with the ECC conditions. For projects that have already commenced implementation, an abandonment/decommissioning plan shall be submitted for approval by EMB at least six (6) months before the planned abandonment/decommissioning. The implementation of the plan shall be verified by EMB.

## **ARTICLE III STRENGTHENING THE IMPLEMENTATION OF THE PHILIPPINE EIS SYSTEM**

### **Section 10. Coordination with other Government Agencies and other Organizations**

The DENR-EMB shall conduct regular consultations with DTI and other pertinent government agencies, affected industry groups and other stakeholders on continually streamlining the processing of ECC applications and post ECC implementation to fulfill the policy and objectives of this administrative order.

The President shall be apprised of the issues raised as well as the actions taken by DENR to address these issues whenever necessary.

### **Section 11. Information Systems Improvement**

The information system on the EIS System implementation shall be improved for the effective dissemination of information to the public. The information system shall include regular updating of the status of ECC applications through a website and through other means.

## **Section 12. Accreditation System**

To enhance the quality of the EIS submitted to the DENR/EMB, the EMB shall establish an accreditation system for individual professionals, academic and professional organizations that can be tapped to train professionals in conducting EIA using training modules approved by EMB.

The EMB shall also work with DTI-BPS for an accreditation system for environmental and EMS auditors, consistent with provisions of DAO 2003-14 on the Philippine Environmental Partnership Program.

## **Section 13. Creation of an EIAM Division and Strengthening of Review and Monitoring Capability**

In order to effectively implement the provisions of this administrative order, the current EIA ad hoc division at the EMB Central Office and the EMB Regional Offices that are primarily in-charge of processing ECC applications and post-ECC monitoring shall be converted to a full-pledged Environmental Impact Assessment and Management Division (EIAMD). The Division shall have the following structure and functions:

**13.1** The EIA Evaluation Section shall be in charge of screening projects for coverage under the EIS System, EIS Scoping, and evaluation of EIS's and IEE's submitted for ECC issuance. It shall have three units responsible, respectively, for screening for coverage, EIS Scoping, and evaluation of ECC applications. The EMB may commission independent professionals, experts from the academe and representatives from relevant government agencies as members of the EIA Review Committee as may be deemed necessary. Further, continual improvement of the technical capability of the Staff of the EIA Division shall be undertaken.

**13.2** The Impact Monitoring and Validation Section shall be in charge of monitoring compliance to ECC conditions and implementation of the Environmental Management Program (EMP). The unit shall also validate actual impacts as a basis for evaluating environmental performance and effectiveness of the EMP.

**13.3** In the EMB Central Office, there shall be a Systems Planning and Management Section. It shall ensure that a continually improving systems-oriented and integrated approach is followed in implementing the Philippine EIS System vis-a-vis national development programs. The section shall have two units responsible for specific systems-level concerns: (1) Project Level Systems

Planning and Management Unit; and (2) Program and Policy Level Systems Planning and Management Unit. This section shall also be responsible for technical coordination with the EIA Division in the different EMB Regional Offices.

The organizational structure of the EMB Central Office is in Annex 1.

## **ARTICLE IV MISCELLANEOUS PROVISIONS**

### **Section 14. Budget Allocation**

For the effective implementation of this order, adequate funding should be provided under the annual General Appropriations Act.

Per AO 42, the new position items for the EIA Division shall be created out of the existing budget and vacant position items within the government service, which shall be reclassified accordingly.

### **Section 15. Fees**

All proponents, upon submission of the IEE/EIS and application for amendment, shall pay filing fees and other charges in accordance with prescribed standard costs and fees set by EMB in relation to the implementation of the Philippine EIS System, as shown in Annex 2.

The proponent shall shoulder the cost of reviewing the EIS.

### **Section 16. Fines, Penalties And Sanctions**

The EMB Central Office or Regional Office Directors shall impose penalties upon persons or entities found violating provisions of P.D. 1586, and its Implementing Rules and Regulations. Details of the Fines and Penalty Structure shall be covered by a separate order.

The EMB Director or the EMB-RD may issue a Cease and Desist Order (CDO) based on violations under the Philippine EIS System to prevent grave or irreparable damage to the environment. Such CDO shall be effective immediately. An appeal or any motion seeking to lift the CDO shall not stay its effectivity. However, the DENR shall act on such appeal or motion within ten (10) working days from filing.

The EMB may publish the identities of firms that are in violation of the EIA Law and its Implementing Rules and Regulations despite repeated Notices of Violation and/or Cease and Desist Orders.

#### **Section 17. Transitory Provisions**

The DENR may extend reprieve to proponents of projects operating without ECC (Categories A-3 and B-3) from penalties specified in PD 1586 upon registration with the EMB Central Office. An Environmental Performance Report and Management Plan (EPRMP) shall be submitted as a requirement for such ECC application within six months from the signing of this Administrative order.

During the period that that the Procedural Manual and other necessary guidelines are being prepared, existing guidelines which are consistent with the provisions of this Order shall remain in effect. Adequate resources shall be provided for the formulation of the Procedural Manual and for the effective implementation of this Order.

#### **Section 18. Repealing Clause**

This Order hereby supersedes Department Administrative Order No. 96-37, Department Administrative Order No. 2000-37, DAO 2000-05 and other related orders, which are inconsistent herewith.

#### **Section 19. Effectivity**

This Order shall take effect 15 days after its publication in a newspaper of general circulation.

**ELISEA G. GOZUN**  
**Secretary**

---

**Appendix B**  
**Location of Irrigation Canals of Tarlac and Nueva Ecija**

---



---

## **Appendix C**

### **Noise Modelling**

---

# **NOISE SENSITIVE RECEPTORS**

## **FOR CENTRAL LUZON EXPRESSWAY (CLEX)**

### **ALIGNMENT FROM LA PAZ, TARLAC TO CABANATUAN CITY**

#### **SECTION**

## **Background**

Among the significant impacts of road projects is the generation of noise by the motorized vehicles using the expressway facility during the operation phase? The possible adverse environmental impact of these atmospheric disturbances can range from simple nuisance to health risk for the receptors of the noise. This sensitivity study is intended to assess the noise impact and recommend mitigation measures for consideration of the road designers.

## **Objectives of the study**

The study aims to:

- a) Assess the noise levels generated by expressway traffic during the operation stage; and
- b) To estimate the possible noise attenuation using noise barriers.

The project alignment has been selected in order to avoid the passages over residential and built-up areas. Generally, the impact of the project on the sound environmental quality is quite significant to the alignment in populated areas. The zones potentially affected by noise are mainly urban areas with high density inhabitants. The study targets those sensitive receptors such residences, schools, churches and hospitals and aims at preserving as much as possible the sound environmental quality of these sites.

## **Noise standards and regulations**

### **Philippine regulations**

The noise standards in general areas which are defined in the rules and regulations of the National Pollution and Control Commission. The sensitive zones were defined as zones including hospitals, education establishments (schools), churches, recreational and rest areas. The acceptable maximum noise levels for these zones were fixed at 50 dB(A) in day period and 40dB(A) in night period (Table 1).

If the values of this regulation are compared to the legal thresholds generally adopted in Europe or in the United States, it can be said that they were not adapted to the problem of the road noise. Generally, the difference between the day and night thresholds should be 5 dB approximately, or possibly 10dB in the sensitive establishments.

**Table 1. Rules and Regulations of the National Pollution Control Commission**  
**“Noise Standards in General Areas”**

Category of Area	Daytime	Morning/ Evening	Night Time
	9AM to 6PM	5AM to 9AM/ 6PM to 10PM	10PM to 5AM
<b>AA</b> A section or contiguous area that require quietness such as school sites, hospitals, and special homes for the aged	50 dBA	45 dBA	40 dBA
<b>B</b> A section or contiguous area which is primarily use as a residential purposes	65	60	55
<b>C</b> A section which is primarily reserved as a light industrial area	70	65	60
<b>D</b> A section which is primarily reserved as a heavy industrial area	75	70	65

## Method of Evaluation

### Methodology

For the road noise prediction, the European directive of June 25, 2002 on the environmental noise management recommended the French SETRA calculation method. It concerns the NMPB-Roads-96 method (SETRACERTU-LCPC-CSTB), mentioned in the decree of 5 May 1995 relating to the road infrastructure noise (article 6), and corresponding to French standard AFNOR XPS 31-133. This method is based on the Guide of the land transport noise – Noise level prediction, 1980.

The method was applied in the noise sensitivity study and involves the following process:

- Establishment of a source to receptors distance from the expressway edge using maps and actual distance measurement;
- Inventory of sensitive receptors (residential areas, schools, churches and hospitals);
- Computations of the theoretical noise levels at the reference distance taking into consideration the local topography/elevation and vehicular flow; and
- Identification of sensitive areas based on noise levels at the reference distances.

Reference distance had been established from a distance of 2 m from the façade of the receptor to the edge of skyway. These reference distances had been measured on site and/or using maps to facilitate the analysis.

## Inventory of sensitive receptors

Using the available maps and site investigations, an inventory of the structures located within 1000 meters from the expressway alignment areas had been made. It is estimated that about 9 school buildings, 4 churches/chapels and about 19 clustered residential areas are located within the study area. Table 2 contains the inventory of sensitive receptors and its approximate location. Table 3 shows the residential areas exposed to expressway alignment.

**Table 2. Sensitive Receptors (Churches & Schools) along the CLEX Alignment**

<b>Sensitive Receptor Along Expressway Alignment</b>	<b>Station Position and Location of Receptor from Alignment</b>	<b>Expressway Road Elevation (m)</b>	<b>Ground Elevation (m)</b>	<b>Source to Receptor Reference Distance (m)</b>
<b>Churches:</b>				
Iglesia Ni Kristo	30+300 North	40.590	32.629	50
Iglesia Ni Kristo	29+200 South	34.110	31.656	260
First Church of God	28+900 South	35.010	31.427	280
Bucot Chapel	23+700 South	29.749	23.474	250
<b>Schools:</b>				
Umangan Elem School	28+900 South	34.110	31.656	280
Umangan Day Care Center and Barangay Hall	28+860 South	35.130	31.039	280
Dona Elena (Bibiclat) Elem School	22+000 North	23.355	21.491	480
Aliaga High School	20+800 South	26.859	21.666	800
Regina Children Institute	20+700 South	25.759	21.008	350
Sto Rosario Elem School	19+500 South	28.519	20.063	750
Magsaysay Elem School	17+000 South	22.737	18.202	1000
Sta Monica Elem School	14+900 North	20.607	16.611	300
Macalong Elem School	5+500 South	21.422	15.740	700
Guevarra Elem School	5+000 North	24.491	16.249	450
Amucao Elem School	1+000 North	25.150	21.530	1200

**Table 3. Clustered Residential Receptors along the CLEX Alignment**

<b>Residential Receptor Along Expressway Alignment</b>	<b>Station Position and Location of Receptor from Alignment</b>	<b>Expressway Road Average Elevation (m)</b>	<b>Ground Average Elevation (m)</b>	<b>Source to Receptor Reference Distance (m)</b>
<b>Clustered Residential:</b>				
Amucao	1+100 to 1+500 North	24.3	20.7	480

Laungcupang	1+800 to 3+000 South	26.4	20.2	650
Guevarra	4+700 to 5+400 North	23.7	16.2	180
Macalong	4+900 to 5+000 South	24.4	16.5	220
Macalong	5+500 to 5+700 South	20.7	15.5	600
Bibiclat	11+000 to 11+500 North	20.6	14.8	600
Sta Monica	14+000 to 15+400 North	20.3	16.4	160
San Eutascio	15+800 to 16+800 North	20.5	17.6	380
Sto Rosario	19+100 to 19+500 South	27.1	20.3	100
Aliaga Poblacion	20+000 to 20+400 South	23.7	20.8	350
Aliaga Poblacion	20+600 to 20+900 South	26.3	21.5	160
Aliaga Poblacion	21+000 to 21+100 South	28.8	20.0	80
Pantoc	21+600 to 21+700 North	26.1	21.6	250
Bibiclat	21+900 to 22+200 North	23.9	21.5	400
Bucot	23+400 to 23+500 South	27.6	23.4	120
Bucot	23+600 to 23+900 South	29.7	23.5	250
Bactog, San Juan De Dios	24+100 to 25+400 South	30.9	24.3	500
Umangan	29+800 to 29+960 North	38.7	32.0	20
Umangan	28+00 to 29+000 South	33.5	29.7	250
Umangan	29+100 to 29+800 South	34.6	31.8	200
Umangan	29+900 to 29+960 South	39.2	32.8	25

### Computations of Theoretical Noise Levels

The noise levels were calculated based on the NMPB-Routes-96 method (SETRA-CERU-LCPC-CSTB). Considerations were made on the annual average daily traffic volume estimate/forecast for 2014 and 2020. While the traffic study provided the daily vehicular traffic, SETRA has suggested the formula for estimation of the day and night traffic distributions which are as follows:

Day time (6am to 10 pm):	Light vehicles =	AADT LV/18
	Heavy vehicles =	AADT HV/20
Night time (10pm to 6 am):	Light vehicles =	AADT LV/79
	Heavy vehicles =	AADT HV/39

Where AADT is the Annual Average Daily Traffic extracted from the final report of Feasibility Study for Central Luzon Expressway – January 2010. Table 4 shows the traffic forecast for 2016, 2020, 2025 and 2030. It is also assumed that Class 2 and Class 3 are considered as heavy vehicle in this study.

**Table 4. Annual Average Daily Traffic Forecast for 2016, 2020, 2025 and 2030**  
(From Feasibility Study for Central Luzon Expressway)

Traffic Forecast	Vehicle Type	
	C1 (Light Vehicle)	C2 + C3 (Heavy Vehicle)
<b>2016</b>	5700	4811
<b>2020</b>	7758	6519
<b>2025</b>	10330	8655
<b>2030</b>	13192	11059

The corresponding daytime and night time traffic equivalent computed from the given traffic forecast AADT using the SETRA estimation will be as follows:

Traffic Forecast	Daytime Equivalent		Night time Equivalent	
	Light	Heavy	Light	Heavy
<b>2016</b>	317	241	72	123
<b>2020</b>	431	326	98	167
<b>2025</b>	574	433	131	222
<b>2030</b>	733	553	167	284

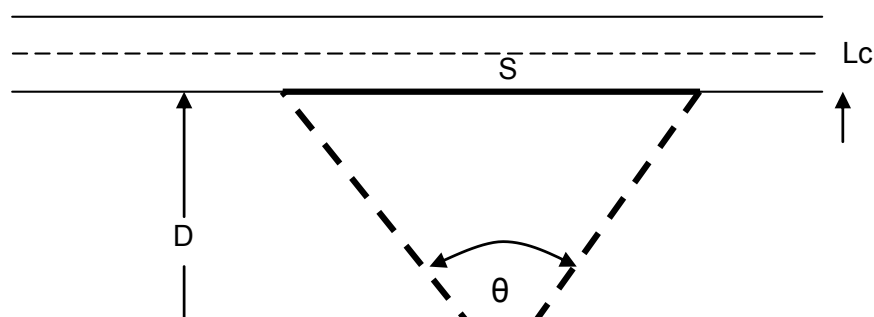
The formula for hourly noise level equivalent calculation is:

$$Leq = 20 + 10 \log (Q_{lv} + E \cdot Q_{hv}) + 20 \log V - 12 \log (D + L_c/3) + 10 \log (\theta/180)$$

where:

- $Q_{lv}$  and  $Q_{hv}$  are the representative flows of light and heavy vehicles in veh/hr
- $E$  is the factor of acoustic equivalence between LV (light) and HV (heavy)
- $V$  is the speed in km/h
- $D$  is the horizontal distance from the edge to receptor (m)
- $L_c$  is the width of carriageway (m)
- $\theta$  is the angle of view of road segment (degrees)

Figure 1 contains the schematic diagram used for the noise level computations.



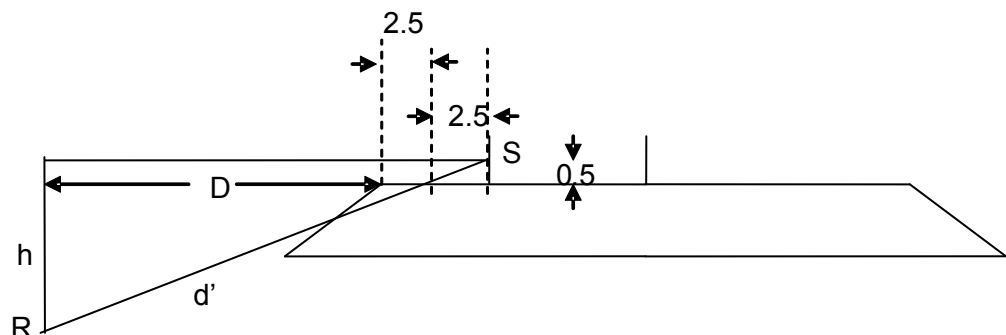
**Figure 1. Schematic Diagram for Computation of Noise**

The predicted equivalent noise level is calculated based on the distance measured between the skyway and the receptors from the edge of carriageway. The angle of view is estimated based on maximum assumption of road segment equal to 180 degrees.

The velocity used in the computation is the road designed speed of 100 kph with a continuous fluid flow type. Since the skyway will have 3 lanes with each per flow direction having a width of 3.5 m, the  $L_c$  will have a value of 10.5 m.

For an expressway, SETRA suggests that the acoustic equivalent of heavy vehicle to light vehicles is about 4 for flat road (or  $\leq 2\%$  road slope gradient). The effective noise source position is assumed at 0.5 meter above from the road surface and 5.0 m from the nearside of carriageway (see **Figure 2**). The considerations made in estimating the noise levels are the following:

- Direct distance between the source and receptor ( $d'$ )
- topography
- angle of view of the receptor to noise source ( $\theta$ )
- vehicular traffic speed and traffic volume ( $v$ )
- percentage of heavy and light vehicles ( $Q_{lv}$  and  $Q_{hv}$ )



**Figure 2. Schematic Diagram of Expressway Flat form for Noise Computations**

The receptors height is estimated to be 1.5 meters above ground elevation, prediction of noise level were computed at this reference height of the ground elevation.

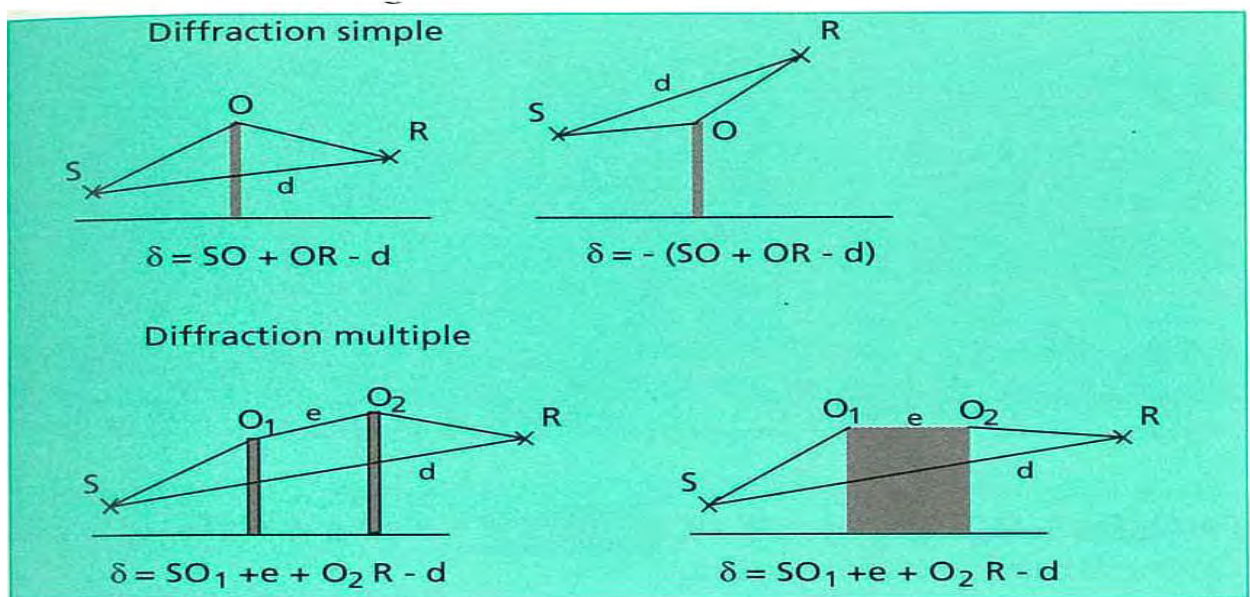
### Calculations for Noise Reduction

There are a number of factors that can influence the attenuation of noise generated by skyway vehicular traffic. SETRA had provided a method to estimate the amount of noise that can be reduced by barriers such as screens and similar structures. This method uses a simplified equation (as suggested in SETRA, Bruit et etudes routieres; Manuel du chef de projet; page 148-149) for pure simple diffraction as shown below:

$$\Delta_{\text{diff}} = 7.5 \log (3 + 20N) + 1.2$$

Where  $N$  = Fresnel Number  
 $N = 2\delta/\lambda$   
 $\delta$  = path difference in meters  
 $\lambda$  = average wavelength of road noise spectrum  
 $= 0.50 \text{ m}$

Figure 3 provides the schematic diagram for evaluating noise reduction using the Diffraction Method.



**Figure 3. Schematic Diagram for the Diffraction Method of Evaluating Noise Reduction**

The height of the obstruction greatly influence the amount of noise reduced. Table 5 shows the amount of noise reduced as a result of the height of the noise barriers.



Tabulated below is the typical noise reduction due to pure diffraction of assumed screen height:

**Table 5. Noise Reduction Resulting from Screen Height**

Screen Height (m)	Noise Reduction by Pure Diffraction $\Delta_{diff}$ , dB(A)
1	6.2
2	10.1
3	12.9
4	14.8
5	16.3

### Computed Noise Levels at the Receptors Areas

The resulting noise levels that reach the sensitive receptors (churches and schools) areas yield levels that are mostly non-compliant to Philippine noise standard for nighttime and daytime, all the maximum noise levels during the daytime and nighttime exceeds the maximum threshold at 50 dB(A) and 40 dB(A) respectively. The maximum noise level is expected to be generated for 2016 is from 58.1 to 60.9 dBA during daytime and from 54.9 to 57.3 dBA during nighttime for receptors within the 500 meters from the edge of alignment. For sensitive receptors with more than 500 meters from edge of alignment, the maximum predicted noise is from 53.3 to 56.1 dBA for daytime and from 49.8 to 52.2 dBA for nighttime period. Table 6a to 6d shows the predicted noise level for sensitive receptors and Table 7a to 7d shows the predicted noise levels for clustered residential receptors.

For year 2020, 2025 and 2030, the maximum predicted noise increases 1.3 dBA, 2.6 dBA and 3.6 dBA, respectively from initial forecast for year 2016.

For residential areas, the resulting noise levels forecasted on year 2016 ranges from 56.5 to 73.8 dBA during daytime period and from 52.9 to 70.3 dBA for nighttime period. The allowable limit for a residential areas Class B category, the daytime limit is 65 dBA and nighttime limit is 55 dBA. Receptors located within 120 meters from edge of expressway alignment will have predicted noise level above the allowable limit for daytime period and receptors within the 380 meters from edge exceed the nighttime limit of 55 dBA.

Considering the present noise level measured along the proposed expressway alignment of 48.8 to 70.9 dBA observed last July 20-22, 2011 for daytime period and from 53.3 to 62.3 dBA for nighttime period. The difference between the predicted and the measured is about 4.5 and 1.3 dBA for areas located at interior road and heavy traffic locations, respectively.

Difference in measured noise and predicted noise at interior areas such as Aliaga and Guevarra stations showed an increase of 4.5 dBA while for station Maharlika Highway the difference in measured and predicted noise is about 1.4 dBA.

Tabulated below the predicted increase in noise level for following year forecasted:

Forecasted Year	Increased in Noise Levels	
	Station Aliaga and Guevarra	Maharlika Highway
<b>2016</b>	4.5	1.4
<b>2020</b>	5.9	2.7
<b>2025</b>	7.2	4.0
<b>2030</b>	8.2	5.0

**Table 6a. Predicted Noise Level at Sensitive Receptors for Year 2016 Traffic Forecast**

Sensitive Receptor Along Skyway Alignment	Alignment Location	2016 Daytime AADT		Predicted Noise dB(A)	
		LV	HV	Daytime	Nighttime
<b>Churches:</b>					
Iglesia Ni Kristo	30+300 North	5700	4811	<b>69.6</b>	<b>66.0</b>
Iglesia Ni Kristo	29+200 South	5700	4811	<b>61.3</b>	<b>57.7</b>
First Church of God	28+900 South	5700	4811	<b>60.9</b>	<b>57.3</b>
Bucot Chapel	23+700 South	5700	4811	<b>61.5</b>	<b>57.9</b>
<b>Schools:</b>					
Umangan Elem School	28+900 South	5700	4811	<b>60.9</b>	<b>57.3</b>
Umangan Day Care Center and Barangay Hall	28+860 South	5700	4811	<b>60.9</b>	<b>57.3</b>
Dona Elena (Bibiclat) Elem School	22+000 North	5700	4811	<b>58.1</b>	<b>54.5</b>
Aliaga High School	20+800 South	5700	4811	<b>55.4</b>	<b>51.9</b>
Regina Children Institute	20+700 South	5700	4811	<b>59.7</b>	<b>56.2</b>
Sto Rosario Elem School	19+500 South	5700	4811	<b>55.8</b>	<b>52.2</b>
Magsaysay Elem School	17+000 South	5700	4811	<b>54.3</b>	<b>50.7</b>
Sta Monica Elem School	14+900 North	5700	4811	<b>60.5</b>	<b>57.0</b>
Macalong Elem School	5+500 South	5700	4811	<b>56.1</b>	<b>52.6</b>
Guevarra Elem School	5+000 North	5700	4811	<b>58.4</b>	<b>54.9</b>
Amucao Elem School	1+000 North	5700	4811	<b>53.3</b>	<b>49.8</b>

**Table 6b. Predicted Noise Level at Sensitive Receptors for Year 2020 Traffic Forecast**

Sensitive Receptor Along Skyway Alignment	Alignment Location	2020 Daytime AADT		Predicted Noise dB(A)	
		LV	HV	Daytime	Nighttime
<b>Churches:</b>					
Iglesia Ni Kristo	30+300 North	7758	6519	<b>70.9</b>	<b>67.4</b>
Iglesia Ni Kristo	29+200 South	7758	6519	<b>62.6</b>	<b>59.0</b>
First Church of God	28+900 South	7758	6519	<b>62.2</b>	<b>58.6</b>
Bucot Chapel	23+700 South	7758	6519	<b>62.8</b>	<b>59.2</b>
<b>Schools:</b>					
Umangan Elem School	28+900 South	7758	6519	<b>62.2</b>	<b>58.6</b>
Umangan Day Care Center and Barangay Hall	28+860 South	7758	6519	<b>62.2</b>	<b>58.6</b>
Dona Elena (Bibiclat) Elem School	22+000 North	7758	6519	<b>59.4</b>	<b>55.9</b>
Aliaga High School	20+800 South	7758	6519	<b>56.7</b>	<b>53.2</b>
Regina Children Institute	20+700 South	7758	6519	<b>61.0</b>	<b>57.5</b>
Sto Rosario Elem School	19+500 South	7758	6519	<b>57.1</b>	<b>53.5</b>
Magsaysay Elem School	17+000 South	7758	6519	<b>55.6</b>	<b>52.0</b>
Sta Monica Elem School	14+900 North	7758	6519	<b>61.8</b>	<b>58.3</b>
Macalong Elem School	5+500 South	7758	6519	<b>57.4</b>	<b>53.9</b>
Guevarra Elem School	5+000 North	7758	6519	<b>59.7</b>	<b>56.2</b>
Amucao Elem School	1+000 North	7758	6519	<b>54.6</b>	<b>51.1</b>

**Table 6c. Predicted Noise Level at Sensitive Receptors for Year 2025 Traffic Forecast**

Sensitive Receptor Along Skyway Alignment	Alignment Location	2025 Daytime AADT		Predicted Noise dB(A)	
		LV	HV	Daytime	Nighttime
<b>Churches:</b>					
Iglesia Ni Kristo	30+300 North	10330	8655	<b>72.1</b>	<b>68.6</b>
Iglesia Ni Kristo	29+200 South	10330	8655	<b>63.8</b>	<b>60.3</b>
First Church of God	28+900 South	10330	8655	<b>63.4</b>	<b>59.9</b>
Bucot Chapel	23+700 South	10330	8655	<b>64.0</b>	<b>60.5</b>
<b>Schools:</b>					
Umangan Elem School	28+900 South	10330	8655	<b>63.4</b>	<b>59.9</b>
Umangan Day Care Center and Barangay Hall	28+860 South	10330	8655	<b>63.4</b>	<b>59.9</b>
Dona Elena (Bibiclat) Elem School	22+000 North	10330	8655	<b>60.6</b>	<b>57.1</b>
Aliaga High School	20+800 South	10330	8655	<b>58.0</b>	<b>54.4</b>
Regina Children Institute	20+700 South	10330	8655	<b>62.3</b>	<b>58.7</b>
Sto Rosario Elem School	19+500 South	10330	8655	<b>58.3</b>	<b>54.8</b>
Magsaysay Elem School	17+000 South	10330	8655	<b>56.8</b>	<b>53.3</b>
Sta Monica Elem School	14+900 North	10330	8655	<b>63.1</b>	<b>59.5</b>
Macalong Elem School	5+500 South	10330	8655	<b>58.7</b>	<b>55.1</b>
Guevarra Elem School	5+000 North	10330	8655	<b>61.0</b>	<b>57.4</b>
Amucao Elem School	1+000 North	10330	8655	<b>55.9</b>	<b>52.3</b>

**Table 6d. Predicted Noise Level at Sensitive Receptors for Year 2030 Traffic Forecast**

Sensitive Receptor Along Skyway Alignment	Alignment Location	2030 Daytime AADT		Predicted Noise dB(A)	
		LV	HV	Daytime	Nighttime
<b>Churches:</b>					
Iglesia Ni Kristo	30+300 North	13192	11059	<b>73.2</b>	<b>69.7</b>
Iglesia Ni Kristo	29+200 South	13192	11059	<b>64.9</b>	<b>61.3</b>
First Church of God	28+900 South	13192	11059	<b>64.5</b>	<b>60.9</b>
Bucot Chapel	23+700 South	13192	11059	<b>65.1</b>	<b>61.5</b>
<b>Schools:</b>					
Umangan Elem School	28+900 South	13192	11059	<b>64.5</b>	<b>60.9</b>
Umangan Day Care Center and Barangay Hall	28+860 South	13192	11059	<b>64.5</b>	<b>60.9</b>
Dona Elena (Bibiclat) Elem School	22+000 North	13192	11059	<b>61.7</b>	<b>58.2</b>
Aliaga High School	20+800 South	13192	11059	<b>59.0</b>	<b>55.5</b>
Regina Children Institute	20+700 South	13192	11059	<b>63.3</b>	<b>59.8</b>
Sto Rosario Elem School	19+500 South	13192	11059	<b>59.4</b>	<b>55.8</b>
Magsaysay Elem School	17+000 South	13192	11059	<b>57.9</b>	<b>54.3</b>
Sta Monica Elem School	14+900 North	13192	11059	<b>64.1</b>	<b>60.6</b>
Macalong Elem School	5+500 South	13192	11059	<b>59.7</b>	<b>56.2</b>
Guevarra Elem School	5+000 North	13192	11059	<b>62.0</b>	<b>58.5</b>
Amucao Elem School	1+000 North	13192	11059	<b>56.9</b>	<b>53.4</b>

**Table 7a. Predicted Noise Level at Clustered Residential for Year 2016 Traffic Forecast**

Residential Receptor Along CLEX Alignment	Alignment Location	2016 Daytime AADT		Predicted Noise dB(A)	
		LV	HV	Daytime	Nighttime
<b>Clustered Residential:</b>					
Amucao	1+100 to 1+500 North	5700	4811	<b>58.1</b>	<b>54.5</b>
Laungcupang	1+800 to 3+000 South	5700	4811	<b>56.5</b>	<b>52.9</b>
Guevarra	4+700 to 5+400 North	5700	4811	<b>63.1</b>	<b>59.6</b>
Macalong	4+900 to 5+000 South	5700	4811	<b>62.1</b>	<b>58.6</b>
Macalong	5+500 to 5+700 South	5700	4811	<b>56.9</b>	<b>53.4</b>
Bibiclat	11+000 to 11+500 North	5700	4811	<b>56.9</b>	<b>53.4</b>
Sta Monica	14+000 to 15+400 North	5700	4811	<b>63.8</b>	<b>60.2</b>
San Eutascio	15+800 to 16+800 North	5700	4811	<b>59.3</b>	<b>55.7</b>
Sto Rosario	19+100 to 19+500 South	5700	4811	<b>66.2</b>	<b>62.6</b>
Aliaga Poblacion	20+000 to 20+400 South	5700	4811	<b>59.7</b>	<b>56.2</b>
Aliaga Poblacion	20+600 to 20+900 South	5700	4811	<b>63.8</b>	<b>60.2</b>
Aliaga Poblacion	21+000 to 21+100 South	5700	4811	<b>67.3</b>	<b>63.7</b>
Pantoc	21+600 to 21+700 North	5700	4811	<b>61.5</b>	<b>57.9</b>
Bibiclat	21+900 to 22+200 North	5700	4811	<b>59.0</b>	<b>55.5</b>
Bucot	23+400 to 23+500 South	5700	4811	<b>65.2</b>	<b>61.7</b>
Bucot	23+600 to 23+900 South	5700	4811	<b>61.5</b>	<b>57.9</b>
Bactog, San Juan De Dios	24+100 to 25+400 South	5700	4811	<b>57.9</b>	<b>54.3</b>
Umangan	29+800 to 29+960 North	5700	4811	<b>73.8</b>	<b>70.3</b>
Umangan	28+00 to 29+000 South	5700	4811	<b>61.5</b>	<b>57.9</b>
Umangan	29+100 to 29+800 South	5700	4811	<b>62.6</b>	<b>59.0</b>
Umangan	29+900 to 29+960 South	5700	4811	<b>72.9</b>	<b>69.3</b>

**Table 7b. Predicted Noise Level at Clustered Residential for Year 2020 Traffic Forecast**

Residential Receptor Along CLEX Alignment	Alignment Location	2020 Daytime AADT		Predicted Noise dB(A)	
		LV	HV	Daytime	Nighttime
<b>Clustered Residential:</b>					
Amucao	1+100 to 1+500 North	7758	6519	<b>59.4</b>	<b>55.9</b>
Laungcupang	1+800 to 3+000 South	7758	6519	<b>57.8</b>	<b>54.3</b>
Guevarra	4+700 to 5+400 North	7758	6519	<b>64.5</b>	<b>60.9</b>
Macalong	4+900 to 5+000 South	7758	6519	<b>63.4</b>	<b>59.9</b>
Macalong	5+500 to 5+700 South	7758	6519	<b>58.2</b>	<b>54.7</b>
Bibiclat	11+000 to 11+500 North	7758	6519	<b>58.2</b>	<b>54.7</b>
Sta Monica	14+000 to 15+400 North	7758	6519	<b>65.1</b>	<b>61.5</b>
San Eutascio	15+800 to 16+800 North	7758	6519	<b>60.6</b>	<b>57.1</b>
Sto Rosario	19+100 to 19+500 South	7758	6519	<b>67.5</b>	<b>63.9</b>
Aliaga Poblacion	20+000 to 20+400 South	7758	6519	<b>61.0</b>	<b>57.5</b>
Aliaga Poblacion	20+600 to 20+900 South	7758	6519	<b>65.1</b>	<b>61.5</b>
Aliaga Poblacion	21+000 to 21+100 South	7758	6519	<b>68.6</b>	<b>65.0</b>
Pantoc	21+600 to 21+700 North	7758	6519	<b>62.8</b>	<b>59.2</b>
Bibiclat	21+900 to 22+200 North	7758	6519	<b>60.3</b>	<b>56.8</b>
Bucot	23+400 to 23+500 South	7758	6519	<b>66.5</b>	<b>63.0</b>
Bucot	23+600 to 23+900 South	7758	6519	<b>62.8</b>	<b>59.2</b>
Bactog, San Juan De Dios	24+100 to 25+400 South	7758	6519	<b>59.2</b>	<b>55.6</b>
Umangan	29+800 to 29+960 North	7758	6519	<b>75.2</b>	<b>71.6</b>
Umangan	28+00 to 29+000 South	7758	6519	<b>62.8</b>	<b>59.2</b>
Umangan	29+100 to 29+800 South	7758	6519	<b>63.9</b>	<b>60.4</b>
Umangan	29+900 to 29+960 South	7758	6519	<b>74.2</b>	<b>70.7</b>



**Table 7c. Predicted Noise Level at Clustered Residential for Year 2025 Traffic Forecast**

Residential Receptor Along CLEX Alignment	Alignment Location	2025 Daytime AADT		Predicted Noise dB(A)	
		LV	HV	Daytime	Nighttime
<b>Clustered Residential:</b>					
Amucao	1+100 to 1+500 North	10330	8655	<b>60.6</b>	<b>57.1</b>
Laungcupang	1+800 to 3+000 South	10330	8655	<b>59.1</b>	<b>55.5</b>
Guevarra	4+700 to 5+400 North	10330	8655	<b>65.7</b>	<b>62.2</b>
Macalong	4+900 to 5+000 South	10330	8655	<b>64.7</b>	<b>61.1</b>
Macalong	5+500 to 5+700 South	10330	8655	<b>59.5</b>	<b>55.9</b>
Bibiclat	11+000 to 11+500 North	10330	8655	<b>59.5</b>	<b>55.9</b>
Sta Monica	14+000 to 15+400 North	10330	8655	<b>66.3</b>	<b>62.8</b>
San Eutascio	15+800 to 16+800 North	10330	8655	<b>61.8</b>	<b>58.3</b>
Sto Rosario	19+100 to 19+500 South	10330	8655	<b>68.7</b>	<b>65.2</b>
Aliaga Poblacion	20+000 to 20+400 South	10330	8655	<b>62.3</b>	<b>58.7</b>
Aliaga Poblacion	20+600 to 20+900 South	10330	8655	<b>66.3</b>	<b>62.8</b>
Aliaga Poblacion	21+000 to 21+100 South	10330	8655	<b>69.8</b>	<b>66.3</b>
Pantoc	21+600 to 21+700 North	10330	8655	<b>64.0</b>	<b>60.5</b>
Bibiclat	21+900 to 22+200 North	10330	8655	<b>61.6</b>	<b>58.0</b>
Bucot	23+400 to 23+500 South	10330	8655	<b>67.8</b>	<b>64.2</b>
Bucot	23+600 to 23+900 South	10330	8655	<b>64.0</b>	<b>60.5</b>
Bactog, San Juan De Dios	24+100 to 25+400 South	10330	8655	<b>60.4</b>	<b>56.9</b>
Umangan	29+800 to 29+960 North	10330	8655	<b>76.4</b>	<b>72.9</b>
Umangan	28+00 to 29+000 South	10330	8655	<b>64.0</b>	<b>60.5</b>
Umangan	29+100 to 29+800 South	10330	8655	<b>65.2</b>	<b>61.6</b>

Umangan	29+900 to 29+960 South	10330	8655	<b>75.4</b>	<b>71.9</b>
---------	---------------------------	-------	------	-------------	-------------

**Table 7d. Predicted Noise Level at Clustered Residential for Year 2030 Traffic Forecast**

Residential Receptor Along CLEX Alignment	Alignment Location	2030 Daytime AADT		Predicted Noise dB(A)	
		LV	HV	Daytime	Nighttime
<b>Clustered Residential:</b>					
Amucao	1+100 to 1+500 North	13192	11059	<b>61.7</b>	<b>58.2</b>
Laungcupang	1+800 to 3+000 South	13192	11059	<b>60.1</b>	<b>56.6</b>
Guevarra	4+700 to 5+400 North	13192	11059	<b>66.8</b>	<b>63.2</b>
Macalong	4+900 to 5+000 South	13192	11059	<b>65.7</b>	<b>62.2</b>
Macalong	5+500 to 5+700 South	13192	11059	<b>60.5</b>	<b>57.0</b>
Bibiclat	11+000 to 11+500 North	13192	11059	<b>60.5</b>	<b>57.0</b>
Sta Monica	14+000 to 15+400 North	13192	11059	<b>67.4</b>	<b>63.8</b>
San Eutascio	15+800 to 16+800 North	13192	11059	<b>62.9</b>	<b>59.4</b>
Sto Rosario	19+100 to 19+500 South	13192	11059	<b>69.8</b>	<b>66.2</b>
Aliaga Poblacion	20+000 to 20+400 South	13192	11059	<b>63.3</b>	<b>59.8</b>
Aliaga Poblacion	20+600 to 20+900 South	13192	11059	<b>67.4</b>	<b>63.8</b>
Aliaga Poblacion	21+000 to 21+100 South	13192	11059	<b>70.9</b>	<b>67.4</b>
Pantoc	21+600 to 21+700 North	13192	11059	<b>65.1</b>	<b>61.5</b>
Bibiclat	21+900 to 22+200 North	13192	11059	<b>62.6</b>	<b>59.1</b>
Bucot	23+400 to 23+500 South	13192	11059	<b>68.8</b>	<b>65.3</b>
Bucot	23+600 to 23+900 South	13192	11059	<b>65.1</b>	<b>61.5</b>
Bactog, San Juan De Dios	24+100 to 25+400 South	13192	11059	<b>61.5</b>	<b>57.9</b>
Umangan	29+800 to 29+960 North	13192	11059	<b>77.5</b>	<b>73.9</b>

Umangan	28+00 to 29+000 South	13192	11059	<b>65.1</b>	<b>61.5</b>
Umangan	29+100 to 29+800 South	13192	11059	<b>66.2</b>	<b>62.7</b>
Umangan	29+900 to 29+960 South	13192	11059	<b>76.5</b>	<b>73.0</b>

## Noise Barriers

Receptor areas with computed noise levels exceeding the maximum threshold values prescribed and/or above the present noise levels are proposed to be provided with appropriate mitigation measures. In determining the noise barrier lengths, the method as formulated by the US FHWA (Highway Noise Barrier Handbook) was used. The barrier should block the angle of view of about 80 degrees which is equivalent to 4 times the distance (D) between the source (S) and the receptor (R) for one sector or at total of 8 times the distance (160 degrees) for receptors position. Figure 4 contains the schematic diagram for the computation of barrier lengths.

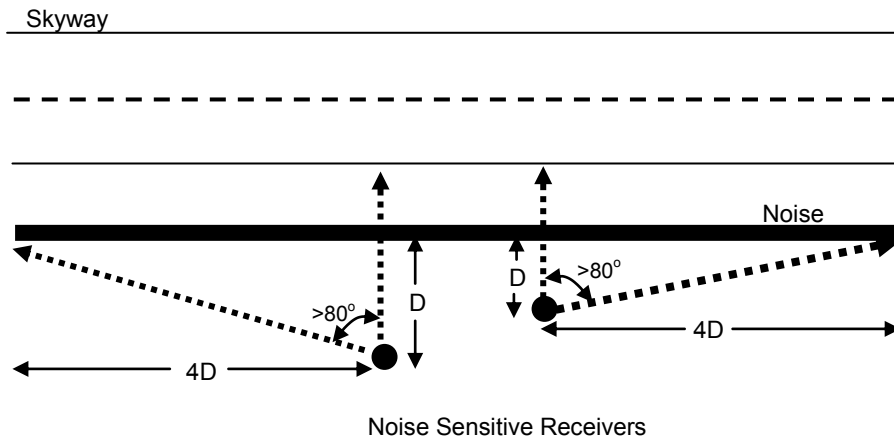


Figure 4. Schematic diagram for computing Noise Screen Length

## 5.0 Conclusion

The study of noise sensitive areas has identified the sections of the expressway where there are sensitive receptors that are susceptible to noise related impacts and had proposed protection measures are necessary to reduce noise levels and make them acceptable based on Philippine regulation and/or at least the present average noise level of the area. A noise barrier is one form of mitigating measure to lower the noise emitted from the operation of skyway. Sensitive receptors can be equipped with walling that is noise absorbant or repellant to minimize unwanted noise that could interfere with daily activities of the affected people.



Brgy Bucot Chapel, Aliaga



Iglesia Ni Kristo Church at Brgy Umangan, Aliaga





First Church of God at Brgy Umangan, Aliaga



Umangan Elem School at Brgy Umangan, Aliaga





Umangan Day Care Center and Brgy Hall at Brgy Umangan, Aliaga



Regina Children Institute at Aliaga Poblacion



Magsaysay Elem School at Brgy Magsaysay, Aliaga



Sta Monica Elem School at Brgy Sta Monica, Aliaga





Residential House Within the CLEX ROW at Sta. 24+100

---

**Appendix D**  
**Letter of DAR**

---





Republic of the Philippines  
**DEPARTMENT OF AGRARIAN REFORM**  
Region III

August 8, 2011

Mr. Arriz James N. Herrera  
Vice President-Operations  
ECOSYSCORP, INC.  
Unit 2C, A & M Bldg. # 9 Commonwealth Avenue  
Quezon City

Sir:

In response to your letter dated August 3, 2011 requesting our office to provide you copies or list of tenants and summary of CARP covered areas to be affected by the proposed Central Luzon Link Expressway (CLLEX) project in the different barangays of La Paz and Tarlac City in the province of Tarlac, we are furnishing you herewith the said documents (as per layout) for your immediate reference.

Relative to your request for a Map of Network of Protected Agrarian Areas in the province, we wish to inform you that this office has no available data/information on this regard, hence this response.

We hope you find everything in order.

Very truly yours,

  
ARNEL S. DIZON  
PARO II

Ref. No. \_\_\_\_'11  
File  
Control

**PROVINCIAL AGRARIAN REFORM OFFICE**

DIWA NG TARLAK, TARLAC CITY  
Tel. Nos.: 982-2402, 982-1156, 982-2390  
ZIP CODE: - 2300 E-Mail Add: jamdar@mozcom.com





Republic of the Philippines  
**DEPARTMENT OF AGRARIAN REFORM**  
MUNICIPAL AGRARIAN REFORM OFFICE  
Cabanatuan City, Nueva Ecija

MR. ROMEO S. CORDERO  
OIC-PARO, DARPO  
Nueva Ecija South,  
Cabanatuan City



Sir:

This pertains to the Proposed Central Luzon Link Expressway (CLLEX) Project, wherein it will traverse some Barangays within the City of Cabanatuan.

Our comments to the said project is that it will be traversing a lot of OLT areas as well as CARP ones as it goes along.

Particularly, it passes thru the caalibangbangan, pamaldan, cinco-cinco areas. These barangays are OLT barangays so that vast track of lands maybe affected by the project.

Considering that we do not have as of yet the Network of Provincial Agrarian Reform Areas (NPAA) in the province, it would be determining factor to just select from the ground who would be affected.

Agrarian reform areas such as in pamaldan & cinco-cinco which are Agrarian Reform Community or ARC areas, the farmplots of the farmers therein are of paramount condition as beneficiaries under the program. But we cannot tell how it would fair to the farmer beneficiaries who will be affected by the project.

This would mean we are going to be on the look out whenever the project of the CLLEX is on the way.

For his consideration

11 August 2011, Cabanatuan City.

LINGKO P. ROQUE  
MARO

Ref. No. 243-11  
cc

2686

---

## **Appendix E**

### **Perception Survey Form**

---

**EXPRESSWAY PROJECTS IN MEGA MANILA REGION  
IN THE REPUBLIC OF THE PHILIPPINES  
RESETTLEMENT ACTION PLAN (RAP)  
(Inventory Survey Instrument for Rural Areas)**

Date:

Project: **Central Luzon Link Expressway Phase 1**

Address:

Print Name and Sign:

City/Municipality:

Enumerator:

Barangay:

Coordinator:

Region/District:

**MODULE 1: CENSUS OF PROJECT AFFECTED PERSONS (PAPs)**

**1. Identification**

1.1. Respondent Number {v11}:

1.2. Address:

1.3. Type of Respondent {v13a} ☐ Head of the Family {v13b} ☐

1 = Husband    2 = Spouse    3 = Child    4 = Parents    5 = In-Laws    6 = Others

1.4. Respondent:

Surname: {V14a}  Given Name: {V14b}

Middle: {V14c}

1.5. Age (years) {V15}  1.5.a Religion {15a} ☐

1 = Roman Catholic    2 = Iglesia ni Cristo  
3 = Baptist    3 = Born again Christian  
4 = Others (specify)

1.6. Education {V16} ☐

**Education:** 66 = None ; 77 = Don't know; 88 = No response; 99 = Not Sure

1 = Elem. Undergrad    2 = Elem. Grad    3 = HS Undergrad.    4 = HS Graduate  
5 = Vocational Undergrad.    6 = Vocational Graduate    7 = College Undergraduate    8 = College Graduate  
9 = Post Grad.

1.7. Ethno-linguistic Affiliation {v17} ☐

**Ethno-linguistic Affiliation:**

1 = Ilocano    2 = Igorot    3 = Ibanag    4 = Pangasinense  
5 = Kapampangan    6 = Tagalog    7 = Bicolano    8 = Mangyan  
9 = Bisaya    10 = Ilongo    11 = Waray    12 = Muslim  
13 = Manobo    14 = Bagobo    15 = Subanen    16 = Others

1.8. Primary Occupation {v18a} ☐

Secondary Occupation {v18b} ☐

**Occupation:** 66 = None; 77 = Don't know; 88 = No response; 99 = Not Sure

1 = Farmer    2 = Hired Farm Worker    3 = Skilled Labor    4 = Unskilled Labor  
5 = Professional Empl.    6 = Professional Practice    7 = Business Operator    8 = Housekeeper  
9 = Hunter/Gatherer    10 = OFW    11 = Others (specify)

**2. Household Structure**

2.1. Household Size (actual number) {v21}  (Pls. list all household members of Type A in Module 5)

2.2. Number of Children (actual number): Living {v22a}  Deceased {v22b}

2.3. Household Structure {v23} ☐ 1 = single    2 = nuclear    3 = extended    4 = Joint

## MODULE 2: SOCIO ECONOMIC PROFILE

### 3. Income

#### 3.1. Farm Income (Annual Estimate for 2010) (For Type B & C)

L	Major Crops & Livestock	Yield (ton/ha/year) (t/kg)	Production (ton/ha/year) (t/kg)	Market Price (Php)	Losses (Php)	Net Cash Farm Income (Php)
	V3a	V3b		V3c	V3d	V3e
1	Palay					
2	Corn					
3	Vegetables					
4	Fruits					
5	Poultry					
6	Piggery					
7	Fish					
	Others					

3.1.a. What is the type of land? {v31a}

1 = agricultural    2 = residential    3 = commercial    4 = industrial    5 = others (specify)

3.1.b. If agricultural, irrigate or non-irrigated? {v31b}

1 = irrigated    2 = non-irrigated

3.1.c. Do you have other farmlands? {v31c}

1 = yes    2 = none

3.1.d. If yes, where? {v31d} (pls. specify the location) \_\_\_\_\_

3.1.e. What is the size? {v31e} (pls. specify) \_\_\_\_\_

3.1.f. What is your agricultural practice? {v31f}

1 = traditional    2 = conventional    3 = organic    4 = others (specify) \_\_\_\_\_

3.1.g. What is your farmer's organization? {v31g}

(pls. specify) \_\_\_\_\_

3.1.h. How your agricultural products are transported? {v31h}

1 = direct to consumers    2 = middleman    3 = cooperative    4 = others (specify) \_\_\_\_\_

3.1.i. Where is the nearest market place? {v31i} (pls. specify) \_\_\_\_\_

#### 3.2. Non-Farm Income (Annual Estimate for 2010) (For Type A & C)

L	Family Member (Actual Name)	Gender 1=Male 2=Female	Age (yrs)	Source 1=Employment 2=Business 3=Remittance	Income Earned (Php)
	V32a	V32b	V32c	V32d	V32e
1					
2					
3					

#### 4. Assets

##### 4.1 Farm and Household Assets (For Type A & B)

Item	Qty	Estimated Value (Php)	Item	Qty	Estimated Value (Php)	
Farm Assets/Investment			Household Assets			
	V41a	V41b		V41c	V41d	L
Building			House			1
Infrastructure			Car			2
Fence			Jeep/Owner			3
4W Tractor			Tricycle			4
Hand Tractor			Motorcycle			5
Farm Animals			Computer			6
Cart			TV			7
Trailer			VCR/VCD			8
Plow			Hi-Fi Component			9
Thresher			Refrigerator			10
Pump			Oven/Range			11
Others (specify)			Others (specify)			12

#### 5. Expenditures (Annual Estimate for 2010)

##### 5.1 Estimated Farm Expenditures (For Type B & C)

Expenditures	Farm V5.1a	Expenditures	Farm V5.1a	
Seedlings		Supplies		L
Pesticides		Fuel		1
Fertilizers		Others		2
Labor				3

#### 6. Major Household and Business Expenditures (Annual Estimate for 2010)

##### 6.1 Estimated Major Household and Business Expenditures (For Type A & C)

Expenditures	Household V6.1a	Business V6.1b	
Expenditures			L
Food		n/a	1
Light			2
Water			3
Education		n/a	4
Tuition Fee			5
Allowance			6
Supplies			7
Manpower	n/a		8
Rent			9
Taxes			10
Others			11
			12
Total Expenditures			13



## 7. Education (For Type A, B & C)

### 7.1 Educational Attainment

7.1a Husband {V71a} ☐ 7.1b Wife {V71b} ☐ 7.1c Respondent {V71c} ☐

Education:	66 = None	77 = Don't know	88 = No response	99 = Not sure	
	1 = Elem. Undergrad	2 = Elem. Grad	3 = HS Undergrad	4 = HS Graduate	5 = Voc. Undergrad
	6 = Voc. Grad	7 = College Undergrad	8 = College Grad	9 = Post Grad	

7.2 How many children graduated in College {V72}

7.3 How many children are still studying {V73}

7.4 How many children stopped from schooling {V74}

## 8. Available Skills (For Type A, B & C)

8.1 Available skills of men {V81} ☐

**Skills:** 1 = Laborer 2 = Carpenter 3 = Mason 4 = Heavy equipment operator 5 = Mechanic  
6 = Driver 7 = Utility 8 = Others (Specify)

8.2 Available skills of women {V82} ☐

**Skills:** 1 = Cook Maintenance 2 = Sewer 3 = Timekeeper/Clerk 4 = Seedling nursery caretaker  
5 = Factory worker 6 = House help 7 = Others (Specify)

## 9. Available Facilities (for Type A, B & C)

9.1 Type of available water supply

9.1a For drinking {V91a} ☐ 9.1b For washing dishes and clothes {V91b} ☐

9.2 Source of Electricity/Lighting {V92} ☐

9.3 Toilet facilities {V93a} ☐ 9.3b Location of Toilet {V93b} ☐

9.4 Type of health facilities {V94} ☐

9.5 Nearest available educational facilities in the community {V95} ☐

9.6 Solid waste disposal {V96} ☐ 9.7 Mode of transportation {V97} ☐

Facilities:	66 None	77 = Don't know	88 = No response	99 = Not Sure
<b>Water:</b>	1 = Rain 2 = River		3 = Dug Well 4 = Artesian Well	5 = Pump Well 6 = Piped
	7 = Illegal Connection		8 = Igib/Purchase	9 = Others (Specify)
<b>Electricity</b>	1 = MERALCO		2 = Kerosene lamp	3 = Petromax
	4 = Oil lamp		5 = Illegal Connection	6 = Others (Specify)
<b>Toilet</b>	1 = Open pit 2 = Antipolo		3 = Semi-flush 4 = Flush	5 = Others (Specify)
<b>Location of Toilet</b>	1 = Inside the house		2 = Outside the house	3 = Common
<b>Health</b>	1 = Center 2 = Private Clinic		3 = Hospital 4 = Center & Clinic	5 = All 6 = Others (Specify)
<b>Educational</b>	1 = Elementary		2 = H.S 3 = College	4 = Vocational
	5 = All		6 = Others (Specify)	
<b>Solid Waste</b>	1 = River 2 = Open pit		3 = City Garbage Collector	4 = Burn 5 = Others (Specify)
<b>Transportation</b>	1 = Jeepney 2 = Bus		3 = Tricycle 4 = Pedicab	5 = Boat 6 = Jeepney & Bus
	7 = Jeepney, Bus, & Tricycle		8 = Tricycle & Pedicab	9 = All 10 = Others (Specify)

## 10. Relocation (for informal settlers only)

- 10.1 Have you been an awardee of any NHA or LGU housing project? {v101} ☐
- 10.1a If yes, where? {v101a} \_\_\_\_\_
- 10.1b Why are you not occupying the said relocation site? {v101b} ☐
- 10.2 Has there been any plan or notification from the LGU that you will be relocated? {v102} ☐
- 10.2a If yes, where? {v102a} \_\_\_\_\_
- 10.3 Are you willing to relocate {v103a} ☐ Preferred Site {v103b} ☐
- 10.4 Do you have any other place to stay aside from the relocation site? {v104a} ☐
- 10.4a If yes, where? {v104a} \_\_\_\_\_
- 10.5 Can you suggest a site for relocation? {v105} (existing or non-existing) ☐
- \_\_\_\_\_
- 10.6 If you will be displaced from your source of income, what livelihood assistance will be acceptable to you? {v106} ☐

1 = YES

2 = NO

### Reason Why Not Occupying the Awarded Relocation Site

1 = Very far/no means of livelihood

3 = Peace and order problem

5 = Property has been sold

7 = All

2 = No basic social services (water, electricity, school, market, etc.)

4 = Insufficient size of land

6 = Property is rented/leased out

8 = Others (Specify)

### Preferred Site

1 = Relocation site w/in same municipality

2 = Return to province

3 = Others (specify)

### Livelihood Assistance

1 = job employment

2 = business capital/funds

3 = livelihood programs

4 = others (specify)

## 11. Relocation (For Type B only)

- 11.1. What is your preference if you lose your farm land/irrigation due to the Project?  
{v111} ☐
- 1 = land for land    2 = just compensation    3 = livelihood assistance  
4 = others (specify) \_\_\_\_\_
- 11.2. If your preference cannot be provided, what is your second preference of compensation?  
{v112} ☐
- 11.3. If you will be displaced from your farmland/source of income, what livelihood assistance will be acceptable to you? {v113} ☐
- 1 = provision of another farmland    2 = provision of job employment  
3 = provision of business capital/funds    4 = livelihood programs  
5 = others (specify) \_\_\_\_\_
- 11.4. What mitigating measures can you recommend from loss of access to farmland (if land is divided by expressway)? {v114}

1 = provision of underground passageway for people and animals

2 = provision of service road

3 = re-align the road project

4 = others (specify) \_\_\_\_\_

### MODULE 3: DISTURBANCE LOSSES (For Type A & B)

#### 12. Affected Land (For Type B)

12.1. Type of Land? {V121} ☐ 1 = Private 2 = Public

12.2. Tenure? {V122} ☐

1 = Owner 2 = Tenant 3 = Free Occupation with Permit 4 = Free Occupation Without Permit  
5 = Lessee 6 = Others (specify) \_\_\_\_\_

12.2.1. If owner, do you have tenant/lessees? {v1221} ☐

If yes, pls. specify the name {v1221a} \_\_\_\_\_

If yes, what is your contract agreement? {v1221b} \_\_\_\_\_

12.2.2. If tenant,

a. What is the name of the Owner? {V1222a}[\_\_\_\_\_]

b. What is the annual rent/share? (PhP) {v1222b} [\_\_\_\_\_]

12.2.3. Proof of ownership/occupation? {v1223} ☐

**Proof of Ownership:** 66 = none 1 = Title 2 = Deeds of Sale/Mortgage 3 = Contract 4 = Tax declaration 5=Others

12.2.4 For LESSEES:

		Year 1	Year 2	Year 3	Year 4	Year 5
	Gross Income	{V1224a}	{V1224b}	{V1224c}	{V1224d}	{V1224e}
1	From Harvest					
	Others:					
2						

12.2.5 For TENANTS:

		Year 1	Year 2	Year 3
	Gross Income	{V1225a}	{V1225b}	{V1225c}
1	From Harvest			
	Others:			
2				

#### 13. Affected Structure (For Type A & B)

13.1. Type of structure? {V131} ☐ 1 = Light 2 = Wooden 3 = Semi-Concrete 4 = Concrete 5=Others

13.2. Use of structure? {V132} ☐ 1 = Residential 2 = Commercial 3 = Industrial 4 = Commercial/Residential  
5 = Public physical infrastructure 6=Public Utilities 7= Others

13.3. Tenure? {V133} ☐ 1 = Owner 2 = Renter 3 = Sharer 4 = Leaseholder  
5 = Free Occupation with Permit 6 = Free Occupation w/o Permit 7 = Others

13.3.1. If renter/sharer/leaseholder

a. What is the name of the owner? {v1331a}[\_\_\_\_\_]

b. What is the annual rent/share? (PhP) {v1331b} [\_\_\_\_\_]

13.3.2. Proof of ownership/occupation? {V1332} ☐

66 = none 1 = Deeds of Sale/Mortgage  
2 = Contract 3 = Tax declaration 4 = Others

13.4. What is your selling price of the property? {V134} [PhP\_\_\_\_\_]

13.5. How long have you owned/occupied the property? (years) {V135} [\_\_\_\_\_]

**14 Land Viability (For Type A & B)****Tag No:**14.1. What is the total land area of the affected parcel? (m<sup>2</sup>) {V141} [\_\_\_\_\_]14.2. Land Use? {V142} ☐1 = Agricultural 2 = Residential 3 = Commercial 4 = Industrial 5 = Commercial/Residential 6 = Reservation/Park  
7 = Others (specify) \_\_\_\_\_

14.3. When was the last assessment of the property? {V143a} [\_\_\_\_\_]

What is the assessed value? {V143b} [PhP\_\_\_\_\_]

How much is the latest real property tax paid? {V143c} [PhP\_\_\_\_\_]

14.4. How long have you owned/occupied the property? (years) {V144} [\_\_\_\_\_]

14.5. What is the total affected area (m<sup>2</sup>) {V145} [\_\_\_\_\_]14.6. Is the residual area still viable? {V146} ☐

1 = Yes; 2 = No

14.7. Inventory of Losses for LANDOWNERS

	Item	Quantity	Unit Price (Zonal)	Unit Price (ILA)	Estimated Value (Zonal)	Estimated Value (ILA)
		{V147a}	{V147b}	{V147c}	{V147d}	{V147e}
1	Land Area (m <sup>2</sup> )					
2	Fruit Trees					
3	Crops					
4	Forest Trees					
5	Income Loss					
	Others:					
6						
7						
8						

**15 Structure Viability (For Type A only)**15.1. What is the total floor area of the affected structure? (m<sup>2</sup>) {V151} [\_\_\_\_\_]15.2. What is the total affected area (m<sup>2</sup>) {V152} [\_\_\_\_\_]15.3. Is the residual area still viable? {V153} ☐

1 = Yes; 2 = No

15.4. Inventory of Losses

	Item	Quantity	Unit Price	Estimated Value
		{V154a}	{V154b}	{V154c}
1	Floor Area (m <sup>2</sup> )			
3	Employment Loss			
4	Income Loss			
	Others:			
5				
6				

## MODULE 4: PERCEPTION, PROJECT AWARENESS & ACCEPTABILITY

### 16. Perception (For Type A, B & C)

16.1 What will you lose from your present status of life if the project will be implemented? {V161}

☐

1 = job      2 = farm income      3 = non-farm income      4 = business opportunities  
5 = others (pls. specify) \_\_\_\_\_ 66 = none

16.2 Do you think that economic development brought about by the Project will cause negative impact? {V152} ☐ 1 = Yes 2 = No

16.2a If yes, in what aspect will it cause negative impact? {V162a} ☐

1 = farming activity    2 = land    3 = daily life activity    4 = environment    5 = others (pls. specify) \_\_\_\_\_

16.3 Are you in favor of land conversion from agricultural land to commercial/residential land? {V163} ☐ 1 = yes 2 = no (For Type B)

16.4 What is the advantage and disadvantage of land conversion? (For Type B)

ADVANTAGE {v164a} ☐

DISADVANTAGE {164b} ☐

1 = Will improve quality of life  
2 = Increase job opportunity  
3 = Will increase land valuation  
4 = Will improve accessibility  
5 = Others (specify) \_\_\_\_\_

1 = Will increase noise/air pollution  
2 = Will generate more waste  
3 = Will cause heavy traffic  
4 = Will cause unfavorable change of lifestyle  
5 = Others (specify) \_\_\_\_\_

### 17. Project Awareness (For Type A, B & C)

17.1 Have you been informed about the Government Project in your area? {V171} ☐ 1 = Yes 2 = No

17.2 If yes, what Government Project? {V172} ☐

1=Expressway    2=Road widening/improvement    3=PNR    4=others (specify) \_\_\_\_\_

17.3 Have you been informed about the **CLLEX** Project? {V173} ☐ 1 = Yes; 2 = No

17.4 If yes, from whom did you learn about the Project? {V174} ☐

1 = LGUs      2 = DPWH      3 = ECOSYSCORP, INC.      4 = Relatives  
5 = Neighbors/Friends      6 = Others (specify) \_\_\_\_\_

17.5 What is the project impact to your life and/or livelihood? {v175}

POSITIVE {v155a} ☐

NEGATIVE {v155b} ☐

1 = Will improve quality of life  
2 = Will improve accessibility  
3 = Increase job opportunity  
4 = Improve farm products delivery  
5 = Minimize traffic congestion  
6 = Will increase land valuation  
7 = Others (specify) \_\_\_\_\_

1 = Will increase noise/air pollution  
2 = Will displace people  
3 = Will entail loss in income/land  
4 = Will cause division of community  
5 = Land conversion  
6 = Others (specify) \_\_\_\_\_

17.6 What enhancement measures you can recommend for positive impact? {v176} (pls. specify)

17.7 What mitigating measures you can recommend for negative impact? {v177}

**18. Project Acceptability (For Type A, B & C)**

18.1 Are you in favor of the project? {V181}

☐

1 = yes 2 = no

18.2 Why? {V182}

18.3 Other Concerns: {V183}

**MODULE 5: HOUSEHOLD MEMBERS (For Type A only)**

No.	Name	Age	Gender 1 = male 2 = female	Relation 1 = spouse 2 = child 3 = parent 4 = sibling 5 = in-law 6 = maid 7 = others (specify)	Source of Income 1 = farming 2 = employee 3 = business 4 = others (specify)	Income
1.						
2.						
3.						
4.						
5.						
6.						
7.						
8.						
9.						
10.						
11.						
12.						
13.						
14.						
15.						

Please use another sheet for other household members.

**Type of Respondents:**

A = Directly affected structure owners (residential/commercial)

B = Directly affected landowners (farmland)

C = Indirectly affected PAPs

SIGNATURE OF RESPONDENT:

---

---

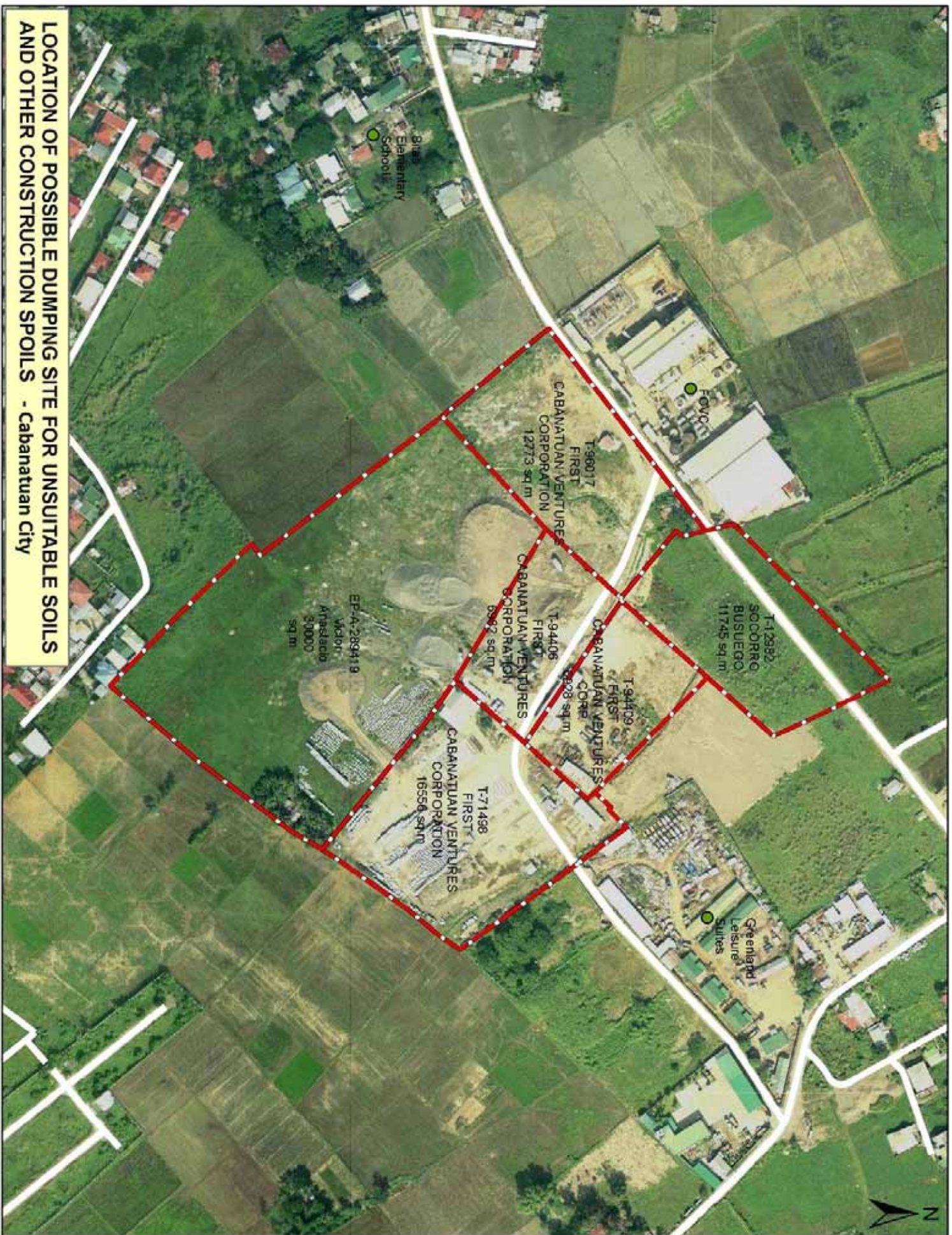
**Appendix F**  
**Identified Disposal Sites in Aliaga and Cabanatuan,**  
**Nueva Ecija**

---

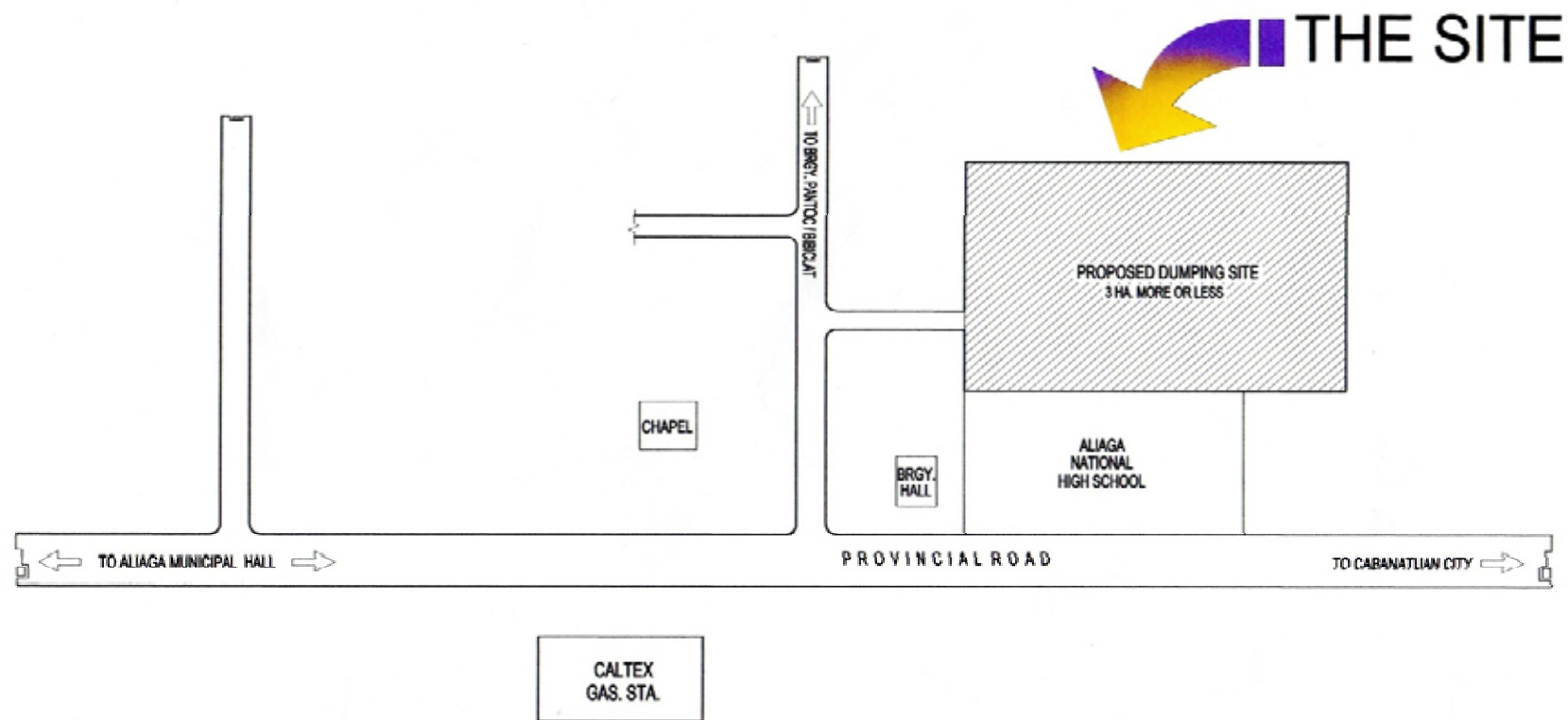












#### Proposed Dumping Site for Unsuitable Soils

**Location:** Brgy. Poblacion East II, Aliaga, Nueva Ecija  
**Land Area:** Approximately 3 Hectares  
**Owner:** Municipal Government of Aliaga

**VICINITY MAP**  
NOT TO SCALE

*[Signature]*  
**ENGR. JESNER G. VICENCIO**  
 MPDC/Municipal Engr.

Noted By:

*[Signature]*  
**MARCIAL R. VARGAS**  
 Municipal Mayor

---

**Appendix G**  
**Environmental Compliance Certificate for the**  
**Proposed CLLEX Project**

---



MAR 30 2010

**Republic of the Philippines**

**Department of Public Works and Highways**

Visayas Avenue, Diliman, Quezon City 1116

Tel. Nos.: (632) 929-66-26 to 29 • (632) 929-65-52

929-66-20 • 929-66-33 to 35

929-70-41 to 43

**ECC Ref. Code: CO-1001-0003**

**Mr. Faustino D. Sta. Maria**

Director

**Department of Public Works and Highways**

**Project Management Office – Feasibility Studies**

DPWH Region IV Compound, EDSA, Quezon City

**SUBJECT: ENVIRONMENTAL COMPLIANCE CERTIFICATE**

**Dear Mr. Sta. Maria:**

This refers to your submitted Environmental Impact Statement Report (EIS) in connection with your Environmental Compliance Certificate (ECC) application for your proposed **CENTRAL LUZON EXPRESSWAY (CLEX) PROJECT** traversing the municipality of La Paz in the province of Tarlac and municipalities of Aliaga, Talavera, Llanera and cities of Cabanatuan and San Jose in the province of Nueva Ecija.

After satisfying the requirements in the said application and upon recommendation of the Environmental Management Bureau (EMB), this Department has decided to grant an ECC to the above-mentioned project.

With the issuance of this ECC, you are expected to implement the measures presented in the EIS intended to protect and mitigate the project's adverse impacts on community health, welfare and the environment. You may proceed with the project implementation after securing the necessary permits from other pertinent Government agencies. Environmental considerations shall be incorporated in all phases and aspects of the Project. This Office will be monitoring the project periodically to ensure your compliance with stipulations cited in the attached ECC.

Please be guided accordingly.

Very truly yours,

  
**HORACIO C. RAMOS**  
Secretary

cc: EMB Regional Office No. III  
LGU – Municipality of La Paz  
LGU – Province of Tarlac  
LGU – Municipality of Aliaga  
LGU – Municipality of Talavera  
LGU – Municipality of Llanera  
LGU – City of Cabanatuan  
LGU – City of San Jose  
LGU – Province of Nueva Ecija







**ENVIRONMENTAL COMPLIANCE CERTIFICATE**  
(Issued under Presidential Decree No. 1586)  
Reference No. CO-1001-0003

THIS IS TO CERTIFY THAT THE PROPONENT, DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS – PROJECT MANAGEMENT OFFICE/FEASIBILITY STUDIES (DPWH – PMO/FS), as represented by its Director, *Mr. Faustino D. Sta. Maria*, is granted this Environmental Compliance Certificate (ECC), for its proposed *Central Luzon Expressway (CLEX) Project* traversing the municipality of La Paz in the province of **Tarlac** and municipalities of Aliaga, Talavera, Llanera and cities of Cabanatuan and San José in the province of **Nueva Ecija**, by the Department of Environment and Natural Resources (DENR), through the Environmental Management Bureau (EMB).

SUBJECT to the conditions and restrictions set out herein labeled as Annexes A and B.

**PROJECT DESCRIPTION**

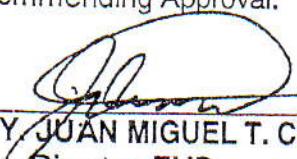
The proposed **Central Luzon Expressway (CLEX) Project** is a 64 kilometers (28 kilometers for Phase 1 and 36 kilometers for Phase 2) with a 60 meters Right of Way expressway traversing the municipality of La Paz in the province of Tarlac and municipalities of Aliaga, Talavera, Llanera and cities of Cabanatuan and San Jose in the province of Nueva Ecija.

Phase 1 of the Project shall be composed of eleven (11) bridges and viaducts in the main expressway. Six (6) bridges are located in natural waterways such as rivers or creeks while other bridges will be built on market roads and canals while Phase 2 shall be composed of six (6) bridges; four (4) of these are located on the creeks and canals while the remaining will be located at irrigation canals or canal dams

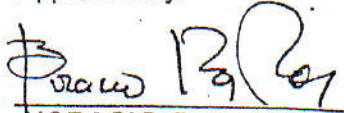
This Certification is issued pursuant to the provisions of Presidential Decree No. 1586 and in accordance to DENR Administrative Order (D.A.O.) No. 2003-30. Non compliance with any of the provisions of this Certificate shall be sufficient cause for the cancellation or suspension of this Certificate and/or imposition of a fine in an amount not to exceed Fifty Thousand Pesos (P50,000.00) for every violation thereof. The Bureau, however, is not precluded from re-evaluating, adding, removing, and correcting any deficiencies or errors that may be found after the issuance of this Certificate.

Issued at DENR, Quezon City, Philippines, this MAR 30 2010

Recommending Approval:

  
ATTY. JUAN MIGUEL T. CUNA  
Director, EMB

Approved by:

  
HORACIO C. RAMOS  
Secretary

Republic of the Philippines  
DEPARTMENT OF ENVIRONMENT  
AND NATURAL RESOURCES



SENRO26555

## SWORN ACCOUNTABILITY STATEMENT

I, Mr. Faustino D. Sta. Maria, Director, representing the proponent of Central Luzon Expressway (CLEX) Project, traversing the municipality of La Paz in the province of Tarlac and municipalities of Aliaga, Talavera, Llanera and cities of Cabanatuan and San Jose in the province of Nueva Ecija, take full responsibility in complying with all conditions contained in this Environmental Compliance Certificate (ECC).


  
Signature

TIN 130 917 089

APR 12 2010

Subscribed and sworn to before me in this \_\_\_\_ day of \_\_\_\_\_ 2010, the above-named affiant taking oath presenting his Community Tax Certificate (CTC) No. 18336906 issued on 13 JANUARY 2010 at QUEZON CITY.

Doc. No. 239  
Page No. 48  
Book No. XI  
Series of 20 10

  
DELIA C. VIVAR-DIMAANDAL  
NOTARY PUBLIC  
Signature of Administrative Officer  
UNTIL DECEMBER 31, 2010  
PTR No. 3186246/1-5-10/OL  
IBP No. 779749/1-5-10/OC



Republic of the Philippines  
DEPARTMENT OF ENVIRONMENT  
AND NATURAL RESOURCES



SENRO26555



## I. CONDITIONS

Annex A

### ENVIRONMENTAL MANAGEMENT

All commitments, mitigating measures and monitoring requirements, especially those contained in the Environmental Management and Monitoring Plans (EMMPs) in the Environmental Impact Statement (EIS), including all its modifications and additional information as approved by the EMB shall be instituted to minimize any adverse impact of the project to the environment throughout the project implementation, including the following:

1. Implement a Waste Management Program for proper handling, collection and disposal of solid wastes;
2. Implement a dust control system along the construction site to suppress the ambient suspended particulate matters generated by the construction activities;
3. Construction and installation of drainage structures such as ditches, culverts and pipe drains to divert surface and run-off water; and
4. Implementation of a Social Development Program including employment priority for local residents within the direct impact areas;

### GENERAL CONDITIONS

5. The project operations shall conform with the provisions of RA 6969 (Toxic Substances and Hazardous and Nuclear Wastes Control Act of 1990), RA 9003 (Act Providing for an Ecological Solid Waste Management Program), RA 9275 (Philippine Clean Water Act of 2004), and RA 8749 (Philippine Clean Air Act of 1999);
6. Establishment of an Environmental Unit (EU) to effectively handle, implement, and manage all environmental-related aspects of the project. Proof of establishment of the EU shall be submitted to EMB. The EU shall also have the following responsibilities:
  - a. Implement the approved Environmental Management and Monitoring Program; and
  - b. Monitor actual impacts vis-à-vis the predicted impacts on human/social and physical environment and environmental management measures in the EIS;
7. The proponent shall ensure that all relevant conditions of this Certificate are properly complied with by its commissioned contractors/sub-contractors during all project phases;
8. The proponent shall ensure that Contractor's All Risk Insurance (CARI) is provided to cover expenses for the indemnification/compensation of damage to life and property that may be caused by the implementation of the project facilities related to the prevention of possible negative impact;





9. To supplement CARI, a Quick Response Fund (QRF) shall also be set up by the proponent to be used for emergency repairs/restoration of critical damage infrastructure facilities after calamity in order to restore mobility and ensure safety in the affected areas;

## II. RESTRICTIONS

10. No other activities should be undertaken other than what was stipulated in the EIS document. Expansion of the project/construction of other structures or any change in the activity beyond those stated in the EIA document shall be subject to new Environmental Impact Assessment requirements.

Processing Fee : PhP 6,000.00

O.R. No. : 9722517P

Dated : 04 January 2010



Republic of the Philippines  
DEPARTMENT OF ENVIRONMENT  
AND NATURAL RESOURCES

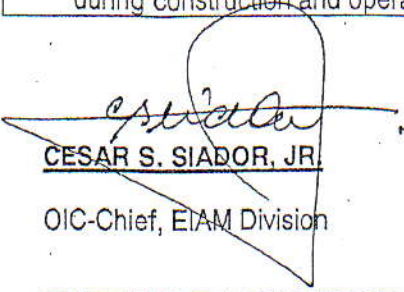


SENRO26555

**PROJECT ASSESSMENT PLANNING TOOL**

For the assistance of the Proponents and Government agencies concerned in the management of the project and for better coordination in mitigation on the impact of the project on its surrounding areas and to the environment, and by way of recommendation, the following have been taken notice of by the EIA Review Committee and are forwarding these requirements to the parties and authorities concerned for appropriate action.

<b>A. RECOMMENDATIONS TO CONCERNED GOVERNMENT AGENCIES</b>	<b>RESPONSIBLE AGENCY</b>
1. Compliance with the following: a) Sanitation Code of the Philippines; b) Labor Code of the Philippines including occupational safety and health standards; c) Building Code of the Philippines for building structures and drainage system d) Republic Act No. 8974 ( <i>An Act to facilitate the acquisition of right-of-way of way, site or location for National Government Infrastructure Projects and for other purposes</i> ), if necessary.	DOH DOLE-BWC LGU Municipal Planning and Development Office/LGU DPWH/Proponent
2. Provision of adequate storm drainage canal, or concrete culverts, and other flood control measures to prevent silt-laden runoff discharging the water bodies.	Provincial/Municipal Engineering Office
3. Coordination with the LGUs concerned on the implementation of the Solid Waste Management Program and Formulation of traffic Management Program shall be coordinated with concerned LGU.	LGU/DENR
4. Provide resettlement/relocation program for the displaced informal settlers in accordance with the provisions of RA 7279 ( <i>An Act to provide for a comprehensive and continuing urban development and housing program, establish the mechanism for its implementation, and for other purposes</i> ), if necessary	NHA/LGU Concerned
5. Compliance with FMB-DENR Tree Cutting Permit Requirements	FMB
<b>B. ENVIRONMENTAL PLANNING RECOMMENDATIONS FOR THE PROPONENT</b>	
4. Implement an employment prioritization scheme for hiring of qualified local residents within the affected areas.	
5. Design and undertake an effective continuing Information, Education and Communication (IEC) Program throughout the pre-construction, construction and operational phases of the project especially on the Traffic Management Plan to be implemented.	
6. First aid facilities and services for staff and employees need to be made available on-site during construction and operation of the project.	



**CESAR S. SIADOR, JR.**

OIC-Chief, EIAM Division



**ATTY. JUAN MIGUEL T. CUNA**

OIC Director



---

**Appendix H**  
**Minutes of the Information Education Communication**  
**Meetings**

---

Meeting #: 1	Date: July 25,2011	Time: From 1400 to 1630
Venue: Kairos Hotel & Restaurant,Municipality of Aliaga, Province of Nueva Ecija		
Type of stakeholder: Municipal Officials of Aliaga, Nueva Ecija, Barangay Officials of Betes, Bucot, Bibiclat, La Purisima, San Juan, San Eustacio, Sta. Monica, Sto Rosario, Magsaysay, Pantoc and Umangan People's Organization, Farmer's Association, Non-Government Organization, Homeowner's Association, Transport Group		
Attendances: LGU (M -25 ) (F -7 ); CBO (M -2 ) (F -2 ); GO (M - ) (F -1 ); NGO (M -4 ) (F - ); DPWH (M -3 ) (F - ); Ecosyscorp. Inc. (M -5 ) (F -4 )		
Purpose of Meeting: To introduce the Project; To confirm and revise Scoping results and foreseeable negative effect by the Project; To agree on environmental study parameters; To agree on social study parameters; To explain to the stakeholders the procedures involved in RAP preparation; To allow stakeholders to express their ideas, apprehensions, concerns, and objections.		
Summary of Meeting: Welcome Remarks by Jose Gaya; Introduction of Participants headed by Crisley Ian V. Diot; Objectives of the meeting and study explained by Annabelle Herrera; Presentation of Project Description, Alignment and Design was presented by Annabelle Herrera; Open Forum was lead by Felicia Rubianes and Closing Remarks was addressed by Vice Mayor Elizabeth Vargas.		
Output of meeting: Attendance Sheet and Photographs		
Name(organization)	Issues	Responses
Hilario Caisip Brgy. Captain of Brgy. Magsaysay	As barangay captains, is it our responsibility to convince people to agree and favor with this project?	"Convince is not the proper term, rather, we need your help in explaining to your people this project. If there are questions that DPWH needs to answer, please ask them to proceed to any DPWH office to properly address these questions.
Mario Suba Brgy. Captain of Sta. Monica	To all those who will be affected, where will the funds for compensation come from? JICA or the government?	The funds will come from the government. JICA is not involved with ROW acquisition as per the loan agreement. The government will not be able to get a loan without it's ability to

	<p>There are DPWH projects that are still uncompensated until now and the title for the land has not been removed from the acquired land of the farmers and until now these farmers are still paying for the taxes of these DPWH acquired lands.</p>	<p>pay for ROW acquisition.</p> <p>There were many instances before when owners are not properly compensated because projects were started without the appropriate funding. We now follow international guidelines where it states that ROW should first be paid before we start any project. Also, before DPWH department order issues any notice to proceed to it's contractors.</p> <p>The basis of payment as per RA 8974 is the BIR zonal value as the first offer..</p> <p>You may request for DPWH to remove the acquired land from tax. Based on the PPP, if the RROW payment is not given on schedule, DPWH will pay a fine or penalties.</p>
<p>Norberto Macalinao Brgy. Captain of San Eustacio</p>	<p>For those who's farm lands will be cut in half by this road project, will they have to go around just to get to the other half of his/her land?</p>	<p>If one half of the land will not be usable anymore because it's too small, DPWH may acquire that smaller piece of land. If the land is still usable, we may construct box culverts where small hand tractors may pass. The LGU office is open for your suggestions for the proper location of the box culverts or crossings.</p>
<p>Jose Gaya Municipal Administrator,</p>	<p>Most land owners are not able to pay realty tax, do they need to pay taxes first before they get compensated for the lands that will be acquired from them?</p>	<p>Based on DO # 5, DPWH will first pay the local government the un paid taxes , deduct that from the total cost, before paying the land owners and assure that the new title will be properly transferred.</p>

	How will tenants that are not registered be compensated? Tenants with only verbal agreements with the land owners?	As per the Land Acquisition Resettlement and Rehabilitation and Indigenous People's Plan of the DPWH o LARRIP, registered tenants will receive compensation, but if the agreement is only verbal, the payment will go to the land owner, and it's up to the land owner to pay the tenant. The landowners and the tenants may go to DAR to register. DPWH may also ask the landowners to sign a waiver that the tenants will receive the compensation and the landowners will not as for any part of the payment.
Efren Armobit Brgy. Captain of San Juan	If the land that will be divided shares with another barangay, who will construct the overpass that will allow access?	We need help from the LGU and the Barangay identify the proper location of the crossings for the farmers. It is not allowed to have multiple crossings adjacent to each other for the divided lands.
	Who will oversee the process to make sure that all issues are addressed and that all those who deserve payment receive just compensation for the land?  What if the landowner does not agree with the price offered by DPWH?	The rightful owner of the land will receive the compensation.  If the land owner does not agree with the DPWH price of offer, the government will exercise it's power of eminent domain. A case will be filed in court. If the papers are still in court, all payments for the land will be deposited in ESCROW account and payment will be given to the owner once the papers are fixed or the case is resolved. If the land owner wins the case, the courts will order DPWH to pay the owner of the land.
	Do barangay captains have any accountabilities to those who will be	The LGU, Brgy. Captains and the DENR has the responsibility to monitor and watch if the contractors follow the ECC. You are



	affected by the project?	part of the monitoring of the project. If you see any violations, you may go to your barangay captain or your mayor.
Christoffer Leva NGO	What assurance do we have that the embankment would not cause flooding? The problem that we have now is that places that did not have floods before are now flooded.	The design of the embankments now will have box culverts that will act as equalizers so that it may not cause or worsen floodings.
Glenn dela Cruz Municipal Assessors of Office	We suggest that instead of an embankment, we should use viaducts for the project.	Viaducts cost 10 times more than an embankment. All aspects of the project including engineering, environmental concerns are carefully studied including the projects economic benefits. NEDA would not approve the project if the economic benefits are not good.
Mario Suba Brgy. Captain of Sta. Monica	If the height of the embankment is 76.5 meters, from Brgy. Sto. Rosario, to Brgy. Magsaysay up to Sta. Monica, this will cause river-like floods. If possible, not to use embankment.	We will send this concern to the engineering and design team so that they will consider your suggestion when they deal with flooding.
Engr. Jesner Vicencio Municipal Planning and Development Office	We suggest that only one interchange would be constructed in Aliaga instead in San Juan. We can instead transfer the interchange to Sto. Rosario.	We will send this concern to the engineering and design team so that they will consider your suggestion when they deal with interchange design.
Engr. Jesner Vicencio Mayor Marcial Vargas	Who is responsible in maintaining our roads that will surely be damaged by the trucks used by the construction?	A PILOT road will be used and constructed along with the alignment that will be used by heavy trucks during the construction period.
Mayor Marcial Vargas Municipal Mayor	Who will finance the CLLEX project? DPWH or JICA? What will be PPP's part in	The government will fund the project, but the Right of way acquisition is not included in the PPP agreement. In the PPP,



	the project?	the government minimized to lend cash-out aside from ROW acquisition. JICA supports the concept of PPP when choosing for the grant that's why we have this kind of study.
Ramiro Dionisio Brgy. Captain of Umangan	How do we identify those who will really be affected by the alignment?	If you see any markers that were placed by the surveyors, this will be the center of the road. We can then measure 30 meters from the markers on both sides. The RAP team will also be visiting the location and will identify all the structures and land that will be affected.
Alberto Bumanlag Municipal Councilor Committee on Infrastructures	Instead of constructing a PILOT road for heavy equipment, can we request that the funding be used to maintain the roads instead?	Maintenance for provincial roads come from provincial funds, if it's a national road, it comes from DPWH. The PILOT road that will be constructed will be very small since the trucks will be using the CLLEX alignment as well.



Registration started at 1300



Aliaga Municipal Administrator Mr. Jose Gaya delivering his welcome remarks



Ms. Crisley Ian Diot of Ecosyscorp. Inc. introducing the participants



Ms. Herrera presenting the CLLEX Project design and alignment



Ecosyscorp., Inc. EIA and RAP Team Leader Ms. Annabelle Herrera explaining the objectives of the IEC Meeting and objectives of the study



RAP Team Member Engr. Raul Fellizar retorting to some queries during the open forum



Mr. Christoffer Leva-NGO, posing his concern on flooding



Municipal Mayor of Aliaga Hon. Marcial Vargas inquiring on the participation of PPP on the project



Municipal Assessor of Aliaga Mr. Glenn dela Cruz suggesting to construct a viaduct instead of embankment to avoid flooding.



Mr. Mario Suba- Brgy. Captain of Sta. Monica proposing to re-align the project



Mr. Alberto Bumanlag- Municipal Councilor of Aliaga asking on the source of the project funds



MPDO-Engr. Jesner Vicencio inquiring on the responsible agency in restoring the existing roads that might be damaged during construction period





Mr. Ramiro Dionisio- Brgy. Captain of Umangan requesting for the final alignment to properly identify the landowners to be affected by the projects



Brgy. Captain of San Eustacio Mr. Norberto Macalinao expressing his concern on the affected lots that will be divided in half



Engr. Ramiro Cruz of DPWH District 1, Nueva Ecija explaining the issue of past projects of DPWH with existing unpaid ROW



Mr. Rogelio Manialong-Brgy. Captain of Pantoc discussing the past experience in acquiring ROW from the landowners affected by DPWH project



Municipal Administrator Mr. Jose Gaya inquiring on how to handle the case of landowners and tenants that have no written agreement



Municipal Vice-Mayor Hon. Elizabeth Vargas expressing her full support to the project and requesting for an earlier implementation of project

# **P R O G R A M M E**

## **Information, Education & Communication (IEC) Meeting Municipal Level**

### **DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS PROPOSED CENTRAL LUZON LINK EXPRESSWAY (CLLEX) PROJECT**

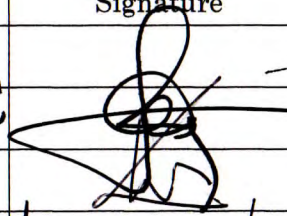
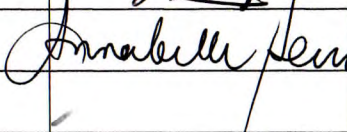
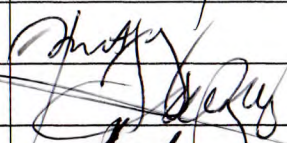
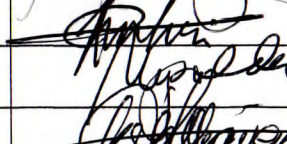
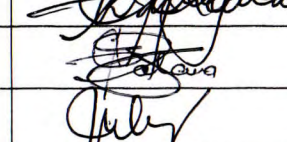
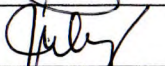
Venue: G/F Kairos Hotel and Resort, Aliaga, Province of Nueva Ecija  
1400 – 1600HH, July 25, 2011

I. Registration	1400 – 1415HH	G/F Kairos Hotel & Resort
II. Welcome Remarks		Mr. Jose Gaya <i>Municipal Administrator</i>
III. Introduction of Participants		Ms. Crisley Ian V. Diot <i>Ecosyscorp, Inc.</i>
IV. Objectives of the Meeting		Ms. Annabelle N.Herrera <i>Ecosyscorp Inc.</i>
V. Presentation of the Project		Ms. Annabelle N. Herrera <i>Ecosyscorp, Inc.</i>
VI. Objectives and Activities of the Study		Ms. Annabelle N. Herrera <i>Ecosyscorp, Inc.</i>
VII. Open Forum:		Felicia G. Rubianes <i>Ecosyscorp, Inc.</i>
VIII. Closing Remarks		Hon. Elizabeth Vargas <i>Vice Mayor</i>



# ATTENDANCE SHEET

## Information, Education, Communication Meeting Central Luzon Link Expressway Project (CLLEX) Phase 1

Meeting #: 1		Date: July 25, 2011	Time: From 1400	To 1600	Venue: G/F Kairos Hotel and Resort, Aliaga, Nueva Ecija
Type of stakeholder		City officials of Municipality of Aliaga, Nueva Ecija, Barangays of Aliaga: Betes, Sto. Rosario, Poblacion East I, Sta. Monica, Magsaysay, San Eustacio, Pantoc, Bibiclat, San Juan , Umangan, & La Purisima, People’s Organization, Farmer’s Association, Non-Government Organization, Homeowner’s Association, Transport Group			
Purpose of Meeting: To introduce the CLLEX Project; To confirm and revise Scoping Matrix; To gather and address the queries and concerns of the participants; and To conduct survey interview					
Name		Designation/Title/Role	Address	Contact number	Signature
1	Engr. Sergio N. Dizon	Engr. III-PDD	DPWH Region III		
2	Engr. Ramiro M. Cruz	District Engineer	DPWH N.E. District 1, Talavera, Nueva Ecija	411-1024	
3	Engr. <del>Armando</del> M. Guevarra	Chief of Construction	DPWH N.E. District 1, Talavera, Nueva Ecija	411-1024	
4	Ms. Annabelle N. Herrera	EIA & RAP Team Leader	Ecosyscorp, Inc, Quezon City	951-40-59	
5	Mr. Arriz James N. Herrera	V.P. - Operations	Ecosyscorp, Inc, Quezon City	951-40-59	
6	Engr. Raul A. Fellizar	RAP Team Member	Ecosyscorp, Inc, Quezon City	951-40-59	
7	Mr. Joseph T. Vargas	RAP Team Member	Ecosyscorp, Inc, Quezon City	951-40-59	
8	Ms. Felicia G. Rubianes	RAP Team Member	Ecosyscorp, Inc, Quezon City	951-40-59	
9	Ms. Maricel P. Rolda	RAP Team Member	Ecosyscorp, Inc, Quezon City	951-40-59	
10	Ms. Crisley Ian V. Diot	RAP Team Member	Ecosyscorp, Inc, Quezon City	951-40-59	
11	Mr. Federico R. Talaña, Jr.	EIA Team Member	Ecosyscorp, Inc, Quezon City	951-40-59	
12	Mr. Glenn A. Alpez	EIA Team Member	Ecosyscorp, Inc, Quezon City	951-40-59	



# ATTENDANCE SHEET

## Information, Education, Communication Meeting

### Central Luzon Link Expressway Project (CLLEX) Phase 1

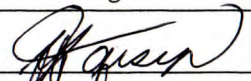

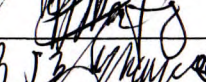
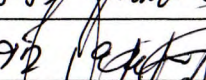
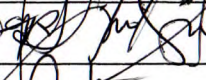

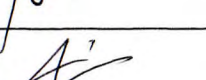



Meeting #: 1		Date: July 25, 2011		Time: From 1400	To 1600	Venue: G/F Kairos Hotel and Resort, Aliaga, Nueva Ecija	
Type of stakeholder		City officials of Municipality of Aliaga, Nueva Ecija, Barangays of Aliaga: Betes, Sto. Rosario, Poblacion East I, Sta. Monica, Magsaysay, San Eustacio, Pantoc, Bibiclat, San Juan, Umangan, & La Purisima, People's Organization, Farmer's Association, Non-Government Organization, Homeowner's Association, Transport Group					
Purpose of Meeting: To introduce the CLLEX Project; To confirm and revise Scoping Matrix; To gather and address the queries and concerns of the participants; and To conduct survey interview							
Name	Designation/Title/Role	Address	Contact number	Signature			
13 Hon. Marcial R. Vargas	Mayor	ALIAGA NUEVA ECJA					
14 Hon. Elizabeth R. Vargas	Vice Mayor	ALIAGA, NUEVA ECJA					
15 Mr. Jose Gaya	Municipal Administrator	LCU	09163821143				
16 Mr. Jesner Vicencio	Mun. Planning & Devt. Officer	LCU - ALIAGA	0917337 2553				
17 Mr. Glenn dela Cruz	Municipal Assessor	LCU - ALIAGA	0923483900				
18 Ms. Resureccion Alcantara	Municipal Treasurer Rep.	Luciana Nieras PORK CENTER ALIAGA, N.E.	0917134834				
19 Mr. Clemente Fernando / Luz M. Pajak	Mun. Agrarian Reform Officer	DARMO, Aliaga, N.E.	0917-577-4068				
20 Mr. Menard de Leon	Mun. Agriculturist						
21 Edgardo Soledad	ABC President						
22 Mr. Jun-Jun Bumanlag	PB - Betes						
23 Mr. Reynaldo Sanchez	PB - Sto. Rosario	PB Brgy Sto. Rosario	09175509402				
24 Mr. Mario S. Suba	PB - Sta. Monica	PB Brgy STA MONICA	09175509401				



# ATTENDANCE SHEET

## Information, Education, Communication Meeting

### Central Luzon Link Expressway Project (CLLEX) Phase 1

Meeting #: 1		Date: July 25, 2011	Time: From 1400	To 1600	Venue: G/F Kairos Hotel and Resort, Aliaga, Nueva Ecija
Type of stakeholder		City officials of Municipality of Aliaga, Nueva Ecija, Barangays of Aliaga: Betes, Sto. Rosario, Poblacion East I, Sta. Monica, Magsaysay, San Eustacio, Pantoc, Bibiclat, San Juan , Umangan, & La Purisima, People's Organization, Farmer's Association, Non-Government Organization, Homeowner's Association, Transport Group			
Purpose of Meeting: To introduce the CLLEX Project; To confirm and revise Scoping Matrix; To gather and address the queries and concerns of the participants; and To conduct survey interview					
Name		Designation/Title/Role	Address	Contact number	Signature
25	Mr. Hilario A. Caisip	PB - Magsaysay	magsaysay, Aliaga N.E	09083901531	
26	Mr. Norberto B. Macalinao	PB - San Eustacio	San Eustacio M. Union	0917 <sup>2631</sup> 55085J	
27	Mr. Rogelio Manialong	PB - Pantoc	PANTOC ALIAGA	091755067	
28	Mr. Norberto Eugenio	PB - Bibiclat	BIBICLAT ALIAGA	09175509353	
29	Mr. Efren J. Armobit	PB - San Juan	SAN JUAN ALIAGA	09175509392	
30	Mr. Ramiro Dionisio	PB - Umangan	Umangan ALIAGA N.E.	09175504400	
31	Mr. Cesar Pajarillo	PB - La Purisima	LA PURISIMA ALIAGA N.E	09175509360	
32	Mr. Rodolfo Corpus	PB - Poblacion East I			
33	Mr. Rannie Bagsik	Aliaga Consultant - CLUP	ALIAGA, N.E.	09083270152	
34	Mr. Romulo Castillo	PB - Brgy. Bucot	Brgy Bucot	09175509309	
35	Mr. Leonardo Miranda	PB - Brgy. Sonson	Brgy. Sonson	09195024703	
36	Mr. Diego Franco	CLUP Proj. Consultant	ALIAGA	0917-8920141	



# ATTENDANCE SHEET

## Information, Education, Communication Meeting Central Luzon Link Expressway Project (CLLEX) Phase 1

Meeting #: 1	Date: July 25, 2011	Time: From 1400	To 1600	Venue: G/F Kairos Hotel and Resort, Aliaga, Nueva Ecija
Type of stakeholder	City officials of Municipality of Aliaga, Nueva Ecija, Barangays of Aliaga: Betes, Sto. Rosario, Poblacion East I, Sta. Monica, Magsaysay, San Eustacio, Pantoc, Bibiclat, San Juan , Umangan, & La Purisima, People’s Organization, Farmer’s Association, Non-Government Organization, Homeowner’s Association, Transport Group			
Purpose of Meeting:To introduce the CLLEX Project; To confirm and revise Scoping Matrix; To gather and address the queries and concerns of the participants; and To conduct survey interview				

Name	Designation/Title/Role	Address	Contact number	Signature
37 WENELMUM Q. MANATE	Public. Affairs Officer	Sta Monica, Aliaga N.E.	0922-323-9497	[Signature]
38 BENJAMIN M. TOLENTINO	CHIEF PLANNING & DEV.	ALIAGA 1ST BARANGAY TOL. N.E	0916-688 871	[Signature]
39 Arvin Ray DeGuzman	(SECRETARY)	Sto Rosario Aliaga N.E		[Signature]
40 RONALDO FRANCISCO	ALIAGA TRANSPORT ASSOCIATION	POB. EAST I ALIAGA N.E	09261210900	[Signature]
41 CONCEPCION E Lina	RTH ALIAGA	STO ROSARIO/LA PURISIMA	0906428487	[Signature]
42 Reynaldo Salvador		Sta. Monica		[Signature]
43 ERICINDA D. CARPIO	Gov. Asst.	Aliaga - LGU		[Signature]
44 Josefina M. Castro	Women's rep.	Aliaga - LGU	0925-873-1042	[Signature]
45 Nenita O. Ruiz	MPDO Staff	Aliaga - LGU		[Signature]
46 JUAN MARTIN	MPDO STAFF	ALIAGA - LGU		[Signature]
47 MARIBEL B. GRAVE	HRMO V	LGU - Aliaga	0916 364627	[Signature]
48 Honorato Cabacungan	FBRC / Mgr.	Bibiclat - Aliaga	09214131595	[Signature]



# ATTENDANCE SHEET

## Information, Education, Communication Meeting

### Central Luzon Link Expressway Project (CLLEX) Phase 1

Meeting #: 1		Date: July 25, 2011	Time: From 1400 To 1600	Venue: G/F Kairos Hotel and Resort, Aliaga, Nueva Ecija	
Type of stakeholder		City officials of Municipality of Aliaga, Nueva Ecija, Barangays of Aliaga: Betes, Sto. Rosario, Poblacion East I, Sta. Monica, Magsaysay, San Eustacio, Pantoc, Bibiclat, San Juan , Umangan, & La Purisima, People's Organization, Farmer's Association, Non-Government Organization, Homeowner's Association, Transport Group			
Purpose of Meeting: To introduce the CLLEX Project; To confirm and revise Scoping Matrix; To gather and address the queries and concerns of the participants; and To conduct survey interview					
	Name	Designation/Title/Role	Address	Contact number	Signature
49	Myrna Castib	President	Bucot Aliaga	09105830009	
50	WENGE TEMPAAN	DEPT SEC	PRINCIPAL	09475554094	
51	BOBBY G. NIEVES	P.I.O.	MUN. GOVT. ALIAGA, N.E.	0921989286	
52	RODRIGUEZ F. WIGENIO	AMARO FIELD STAFF	(LGV) ALIAGA	09152221046	
53	CHRISTOPHER R. LEON	CHAIRMAN - GABAY NGU	ALIAGA, N.E.	09175250996	
54	PERLY VITERBO	Staff - UM	LGV - ALIAGA	09473983884	
55	Alberto Bumanlag	SB member with infra	LGV, ALIAGA	09088849605	
56	WILFREDO LEON	SECURITY	POB. WEST H ALIAGA	0923707182	
57	Lenelisa A. Nawa	Secretary	POB. Centro A N.E	09152304041	
46	ROSENDO M. JAWA	SECURITY	BIBICLAT ALIAGA N.E	09202446610	
58					
59					

Meeting #: 2	Date: July 26,2011	Time: From 1000	To 1200
Venue: Conference Room, 2 <sup>nd</sup> Floor, City Hall of Cabanatuan Province of Nueva City			
Type of stakeholder:	City Officials of Cabanatuan, Nueva Ecija, Barangay Officials of Caalibangbangan and Mayapyap Norte, People’s Organization, Farmer’s Association, Non-Government Organization, Homeowner’s Association, Transport Group		
Attendances: LGU (M - 14) (F -3 ); CBO (M - ) (F - ); NGO (M - ) (F - ); DPWH (M - ) (F - ); Ecosyscorp. Inc. (M -3 ) (F -4 ); CTI/JICA (M-1) (F-1)			
Purpose of Meeting: To introduce the Project; To confirm and revise Scoping results and foreseeable negative effect by the Project; To agree on environmental study parameters; To agree on social study parameters; To explain to the stakeholders the procedures involved in RAP preparation; To allow stakeholders to express their ideas, apprehensions, concerns, and objections.			
Summary of Meeting: Welcome Remarks by Jose Roy Balagtas; Introduction of Participants headed by Crisley Ian V. Diot; Objectives of the meeting and study explained by Annabelle Herrera; Presentation of Project Description, Alignment and Design was presented by Annabelle Herrera; Open Forum was lead by Felicia Rubianes and Closing Remarks was addressed by Engr. Virginia M. Busog.			
Output of meeting:			
Name(organization)	Issues	Responses	
Renato Imperio Brgy. Captain of Brgy. Caalibangbangan	Who will pay for all the homes that will be destroyed by the project?	DPWH will pay for the ROW acquisition of all affected homes.	
	What if the home owner does not own the land?	The homeowner will be compensated for the structure through socio-economic study, if the informal settler does not have a proper income, they will be given socialite housing for relocation as per RA 7279.	
	Who will submit appraised value of the property/Lot? Will it be DPWH or the LGU?	If the tenants are registered and they have papers, it would be easier to process their compensation. If the agreement is verbal, the	

		owner will have to sign a waiver that they will not ask for any form of payment from the compensations received by the tenants.
Heidi Pangilinan Municipal Assessors Office	It may be better if we hire a private appraiser because the prevailing price is very low if applied to the just compensation pushed by the government.	DPWH will follow the prevailing BIR zonal value based on RA 8974. DPWH will present to the owners the price of value of their land. If the owners does not agree with the price, the LGU will have to intervene and will have to convene an appraisal committee and they will appraise the property
	Will the LGU look for a relocation site for those who will be affected?	The appraisal committee will have the same function as a private independent land appraiser, to convene for the newest prevailing price of the data.
	If the affected people would not accept this project, what would be the next steps for them to take?	As per UDHA, the LGU is responsible in providing land for relocation, but not for the structure, It's not in DPWH's mandate to purchase land for relocation, DPWH may only purchase ROW.
Carlos Salonga Jr. Brgy. Secretary of Caalibangbangan	If the appraised value of the land by the LGU is too low, is it possible for me to look for a relocation site and have the LGU pay?	The power of eminent domain will be applied by DPWH if talks wont push through. For the legal claimants who will not accept the offered price, there would be an expropriation. As for the Informal Settlers as per UDHA Law RA 7279 if there is a government project with available funding, the residents will have to leave and transfer to a relocation site provided by the government as per section 28.
Renato Imperio Brgy. Captain of Brgy. Caalibangbangan	If the affected people have another place to relocate to, what will be the arrangement be since you mentioned that LGU will provide for relocation? How will they have an agreement with the land owners?	In CMP, it is possible for you to be the originator. Cabanatuan city was an originator before and those who lived there just had to pay.
	If the owner agrees that his/her property will be	Based on RA 8974, this is not covered by the LGU. It's in the

	included in the cmp.	prevailing of 1532 that it is the LGU if the cost of the local project is low.
	Where exactly is the alignment of the project? Is it within the boundary of Cabanatuan or beyond?	
Engr. Noel Javier Municipal Consultant	It is very important for us to know the final location of the project for tapping our proposed City project that will be linking the CLLEX project.	AS of now, we don't have the exact location of the sites since the study is not yet complete.
	We would like to request that the end of the alignment of the CLLEX project phase 1 will just be within the Cabanatuan City.	If you can provide us the correct coordinates, then we might give you,
		The request will be noted





Welcome Remarks was delivered by City Administrator Mr. Jose Roy Balagtas



Introduction of Participants lead by Ms. Crisley Ian Diot



Objectives of the Meeting and the Study was explained by Ms. Annabelle Herrera, presentation of the CLLEX Project was followed



Mr. Carlos Salonga Sr. Brgy. Secretary of Brgy. Caalibangbangan asking what will happen if the PAPs oppose project



Mr. Renato Imperio Brgy. Captain of Brgy. Caalibangbangan inquiring on compensation and relocation of informal settlers



Engr. Noel Javier Project Consultant of Cabanatuan City asking for the final alignment of the CLLEX Project





Ms. Heide Pangilinan - City Assessor of Cabanatuan City inquiring on the basis of just compensation for land as well as the process of relocating informal settlers



CPDO Ms. Virginia Busog delivering her closing remarks

# **P R O G R A M M E**

## **Information, Education & Communication (IEC) Meeting City Level**

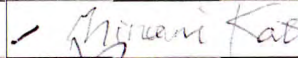
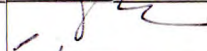
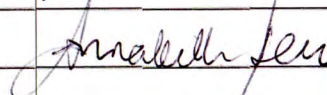
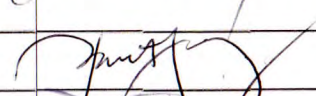
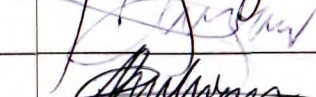
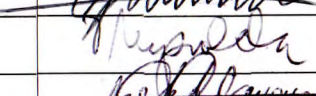

### **DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS PROPOSED CENTRAL LUZON LINK EXPRESSWAY (CLLEX) PROJECT**

Venue: Conference Hall – Mayor's Office, Cabanatuan City  
1000 – 1200HH, July 26, 2011

I. Registration	1000 – 1015HH	Conference Hall – Mayor's Office
II. Welcome Remarks		Mr. Jose Roy Balagtas <i>City Administrator</i>
III. Introduction of Participants		Ms. Crisley Ian V. Diot <i>Ecosyscorp, Inc.</i>
IV. Objectives of the Meeting		Ms. Annabelle N.Herrera <i>Ecosyscorp Inc.</i>
V. Presentation of the Project		Ms. Annabelle N. Herrera <i>Ecosyscorp, Inc.</i>
VI. Objectives and Activities of the Study		Ms. Annabelle N. Herrera <i>Ecosyscorp, Inc.</i>
VII. Open Forum:		Ms. Felicia G. Rubianes <i>Ecosyscorp, Inc.</i>
VIII. Closing Remarks		Engr. Virginia M. Busog <i>CPDO</i>

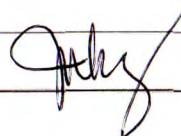
# ATTENDANCE SHEET

## Information, Education, Communication Meeting Central Luzon Link Expressway Project (CLLEX) Phase 1

Meeting #:		Date: July 26, 2011	Time: From 1000	To 1200	Venue: City Hall of Cabanatuan, Nueva Ecija
Type of stakeholder		City officials of Cabanatuan, Nueva Ecija, Barangay Officials of Caalibangbangan and Mayapa Norte, Cabanatuan, Nueva Ecija People's Organization, Farmer's Association, Non-Government Organization, Homeowner's Association, Transport Group			
Purpose of Meeting: To introduce the CLLEX Project; To confirm and revise Scoping Matrix; To gather and address the queries and concerns of the participants; and To conduct survey interview					
Name		Designation/Title/Role	Address	Contact number	Signature
1	Engr. Sergio N. Dizon	Engr. III-PDD	DPWH Region III		
2	Engr. Ricardo Hernandez	Chief of Maintenance Section	DPWH N.E. District 2, Cabanatuan City, Nueva Ecija		
3	Engr. Florencio Rey Alano	PMO-BOT	DPWH NCR Comp. 2 <sup>nd</sup> St. Port Area, Manila		
4	Ms. Minami Kato	CTI – JICA Study Team	DPWH NCR Comp. 2 <sup>nd</sup> St. Port Area, Manila	304-3842	
5	Engr. Johan Martinez	CTI – JICA Study Team	DPWH NCR Comp. 2 <sup>nd</sup> St. Port Area, Manila	304-3842	
6	Ms. Annabelle N. Herrera	EIA & RAP Team Leader	Ecosyscorp, Inc, Quezon City	951-40-59	
7	Mr. Arriz James N. Herrera	V.P. - Operations	Ecosyscorp, Inc, Quezon City	951-40-59	
8	Engr. Raul A. Fellizar	RAP Team Member	Ecosyscorp, Inc, Quezon City	951-40-59	
9	Mr. Joseph T. Vargas	RAP Team Member	Ecosyscorp, Inc, Quezon City	951-40-59	
10	Ms. Felicia G. Rubianes	RAP Team Member	Ecosyscorp, Inc, Quezon City	951-40-59	
11	Ms. Maricel P. Rolda	RAP Team Member	Ecosyscorp, Inc, Quezon City	951-40-59	
12	Ms. Crisley Ian V. Diot	RAP Team Member	Ecosyscorp, Inc, Quezon City	951-40-59	


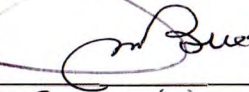
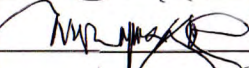
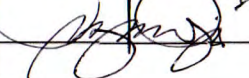

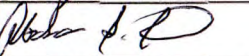

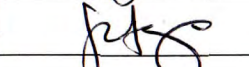


**ATTENDANCE SHEET****Information, Education, Communication Meeting****Central Luzon Link Expressway Project (CLLEX) Phase 1**

Meeting #:	Date: July 26, 2011	Time: From 1000	To 1200	Venue: City Hall of Cabanatuan, Nueva Ecija
Type of stakeholder	City officials of Cabanatuan, Nueva Ecija, Barangay Officials of Caalibangbangan and Mayapa Norte, Cabanatuan, Nueva Ecija People's Organization, Farmer's Association, Non-Government Organization, Homeowner's Association, Transport Group			
Purpose of Meeting: To introduce the CLLEX Project; To confirm and revise Scoping Matrix; To gather and address the queries and concerns of the participants; and To conduct survey interview				
Name	Designation/Title/Role	Address	Contact number	Signature
13 Mr. Federico R. Talaña, Jr.	EIA Team Member	Ecosyscorp, Inc, Quezon City	951-40-59	
14 Mr. Glenn A. Alpez	EIA Team Member	Ecosyscorp, Inc, Quezon City	951-40-59	
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				

# ATTENDANCE SHEET

## Information, Education, Communication Meeting Central Luzon Link Expressway Project (CLLEX) Phase 1

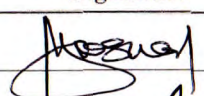
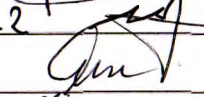

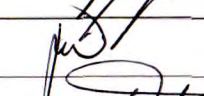
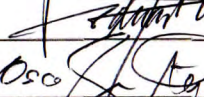
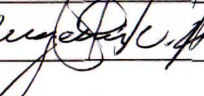



Meeting #: 2		Date: July 26, 2011	Time: From 1000	To 1200	Venue: City Hall of Cabanatuan, Nueva Ecija
Type of stakeholder		City officials of Cabanatuan, Nueva Ecija, Barangay Officials of Caalibangbangan and Mayapa Norte, Cabanatuan, Nueva Ecija People's Organization, Farmer's Association, Non-Government Organization, Homeowner's Association, Transport Group			
Purpose of Meeting: To introduce the CLLEX Project; To confirm and revise Scoping Matrix; To gather and address the queries and concerns of the participants; and To conduct survey interview					
Name		Designation/Title/Role	Address	Contact number	Signature
25	Hon. Julius Cesar V. Vergara	Mayor			
26	Hon. Marius A. Garcia	Vice Mayor			
27	Mr. Jose Roy L. Balagtas	City Administrator	- CABANATUAN CITY, <del>MAYOR'S</del> OFFICE	0957975143	
28	Ms. Virginia M. Busog	City Planning & Devt. Officer		09179641184	
29	Engr. Lauro J. Pangilinan	Acting City Engineer	LGU - CED	09062911559	
30	Engr. Heidi D. Pangilinan	City Assessor	LGU - CAD. DIV	09209207262	
31	Ms. Florida R. Oca	OIC-City Treasurer			
32	Mr. Renato N. Imperio	PB - Caalibangbangan	CAALIBANGBANGAN	09062330195	
33	Mr. Abraham Soriano	PB - Mayapa Norte	MAYAPAYAP NORTE CAB CITY	0915238077	
34		City Agrarian Reform Officer			
35	GREGORIA V. ESQUERRA	City Agriculturist	CALMO - LGU - Cab. City	09172702347	
36	NOEL T. JAVIER	PROJ. CONSULTANT	CAB. CITY, MAYOR OFFICE	0929423347	



# ATTENDANCE SHEET

## Information, Education, Communication Meeting Central Luzon Link Expressway Project (CLLEX) Phase 1

Meeting #:	Date: July 26, 2011	Time: From 1000 To 1200	Venue: City Hall of Cabanatuan, Nueva Ecija
Type of stakeholder	City officials of Cabanatuan, Nueva Ecija, Barangay Officials of Caalibangbangan and Mayapa Norte, Cabanatuan, Nueva Ecija People's Organization, Farmer's Association, Non-Government Organization, Homeowner's Association, Transport Group		
Purpose of Meeting:	To introduce the CLLEX Project; To confirm and revise Scoping Matrix; To gather and address the queries and concerns of the participants; and To conduct survey interview		

Name	Designation/Title/Role	Address	Contact number	Signature
37 <del>Eng.</del> RUBEN G. PASCUAL	CONSULTANT	city mayor office CMO	(044) 8067711 09064926712	
38 JOSE P. S. JATURAN	(IO) Information officer	CMO CITY MAYOR OFFICE	09159126822	
39 Angelic F. Lacerda	Stenographer	CMO	09274223095	
40 Mikeo Vergara	Guest	Del Pilar st. Cabanatuan City	09177516797	
41 CARLOS P. SALONGA SR	BIRGY SEC. BIRGY CAAL.	Caalibangbangan, Cab. City	09062625209	
42 MELCHOR E. BONIFACIO	BIRGY KAGAWAD	CAALIBANGBANGAN, CAB. CITY		
43 EDUARDO G. GAYO	ENGR. IV	CEO	09337801009	
44 RYANN ALARDO	ENGR. IV	CEO		
45 Eugene V. Mintu	Asst. City. Admin	CMO		
46				
47				
48				

Meeting #: 3	Date: July 26,2011	Time: From 1400 to 1600
Venue: Barangay Hall, Barangay Caalibangbangan, Cabanatuan City		
Type of stakeholder: City Officials of Cabanatuan, Nueva Ecija, Project Affected Persons and Barangay Officials of Caalibangbangan and Mayapyap Norte, People's Organization, Farmer's Association, Non-Government Organization, Homeowner's Association, Transport Group ,		
Attendances: PAPs (M -10 ) (F -10 ); LGU (M -6 ) (F - ); CBO (M - 2) (F -); NGO (M - ) (F - ); DPWH (M - ) (F - ); Ecosyscorp. Inc. (M -3 ) (F -4 ); CTI/JICA (F-1) (M-1)		
Purpose of Meeting: To introduce the Project; To confirm and revise Scoping results and foreseeable negative effect by the Project; To agree on environmental study parameters; To agree on social study parameters; To explain to the stakeholders the procedures involved in RAP preparation; To allow stakeholders to express their ideas, apprehensions, concerns, and objections.		
Summary of Meeting: Welcome Remarks by Renato Imperio; Introduction of Participants headed by Maricel Rolda; Objectives of the meeting and study explained by Annabelle Herrera; Presentation of Project Description, Alignment and Design was presented by Engr. Raul Felizar; Open Forum was lead by Felicia Rubianes and Closing Remarks was addressed by Marcial Eugenio.		
Output of meeting: Attendance Sheet and Photographs		
Name(organization)	Issues	Responses
Elpedio Imperio BARC Secrtary	Expressing understanding for this meeting and not to immediately doubt the project. This project is inevitable since this is a national government project. It is best that we ask questions in this forum so that all doubts and questions will be addressed by the proper authorities.	



Adelaida Satur	Is it certain/sure that our homes will be hit?	Based on our studies and measurements, there is a big chance that everyone who's called to this meeting will have their homes hit.
	Showed thoughts and feelings about the project because it hurts to lose everything you worked hard to save specially if there is nowhere for them to live and go to.	All the cost and expenses of your homes will be compensated, but we understand that we cannot replace the emotional attachment that you may have with your homes.
Maria Cristina Marcelo	How will the homeowners be compensated if they don't have land titles?	As per PD 1533, The price of the house is separate from the price of the lot. The compensation for the cost of the house will go to the person who spent to have it built, and compensation for the land will go to the landowner. For the appraisal of the homes, this is based on the current market value/price of the materials used including labor excluding depreciation cost.
	Are we going to receive/be transferred to a relocation site even though were not land owners?	If your LGU's able to find a relocation site that we can place under CMP who will provide for loans with low monthly amortization for the beneficiaries of an organization formed for those without lands, there is a possibility that there will be either socialize housing or those without land may get their own land. Only those who are really poor who are capable of paying low amortization are qualified for this
Adelaida Satur PAPs	For those tenants who only has rights but has nothing written?	Only the landowners will be compensated.
Renato Imperio Barangay Captain	Only Atty. Beltran has the rights to the payments for the land. The other properties were acquired by the government and is planned to be distributed to the people.	If your house is on the remaining piece of property that still belongs to the owner, the owner will receive the compensation/payment as per CARP.

	There was an identified piece of land for relocation but there is a problem with the price given by the owner and the LGU. The price given by the LGU is too low for CMP	<p>CMPP uses market value for purchasing land.</p> <p>In CMP, it is important that you are organized. That is why it's important for those who will lose their homes and property to organize a home owners organization. If your going to pick a piece of property, it should have 70% occupancy. Those who are poor who can pay amortization will be prioritized.</p>
Antonio Rivera FISCAP Adviser	Everyone who would be affected should just be paid and it's up to them to transfer and relocate.	Only affected homes will be compensated. DPWH cannot pay for lands without titles. DPWH can get sued if they purchase lands without title. Compensation received for affected homes can be used to pay for CMP.
Ramos Talampas	What if the relocation site is too far? Do we already have a relocation site?	The Mayor will not issue a certificate of completion if those Informal Settlers are not properly relocated. A relocation site will be provided based on the need of the community
Romeo Rivera FISCAP Member	What will happen if the land owner does not agree to sell the house or the property?	DPWH will first try to negotiate with the house and property owners. If negotiations fail, the government will exercise it's power of eminent domain which allows it to acquire land if it's for public use. A case will be filed by the solicitor general at the regional trial court and if it's proven that the property owner has available funds for the person to be expropriated, a writ of possession will be issued and the place will be demolished..
Arvis Bajaladia	What will happen to those who's income will be affected by the project's construction period whose time table is very long?	One of JICA's considerations is that this project would not affect our nation's food supply. DPWH will pay for damage and disturbance compensation based on the total period of time of loss from the project construction. This will be based on DPWH guidelines. It's

	<p>Since there would be a food shortage in our country, it's a big loss if this project would cost harvest shortage.</p> <p>How much harvest time will be compensated?</p>	<p>best if there is a foreign component for this project since they will not allow that property/farm owners are not properly compensated.</p>
	<p>35,000 metric tons of rice can be harvested from the property that will be hit by the interchange, that's why there will be great loss and great damage. We pay real property tax because the government gave the lands to the people without paying for it. This was filed PD 27 that's why it was returned to us. This project will greatly impact our rice production.</p>	<p>Your concern will be noted and will be discussed.</p> <p>It is very important that you are compensated for your loss during the entire harvest.</p> <p>It is also important that you answer the survey form on how much this project will impact your income.</p>



Barangay Capt. Of Caalibangbangan – Renato M. Imperio delivering his welcome remarks



Ms. Maricel Rolda of Ecosyscorp, Inc. introducing the participants



EIA and RAP Team Leader Ms. Annabelle N. Herrera explaining the objectives of the meeting and study



RAP Team Member Engr. Raul Fellizar presenting the CLLEX Project Phase 1



Ms. Annabelle Herrera responding to the queries and concerns raised during the open forum



ABC Representative Mr. Marcial Eugenio delivering his Closing Remarks



Ms. Adelaida Satur- PAPS expressing her sentiments of losing her property because of the CLLEX Project



Ms. Maria Cristina Marcelo-PAPS asking if they are entitled to receive compensation on land if they do not own the land



Mr. Romeo Rivera - FISCAP Member inquiring what will happen to the landowners opposing the project



Mr. Arvis Bajaladia - PAPS expressing his concern on the loss of farm income and rice production



Mr. Antonio Rivera- FISCAP Adviser suggesting to just give enough cash to the affected structure owners and let them find their own place to build their house



Mr. Elpedio Dionisio- BARC Secretary advising the informal settlers to form an organization to be qualified for CMP



Mr. Renato Imperio- Brgy. Captain informing that he already find an area for possible relocation site but he feared that the price in purchasing the land will not be acceptable because is it a government project



# **P R O G R A M M E**

**Information, Education & Communication (IEC) Meeting  
with Project Affected Persons (PAPs)  
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS  
PROPOSED CENTRAL LUZON LINK EXPRESSWAY (CLLEX) PROJECT**

Venue: Barangay Hall, Barangay Caalibangbangan, Cabanatuan City  
1400 – 1600HH, July 26, 2011

I. Registration	1400 – 1415HH	Barangay Hall
II. Welcome Remarks		Mr. Renato N. Imperio <i>Barangay Chairman</i>
III. Introduction of Participants		Ms. Maricel P. Rolda <i>Ecosyscorp, Inc.</i>
IV. Objectives of the Meeting		Ms. Annabelle N.Herrera <i>Ecosyscorp Inc.</i>
V. Presentation of the Project		Engr. Raul A. Fellizar <i>Ecosyscorp, Inc.</i>
VI. Objectives and Activities of the Study		Ms. Annabelle N. Herrera <i>Ecosyscorp, Inc.</i>
VII. Open Forum:		Ms. Felicia G. Rubianes <i>Ecosyscorp, Inc.</i>
VIII. Closing Remarks		Mr. Marcial Eugenio <i>ABC Representative/ Private Secretary</i>

# ATTENDANCE SHEET

## Information, Education, Communication Meeting Central Luzon Link Expressway Project (CLLEX) Phase 1

Meeting #:	Date: July 26, 2011      Time: From 1400      To 1600      Venue: Barangay Hall of Caalibangbangan, Cabanatuan City, Nueva Ecija
Type of stakeholder	City officials of Cabanatuan, Nueva Ecija, Barangay Officials of Caalibangbangan, Cabanatuan, Nueva Ecija Project Affected Persons (PAPs) People's Organization, Farmer's Association, Non-Government Organization, Homeowner's Association, Transport Group & Senior Citizen Group

Purpose of Meeting: To introduce the CLLEX Project; To confirm and revise Scoping Matrix; To gather and address the queries and concerns of the participants; and To conduct survey interview

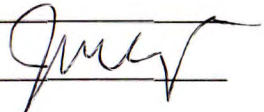
Name	Designation/Title/Role	Address	Contact number	Signature
1 Engr. Sergio N. Dizon	Engr. III-PDD	DPWH Region III		
2 Engr. Ricardo Hernandez	Chief of Maintenance Section	DPWH N.E. District 2, Cabanatuan City, Nueva Ecija		
3 Engr. Florencio Rey Alano	PMO-BOT	DPWH NCR Comp. 2 <sup>nd</sup> St. Port Area		
4 Minami Kato	CTI – JICA Study Team	DPWH NCR Comp. 2 <sup>nd</sup> St. Port Area, Manila	304-3842	Minami Kato
5 Engr. Johan Martinez	CTI – JICA Study Team	DPWH NCR Comp. 2 <sup>nd</sup> St. Port Area, Manila	304-3842	Johan Martinez
6 Ms. Annabelle N. Herrera	EIA & RAP Team Leader	Ecosyscorp, Inc, Quezon City	951-40-59	Annabelle Herrera
7 Mr. Arriz James N. Herrera	V.P. - Operations	Ecosyscorp, Inc, Quezon City	951-40-59	Arriz James N. Herrera
8 Engr. Raul A. Fellizar	RAP Team Member	Ecosyscorp, Inc, Quezon City	951-40-59	Raul A. Fellizar
9 Mr. Joseph T. Vargas	RAP Team Member	Ecosyscorp, Inc, Quezon City	951-40-59	Joseph T. Vargas
10 Ms. Felicia G. Rubianes	RAP Team Member	Ecosyscorp, Inc, Quezon City	951-40-59	Felicia G. Rubianes
11 Ms. Maricel P. Rolda	RAP Team Member	Ecosyscorp, Inc, Quezon City	951-40-59	Maricel P. Rolda
12 Ms. Crisley Ian V. Diot	RAP Team Member	Ecosyscorp, Inc, Quezon City	951-40-59	Crisley Ian V. Diot

**ATTENDANCE SHEET****Information, Education, Communication Meeting  
Central Luzon Link Expressway Project (CLLEX) Phase 1**

Meeting #:	Date: July 26, 2011      Time: From 1400      To 1600	Venue: Barangay Hall of Caalibangbangan, Cabanatuan City, Nueva Ecija
------------	---	---

Type of stakeholder	City officials of Cabanatuan, Nueva Ecija, Barangay Officials of Caalibangbangan, Cabanatuan, Nueva Ecija Project Affected Persons (PAPs) People's Organization, Farmer's Association, Non-Government Organization, Homeowner's Association, Transport Group & Senior Citizen Group
---------------------	--

Purpose of Meeting: To introduce the CLLEX Project; To confirm and revise Scoping Matrix; To gather and address the queries and concerns of the participants; and To conduct survey interview

	Name	Designation/Title/Role	Address	Contact number	Signature
13	Mr. Federico R. Talaña, Jr.	EIA Team Member	Ecosyscorp, Inc, Quezon City	951-40-59	
14	Mr. Glenn A. Alpez	EIA Team Member	Ecosyscorp, Inc, Quezon City	951-40-59	
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					




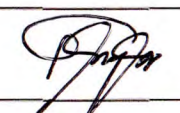

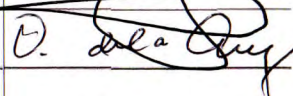
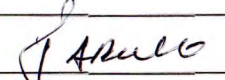
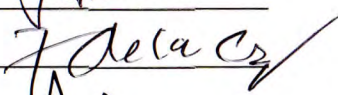
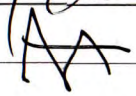
# ATTENDANCE SHEET

## Information, Education, Communication Meeting Central Luzon Link Expressway Project (CLLEX) Phase 1

Meeting #:	Date: July 26, 2011      Time: From 1400      To 1600	Venue: Barangay Hall of Caalibangbangan, Cabanatuan City, Nueva Ecija
------------	---	---

Type of stakeholder	City officials of Cabanatuan, Nueva Ecija, Barangay Officials of Caalibangbangan, Cabanatuan, Nueva Ecija Project Affected Persons (PAPs) People's Organization, Farmer's Association, Non-Government Organization, Homeowner's Association, Transport Group & Senior Citizen Group
---------------------	--

Purpose of Meeting: To introduce the CLLEX Project; To confirm and revise Scoping Matrix; To gather and address the queries and concerns of the participants; and To conduct survey interview

Name	Designation/Title/Role	Address	Contact number	Signature
25 Mr. Renato N. Imperio	PB – Caalibangbangan	Sitio Lookaw Caalibangbangan, ant	09062330195	
26 Mr. Sergio Tadeo	ABC President			
27 Mr. Carlos P. Salonga, Sr.	Brgy. Secretary - Caalibangbangan		0906268209	
28 Mr. Abraham Soriano	PB – Mayapa Norte			
29 MR. MARCIAL EUGENIO	ABC REP. (PRIVATE SEC)			
30 ORLANDO DELA CRUZ	SAPANG CAB. CITY			
31 <del>CARLOS P. SALONGA</del>				
32 JESSIE ADELLO	PULO CAALIBANG BANGA	CABANATUAN CI		
33 FRANCISCO DELA CRUZ	PULO CAALIBANGBANGAN	CAB. CITY		
34 Angelito Talamapas		Sitio Pulo, Caalibangbangan		
35				
36				



# ATTENDANCE SHEET

## Information, Education, Communication Meeting Central Luzon Link Expressway Project (CLLEX) Phase 1

Meeting #:	Date: July 26, 2011	Time: From 1400 To 1600	Venue: Barangay Hall of Caalibangbangan, Cabanatuan City, Nueva Ecija
------------	---------------------	-------------------------	---

Type of stakeholder	City officials of Cabanatuan, Nueva Ecija, Barangay Officials of Caalibangbangan, Cabanatuan, Nueva Ecija Project Affected Persons (PAPs) People's Organization, Farmer's Association, Non-Government Organization, Homeowner's Association, Transport Group & Senior Citizen Group
---------------------	--

Purpose of Meeting: To introduce the CLLEX Project; To confirm and revise Scoping Matrix; To gather and address the queries and concerns of the participants; and To conduct survey interview

Name	Designation/Title/Role	Address	Contact number	Signature
37 Buena Vista				
38 Dante Verdes	PRUEY JUSTICE	Caalibangbangan City	09162121148	
39 Justo Caspio		Caalibangbangan City		Justo
40 Dela Lo Moralo		Pulo Caalibangbangan		Delado Moralo
41 Julieta Jimenez		Pulo Caalibangbangan		Ju Jimenez
42 Luciana Legaspi		Pulo -do-		Luciana Legaspi
43 Lina Carpio		-do-		Lina
44 Janifer Talampas		-do-		Janifer
45 Francisco Pangilinan		-do-		Francisco Pangilinan
46 Ma. Cristina Marcello		Pulo Caalibangbangan	09235970366	Ma. Cristina Marcello
47				
48				



# ATTENDANCE SHEET

## Information, Education, Communication Meeting Central Luzon Link Expressway Project (CLLEX) Phase 1

Meeting #: Date: July 26, 2011 Time: From 1400 To 1600 Venue: Barangay Hall of Caalibangbangan, Cabanatuan City, Nueva Ecija

Type of stakeholder  
City officials of Cabanatuan, Nueva Ecija,  
Barangay Officials of Caalibangbangan, Cabanatuan, Nueva Ecija  
Project Affected Persons (PAPs)  
People's Organization, Farmer's Association, Non-Government Organization, Homeowner's Association, Transport Group

Purpose of Meeting: To introduce the CLLEX Project; To confirm and revise Scoping Matrix; To gather and address the queries and concerns of the participants; and To conduct survey interview

Name	Designation/Title/Role	Address	Contact number	Signature
49. ANTONIO O. RIVERA	FISCAL	Caalibangbangan Cab. City	0927678327	[Signature]
50. ROMEO M. RIVERA	FISCAL	Caalibangbangan Cab. City		[Signature]
51. Elpidio T. Dionisio	BARC-Secretary	Caalibangbangan Cab. City	09334897109	[Signature]
52. ARVIS A. BRUNARDIA FELIX P. MACAPAGAL	BRGY CHAIRMAN	Caalibangbangan Cab. City V.P. Avenue BRGY 666 ENMITA HLA	09217972136 09216064427	[Signature]
53. Ramos Takampas		PULO Caalibangbangan	09236059567	[Signature]
54. Cynthia P. Wawarro		pulo Caalibangbangan		[Signature]
55. Lilibeth Maningal		pulo Caalibangbangan		[Signature]
56. Luzviminda Puno		pulo Caalibangbangan		[Signature]
57. Adelaida Sakur		Pulo Caalibangbangan		[Signature]
46. Rosita M. Castillo		Pulo Caalibangbangan		[Signature]
58. Romeo Manalo		Pulo Caalibangbangan	09235970366	[Signature]
59. Carla Mabilin		Pulo Caalibangbangan		[Signature]



Meeting #: 4	Date: July 27 2011	Time: From 1000 To 1200
Venue: Municipal Hall of La Paz Province of Tarlac		
Type of stakeholder: Municipal Officials of La Paz, Tarlac, Barangay Officials of Macalong, Guevarra and Laungcupang, People's Organization, Farmer's Association, Non-Government Organization, Homeowner's Association, Transport Group		
Attendances: LGU (M -8 ) (F -2 ); CBO (M - ) (F -1 ); (GO) (M -1 ) (F - ); NGO (M - ) (F - ); DPWH (M - ) (F -1 ); Ecosyscorp. Inc. (M -4 ) (F -4 )		
Purpose of Meeting: To introduce the Project; To confirm and revise Scoping results and foreseeable negative effect by the Project; To agree on environmental study parameters; To agree on social study parameters; To explain to the stakeholders the procedures involved in RAP preparation; To allow stakeholders to express their ideas, apprehensions, concerns, and objections.		
Summary of meeting: Welcome Remarks by; Mayor Michael M. Manuel Introduction of Participants headed by Ms_Crisley Diot; Objectives of the meeting and study explained by; Ms Annabelle Herrera Presentation of Project Description, Alignment and Design was presented by; Ms Annabelle Herrera Open Forum was lead by Ms_Felicia Rubianes and Closing Remarks was addressed by: Reynaldo D. David, Municipal Engineer and Economic Officer-OIC Scoping matrix was explained and filled up by stakeholders.		
Output of meeting: Attendance Sheet and Photograph		
Name(organization)	Issues	Responses
Mayor Michael M. Manuel and Municipal Planning & Devt. Officer:Engr Marito Nicolas	Why is it we do not have an interchange within our municipality? What are the benefits of this project to La Paz? The project's objective to lessen traffic congestion will not be achieved based on your proposed plan. I hope La Paz will be given more attention other than the flooding and calamities happening in the area.	Noted. We will relay your concerns to our Team Leader of Engineering.

Municipal Agriculturist Representative Mr. Noel Rejis	Please give a study on the impact of the project on agricultural sector as well as revenues lost in farming.	We don't have laws and guidelines to follow when it comes to paying income losses. In our law, we only pay for the land. Based on international guidelines of the lending institutions, income losses should be paid to those who are affected of the project. JICA is asking on the possible loss in production. The study team will get the necessary datas in the Municipal Agriculture to know the probable losses in production or yield.
Municipal Agriculturist Rep. Mr. Noel Rejis	What will happen to those farmers whose only income comes from farming especially those who are only tenants? La Paz is a flood prone area. CLLEX might cause severe flooding in the area.	DPWH cannot pay beyond what the law allows. The truth is the compensation is really low. That's why it's difficult for a project to get approval from international lending institutions because according to the international guidelines, all income losses should be paid. Studies by the Environment Study Team is still under going with regards to the flooding in La Paz. According to the Japanese investors, they will put equalizers to avoid flooding.
Municipal Planning& Devt. Officer Engr Mario Nicolas and Mayor Michael M. Manuel	Why is the off and on ramp located between Amucao and Laungcupang? Why don't put the interchange near Guevara and Macalong in the latest revisions made by JICA?	Is there a study that will show the traffic volume in the area? We need to look at the significant effect or factor to put up an interchange in the area. NEDA is also looking for the economic return of the project because putting an interchange is very expensive. If you can show the traffic volume north and south and if it can be justified that indeed interchange is needed then maybe they we can put an interchange.
Municipal Engineering	I hope you consider to put an interchange in La Paz to have	If the traffic study can prove that there is a need to put an

& Economic Officer, Mr Reynaldo D. David	an advantage and economic benefit and development in La Paz.	interchange or off and on ramp then we will inform the team leader of JICA. If there will be a development in La Paz, there should be an access in the development of the Municipality and do not transfer the bypass.
Municipal Agriculturist Rep. Mr. Noel Rejis	What will happen to those whose lands will be cut half in the middle especially if the expressway has a fence?	We will include in the study the options of placing passageways in the affected areas. If you have any suggestions on any proposed locations of pasageways, please inform the team so that it will be included in the study and will be relayed tour team leader.
Barangay Capt. of Guevarra Eduardo Remegio	How far will be the passageway from those lands who are going to be affected? And can vehicles pass thru it?	Hand tractors, carabaos and man can pass thru the passageway. Jus inform the team if you have any proposed location for the passageway.
DAR – Mr Virgilio Antonio	I hope the tenant beneficiaries of CARP will also receive compensation.	Provide the list of tenant beneficiaries from CARP for proper identification for financial assistance.
Municipal Planning& Devt. Officer Engr Mario Nicolas	Who will pay those who will be affected and who will maintain the culverts?	DPWH will maintain the culverts and pay those who are affected with the project since this is a national road project.
Representative of Women's Organization Ms. Lolita Andrade	Provide livelihood to those who are affected.	Those who will be affected will be given priority in livelihood assistance. assistance.



Participants present during IEC Meeting



La Paz Municipal Mayor Michael M. Manuel delivering his welcome remarks



Ms. Crisley Ian Diot of Ecosyscorp. Inc. introducing the participants



Ecosyscorp., Inc. EIA and RAP Team Leader Ms. Annabelle Herrera explaining the objectives of the IEC Meeting and objectives of the study and the presentation of CLLEX Project design and alignment



Barangay Capt. of Guevarra Mr. Mr. Eduardo Remegio asking on the size and location of underpass passageway for land to be traversed in half by the project



DPWH Tarlac District Representative Engr. Edna Galura answering to some question raised during the IEC



Municipal Engineer Marito Nicolas inquiring on the responsible agency in maintaining box culvert of CLLEX Project



Municipal Mayor Michael Manuel expressing his concern on the alignment of CLLEX that no proposed access to La Paz



Department of Agriculture Representative Mr. Noel Regis expressing his worries on the economic production on farm activities



Mr. Reynaldo David MEEO – La Paz requesting to provide interchange in La Paz



Mr. Virgilio Antonio - DAR inquiring on the CARP beneficiaries



Women's Sector Ms. Lolita Andrade asking for priority on hiring qualified workers for the project construction and implementation

# **P R O G R A M M E**

## **Information, Education & Communication (IEC) Meeting Municipal Level**

### **DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS PROPOSED CENTRAL LUZON LINK EXPRESSWAY (CLLEX) PROJECT**

Venue: Municipal Hall, Municipality of La Paz, Province of Tarlac  
1000 – 1200HH, July 27, 2011

I. Registration	1000 – 1015HH	Municipal Hall
II. Welcome Remarks		Hon. Michael M. Manuel <i>Municipal Mayor</i>
III. Introduction of Participants		Ms. Crisley Ian V. Diot <i>Ecosyscorp, Inc.</i>
IV. Objectives of the Meeting		Ms. Annabelle N.Herrera <i>Ecosyscorp Inc.</i>
V. Presentation of the Project		Ms. Annabelle N. Herrera <i>Ecosyscorp, Inc.</i>
VI. Objectives and Activities of the Study		Ms. Annabelle N. Herrera <i>Ecosyscorp, Inc.</i>
VII. Open Forum:		Ms. Felicia G. Rubianes <i>Ecosyscorp, Inc.</i>
VIII. Closing Remarks		Mr. Reynaldo D. David <i>Municipal Engineer &amp; Economic Officer-OIC</i>



# ATTENDANCE SHEET

## Information, Education, Communication Meeting Central Luzon Link Expressway Project (CLLEX) Phase 1

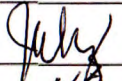
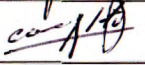
Meeting #:	Date: July 27, 2011	Time: From 1000 To 1200	Venue: Municipal Hall of La Paz, Tarlac	
Type of stakeholder	City officials of La Paz, Tarlac, Barangay Officials of Macalong, Guevarra and Laungcupang, La Paz, Tarlac People's Organization, Farmer's Association, Non-Government Organization, Homeowner's Association, Transport Group			
Purpose of Meeting: To introduce the CLLEX Project; To confirm and revise Scoping Matrix; To gather and address the queries and concerns of the participants; and To conduct survey interview				
Name	Designation/Title/Role	Address	Contact number	Signature
1 Engr. Sergio N. Dizon	Engr. III-PDD	DPWH Region III		
2 Engr. Fernando Dongca	District Engineer	Tarlac Sub District Office, Concepcion, Tarlac		
3 Engr. Edna Galura Galura	Chief of Planning and Design	Tarlac Sub District Office, Concepcion, Tarlac	09228706155	Edna N. Galura
4 ENGR FERDINAND MILLA	PDO IV	PPDO PROV'L GOV'T OF TARLAC	9821239200119	Fu
5 Engr. Florencio Rey Alano	PMO-BOT	DPWH NCR Comp. 2nd St. Port Area, Manila		
6 Ms. Annabelle N. Herrera	EIA & RAP Team Leader	Ecosyscorp, Inc, Quezon City	951-40-59	Annabelle Herrera
7 Mr. Arriz James N. Herrera	V.P. - Operations	Ecosyscorp, Inc, Quezon City	951-40-59	James N. Herrera
8 Engr. Raul A. Fellizar	RAP Team Member	Ecosyscorp, Inc, Quezon City	951-40-59	Raul A. Fellizar
9 Mr. Joseph T. Vargas	RAP Team Member	Ecosyscorp, Inc, Quezon City	951-40-59	Joseph T. Vargas
10 Ms. Felicia G. Rubianes	RAP Team Member	Ecosyscorp, Inc, Quezon City	951-40-59	Felicia G. Rubianes
11 Ms. Maricel P. Rolda	RAP Team Member	Ecosyscorp, Inc, Quezon City	951-40-59	Maricel P. Rolda
12 Ms. Crisley Ian V. Diot	RAP Team Member	Ecosyscorp, Inc, Quezon City	951-40-59	Crisley Ian V. Diot



# ATTENDANCE SHEET

## Information, Education, Communication Meeting

### Central Luzon Link Expressway Project (CLLEX) Phase 1

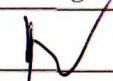

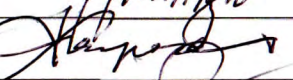


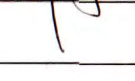
Meeting #:		Date: July 27, 2011	Time: From 1000 To 1200	Venue: Municipal Hall of La Paz, Tarlac	
Type of stakeholder		City officials of La Paz, Tarlac, Barangay Officials of Macalong, Guevarra and Laungcupang, La Paz, Tarlac People's Organization, Farmer's Association, Non-Government Organization, Homeowner's Association, Transport Group			
Purpose of Meeting: To introduce the CLLEX Project; To confirm and revise Scoping Matrix; To gather and address the queries and concerns of the participants; and To conduct survey interview					
	Name	Designation/Title/Role	Address	Contact number	Signature
13	Mr. Glenn A. Alpez	EIA Team Member	Ecosyscorp, Inc, Quezon City	951-40-59	
14	Mr. Carlito Alcober	EIA Team Member	Ecosyscorp, Inc, Quezon City	951-40-59	
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					



# ATTENDANCE SHEET

## Information, Education, Communication Meeting

### Central Luzon Link Expressway Project (CLLEX) Phase 1

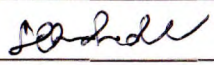
Meeting #: 2		Date: July 27, 2011	Time: From 1000	To 1200	Venue: Municipal Hall of La Paz, Tarlac
Type of stakeholder		City officials of La Paz, Tarlac, Barangay Officials of Macalong, Guevarra and Laungcupang, La Paz, Tarlac People's Organization, Farmer's Association, Non-Government Organization, Homeowner's Association, Transport Group			
Purpose of Meeting: To introduce the CLLEX Project; To confirm and revise Scoping Matrix; To gather and address the queries and concerns of the participants; and To conduct survey interview					
	Name	Designation/Title/Role	Address	Contact number	Signature
25	Hon. Michael M. Manuel	Mayor	Lapaz, Tarlac	09189455424	
26	Engr. Marito Nicolas	Municipal Planning & Devt. Officer	MEO - LAPAZ	09062020894	
27	Mr. Emmanuel Mananquil	Municipal Assessor			
28	Rosolinda B Galam	Municipal Treasurer	San Isidro La Paz Tarlac	09182751818	f. Abangan
29	Mr. Lordgie Ponce, Jr.	PB -Macalong/	MACALONG, LAPAZ, TARLAC	09209695082	f. Ponce
30	Mr. Eduardo Remegio	PB -Guevarra	GUEVARRA, LAPAZ TARLAC		f. Remegio
31	MR. ADOR N. PAMPOSA	PB - Laungcupang	LAUANGCUPANG, LAPAZ, TARLAC	0939459150	f. Pamposa
32	MR. VIRGILIO R. ANTONIO	Municipal Agrarian Reform Officer	DAIR, LA PAZ	09285526805	
33	Ms. Jesusa V. Naveda / NOEL C. BIZON	Municipal Agriculturist	REPRESENTATIVE	09152847300	
34	MR. VIRGILIO ANTONIO				
35	REYNALDO D. DAVID	MEO - OIC	Lapaz, Tarlac City	09285046047	
36	JANE U. LAGAZON	ASSESSOR	REPRESENTATIVE, LAPAZ,	0910428268	



# ATTENDANCE SHEET

## Information, Education, Communication Meeting

### Central Luzon Link Expressway Project (CLLEX) Phase 1

Meeting #:		Date: July 27, 2011	Time: From 1000 To 1200	Venue: Municipal Hall of La Paz, Tarlac	
Type of stakeholder		City officials of La Paz, Tarlac, Barangay Officials of Macalong, Guevarra and Laungcupang, La Paz, Tarlac People's Organization, Farmer's Association, Non-Government Organization, Homeowner's Association, Transport Group			
Purpose of Meeting: To introduce the CLLEX Project; To confirm and revise Scoping Matrix; To gather and address the queries and concerns of the participants; and To conduct survey interview					
	Name	Designation/Title/Role	Address	Contact number	Signature
37	Julita E. Andrade	Mun. BHN President	Barry macalong La Paz Tarlac	09128031851	
38					
39					
40					
41					
42					
43					
44					
45					
46					
47					
48					

Meeting #: 5	Date: July 27 2011	Time: From 1400 To 1600
Venue: City Hall of Tarlac Province of Tarlac		
Type of stakeholder: City Officials of Tarlac, Tarlac, Barangay Officials of Bantog and Amucao including PAPs, People's Organization, Farmer's Association, Non-Government Organization, Homeowner's Association, Transport Group and Hacienda Luisita		
Attendances PAPs (M - 1) (F -1 ); LGU (M -5 ) (F -5 ); CBO (M -5 ) (F - ); GO (M-1 ) (F - ); NGO (M - ) (F - ); DPWH (M - ) (F - ); Ecosyscorp. Inc. (M -4 ) (F - 4)		
Purpose of Meeting: To introduce the Project; To confirm and revise Scoping results and foreseeable negative effect by the Project; To agree on environmental study parameters; To agree on social study parameters; To explain to the stakeholders the procedures involved in RAP preparation; To allow stakeholders to express their ideas, apprehensions, concerns, and objections.		
Summary of meeting: Welcome Remarks by; Mr. Ruben Santos Introduction of Participants headed by Ms_Crisley Diot; Objectives of the meeting and study explained by; Ms Annabelle Herrera Presentation of Project Description, Alignment and Design was presented by; Engr. Raul A. Fellizar Open Forum was lead by Ms. Felicia Rubianes and Closing Remarks was addressed by: Ms. April Gerfi Canlas		
Output of meeting: Attendance Sheet and Photographs		
Name(organization)	Issues	Responses
Brgy: Kapt Clemente Brgy. Amucao	How will be the payment for the land and trees like mangoes? Are rice plants affected will also be paid?	According to the guidelines or regulations and law all trees and fruit bearing trees will be paid. What is not included in the payment are the seedlings which are those not more than 3 or 4 inches because it can still be transferred. According to the International Guidelines or the lending institution, even the rice affected will be paid. We don't have new laws that's why DPWH can only pay a Php 15,000 only which is low. If we could only

		have an Executive Order from the President saying that all those affected will be compensated so much the better.
Brgy: Kapt Clemente Brgy. Amucao	With regards to BCDA, what is the process in acquiring a new title?	BCDA cannot answer the issues regarding the transfer of title. DPWH has guidelines which is Department Order #5-2003 where everything about fixing the transfer of bids is tackled. Transfer of bids could take up for years before it can be transferred and before DPWH can buy the transfer of bids should be finished.
Representative of City Engineering Office: Engr. Edgar Allan Paras	Who will demolish the properties and how much will it cost?	According to Department Order #5 of DPWH demolition cost have 2 kinds: first is DPWH will demolish then there is demolition cost; second, if the owner will demolish, It is much better if it is a voluntary demolition so that those affected can still save some wood and roofing if they want.
Kalayaan Inc. Org. Mr. Ramil Pineda	Is it possible to have a service road for farmers and other transport group?	In the transport group, it is a requirement of the DPWH to provide a new route wherein the farmers can pass thru to go to the other side of the land.
PARO. Org. Ms. Viviane Lactatao	How will be the disturbance compensation of the tenants and owners?	It depends on the agreement between the tenants and landowners. An example is in the sharing on how much will the tenant and the landowner will get and on how will be there agreement if it is verbal or written. Often times they encounter problems here because their agreement is not clear.
MPDO Rep. Ms. April Gerfi Canlas	Who will provide funds for ROW acquisition?	DPWH will provide funds and pay for it.





Participants present during IEC Meeting



Tarlac City Administrator Mr. Ruben Santos delivering his welcome remarks



Ecosyscorp., Inc. EIA and RAP Team Leader Ms. Annabelle Herrera explaining the objectives of the IEC Meeting and objectives of the study



RAP Team Member Engr. Raul Fellizar presenting the CLLEX Project design and alignment



Barangay Capt. of Amucao Mr. Clemente Caligung inquiring on the compensation of land, structures, crops and trees



Rep. of City Engineering Office Engr. Edgar Allan Paras asking on who will demolish the structure to be affected



Mr. Ramil Pineda – Kalayaan Transport Representative asking for the provision of service road



PARO Representative Ms. Viviana Lactaotao inquiring on the disturbance compensation for tenants



CPDO Representative Ms. April Gerfi Canlas concerning on the source of fund in paying RROW

# **P R O G R A M M E**

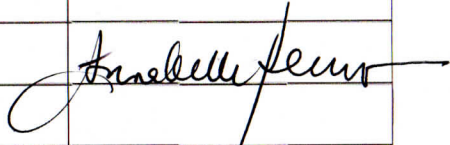
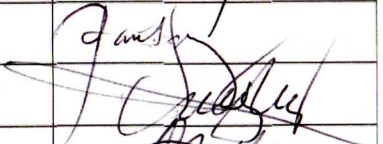
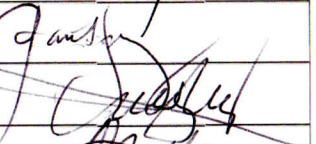
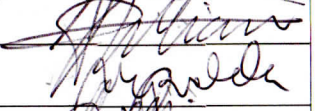
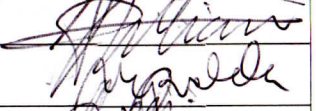
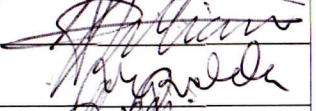
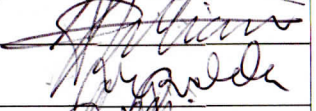
**Information, Education & Communication (IEC) Meeting  
City and Project Affected Persons (PAPs) Level  
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS  
PROPOSED CENTRAL LUZON LINK EXPRESSWAY (CLLEX) PROJECT**

Venue: Mayor's Office, Tarlac City Hall, Tarlac City  
1400 – 1600HH, July 27, 2011

I. Registration	1400 – 1415HH	Mayor's Office
II. Welcome Remarks		Mr. Ruben Santos <i>City Administrator</i>
III. Introduction of Participants		Ms. Crisley Ian V. Diot <i>Ecosyscorp, Inc.</i>
IV. Objectives of the Meeting		Ms. Annabelle N.Herrera <i>Ecosyscorp, Inc.</i>
V. Presentation of the Project		Engr. Raul A. Fellizar <i>Ecosyscorp, Inc.</i>
VI. Objectives and Activities of the Study		Ms. Annabelle N. Herrera <i>Ecosyscorp, Inc.</i>
VII. Open Forum:		Ms. Felicia G. Rubianes <i>Ecosyscorp, Inc.</i>
VIII Closing Remarks		Ms. April Gerfi Canlas <i>Statistician II</i> Representative from CPDO

# ATTENDANCE SHEET

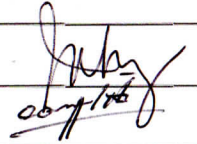
## Information, Education, Communication Meeting Central Luzon Link Expressway Project (CLLEX) Phase 1

Meeting #:	Date: July 27, 2011	Time: From 1400	To 1600	Venue: City Hall of Tarlac, Province of Tarlac
Type of stakeholder	City officials of Tarlac, Tarlac Barangay Officials of Amucao and Bantog, Tarlac City, Tarlac People's Organization, Farmer's Association, Non-Government Organization, Homeowner's Association, Transport Group including the Project Affected Persons (PAPs)			
Purpose of Meeting: To introduce the CLLEX Project; To confirm and revise Scoping Matrix; To gather and address the queries and concerns of the participants; and To conduct survey interview				
Name	Designation/Title/Role	Address	Contact number	Signature
1 Engr. Sergio N. Dizon	Engr. III-PDD	DPWH Region III		
2 Engr. Fernando Dongca	District Engineer	Tarlac Sub District Office, Concepcion, Tarlac		
3 Engr. Edna Galora	Chief of Planning and Design	Tarlac Sub District Office, Concepcion, Tarlac		
4 Engr. Florencio Rey Alano	PMO-BOT	DPWH NCR Comp. 2nd St. Port Area, Manila		
5				
6 Ms. Annabelle N. Herrera	EIA & RAP Team Leader	Ecosyscorp, Inc, Quezon City	951-40-59	
7 Mr. Arriz James N. Herrera	V.P. - Operations	Ecosyscorp, Inc, Quezon City	951-40-59	
8 Engr. Raul A. Fellizar	RAP Team Member	Ecosyscorp, Inc, Quezon City	951-40-59	
9 Mr. Joseph T. Vargas	RAP Team Member	Ecosyscorp, Inc, Quezon City	951-40-59	
10 Ms. Felicia G. Rubianes	RAP Team Member	Ecosyscorp, Inc, Quezon City	951-40-59	
11 Ms. Maricel P. Rolda	RAP Team Member	Ecosyscorp, Inc, Quezon City	951-40-59	
12 Ms. Crisley Ian V. Diot	RAP Team Member	Ecosyscorp, Inc, Quezon City	951-40-59	



# ATTENDANCE SHEET

## Information, Education, Communication Meeting Central Luzon Link Expressway Project (CLLEX) Phase 1

Meeting #:		Date: July 27, 2011	Time: From 1400 To 1600	Venue: City Hall of Tarlac, Province of Tarlac	
Type of stakeholder		City officials of Tarlac, Tarlac Barangay Officials of Amucaao and Bantog, Tarlac City, Tarlac including the Project Affected Persons (PAPs) People's Organization, Farmer's Association, Non-Government Organization, Homeowner's Association, Transport Group			
Purpose of Meeting: To introduce the CLLEX Project; To confirm and revise Scoping Matrix; To gather and address the queries and concerns of the participants; and To conduct survey interview					
	Name	Designation/Title/Role	Address	Contact number	Signature
13	Mr. Carlito Alcober	EIA Team Member	Ecosyscorp, Inc, Quezon City	951-40-59	
14	Mr. Glenn A. Alpez	EIA Team Member	Ecosyscorp, Inc, Quezon City	951-40-59	
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					

# ATTENDANCE SHEET

## Information, Education, Communication Meeting Central Luzon Link Expressway Project (CLLEX) Phase 1

Meeting #: 2		Date: July 27, 2011	Time: From 1400 To 1600	Venue: City Hall of Tarlac, Province of Tarlac	
Type of stakeholder		City officials of Tarlac, Tarlac Barangay Officials of Amucan and Bantog, Tarlac City, Tarlac including the Project Affected Persons (PAPs) People's Organization, Farmer's Association, Non-Government Organization, Homeowner's Association, Transport Group			
Purpose of Meeting: To introduce the CLLEX Project; To confirm and revise Scoping Matrix; To gather and address the queries and concerns of the participants; and To conduct survey interview					
Name	Designation/Title/Role	Address	Contact number	Signature	
25 Hon. Gelacio Mapalang / MR. RUBEN SANTOS	Mayor / CITY ADMINISTRATION Representative	CITY ADMIN. / CITY GOV'T. OF TARLAC	0978-758-0017	[Signature]	
26 Hon. Miguel A. Tañedo	Vice Mayor				
27 Mr. Ruben Santos	City Administrator				
28 Ms. Emmy Lou Sicangco					
29 Ms. Janet Pineda / MS. APRIL GERFI CANLAS	City Planning & Devt. Officer / Statistician II	Representative	800-0311 09284516707	[Signature]	
30 Ref. Edgar Alan Pallas (Engr. Jose M. Dungca)	City Engineer CEO		982 0678	[Signature]	
31 Ms. Carmelita Reyes	City Assessor				
32 Ms. Lynn Paz T. Dela Cruz	City Treasurer				
33 MR. CLEMENTE G. CALIBUNGA	PB - Amucan	PRBY CAPTAIN	0949281579	[Signature]	
34 MS. ESTRELLA G. NAVARRO	PB - Bantog				
35	City Agrarian Reform Officer				
36 MARGARITA G. DE PANO - Representative	City Agriculturist	City Agriculture office - Tarlac City	982-6560	mgdipano	



# ATTENDANCE SHEET

## Information, Education, Communication Meeting Central Luzon Link Expressway Project (CLLEX) Phase 1

Meeting #:	Date: <b>July 27, 2011</b>	Time: From <b>1400</b>	To <b>1600</b>	Venue: <b>City Hall of Tarlac, Province of Tarlac</b>
Type of stakeholder	City officials of Tarlac, Tarlac Barangay Officials of Amucan and Bantog, Tarlac City, Tarlac including the Project Affected Persons (PAPs) People's Organization, Farmer's Association, Non-Government Organization, Homeowner's Association, Transport Group			
Purpose of Meeting: To introduce the CLLEX Project; To confirm and revise Scoping Matrix; To gather and address the queries and concerns of the participants; and To conduct survey interview				

	Name	Designation/Title/Role	Address	Contact number	Signature
37	Raul Meniclie	TARLODA	MAPALACSIAS T. C		
38	NESTOR REYES	TARLODA	MAPALACSIAS T. C		
39	JOEL CABRETA	TARLODA	MAPALACSIAS T. C	09499720071	
40	Viviana A. Lactatoo	DAR	Provincial Agrarian Reform Office	09175142518	
41	CATHERINE V. PARADAN	D.A.	TARLAC CITY	09062503825	
42	Rolly P. Gonzales	CAT <sup>Conf. - Amucan de Tarlac</sup>	Adm. Division, Tarlac City	(005) 9211055	
43	ROLDAN B. LANUZA	KPI Comm GRP	TARLAC CITY	09202124771	
44	RAMIL M. PINEDA	KALAYAN PHILS. INC Comm. Group	" "	09156044611	
45	CATHERINE P. OAMER	ADMIN. OFFICER II	CLM COUNCIL OF PMNL / Admin. Office	9821305	
46	MARY ANN Z. SANTOS	ADMIN OFFICE			
47	FERNANDO DAVILA	BORG TROVADOR	AMUCAN, TARLAC CITY	09994913411	
48	MARIA DULCE SANTOS	CORPORATE SOCIAL RESP. OFFICER	CENTRAL AMUCAN & TARGA	0917347777	

# ATTENDANCE SHEET

## Information, Education, Communication Meeting Central Luzon Link Expressway Project (CLLEX) Phase 1

Meeting #:	Date: July 27, 2011	Time: From 1400 To 1600	Venue: City Hall of Tarlac, Province of Tarlac
Type of stakeholder	City officials of Tarlac, Tarlac including the Project Affected Persons (PAPs) Barangay Officials of Amucao and Bantog, Tarlac City, Tarlac People's Organization, Farmer's Association, Non-Government Organization, Homeowner's Association, Transport Group		
Purpose of Meeting: To introduce the CLLEX Project; To confirm and revise Scoping Matrix; To gather and address the queries and concerns of the participants; and To conduct survey interview			

	Name	Designation/Title/Role	Address	Contact number	Signature
49	JOJO BRUNAS	EA	mayor's office		
50					
51					
52					
53					
54					
55					
56					
57					
46					
58					
59					

Meeting #: 6	Date: July 28, 2011		Time: From 1000 To 1200	
Venue: Municipal Hall of Zaragoza, Province of Nueva Ecija				
Type of stakeholder: Municipal Officials of Zaragoza, Nueva Ecija, Barangay Officials of Sta. Lucia Young, and Sta. Lucia Old, People’s Organization, Farmer’s Association, Non-Government Organization, Homeowner’s Association, Transport Group				
Attendances: PAPs (M -) (F - ); LGU (M -15 ) (F -5 ); CBO (M - ) (F -1 ); GO (M-1) (F - ); NGO (M - ) (F - ); DPWH (M -3 ) (F - ); Ecosyscorp. Inc. (M -5 ) (F -4 )				
Purpose of Meeting: To introduce the Project; To confirm and revise Scoping results and foreseeable negative effect by the Project; To agree on environmental study parameters; To agree on social study parameters; To explain to the stakeholders the procedures involved in RAP preparation; To allow stakeholders to express their ideas, apprehensions, concerns, and objections.				
Summary of meeting: Welcome Remarks by Hon. Lovella DG Belmonte-Espiritu; Introduction of Participants headed by Ms. Crisley Ian V. Diot; Objectives of the meeting and study explained by Ms. Annabelle N. Herrera; Presentation of Project Description, Alignment and Design was presented by Ms. Annabelle N. Herrera; Open Forum was lead by Ms. Felicia G. Rubianes and Closing Remarks was addressed by Hon. Francisco Llena Gabriel, Jr.				
Output of meeting: Attendance Sheet and Photographs				
Name(organization)		Issues	Responses	
Ms. Yolanda D. Angeles Municipal Assessor:		What is just compensation if the government is going to acquire the property? What will be the system of payment?	In the 80’s we have Presidential Decree (PD) 1533 and Executive Order (EO) 1035 wherein we had a process of paying or Just compensation. The latest is last 2000 which is Republic Act 8974 which covers all National Infrastructure Projects. Unfortunately, it doesn’t cover	

		<p>non-DPWH projects. If it is a project of the provincial or local municipal, we follow PD 1533. The basis for the pricing of the land is based on tax declaration which is low. Republic Act 8974 Year 2000 was made because we can't comply with the conditions of loan institutions like World Bank, Asian Development Bank (ADB) and JICA. They are criticizing our way of paying because they said it is not just and fair. But the law does not cover all. It only covers national roads implemented by DPWH. CLLEX project under DPWH is covered by Republic Act (RA) 8974. The valuation is based on BIR zonal value. But the problem with the BIR zonal value is it is not updated that's why it is low. Based on RA 8974, DPWH will base it on the BIR zonal valuation. They could also ask the owners if they are willing to donate it. But if they are not willing to donate it, the first offer will be the BIR Zonal. If the owner doesn't agree because it's low, DPWH will request the assessor to convince the appraisal committee to have a new prevailing price. But if there is still no agreement, they can have a second opinion by hiring a private and independent land appraiser. In terms of land, we will implement RA 8974 since it covers the CLLEX project.</p>
Municipal Assessor: Ms. Yolanda D. Angeles	<p>What if the property is cut in half because of the highway?</p> <p>How can we go to the other side? We will pass thru a longer route to go to the other side. Can the government pay for it too?</p>	<p>DPWH has guidelines for that. The <b>Land Acquisition Resettlement Rehabilitation and Indigenous People Policy (LARRIPP)</b> . There is a guideline that if more than 20% is taken or the remaining is not economically viable anymore, the whole land will be paid if the remaining portion is already useless. We will ask the help of the LGU, for you to recommend areas where a lot will be crossing so that we can recommend areas to put a crossing under. It is a culvert where even</p>

		hand tractors can pass thru. We can add more culverts if you need more.
Engr. Benigno Tolentino-Chief of Planning and Design Officer, DPWH 1 <sup>st</sup> District Nueva Ecija	Additional explanation for assessor's question	In addition to what Engineer in the regional office said, I think I have my own analysis about what he said. The regional office has Flood Control. We identified the beneficiaries where the Flood control passed thru and the priority was the financial assistance which is up to now some are still claiming. Some are still getting documents and some really hasn't been paid yet. The government releases only 10% of the total for every claimant every year to be able to pay all the affected. We had an experience before with the right-of-way way back in 1977 but until now he is still claiming. The problem is the owner wants the prevailing price now but it's wrong. The regulation says that it should be based on when the government acquired the land and what is declared on the tax declaration. I hope with this project we will not encounter any problem and all right-of-ways will be paid before the start of the project. The process of claiming is not that easy and fast. We need to follow the guidelines on how the claimants will be paid. Let us help one another with this project and I hope that we will not encounter any problem with the right-of-way.
		For clarification, the prescription is in the Department Order. Existing road for the last 30 years is in Department Order Number 5, they cannot issue Notice to Proceed or Notice to Award to the contractor as long as it is not yet done and the right-of-way is paid.
Hon. Lovella DG Belmonte-Esiritu- Mayor of Zaragoza, Nueva Ecija	Does the land owners have the right to refuse the government?	Unfortunately, they don't have. The government can exercise their right of eminent domain. In the process to acquire ROW, first: DPWH will try to negotiate. If the owner will not agree with the appraiser committee

		and independent land appraiser committee, they will file an expropriation proceeding to the court, Office of the General or Regional Trial Court. If DPWH can show to the court a Certificate of Availability of Fund (CAF), the judge can issue a Write of Position (WOP). Once WOP is released, DPWH can now demolish all the structures. The release of WOF proves that DPWH has the capability to pay and is exercising its right of eminent domain. In PD 1533, implemented in the local government, the owners only receive a downpayment. The good thing about RA 8974 is that based on the law, 100% is paid.
Hon. Lovella DG Belmonte-Esiritu- Mayor of Zaragoza, Nueva Ecija Mayor	Is there enough time to process the documents and the landowners to be paid? What if we encounter problems not with the landowners but with those who will process?	It is true as what Engineer said a while go that the process is long. According to DPWH, there will only be a delay if the owners will not secure the right documents. That is when the process will take long because COA also checks DPWH. They are strictly implementing the Department Order because there are instances where it is not transferred after DPWH pays the landowner. That's why DPWH is strict in validation. The good thing about JICA, is they don't allow the project to start unless all right-of-ways are paid. DPWH checks first if they have the capacity to pay the right-of-way before they loan. The lenders have a different policy now because before they release the loan even if the right-of-way is not yet paid which often leads to the cancellation of the project which also leads to higher debts due to dollar rate. To avoid that, DPWH ensures that all right-of-ways are cleared before they start the project.
Mr. Clemente Fernando	How are they going to pay the	Their agreement should be registered. If their agreement is verbal, the



DAR - MARO	affected tenants and landowners?	government will have a hard time determining which is which. For example 30/70. If 30% is for the tenant, DPWH will give it to the tenant but they will ask the owner to sign an agreement saying that he can't claim that anymore.
		Aside from the payment that the tenants will receive, they will also receive financial assistance based on the guidelines of DPWH. They are strict with the validation. Before they are accepting tax declarations, but now they changed it according to their new Department Order. If they have an agreement, the owner will be the certifier only then they will make a contract stating that that is their agreement. It is much better that they have a contract because one might say it is 30/70 then the other 50/50.
Agustin DG. Bao, Jr. Brgy. Captain, Sta. Lucia Old	Asked regarding the lower portion of Sta. Lucia Old. What will be suitable for flooded area, if it is embankment.	You have a good question about flooding. The design that the Engineers used is what they the equalizer. These are box culverts side by side to ensure the proper passage of water. They will put equalizers on the flood prone areas.
Hon. Lovella DG Belmonte-Esiritu- Mayor of Zaragoza, Nueva Ecija Mayor	How does the CLLEx Project become beneficial to the Municipality? She requested also for on and off ramp for Zaragoza.	As what I have said, there is no interchange here in Zaragoza. We will relay this to our Team Leader but I will also give an explanation on how do we get an interchange and on and off ramp. The project also goes thru the National Economic Development Authority o NEDA. NEDA is very strict when it comes to the government's project if it has economic development. The interchanges are based on the needs. One thing they consider is the high traffic count in the area. If there is high traffic in the area, that is when they plan to put up an interchange. An example is

		<p>one from Aliaga questioned why is there an interchange in San Juan if it is not useful there. That's the only way from the lower Cabanatuan to pass thru CLLEX. They will connect San Juan interchange to the Cabanatuan City Bypass. I also explained it to the Municipality of La Paz because they also don't have. It depends with DPWH if they will see that it is economical to construct an interchange. I told Mayor that if you have a study to show that there is high volume here then they might allow it. In the future they might put additional structure if they see that there is an increase in the demand to go to CLLEX. We will relay your concern in La Paz and Zaragoza regarding off and on ramp. DPWH will decide on that and based on the recommendation of our Study Team Leader.</p>
	<p>The land area of Zaragoza and the barangays will be lessened once the government acquires the land from the CLLEX project.</p>	<p>The land area will not be lessened. If the population increases that is where ERA will base. Tdtt6figy</p>
Ms. Yolanda D Angeles Municipal Assessor	<p>I hope the high traffic of transporters who avoid SCTEx will not be affected.</p>	<p>We will raise your concern if we can have access in La Paz and Zaragoza.</p>
	<p>Are there any requirements in the payment of land? Because almost all landowners doesn't have a title just tax declaration. Are the owners</p>	<p>There is a law that we follow if the mother title is from a free-patent or Commonwealth Act (AC) 141, there is an annotation in the title. The government has the right to get 50 meters but once only. If the government got the 10 meters from you, they can't get the remaining 40 meters anymore. If the mother title of your land is a free-patent only,</p>

	going to be paid if the titles are free-patent only?	they will not pay for your land but instead make improvements only. The condition of the government for right-of-way is you need to give 50 meters. Before it was 20 meters now they made it 50 meters. The characteristic of the land can be inherited. If your land is bought prior to 1976, 20 meters only.
Mr. Senando Bao Barangay Captain of San Rafael	What if the government will acquire almost 50, what if almost everything is gone?	The case of the free-patent Commonwealth Act 141 is controversial because the different regions of DPWH are not united in terms of the payment system. There are some district who pay by percentage and definitely it is not 100%. But there are also some districts wherein they give a certain percentage even if it is 141. It is said in the new Department Order 14 series of 2006 that they will be very strict in terms of the validation of claim. In other regions they pay 90%, 60% and some they don't at all.
Mr. Clemente Fernando DAR - MARO	How many generations will DPWH trace back in the transfer of title to acquire right-of-way?	According to the law, if CA 141 is applied in TCTA and it is where it came from, they will transfer it because by law it inherited the annotations if CA 141.
	Clarifies pre-patent title. If passed, does this mean it is going to be regular title already?	Register of Deeds can't do anything with it because based by the law, it was inherited based on CA 141. I'm talking about the characteristics of the annotation. It is clear that CA 141 states that only 20 meters. During the time of Marcos, he issued Presidential Decree (PD) to make it 50 meters from 20 meters. One requirement of the DPWH to the parcellary surveyor is to trace the mother title.
Engr. Benigno Tolentino-Chief of Planning and Design Officer,		If you have any other questions, they can answer you but as what I have said we only handle the payments. It is true that a lot are not paid.

DPWH 1 <sup>st</sup> District Nueva Ecija		That's why with this project, we will have a certain division who will handle all the claimants.
		Closing remarks addressed by Hon. Vice Mayor Francisco Llena Gabriel, Jr.



Registration started at 1000



Zaragosa Municipal Mayor Lovella DG Espiritu delivering her welcome remarks



Ms. Crisley Ian Diot of Ecosyscorp. Inc. introducing the participants



Ecosyscorp., Inc. EIA and RAP Team Leader Ms. Annabelle Herrera explaining the objectives of the IEC Meeting and objectives of the study and the presentation of CLLEX Project design and alignment



Barangay Capt. of Sta. Lucia Old Mr. Agustin DG Bao, Jr. raising his concern on flooding



DPWH Tarlac District Chief Planning Design Officer Engr. Benigno Tolentino responding to some queries raised during the open forum



DPWH Region 3 Representative Engr. Sergio N. Dizon answering the query on land compensation



Ms. Emerciana Flores Senior Citizen Representative questioning the assurance of just compensation



Municipal Assessor of Zaragosa Ms. Yolanda D. Angeles inquiring on the basis of compensation



Municipal Mayor Lovella DG Espiritu requesting to provide an on and off ramp in Zaragosa for it's development



PAPs Mr. Senando Bao inquiring on the remaining land not viable for farming



Municipal Agrarian Officer Mr. Clemente Fernando asking on the compensation for tenants





Vice Mayor Hon Francisco giving his closing remarks

# **P R O G R A M M E**

## **Information, Education & Communication (IEC) Meeting Municipal Level**

### **DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS PROPOSED CENTRAL LUZON LINK EXPRESSWAY (CLLEX) PROJECT**

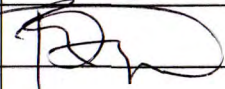
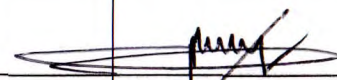

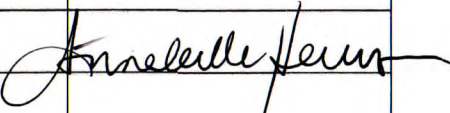
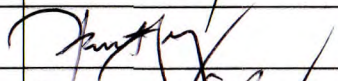

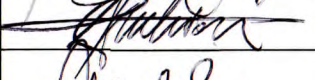

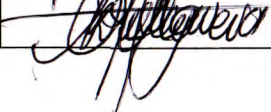
Venue: Municipal Hall, Municipality of Zaragosa, Province of Nueva Ecija  
1000 – 1200HH, July 28, 2011

I. Registration	1000 – 1015HH	Municipal Hall
II. Welcome Remarks		Hon. Lovella DG. Belmonte-Espiritu <i>Municipal Mayor</i>
III. Introduction of Participants		Ms. Crisley Ian V. Diot <i>Ecosyscorp, Inc.</i>
IV. Objectives of the Meeting		Ms. Annabelle N.Herrera <i>Ecosyscorp Inc.</i>
V. Presentation of the Project		Ms. Annabelle N. Herrera <i>Ecosyscorp, Inc.</i>
VI. Objectives and Activities of the Study		Ms. Annabelle N. Herrera <i>Ecosyscorp, Inc.</i>
VII. Open Forum:		Ms. Felicia G. Rubianes <i>Ecosyscorp, Inc.</i>
VIII. Closing Remarks		Hon. Francisco Llena Gabriel, Jr. <i>Municipal Vice Mayor</i>

# ATTENDANCE SHEET

## Information, Education, Communication Meeting Central Luzon Link Expressway Project (CLLEX) Phase 1

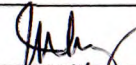
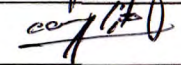
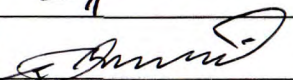
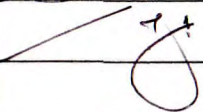
Meeting #:	Date: July 28, 2011	Time: From 1000	To 1200	Venue: Municipal Hall of Zaragosa, Nueva Ecija
Type of stakeholder	City officials of Zaragosa, Nueva Ecija, Barangay Officials of Sta. Lucia Young, and Sta. Lucia Young, Zaragosa, Nueva Ecija People's Organization, Farmer's Association, Non-Government Organization, Homeowner's Association, Transport Group			
Purpose of Meeting: To introduce the CLLEX Project; To confirm and revise Scoping Matrix; To gather and address the queries and concerns of the participants; and To conduct survey interview				

Name	Designation/Title/Role	Address	Contact number	Signature
1 Engr. Sergio N. Dizon	Engr. III-PDD	DPWH Region III	455 0648	
2 Engr. Fernando Dongca	District Engineer	Tarlac Sub District Office, Concepcion, Tarlac		
3 Engr. Edna Galora	Chief of Planning and Design	Tarlac Sub District Office, Concepcion, Tarlac		
Engr. Benigno Tolentino	Chief Planning	DPWH, NE I District		
4 Engr. Amado Guevarra	DPWH	NE I District		
5 Engr. Florencio Rey Alano	PMO-BOT	DPWH NCR Comp. 2nd St. Port Area, Manila		
6 Ms. Annabelle N. Herrera	EIA & RAP Team Leader	Ecosyscorp, Inc, Quezon City	951-40-59	
7 Mr. Arriz James N. Herrera	V.P. - Operations	Ecosyscorp, Inc, Quezon City	951-40-59	
8 Engr. Raul A. Fellizar	RAP Team Member	Ecosyscorp, Inc, Quezon City	951-40-59	
9 Mr. Joseph T. Vargas	RAP Team Member	Ecosyscorp, Inc, Quezon City	951-40-59	
10 Ms. Felicia G. Rubianes	RAP Team Member	Ecosyscorp, Inc, Quezon City	951-40-59	
11 Ms. Maricel P. Rolda	RAP Team Member	Ecosyscorp, Inc, Quezon City	951-40-59	
12 Ms. Crisley Ian V. Diot	RAP Team Member	Ecosyscorp, Inc, Quezon City	951-40-59	



# ATTENDANCE SHEET

## Information, Education, Communication Meeting Central Luzon Link Expressway Project (CLLEX) Phase 1

Meeting #:		Date: July 28, 2011	Time: From 1000 To 1200	Venue: Municipal Hall of Zaragosa, Nueva Ecija	
Type of stakeholder		City officials of Zaragosa, Nueva Ecija, Barangay Officials of Sta. Lucia Young, and Sta. Lucia Young, Zaragosa, Nueva Ecija People's Organization, Farmer's Association, Non-Government Organization, Homeowner's Association, Transport Group			
Purpose of Meeting: To introduce the CLLEX Project; To confirm and revise Scoping Matrix; To gather and address the queries and concerns of the participants; and To conduct survey interview					
Name		Designation/Title/Role	Address	Contact number	Signature
13	Mr. Glenn A. Alpez	EIA Team Member	Ecosyscorp, Inc, Quezon City	951-40-59	
14	Mr. Carlito Alcober	EIA Team Member	Ecosyscorp, Inc, Quezon City	951-40-59	
15	CLEMENTE FERNANDO	MARO - ZARAGOZA	ZARAGOZA, N. ECJA	4195 0908-862	
16	RENATO S. MELLANOSA JR	KRMO II	DAR MORA N. E. PROV'L. OFFICE		
17					
18					
19					
20					
21					
22					
23					
24					



# ATTENDANCE SHEET

## Information, Education, Communication Meeting Central Luzon Link Expressway Project (CLLEX) Phase 1

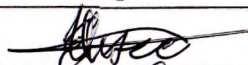
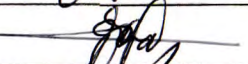
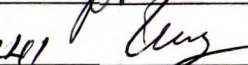

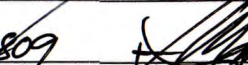
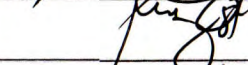
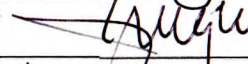
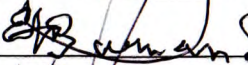
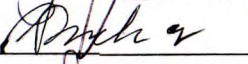
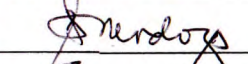
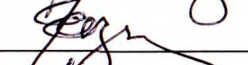
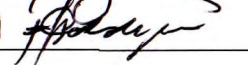
Meeting #:		Date: July 28, 2011	Time: From 1000	To 1200	Venue: Municipal Hall of Zaragosa, Nueva Ecija
Type of stakeholder		City officials of Zaragosa, Nueva Ecija, Barangay Officials of Sta. Lucia Young, and Sta. Lucia Young, Zaragosa, Nueva Ecija People's Organization, Farmer's Association, Non-Government Organization, Homeowner's Association, Transport Group			
Purpose of Meeting: To introduce the CLLEX Project; To confirm and revise Scoping Matrix; To gather and address the queries and concerns of the participants; and To conduct survey interview					
Name		Designation/Title/Role	Address	Contact number	Signature
25	Hon. Lovella DG Belmonte-Espiritu	Mayor		09193202016	Ult
26	Hon. Francisco Llana Gabriel, jr.	Vice Mayor		0928-7809478	P. A. G. G. G.
27	Ms. Erlinda A. Gasapos	Municipal Administrator			
28	Mr. Josefino M. Reyes	Municipal Planning & Devt. Officer		09192453294	
29	Ms. Yolanda D. Angeles	Municipal Assessor		09173238930	
30	LIBERTY C. PORTUGAL	Municipal Treasurer		0917587-7675	
31	Mr. Agustin DG. Bao, Jr.	PB -Sta. Lucia Old	Sta. Lucia Old	09268635140	
32	Ms. Evangeline D. dela Cruz	PB -Sta. Lucia Young	Sta. Lucia Old Zaragosa, N.E.	09494145403	
33		Municipal Agrarian Reform Officer			
34	CORAZON DL DASILG	Municipal Agriculturist	REPRESENTATIVE CGU-Zaragosa	6916-5018192	elderly
35	EDWIN A BUENDIA	S	ABC PRESIDENT	09272382106	Bar. G. G. G.
36	RODOLFO A. BUENDIA	SB member	Zaragosa	0927-8658744	



# ATTENDANCE SHEET

## Information, Education, Communication Meeting Central Luzon Link Expressway Project (CLLEX) Phase 1

Meeting #:	Date: <b>July 28, 2011</b>	Time: From 1000	To 1200	Venue: <b>Municipal Hall of Zaragosa, Nueva Ecija</b>
Type of stakeholder	City officials of Zaragosa, Nueva Ecija, Barangay Officials of Sta. Lucia Young, and Sta. Lucia Young, Zaragosa, Nueva Ecija People's Organization, Farmer's Association, Non-Government Organization, Homeowner's Association, Transport Group			
Purpose of Meeting: To introduce the CLLEX Project; To confirm and revise Scoping Matrix; To gather and address the queries and concerns of the participants; and To conduct survey interview				

Name	Designation/Title/Role	Address	Contact number	Signature
37 EDWIN VELASCO	EIA TEAM MEMBER	ECOSYS CORP., INC.	951-90-59	
38 SESINANDO DA BAO	Brgy Captain	San Rafael 1, Zar. N.E.	09053082865	
39 LEODY M BACTAT	ZAFETO DA	CONCEPCION ZAR NE	09208553641	
40 MARCELO M. MENDOZA	AT/MCDO	LGU - ZARAGOZA		
41 FLORENTINO M. REGANAN	S.B. MEMBER	LGU - ZARAGOZA	0918-559-7809	
42 ROSE DC. ESTERAN	SB member	LGU - Zar.	09178701100	
43 GEORGE P. BATA	SB member	Zaragon NE	0949476480	
44 EMERENCIANA BUMANLAG	LANDOWNER	San Vicente, Zar. N.E.	-	
45 PABLO BUMANLAG		STALUCIA (O) ZAR NE.		
46 SKLY S. MENDOZA	MUN. ENGR.	LGU - ZARAGOZA	09171667376	
47 ERIC A. RAMON	Brgy Captain	San Vicente		
48 FELIPE CALDERON	REPR. LGU	STALUCIA (O) ZAR NE.	09121306999	



Meeting #: 7	Date: July 28,2011	Time: From 1400 To 1630
Venue: ABC Session Hall, 3 <sup>rd</sup> Floor, La Paz, Tarlac		
Type of stakeholder: Municipal Officials of La Paz, Tarlac, Project Affected Persons and Barangay Officials of Macalong, Guevarra and Laungcupang, People's Organization, Farmer's Association, Non-Government Organization, Homeowner's Association, Transport Group		
Attendances: PAPs (M -26) (F -20 ); LGU (M -5 ) (F - ); CBO (M - ) (F - ); GO (M-) (F - ); NGO (M - ) (F - ); DPWH (M - ) (F - ); Ecosyscorp. Inc. (M -4 ) (F -5 )		
Purpose of Meeting: To introduce the Project; To confirm and revise Scoping results and foreseeable negative effect by the Project; To agree on environmental study parameters; To agree on social study parameters; To explain to the stakeholders the procedures involved in RAP preparation; To allow stakeholders to express their ideas, apprehensions, concerns, and objections.		
Summary of Meeting: Welcome Remarks by Mayor Michael Manuel ; Introduction of Participants headed by Maricel Rolda; Objectives of the meeting and study explained by Annabelle Herrera; Presentation of Project Description, Alignment and Design was presented by Engr. Raul Felizar; Open Forum was lead by Felicia Rubianes and Closing Remarks was addressed by Engr. Marito Nicolas		
Output of meeting: Attendance Sheet and Photographs		
Name(organization)	Issues	Responses
Mr. Edgar Delas Llagas PAPs- Brgy. Guevarra	What will happen if the roads will pass thru the irrigation system and there is a pump system that will be affected?	We will put an equalizer under so that the flow of water will not be interrupted.
	Will the irrigation be still the same?	The irrigation will still be the same. We will also put a passageway for the maintenance of the irrigation canal.
Mr. Luis Umipig –	As we all know, La Paz is a flood basin,	All areas will be observed first before road construction starts.

PAPs Brgy. Guevarra	if you will put embankment, La Paz will be submerged in water because the irrigation is closed.	For areas with Irrigation, we will put an equalizer to ensure that the flow of water will not be affected
Mr. Severino Depona	What will happen to our livelihood if it will be affected by the project?	DPWH has guidelines wherein if the land left will be useless, then the owner will also be compensated.
	How much is the price of the land? What will happen to our houses?	According to R.A. 8974, the basis of DPWH for land pricing is the BIR zonal value. If the owner doesn't agree with the price, DPWH will ask the Municipal government to convene an appraisal committee which is composed of the municipal assessor who will get the prevailing price of the land. If the landowner still doesn't agree with the price, DPWH will hire a private appraiser. In terms of the houses affected, DPWH will pay the houses affected based on how much will it cost if they were to put up that kind of house, it is also based on the prices of the materials used and labor cost
	What if there is no land for relocation?	We are already coordinating with the LGU if they could find a land for relocation. That's why we're advising everyone to keep the money when the time comes that all of you will receive for relocation.
Mr. Salvador Calilung PAPs	For example, one hectare of land will be affected by the CLLEX project, how can we buy a new land if land compensation is too low?	The Assessor knows how much is the selling price of lands. DPWH will coordinate with them for the appraisal committee.
Mr. Edgar Delas Llagas PAPs- Brgy. Guevarra	Can the CLLEX project be diverted to the irrigation canal in the right side	All data available in your Municipality will be gathered to be used as basis for the design of road structures and to know the existing

	because there are no houses there just rice lands?	infrastructures in the area, irrigation canal and pumping stations. All of those will not be affected because we will put box culverts.
Ms. Ma. Susan Albina	The land that I bought doesn't have a land title, just a deed of sale. Where will the land payment go?	Deed of sale is enough proof that you can have the payment. You just need to have it registered first.
Mr. Eremeteo Alipio	If box culverts will be used for irrigation, will our farm lands be broken because there is a strong flow of water and houses beside the irrigation will sink?	We have informed the Highway engineer who designed the road to put a control in the equalizer to control the flow of water. We can put another blockage to avoid direct impact to the land.
	Can you put viaduct instead?	The price of viaduct is ten times the price of embankment and we are looking on the economic return in the country. NEDA is closely monitoring all loans of the country if in return there is a big economic development in the Philippines.
Ms. Rowena Clemente PAPs Brgy. Macalong	The land that our family and siblings are plowing is just enough for the food of our family for the whole year. What will happen to our family if we don't agree to sell our land?	If a small part of the land will be left, DPWH will pay for it. But if you can still use it, they won't pay for it. Only the acquired land will be paid. If JICA will finance the project, according to international guidelines, it is necessary to pay disturbance compensation. DPWH cannot pay that is not within the law and if it is not approved by COA. In our law, disturbance compensation is not included in the revenue lost. If you don't comply, the government has the power of eminent domain. DPWH will make an offer and if in case you don't agree, a case will be filed to the solicitor general in the court. Once DPWH proves that they have the funds to pay for the land, The court will issue Writ of

		Possession (WOP) to start the demolition. Good thing in R.A. 8974, while there are expropriation proceedings, they give 100% while there is still a case. If you think that the compensation given by DPWH is still not enough, you can provide evidence that you should be paid higher and if you can prove it to the court. Then the court will give an order to the DPWH to pay whatever amount is fair.
Mr. Herbert Crescosa- PAPs Brgy. Guevarra	What if the land will be divided? Do we need to go around to go to the other side?	We recommend to the Brgy. Captains of each barangay to look for areas where we can put an underground passage for farm service and animal use. It will be included in the list of recommendation to be given to DPWH for the additional passageway.
Mr. Eremeteo Alipio – Brgy. Guevarra	Are the trees planted going to be paid? Will the trees planted be paid?	All trees especially fruit bearing trees will be paid according to the price issued by Department of Agriculture. But only few are covered by the law.
Ms. Ma. Lita Pagaduan	Can we request that the alignment avoid the houses?	Someone will always be affected anywhere you move the alignment. The only difference is who will be affected.
Mr. Luis Umipig	What if we do not own the land?	Whoever paid for the construction of the house will receive the payment for the house. If it has a different owner, a waiver will be signed saying that he will not claim any money for the construction of the house but the payment for the land will be given to the owner.
Ms. Ma. Susan Albina	What if the land is mortgaged?	If you have a written agreement it can be filed to DPWH. DPWH will settle the loan with the bank. Then DPWH will deduct to the total amount the owner will receive the amount that they paid for the loan.

Mr. Luis Umipig	Will the tenants be given relocation?	We will coordinate with the Municipality to look for them a land to work with and a relocation for housing. If the Municipality allows it, maybe they can provide a land and house of their own which will be paid in installment and affordable price.
	When will be the start of payment for the acquired land?	DPWH will inform you when will be the start of the payment of the lands but as of now they are still studying the project.



PAPs registering which started at 2:00



Mayor Michael Manuel delivering his welcome remarks



Ms. Maricel Rolda introducing the participants



Ms. Annabelle Herrera EIA & RAP Team Leader explaining the objectives of the meeting and the study



Engr. Raul Fellizar RAP Team Member presenting the CLLEX Project design and alignment



Mr. Edgar delas Llagas – PAPs Brgy. Guevarra inquiring on the effect of the project on irrigation since the road is in embankment





Mr. Salvador Calilung – PAPs worrying that they cannot buy another land because the payment of the LGU in purchasing the land to be affected is very low



Mr. Eremeteo Alipio PAPs Brgy. Guevarra saying that the box culvert may cause more flood and damage the riceland



Ms. Rowena Clemente – PAPs inquiring if they can refuse to the government from taking their land



Mr. Herbert Cruscosa- PAPs inquiring if there will be service road for the land that will be divided into half



Mr. Severino Depona – PAPs expressing his fears that the piece of land they are cultivating and source of their livelihood will be lost due to the project



Mr. Luis Umipig – PAPs Brgy. Guevarra worrying that the project will result into food shortage



Ms. Maria Lita Pagaduan – PAPs requesting to re-align the expressway, so it won't damage any structures



Mr. Maria Susan Albina PAPs Brgy. Guevarra asking who will have the right in receiving the compensation in the case of mortgaged lands



Engr. Marito Nicolas of La Paz giving his closing remarks

# **P R O G R A M M E**

**Information, Education & Communication (IEC) Meeting  
with Project Affected Persons (PAPs)  
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS  
PROPOSED CENTRAL LUZON LINK EXPRESSWAY (CLLEX) PROJECT**

Venue: 3<sup>rd</sup> Floor, ABC Session Hall :La Paz, Province of Tarlac  
1400 – 1600HH, July 28, 2011

I. Registration	1400 – 1415HH	ABC Session Hall
II. Welcome Remarks		Hon. Michael M. Manuel <i>Municipal Mayor</i>
III. Introduction of Participants		Ms. Crisley Ian V. Diot <i>Ecosyscorp, Inc.</i>
IV. Objectives of the Meeting		Ms. Annabelle N.Herrera <i>Ecosyscorp Inc.</i>
V. Presentation of the Project		Ms. Annabelle N. Herrera <i>Ecosyscorp, Inc.</i>
VI. Objectives and Activities of the Study		Ms. Annabelle N. Herrera <i>Ecosyscorp, Inc.</i>
VII. Open Forum:		Ms. Felicia G. Rubianes <i>Ecosyscorp, Inc.</i>
VIII. Closing Remarks		Engr. Marito Nicolas <i>MEO</i>



# ATTENDANCE SHEET

## Information, Education, Communication Meeting Central Luzon Link Expressway Project (CLLEX) Phase 1

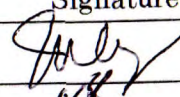
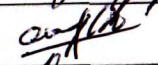
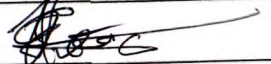
Central Luzon Link Expressway Project (CLLEX) Phase 1			
Meeting #:	Date: July 28, 2011	Time: From 1400 To 1600	Venue: ABC Session Hall of La Paz, Tarlac
Type of stakeholder	City officials of La Paz, Tarlac, Project Affected Persons (PAPs) Barangay Officials of Macalong, Guevarra and Laungcupang, La Paz, Tarlac ; Women's Sector, Senior Citizen's Sector People's Organization, Farmer's Association, Non-Government Organization, Homeowner's Association, Transport Group		
Purpose of Meeting: To introduce the CLLEX Project; To gather and address the queries and concerns of the participants; and To conduct survey interview of PAPs and Indirectly Affected Persons			

	Name	Designation/Title/Role	Address	Contact number	Signature
1	Engr. Sergio N. Dizon	Engr. III-PDD	DPWH Region III		
2	Engr. Fernando Dongca	District Engineer	Tarlac Sub District Office, Concepcion, Tarlac		
3	Engr. Edna Galora	Chief of Planning and Design	Tarlac Sub District Office, Concepcion, Tarlac		
4					
5	Engr. Florencio Rey Alano	PMO-BOT	DPWH NCR Comp. 2nd St. Port Area, Manila		
6	Ms. Annabelle N. Herrera	EIA & RAP Team Leader	Ecosyscorp, Inc, Quezon City	951-40-59	Annabelle Herrera
7	Mr. Arriz James N. Herrera	V.P. - Operations	Ecosyscorp, Inc, Quezon City	951-40-59	
8	Engr. Raul A. Fellizar	RAP Team Member	Ecosyscorp, Inc, Quezon City	951-40-59	
9	Mr. Joseph T. Vargas	RAP Team Member	Ecosyscorp, Inc, Quezon City	951-40-59	
10	Ms. Felicia G. Rubianes	RAP Team Member	Ecosyscorp, Inc, Quezon City	951-40-59	
11	Ms. Maricel P. Rolda	RAP Team Member	Ecosyscorp, Inc, Quezon City	951-40-59	
12	Ms. Crisley Ian V. Diot	RAP Team Member	Ecosyscorp, Inc, Quezon City	951-40-59	



# ATTENDANCE SHEET

## Information, Education, Communication Meeting Central Luzon Link Expressway Project (CLLEX) Phase 1

Meeting #:	Date: July 28, 2011	Time: From 1400 To 1600	Venue: ABC Session Hall of La Paz, Tarlac	
Type of stakeholder	City officials of La Paz, Tarlac, Project Affected Persons (PAPs) Barangay Officials of Macalong, Guevarra and Laungcupang, La Paz, Tarlac : Women's Sector, Senior Citizen's Sector People's Organization, Farmer's Association, Non-Government Organization, Homeowner's Association, Transport Group			
Purpose of Meeting: To introduce the CLLEX Project; To gather and address the queries and concerns of the participants; and To conduct survey interview of PAPs and Indirectly Affected Persons				
Name	Designation/Title/Role	Address	Contact number	Signature
13 Mr. Glenn A. Alpez	EIA Team Member	Ecosyscorp, Inc, Quezon City	951-40-59	
14 Mr. Carlito Alcober	EIA Team Member	Ecosyscorp, Inc, Quezon City	951-40-59	
15 EDWIN A. VELASCO	- do -	- do -	- do -	
16				
17				
18				
19				
20				
21				
22				
23				
24				



# ATTENDANCE SHEET

## Information, Education, Communication Meeting

### Central Luzon Link Expressway Project (CLLEX) Phase 1

Central Luzon Link Expressway Project (CLLEX) Phase 1			
Meeting #: 2	Date: July 28, 2011	Time: From 1400 To 1600	Venue: ABC Session Hall of La Paz, Tarlac
Type of stakeholder	City officials of La Paz, Tarlac, Project Affected Persons (PAPs) Barangay Officials of Macalong, Guevarra and Laungcupang, La Paz, Tarlac ; Women's Sector, Senior Citizen's Sector People's Organization, Farmer's Association, Non-Government Organization, Homeowner's Association, Transport Group		
Purpose of Meeting: To introduce the CLLEX Project; To gather and address the queries and concerns of the participants; and To conduct survey interview of PAPs and Indirectly Affected Persons			
		Contact number	Signature

	Name	Designation/Title/Role	Address	Contact number	Signature
25	Hon. Michael M. Manuel	Mayor			
26	Hon. Miguel a. Ta	Vice Mayor			
27	Engr. Marito Nicolas	Municipal Planning & Devt. Officer	MD - LAPAZ	0906 200 894	
28	Mr. Emmanuel Mananquil	Municipal Assessor			
29	Ms. Rosalinda B. Galam	Municipal Treasurer			
30	Hon. Ernesto Manuel	ABC President			
31	Mr. Lordgie Ponce Jr.	PB - Macalong	BRGY. MACALONG	09209695052	
32	Mr. Eduardo Remegio	PB - Guevarra	GUEVARRA	09295842146	
33	Mr. Ador Pamposa	PB - Laungcupang	BRGY. Laung Cupang	09394591450	
34	Mr. Noel Regis	Department of Agrarian Reform Office			
35	Mr. Virgilio P. Antonio	Municipal Agrarian Reform Officer			
36	Ms. Jesusa V. Naveda	Municipal Agriculturist			



# ATTENDANCE SHEET

## Information, Education, Communication Meeting

### Central Luzon Link Expressway Project (CLLEX) Phase 1

Central Luzon Link Expressway Project (CLLEX) Phase 1			
Meeting #:	Date: July 28, 2011	Time: From 1400 To 1600	Venue: ABC Session Hall of La Paz, Tarlac
Type of stakeholder	City officials of La Paz, Tarlac, Project Affected Persons (PAPs) Barangay Officials of Macalong, Guevarra and Laungcupang, La Paz, Tarlac ; Women's Sector, Senior Citizen's Sector People's Organization, Farmer's Association, Non-Government Organization, Homeowner's Association, Transport Group		
Purpose of Meeting: To introduce the CLLEX Project; To gather and address the queries and concerns of the participants; and To conduct survey interview of PAPs and Indirectly Affected Persons			
		Contact number	Signature

Name	Designation/Title/Role	Address	Contact number	Signature
37 LEONORA CONCEPCION Hilda D. Concepcion	Landowner to Hilda Concepcion	Guarera, La Paz, Tarlac		
38 Severino Depona		Amucan, (La Paz) Tarlac, Tarlac		
39 Salvador Palilung		Amucan, Tarlac Tarlac		
40 Bellasera J. Dela Llaga	Landowner	Guarera La Paz		
41 EDGAR A. DE LAS LAGAS	House & Landowner	Purok 1, Guevara, LA PAZ		
42 Cipriano F. Guevara	Landowner	Purok 2, Guevara La Paz Tarlac		
43 Refencia Bencara	House & Landowner	Purok 7, Guevara LA PAZ TARLAC	09107343011	
44 EUNSTO TABUCA	House & Landowner	Purok 1, Guevara LA PAZ TARLAC		
45 SANTIAGO ALPINA	LAND OWNER	GUEVARA, LA PAZ		
46 NANI CALILUNG	LAND OWNER	LAUNGUPANG LA PAZ	09164726552	
47 LUIS B. UMIPIG	LAND OWNER CHAIRMAN TRR. COOP	GUEVARA LA PAZ TARLAC		
48 ALBERTO C. MIGUEL	Farmer	" " "		



# ATTENDANCE SHEET

## Information, Education, Communication Meeting Central Luzon Link Expressway Project (CLLEX) Phase 1

Central Luzon Link Expressway Project (CLLEX)				
Meeting #:	Date: July 28, 2011	Time: From 1400	To 1600	Venue: ABC Session Hall of La Paz, Tarlac
Type of stakeholder	City officials of La Paz, Tarlac, Project Affected Persons (PAPs) Barangay Officials of Macalong, Guevarra and Laungcupang, La Paz, Tarlac ; Women's Sector, Senior Citizen's Sector People's Organization, Farmer's Association, Non-Government Organization, Homeowner's Association, Transport Group			
Purpose of Meeting: To introduce the CLLEX Project; To gather and address the queries and concerns of the participants; and To conduct survey interview of PAPs and Indirectly Affected Persons				

	Name	Designation/Title/Role	Address	Contact number	Signature
72	Procerfina de Guzman	Structure owner	Guevara La Paz Tarlac	09073341303	Procerfina
73	Myline C. Pencil	Myline C. Pencil	Guevara La Paz Tarlac	09192570716	Mc. Pencil
74	Krene C. Martinez	Krene C. Martinez	Guevara La Paz Tarlac		Krene Martinez
75	Felmona N. Luna		Guevara La Paz Tarlac		Felmona
76	Remedio N. Lora		Guevara La Paz Tarlac		Remedio
77	Ma. Susan Albina		Guevara, LA PAZ, TARLAC		Ma. Susan Albina
78	Celia B. Cruz		Guevara, La Paz, Tarlac		Celia B. Cruz
79	Remedio B. Alipio		Guevara, La Paz Tarlac	09499576617	Remedio B. Alipio
80	Theresa M. Calilung		Amacao, Tarlac City		Theresa Calilung
81	DFelia P. Calilung		Amacao Tarlac City		DFelia P. Calilung
82	DANILO G. MARQUEZ		GUEVARA, LA PAZ, TARLAC		DANILO G. MARQUEZ
83	Dolores A. Clemente	Robert Clemente Sr. Macalong	La Paz Tarlac		Dolores A. Clemente



# ATTENDANCE SHEET

## Information, Education, Communication Meeting Central Luzon Link Expressway Project (CLLEX) Phase 1

Central Luzon Link Expressway Project (CLLEX) Phase 1			
Meeting #:	Date: July 28, 2011	Time: From 1400 To 1600	Venue: ABC Session Hall of La Paz, Tarlac
Type of stakeholder	City officials of La Paz, Tarlac, Project Affected Persons (PAPs) Barangay Officials of Macalong, Guevarra and Laungcupang, La Paz, Tarlac Women's Sector, Senior Citizen's Sector People's Organization, Farmer's Association, Non-Government Organization, Homeowner's Association, Transport Group		
Purpose of Meeting: To introduce the CLLEX Project; To gather and address the queries and concerns of the participants; and To conduct survey interview of			

Name	Designation/Title/Role	Address	Contact number	Signature
<del>Isidro Beron</del>	HOUSE E. LANDOWNER	PUROK I GUEVARA LA PAZ TARLAC		<del>Isidro Beron</del>
H. Cruzcosa	LAND OWNER	GUEVARA LA PAZ TARLAC		<del>H. Cruzcosa</del>
Elias B. Dagan Jr.	Land Representative	Guevara La Paz Tarlac		Elias B. Dagan Jr.
Macario Alapion	Land owner	Guevara La Paz Tarlac		Macario Alapion
Termita C. Jimon	Land owner	PUROK I - Guevara, La Paz, Tarlac		Termita C. Jimon
Kenia R. Felman	Land owner	PUROK I - Guevara, La Paz, Tarlac		Kenia R. Felman
Beth E. Morong		" " "		Beth E. Morong
Ida Castañeda - Mambal	Representative owner	farm located in Mueva, La Paz	09189289479	Ida Castañeda - Mambal
Julita L. Yarte	Land owner	Guevara, La Paz		Julita L. Yarte
Pelagia R. Aguilar	Land owner	Amueva Tarlac City		Pelagia R. Aguilar
ARETO ESQUICIONA	REP. OF OWNER (MUEVA)	LAUNGCUPANG, LA PAZ, TARLAC		ARETO ESQUICIONA
GILBERT CRUZOSA	Land owner	GUEVARA		GILBERT CRUZOSA



# ATTENDANCE SHEET

## Information, Education, Communication Meeting Central Luzon Link Expressway Project (CLLEX) Phase 1

Meeting #:	Date: July 28, 2011	Time: From 1400	To 1600	Venue: ABC Session Hall of La Paz, Tarlac
Type of stakeholder	City officials of La Paz, Tarlac, Project Affected Persons (PAPs) Barangay Officials of Macalong, Guevarra and Laungcupang, La Paz, Tarlac; Women's Sector, Senior Citizen's Sector People's Organization, Farmer's Association, Non-Government Organization, Homeowner's Association, Transport Group			
Purpose of Meeting: To introduce the CLLEX Project; To gather and address the queries and concerns of the participants; and To conduct survey interview of PAPs and Indirectly Affected Persons				

Name	Designation/Title/Role	Address	Contact number	Signature
ILUMINADO DE POSTALO	(NIRLIDA S. MARCELA AGUIRRE) MAYOR OF C. OWNEN	LAUNGUPANG, LA PAZ, TARLAC	09196286018	
ANGELINA A. AGUIRRE	OWNER	LAUNGUPANG, LA PAZ, TARLAC		
ALEXANDRO CRILLUNG	OWNER	LAUNGUPANG, LA PAZ	0906 394-27-26	
JOSE CRILLUNG	"	"	0906 394-27-26	
Felimon C. Qui	owner	"		
Corazon Maslo	owner	"		
Jose To Resolera	Guerrero	"		
Benito Carilung	owner	"		
Carmita G. Ganga	Guerrero	landowner		
MARIA LITA Y. PAGADUAN	Tenant	Guerrero, La Paz, Tarlac	09186263953	

Meeting: 8	Date: July 29,2011	Time: From 1000 To 1200
Venue: Hall Conference 2 <sup>nd</sup> Floor, Kairos Hotel, Aliaga Nueva Ecija		
Type of stakeholder: Municipal Officials of Aliaga, Nueva Ecija, Project Affected Persons and Barangay Officials of Betes, Bucot, Bibiclat, La Purisima, San Juan, San Eustacio, Sta. Monica, Sto Rosario, Magsaysay, Pantoc and Umangan People's Organization, Farmer's Association, Non-Government Organization, Homeowner's Association, Transport Group		
Attendances: PAPs (M -70) (F -15 ); LGU (M -18 ) (F -2 ); CBO (M - 1) (F -1); GO (M-) (F - ); NGO (M - ) (F - ); DPWH (M - ) (F - ); Ecosyscorp. Inc. (M -4 ) (F - 4)		
Purpose of Meeting: To introduce the Project; To confirm and revise Scoping results and foreseeable negative effect by the Project; To agree on environmental study parameters; To agree on social study parameters; To explain to the stakeholders the procedures involved in RAP preparation; To allow stakeholders to express their ideas, apprehensions, concerns, and objections.		
Summary of Meeting: Welcome Remarks by Glenn dela Cruz; Introduction of Participants headed by Crisley Ian V. Diot; Objectives of the meeting and study explained by Annabelle Herrera; Presentation of Project Description, Alignment and Design was presented by Engr. Raul Felizar; Open Forum was lead by Maricel Rolda and Closing Remarks was addressed by Jose Gaya.		
Output of meeting: Attendance Sheet and Photographs		
Name(organization)	Issues	Responses
Mr. Jose Madlangkid PAPs Sta. Monica	How much will we receive if 60 meters will be acquired?	The law on national highway is better in terms of pricing of the land than of the local government project because it is only based on tax declaration which is too low. According to R.A. 8974 on national highways, DPWH will request for donation, then the BIR zonal valuation. If there is no agreement within the BIR zonal

		valuation, an appraisal committee will be formed by the Municipal and Provincial assessor wherein they will get the prevailing price of the land and if still there is no agreed price, DPWH can get a private land appraiser. Whoever has the highest price will be the basis on the pricing of the land for the project.
Mr. Virgilio Corpuz PAPs San Eustacio	Do we have the right to refuse to conform with the project for the reason that the lands are our main source of food for our children?	The government has the power of eminent domain wherein they have the right to acquire land for public use. If the owners will refuse to give their land, the government will file a case to the court and if proved that there is enough money for land payment, the court will issue Writ of Possession or WOP then the property will be demolished.
Mr. Jose Gaya Municipal Administrator of Aliaga	Are the farmers going to be paid for disturbance compensation? According to the law 5 times of average production times 3 years of harvest.	According to P.D. 1535, all farmers will be given disturbance compensation. Land, house and disturbance compensation are paid separately.
Mr. Glenn dela Cruz Municipal Assessor of Aliaga	Tax declaration as basis for land payment is too low because it is for tax purposes only. I suggest to get the actual valuation and fair market value as basis for land valuation. Aliaga will have an update and by next year general revision will be 400-600,000 per hectare	
Ms. Venus Diaz PAPs, Sta. Monica	Can you move the road beside the dike because it will pass thru the middle of the land?	We will relay your suggestion to the Japanese Engineers who designed the road. If it is not possible, they will make a service road so that you can access the other side of your land.



Mr. Agapito Fajardo PAPs	Will there be a service road on both sides?	As of now, we don't have any service roads but instead we have embankments. You can suggest if we really need to put a service road.
Mr. Pastor Tumibay	Will the road construction push thru even if the mayor doesn't sign the project?	There is no relation with the ROW and the mayor's approval. It is up to the mayor if he thinks that the conditions given by ECC is fair and just. The local government thru the mayor will settle issues beyond DENR.
Mr. Manuel Catacutan PAPs	What are the guidelines and procedures for the payment of landowners and tenants?	If a registered tenant, the DPWH will honor you and your tenant's agreement.
	For clarification, how many percent does the landowner need to give to the tenant?	It is based on the agreement between the landowner and the tenant. DPWH doesn't cover that. The tenants will also receive disturbance compensation.
Mr. Glenn dela Cruz Municipal Assessor of Aliaga	Will the Municipality have a cut in the revenue of the tollgate? Who can we talk to about this and how much will be the part of the Municipality?	Taxes will be paid in the office of the Toll operators.
	Since there will be two interchanges in Aliaga, there is a possibility that there is an increase in traffic in the municipal roads of Aliaga. Our concern is the maintenance of the existing roads.	According to the traffic study, the main volume of vehicles will pass thru the expressway. Maintenance for provincial roads will come from the provincial funds.
Mr. Emiliano Salazar Poblacion East 2	If ever you will put a bridge, will the payment cover from the posts of the bridge only or the whole bridge?	We will put embankments instead of bridges.
Mr. Cornelio Soliman	Why not put a bridge instead of	All studies are based on cost benefit analysis. The price of the

	embankment? It will only cause food shortage. Atleast with the bridge, no farmland will be affected especially the rice production.	bridge is ten times higher than embankment. The government will decide on this based on their computation
Mr. Florencio Rivera PAPs Brgy. Bibiclat	Where will you get the materials needed for embankment?	There is no decision yet on where we will get the materials for embankment. Soil from the farmlands cannot be used because it is watery and soft. Maybe we can get from the quarry or to any area where the soil can be used for embankment.
Mr. Ramiro Dionisio Brgy. Captain of Umangan	How will the affected houses be paid?	According to R.A. 7984, they will pay based on the latest price of materials to be used to put up the same kind and size of a house plus labor cost.
Mr. Jose Madlangkid PAPs Sta. Monica	What if they will acquire 60 meters and my land is only 50 meters?	Only the 50 meters will be paid to you. Then the remaining may be acquired from the owners beside your land.
Engr. Jesner Vicencio Municipal Planning & Development Office	Is it possible to move the alignment near the dike? Based on the data, 150 hectares will be affected by the project. It will have a big effect and loss in their livelihood and there might be food shortage if a big part of the rice field in Aliaga and in the whole Nueva Ecija is removed.	We will suggest to the Engineering Team. According to international guidelines, lands affected should be replaced.
Mr. Danilo Corpus PAPs San Eustacio	We are requesting if you can pay us little bit higher so that we can buy and transfer to another area where we can work.	According to JICA guidelines, they allow land for land as replacement for the land to be affected. According to the Assessor's office, they are having an update to give way to higher prices on land acquisition.
Engr. Jesner Vicencio	Will the CLLEX project give mitigation	We will give a copy to the LGU of the recommendations under the

Municipal Planning and Development office	measures? There are a lot of implications in Aliaga like increase in vehicle volume and increase in air and noise pollution.	Environmental Impact Study as to what the mitigations measures should be. Under noise pollution, they will put noise barriers if there are households who will be affected. In the air pollution, there will be a high level of pollution if the vehicles are slow moving that's why it is much better if it is an expressway.
Mr. Tomas Banara PAPs San Eustacio	What will happen if only a small portion of the farmland will be left?	DPWH can buy the remaining farmland if the owner will not benefit from it anymore.
Mr. Cornelio Soliman	Will the farmers be paid before the start of the project?	According to D.O. #5, Notice of Awards will not be issued to the Contractor unless all ROW are paid.
Mr. Antonio Vargas	Will there be canals in the CLLEX project? If you're going to put canals there is a possibility that the area will be flooded.	The Designers are checking to ensure there is no interruption in the flow of water. Equalizers or a series of box culverts will be placed to ensure the free flow water.
Mr. Hilario Caisip Brgy. Captain of Magsaysay	Do we still need to pay the real property tax of the affected lands? Most of the owners do not pay their real property taxes.	DPWH will pay whatever debt the owner has in the real property tax. The title will not be transferred to DPWH unless all debts are paid. DPWH will deduct to the total payment to the owner whatever debts they need to pay.
Mr. Eric Eugenio PAPs Brgy. Bibiclat	What will happen to our families if almost all of the land area will be acquired? How can the project help us if we loose our property?	LGU will help those who will be affected. With the help of the Urban Development Council, those who do not have a land of their own needs to form a homeowners association to be qualified in the loan program of the National Home Mortgage. In order to be qualified in the Community Mortgage Program, they need to have an NGO in the Town hall who will become an originator and help them buy a land, who will be paid by the association which will be paid in low amortization.
Mr. Norberto Eugenio	It is better to move the alignment near the	We will suggest to the team Leader if we can have the alignment

Brgy. Captain of San Eustacio	Talavera river so that Bibiclat and Aliaga will be safer from flood. At the same time it will be cheaper for the government since DPWH is already paying those affected with the dike.	moved near the dike.
-------------------------------	--	----------------------



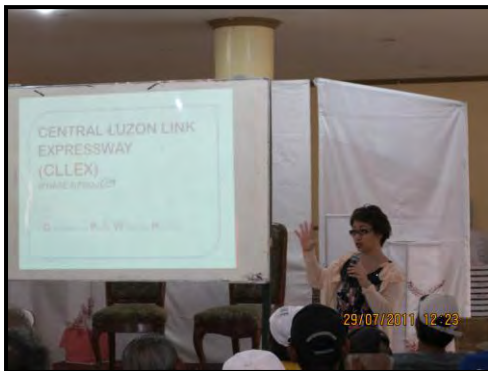
PAPs registering their name in the attendance sheet



Municipal Assessor Mr. Glenn dela Cruz giving the welcome remarks



Ms. Crisley Ian Diot introducing the participants



Ms. Annabelle Herrera discussing the objectives of the meeting and the study including the CLLEX Project design and alignment



Mr. Jose Madlangkid- PAPs asking how much the 60 meters strip will be paid



Mr. Agapito Fajardo-PAPs asking if there is a provision of service road



Mr. Danilo Corpuz - PAPs (San Eustacio) requesting to give a higher price in paying the affected land



Mr. Emiliano Salazar- PAPs (Poblacion East 1) inquiring if the road to be constructed is a viaduct



Mr. Tomas Banara asking on what will happen to the remaining land that will no longer useable and too small for farming



Mr. Florencio Rivera - PAPs (Brgy. Bibiclat) inquiring where is the source of the soil to be used for embankment



Mr. Pastor Turibay - PAPs inquiring if the mayor will not approve the project, will it proceed



Ms. Venus dela Cruz-PAP & Women's sector of Sto. Monica requesting to move the alignment towards the dike to minimize the effect to the farmers





Mr. Antonio Vargas- PAP raising his concern on flooding



Engr. Jesner Vicencio suggesting to move the alignment near the dike



Mr. Eric Uegenio asking the welfare of the affected families who loss income/land.



Brgy. Capt. Norberto Eugenio- (Bibiclat) suggesting to move the alignment near the Talavera River.



Mr. Glenn dela Cruz (Municipal Assessor) asking if Aliaga will benefit from the toll fee



Brgy. Capt. Hilario Caisip- Brgy. Captain of Magsaysay asking who will pay the unpaid real property tax



Closing remarks was lead by Aliaga Municipal Administrator Mr. Jose Gaya

# **P R O G R A M M E**

**Information, Education & Communication (IEC) Meeting  
with Project Affected Persons (PAPs)  
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS  
PROPOSED CENTRAL LUZON LINK EXPRESSWAY (CLLEX) PROJECT**

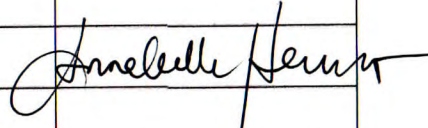
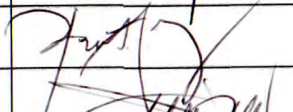
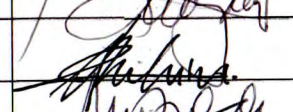
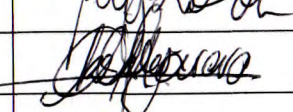
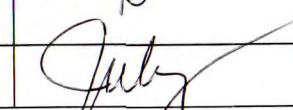
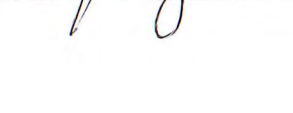

Venue: Kairos Hotel & Resort Aliaga, Province of Nueva Ecija  
1000 – 1200HH, July 29, 2011

I. Registration	1000 – 1015HH	2 <sup>nd</sup> Floor Kairos Hotel & Resort
II. Welcome Remarks		Mr. Nestor Glenn Dela Cruz <i>Municipal Assessor</i>
III. Introduction of Participants		Ms. Crisley Ian V. Diot <i>Ecosyscorp, Inc.</i>
IV. Objectives of the Meeting		Ms. Annabelle N.Herrera <i>Ecosyscorp Inc.</i>
V. Presentation of the Project		Engr. Raul A. Fellizar <i>Ecosyscorp, Inc.</i>
VI. Objectives and Activities of the Study		Ms. Annabelle N. Herrera <i>Ecosyscorp, Inc.</i>
VII. Open Forum:		Ms. Maricel P. Pocaan <i>Ecosyscorp, Inc.</i>
VIII. Closing Remarks		Mr. Jose Gaya <i>Municipal Administrator</i>



# ATTENDANCE SHEET

## Information, Education, Communication Meeting Central Luzon Link Expressway Project (CLLEX) Phase 1

Meeting #:	Date: July 29, 2011	Time: From 1000 To 1200	Venue: 2/F Kairos Hotel and Resort, Aliaga, Nueva Ecija		
Type of stakeholder	City officials of Municipality of Aliaga, Nueva Ecija, Project Affected Persons (PAPS) Direct and Indirect Barangays of Aliaga: Betes, Sto. Rosario, Poblacion East I, Sta. Monica, Magsaysay, San Eustacio, Pantoc, Bibiclat, San Juan, Umangan, & La Purisima, Women's Sector, Senior Citizen's Sector; People's Organization, Farmer's Association, Non-Government Organization, Homeowner's Association, Transport Group				
Purpose of Meeting: To introduce the CLLEX Project; To gather and address the queries and concerns of the participants; and To conduct survey interview of PAPs and Indirectly Affected Persons					
Name	Designation/Title/Role	Address	Contact number	Signature	
1 Engr. Sergio N. Dizon	Engr. III-PDD	DPWH Region III			
2 Engr. Ramiro M. Cruz	District Engineer	DPWH N.E. District 1, Talavera, Nueva Ecija			
3 Engr. Armando M. Guevarra	Chief of Construction	DPWH N.E. District 1, Talavera, Nueva Ecija			
4 Ms. Annabelle N. Herrera	EIA & RAP Team Leader	Ecosyscorp, Inc, Quezon City	951-40-59		
5 Mr. Arriz James N. Herrera	V.P. - Operations	Ecosyscorp, Inc, Quezon City	951-40-59		
6 Engr. Raul A. Fellizar	RAP Team Member	Ecosyscorp, Inc, Quezon City	951-40-59		
7 Mr. Joseph T. Vargas	RAP Team Member	Ecosyscorp, Inc, Quezon City	951-40-59		
8 Ms. Felicia G. Rubianes	RAP Team Member	Ecosyscorp, Inc, Quezon City	951-40-59		
9 Ms. Maricel P. Rolda	RAP Team Member	Ecosyscorp, Inc, Quezon City	951-40-59		
10 Ms. Crisley Ian V. Diot	RAP Team Member	Ecosyscorp, Inc, Quezon City	951-40-59		
11 Mr. Federico R. Talaña, Jr.	EIA Team Member	Ecosyscorp, Inc, Quezon City	951-40-59		
12 Mr. Glenn A. Alpez	EIA Team Member	Ecosyscorp, Inc, Quezon City	951-40-59		



# ATTENDANCE SHEET

## Information, Education, Communication Meeting

### Central Luzon Link Expressway Project (CLLEX) Phase 1

Meeting #:	Date: July 29, 2011	Time: From 1000	To 1200	Venue: 2/F Kairos Hotel and Resort, Aliaga, Nueva Ecija
Type of stakeholder	City officials of Municipality of Aliaga, Nueva Ecija, Project Affected Persons (PAPS) Direct and Indirect Barangays of Aliaga: Betes, Sto. Rosario, Poblacion East I, Sta. Monica, Magsaysay, San Eustacio, Pantoc, Bibiclat, San Juan , Umangan, & La Purisima, Women's Sector, Senior Citizen's Sector; People's Organization, Farmer's Association, Non-Government Organization, Homeowner's Association, Transport Group			
Purpose of Meeting: To introduce the CLLEX Project; To gather and address the queries and concerns of the participants; and To conduct survey interview of PAPs and Indirectly Affected Persons				

	Name	Designation/Title/Role	Address	Contact number	Signature
13	Hon. Marcial R. Vargas	Mayor			
14	Hon. Elizabeth R. Vargas	Vice Mayor			
15	Ms. Erlinda Carpio	Executive Assistant	Pub. Canfa, Aliaga, D.C.	0929-702225	
16	Mr. Jose Gaya	Municipal Administrator			
17	Mr. Jesner Vicencio	Mun. Planning & Devt. Officer	LCU - ALIAGA		
18	Mr. Glenn dela Cruz	Municipal Assessor	LCU - ALIAGA	0923 4839070	
19	Ms. Resurreccion Alcantara	Municipal Treasurer			
20	Mr. Clemente Fernando	Mun. Agrarian Reform Officer			
21	Mr. Menard de Leon	Mun. Agriculturist			
22	Mr. Edgardo Soledad	ABC President			
23	Mr. Jun-Jun Bumanlag	PB - Betes	JUN-JUNE J. BUMANLAG	0917 5509344	
24	Mr. Reynaldo Sanchez	PB - Sto. Rosario			

Mr. Aris Gregorio  
Mr. Bobby Nieves

Office of the Mayor

Mun. of Aliaga

0927 697 4426  
0929 899 686

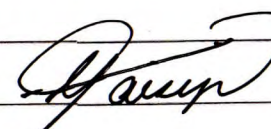

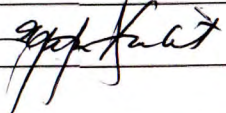
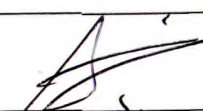
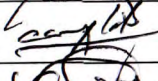



# ATTENDANCE SHEET

## Information, Education, Communication Meeting

### Central Luzon Link Expressway Project (CLLEX) Phase 1


Meeting #:	Date: July 29, 2011	Time: From 1000	To 1200	Venue: 2/F Kairos Hotel and Resort, Aliaga, Nueva Ecija
Type of stakeholder	City officials of Municipality of Aliaga, Nueva Ecija, Project Affected Persons (PAPS) Direct and Indirect Barangays of Aliaga: Betes, Sto. Rosario, Poblacion East I, Sta. Monica, Magsaysay, San Eustacio, Pantoc, Bibiclat, San Juan , Umangan, & La Purisima, Women's Sector, Senior Citizen's Sector: People's Organization, Farmer's Association, Non-Government Organization, Homeowner's Association, Transport Group			
Purpose of Meeting: To introduce the CLLEX Project; To gather and address the queries and concerns of the participants; and To conduct survey interview of PAPs and Indirectly Affected Persons				

Name	Designation/Title/Role	Address	Contact number	Signature
25 Mr. Mario S. Suba	PB – Sta. Monica			
26 Mr. Hilario A. Caisip	PB – Magsaysay	Magrayay	0908390031	
27 Mr. Norberto B. Macalinao	PB – San Eustacio ✓			
28 Mr. Rogelio Manjalong W. Tumpalan	PB – Pantoc / Representation - WENCESIO S. TUMPALAN		0947353491	
29 Mr. Norberto Eugenio	PB – Bibiclat			
30 Mr. Efren J. Armobit	PB – San Juan	San Juan Aliaga	0917-5509312	
31 Mr. Ramiro Dionisio	PB – Umangan			
32 Mr. Cesar Pajarillo	PB – La Purisima			
33 Mr. Rodolfo Corpus	PB – Poblacion East I			
34 Mr. Rannie Bagsik	Aliaga Consultant - CLUP	Quezon City		
35 CARLITO ALCOBER	EIA TEAM MEMBER	ECOSYSCORP. INC QUEZON CITY	951-40-59	
36 DIONISIO A. PAGAN	SEC. SAN JUAN	SAN JUAN, ALIAGA, N.E.	09273418441	

RUPERTO V. MARBAN CAD

SANTIAGO, ALIAGA N.E

09215847238





## ATTENDANCE SHEET

## Information, Education, Communication Meeting

## Central Luzon Link Expressway Project (CLLEX) Phase 1

[illegible]

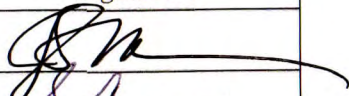
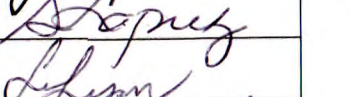
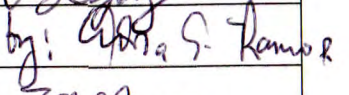
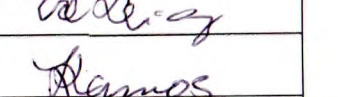
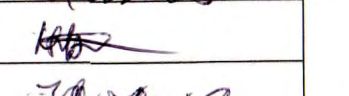
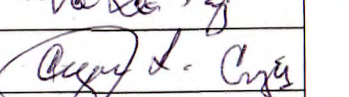
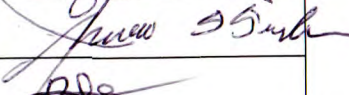
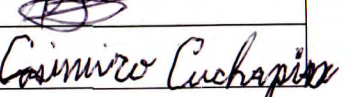





# ATTENDANCE SHEET

## Information, Education, Communication Meeting

### Central Luzon Link Expressway Project (CLLEX) Phase 1

Meeting #:	Date: July 29, 2011	Time: From 1000	To 1200	Venue: 2/F Kairos Hotel and Resort, Aliaga, Nueva Ecija
Type of stakeholder	City officials of Municipality of Aliaga, Nueva Ecija, Project Affected Persons (PAPS) Direct and Indirect Barangays of Aliaga: Betes, Sto. Rosario, Poblacion East I, Sta. Monica, Magsaysay, San Eustacio, Pantoc, Bibiclat, San Juan , Umangan, & La Purisima, Women's Sector, Senior Citizen's Sector; People's Organization, Farmer's Association, Non-Government Organization, Homeowner's Association, Transport Group			
Purpose of Meeting: To introduce the CLLEX Project; To gather and address the queries and concerns of the participants; and To conduct survey interview of PAPs and Indirectly Affected Persons				

Name	Designation/Title/Role	Address	Contact number	Signature
Jose S. Maglangu	Land owner	Sta Monica Aliaga NE:		
Solomon C. Lopez	land owner	Sta monica Aliaga N.E		
Lydia Lopez	"	"		
Gorgonia Villa	"	"		
Venero O. Ricaf	Adm. in charge	Sta. monica		
Luzaya A. Ramos	Land owner	Sta monica		
Kevin D. Donato	Land Owner	Sta. Monica		
Venero O. Ricaf	% V. Carmo	% Victorino Sta. monica		
Orlando L. Camps	land owner	STA monica		
MARLO "TIGRO" SIMA	Barry Capt	STA monica		
Reynaldo Salvador	"	STA monica		
Acemiro Cotsapin	tenant/Landowner	- do -		



## ATTENDANCE SHEET

## Information, Education, Communication Meeting

## Central Luzon Link Expressway Project (CLLEX) Phase 1

Meeting #:	Date: <b>July 29, 2011</b>	Time: From 1000	To 1200	Venue: <b>2/F Kairos Hotel and Resort, Aliaga, Nueva Ecija</b>
Type of stakeholder	City officials of Municipality of Aliaga, Nueva Ecija, Project Affected Persons (PAPS) Direct and Indirect Barangays of Aliaga: Betes, Sto. Rosario, Poblacion East I, Sta. Monica, Magsaysay, San Eustacio, Pantoc, Bibiclat, San Juan , Umangan, & La Purisima, Women's Sector, Senior Citizen's Sector: People's Organization, Farmer's Association, Non-Government Organization, Homeowner's Association, Transport Group			
Purpose of Meeting: To introduce the CLLEX Project; To gather and address the queries and concerns of the participants; and To conduct survey interview of PAPs and Indirectly Affected Persons				

[illegible]





# ATTENDANCE SHEET

## Information, Education, Communication Meeting

### Central Luzon Link Expressway Project (CLLEX) Phase 1

Meeting #:	Date: July 29, 2011	Time: From 1000	To 1200	Venue: 2/F Kairos Hotel and Resort, Aliaga, Nueva Ecija
Type of stakeholder	City officials of Municipality of Aliaga, Nueva Ecija, Project Affected Persons (PAPS) Direct and Indirect Barangays of Aliaga: Betes, Sto. Rosario, Poblacion East I, Sta. Monica, Magsaysay, San Eustacio, Pantoc, Bibiclat, San Juan , Umangan, & La Purisima, Women's Sector, Senior Citizen's Sector; People's Organization, Farmer's Association, Non-Government Organization, Homeowner's Association, Transport Group			
Purpose of Meeting: To introduce the CLLEX Project; To gather and address the queries and concerns of the participants; and To conduct survey interview of PAPs and Indirectly Affected Persons				

Name	Designation/Title/Role	Address	Contact number	Signature
MARIO A. MACAPAGAL	FARMER	San Juan Aliaga N.E.	09198592663	Mario A. Macapagal
Sto. Rosario		San Juan		PASTOR TUMIBAY
ROSELIO PUYAT		San Juan		Roselio Puyat
Juanita Barate			09158894768	Juanita Barate
Leonida B. Puyat			09306394722	Leonida B. Puyat
JIMEDON VILLER	TENANT			Jimedon Viller
CORNELIO SOLIMAN				Cornelio Soliman
Edgardo S Reyes				Edgardo S Reyes
Elizabeth Polignat	Tenant	San Juan	0916327-2111	Elizabeth Polignat
LEONORA C. MANAB		San Juan	0926402409	Leonora C. Manab







# ATTENDANCE SHEET

## Information, Education, Communication Meeting

### Central Luzon Link Expressway Project (CLLEX) Phase 1

Meeting #:	Date: July 29, 2011	Time: From 1000	To 1200	Venue: 2/F Kairos Hotel and Resort, Aliaga, Nueva Ecija
Type of stakeholder	City officials of Municipality of Aliaga, Nueva Ecija, Project Affected Persons (PAPS) Direct and Indirect Barangays of Aliaga: Betes, Sto. Rosario, Poblacion East I, Sta. Monica, Magsaysay, San Eustacio, Pantoc, Bibiclat, San Juan , Umangan, & La Purisima, Women's Sector, Senior Citizen's Sector; People's Organization, Farmer's Association, Non-Government Organization, Homeowner's Association, Transport Group			
Purpose of Meeting: To introduce the CLLEX Project; To gather and address the queries and concerns of the participants; and To conduct survey interview of PAPs and Indirectly Affected Persons				

Name	Designation/Title/Role	Address	Contact number	Signature
Josephine Aguilar	landowner	bibiclat, Aliaga, Nueva Ecija	09107 134 9562	Aguilar
Teodoro Anson	Landowner	" "		Teodoro Anson
Francisco <sup>Arican</sup> <del>Allegre</del>	Landowner	" "		Francisco Allegre
Leonardo Rivera	landowner	- do -	-	Leonardo Rivera
<del>Domino Rivera</del>		" "		Domino Rivera
NORBERTO EUGENIO	KAPTAN	BIBICLAT		Norberto Eugenio
ROY GARCIA	PRINCIPAL	BIBICLAT		Roy Garcia
JOSE	PRINCIPAL	BIBICLAT		Jose
VICTORINO FERNANDO	TENANT	BIBICLAT		Victorino Fernando
Fernando	LAND OWNER	BIBICLAT		Fernando



## ATTENDANCE SHEET

## Information, Education, Communication Meeting

## Central Luzon Link Expressway Project (CLLEX) Phase 1

[illegible]



# ATTENDANCE SHEET

## Information, Education, Communication Meeting

### Central Luzon Link Expressway Project (CLLEX) Phase 1

Meeting #:	Date: July 29, 2011	Time: From 1000 To 1200	Venue: 2/F Kairos Hotel and Resort, Aliaga, Nueva Ecija	
Type of stakeholder	City officials of Municipality of Aliaga, Nueva Ecija, Project Affected Persons (PAPS) Direct and Indirect Barangays of Aliaga: Betes, Sto. Rosario, Poblacion East I, Sta. Monica, Magsaysay, San Eustacio, Pantoc, Bibiclat, San Juan , Umangan, & La Purisima, Women's Sector, Senior Citizen's Sector; People's Organization, Farmer's Association, Non-Government Organization, Homeowner's Association, Transport Group			
Purpose of Meeting: To introduce the CLLEX Project; To gather and address the queries and concerns of the participants; and To conduct survey interview of PAPs and Indirectly Affected Persons				
Name	Designation/Title/Role	Address	Contact number	Signature
49 REYNALDO SANCHEZ	PRG CRT	STO ROSARIO A NE	09175509402	[Signature]
50 Ricardo Bocobo				[Signature]
51 Benigno Manje	tenant			[Signature]
52 Isidro Sanchez	tenant	Sto Rosario		[Signature]
53 Leoncio Puchillo	Tenant	" "		[Signature]
54 Guillermo De la Haza	tenant			[Signature]
55 MARIO TRONCO	tenant			[Signature]
56 Relando Berjor		land owner		[Signature]
57 Isagani n Posca	landowner	Sto - Rosario & San Eustacio	09165021000	[Signature]
46 Emeritacion Villa	landowner	"		[Signature]
58 Oscar Puchillo	tenant			[Signature]
59 ROMAN BOCOBO	LAND OWNER	STO ROSARIO A NE		[Signature]



# ATTENDANCE SHEET

## Information, Education, Communication Meeting Central Luzon Link Expressway Project (CLLEX) Phase 1

Meeting #:	Date: July 29, 2011	Time: From 1000	To 1200	Venue: 2/F Kairos Hotel and Resort, Aliaga, Nueva Ecija
Type of stakeholder	City officials of Municipality of Aliaga, Nueva Ecija, Project Affected Persons (PAPS) Direct and Indirect Barangays of Aliaga: Betes, Sto. Rosario, Poblacion East I, Sta. Monica, Magsaysay, San Eustacio, Pantoc, Bibiclat, San Juan , Umangan, & La Purisima, Women's Sector, Senior Citizen's Sector; People's Organization, Farmer's Association, Non-Government Organization, Homeowner's Association, Transport Group			
Purpose of Meeting: To introduce the CLLEX Project; To gather and address the queries and concerns of the participants; and To conduct survey interview of PAPs and Indirectly Affected Persons				

Name	Designation/Title/Role	Address	Contact number	Signature
Maximo Calderon	TENANT	STO ROSARIO AVE		
Bernardo Fernandez	Land owner	STO ROSARIO AVE		
MANUEL T. CATAUTAN	LAND OWNER	SRD. POBLACION CENTRO	09159827820	
Eduardo Romos	LAND OWNER	STO. ROSARIO AVE.		Eduardo Romos
Rodolfo Lino	LAND OWNER	STO ROSARIO.		
JUAN SANTOS	TENANT	STO ROSARIO	0907744391	
EMILIA SALAZAR	LAND OWNER	STO. ROSARIO	0916743214	
LORENZO BOLOBO	LAND OWNER	STO ROSARIO	0939446064	LLOBLOBO
SEGUNDO ROSCUM	LAND OWNER	STO ROSARIO		By Kigete
Angelina Pardo	Road Owner	STO ROSARIO		



# ATTENDANCE SHEET

## Information, Education, Communication Meeting

### Central Luzon Link Expressway Project (CLLEX) Phase 1

Meeting #:	Date: July 29, 2011	Time: From 1000	To 1200	Venue: 2/F Kairos Hotel and Resort, Aliaga, Nueva Ecija
Type of stakeholder	City officials of Municipality of Aliaga, Nueva Ecija, Project Affected Persons (PAPS) Direct and Indirect Barangays of Aliaga: Betes, Sto. Rosario, Poblacion East I, Sta. Monica, Magsaysay, San Eustacio, Pantoc, Bibiclat, San Juan , Umangan, & La Purisima, Women's Sector, Senior Citizen's Sector: People's Organization, Farmer's Association, Non-Government Organization, Homeowner's Association, Transport Group			
Purpose of Meeting: To introduce the CLLEX Project; To gather and address the queries and concerns of the participants; and To conduct survey interview of PAPs and Indirectly Affected Persons				

Name	Designation/Title/Role	Address	Contact number	Signature
EDWIN LUSTRE	tenant	PAN EUSTACIO	0946 3483 793	<i>[Signature]</i>
ANGELO SARRIENTO	landowner			<i>[Signature]</i>
Reynaldo Ramon	landowner			<i>[Signature]</i>
Agapito Sarriento	tenant			<i>[Signature]</i>
Donilo Corpus	landowner			<i>[Signature]</i>
Rodolfo Sarriento	Farmer / owner			<i>[Signature]</i>
Romulo Sarriento				<i>[Signature]</i>
Toma Baringa	Farmer / owner			<i>[Signature]</i>
Risardo Sarriento	owner			<i>[Signature]</i>
Rodolfo Magilang	owner			<i>[Signature]</i>
Eugenio Magilang	owner			<i>[Signature]</i>
Donilo Sarriento	owner			<i>[Signature]</i>



[illegible]

## Central Luzon Link Expressway Project (CLLEX) Phase 1

Date: July 29, 2011

Time: From 1000 To 1200

Venue: 2/F Kairos Hotel and Resort, Aliaga, Nueva Ecija

City officials of Municipality of Aliaga, Nueva Ecija, Project Affected Persons (PAPS) Direct and Indirect  
Barangays of Aliaga: Betes, Sto. Rosario, Poblacion East I, Sta. Monica, Magsaysay, San Eustacio, Pantoc, Bibiclat, San Juan ,  
Umangan, & La Purisima, Women's Sector, Senior Citizen's Sector;  
People's Organization, Farmer's Association, Non-Government Organization, Homeowner's Association, Transport Group

Purpose of Meeting:	To introduce the CLLEX Project; To gather and address the queries and concerns of the participants; and To conduct survey interview of PAPs and Indirectly Affected Persons
---------------------	---

Name

Designation/Title/Role

Address

Contact number

Signature

Romeo Soriano

TENANT

SAN EUSTACIO

Onofre Gaya  
50277 7 88412

TENANT

Doane  
Hughes  
Hoy





## ATTENDANCE SHEET

## Information, Education, Communication Meeting

## Central Luzon Link Expressway Project (CLLEX) Phase 1

Meeting #:	Date: July 29, 2011	Time: From 1000	To 1200	Venue: 2/F Kairos Hotel and Resort, Aliaga, Nueva Ecija
Type of stakeholder	City officials of Municipality of Aliaga, Nueva Ecija, Project Affected Persons (PAPS) Direct and Indirect Barangays of Aliaga: Betes, Sto. Rosario, Poblacion East I, Sta. Monica, Magsaysay, San Eustacio, Pantoc, Bibiclat, San Juan , Umangan, & La Purisima, Women's Sector, Senior Citizen's Sector; People's Organization, Farmer's Association, Non-Government Organization, Homeowner's Association, Transport Group			

Purpose of Meeting:	To introduce the CLLEX Project; To gather and address the queries and concerns of the participants; and To conduct survey interview of PAPs and Indirectly Affected Persons
---------------------	---

[illegible]





Meeting #: 10	Date: August 6,2011	Time: From 1400 To 1630
Venue: Purok 1, Brgy. Umangan, Aliaga		
Type of stakeholder: Barangay Umangan LGU and Project Affected Persons (PAPs)		
Attendances: PAPs( -M-6 ) (F -10 ); LGU (M - 1) (F - ); CBO (M - ) (F - ); GO (M - ) (F - ); NGO (M - ) (F - ); DPWH (M - ) (F - ); Ecosyscorp. Inc. (M -4 ) (F - 3)		
Purpose of Meeting: To introduce the Project; To confirm and revise Scoping results and foreseeable negative effect by the Project; To agree on environmental study parameters; To agree on social study parameters; To explain to the stakeholders the procedures involved in RAP preparation; To allow stakeholders to express their ideas, apprehensions, concerns, and objections.		
Output of meeting: Attendance Sheet and Photographs		
Name(organization)	Issues	Responses
Antonio Hernandez	Can you move the alignment?	Not all the time we can move the alignment. In the feasibility study for the CLLEX project, there are three proposed alternatives and the best alignment among the three is the one presented to you.
Ailene Cabahil	Will the government provide a relocation to those who are affected?	LGU is the one in charge with relocation. We are coordinating with the LGU of Aliaga for any possible relocation.
Janeth Go-Cabahil	Is there any way that you can divert the road to another area?	As of now, we don't have.
Emma Cabahil	What if we don't want to transfer to the proposed relocation site, can we buy another private land?	It could be.

Ailene Cabahil	How can we fix the title of the land if the owner is already deceased?	There are some documents needed to transfer the title of the land.
Carmelita Hernandez	When will we move out of our property?	As long as there is no notice for you to move out, you can still stay in your property. The schedule of ROW acquisition of CLLEX project is last quarter of 2011-2013, construction 2014-2016 and implementation on 2017.
Ailene Cabahil	How can we pay our new relocation site if we don't have money?	The relocation site will be under CMP, where you will have a low installment plan for you to have your own land.
Dolores Flores	Can we still put our animal cages near the river?	Any structure within 60 meters of ROW is not allowed.
Myra Cabahil	Where will you base the payment for the houses?	Payment for houses is based on R.A. 8974 Base sa R.A. 8974 wherein the current cost materials used will be computed plus labor cost.
Aileen Cabahil	Will the nipa hut and animal cages also included in the payment?	Yes they will be compensated.
Carmelit Cabahil	Are the trees also included in the payment?	
Dante Marcelo	Are pigpens included in the payment?	



PAPs residing at Brgy. Umangan registering their names during the consultation meeting



Ms. Carmelita Hernandez asking if the plants and trees will be compensated



Ms. Aileen Cabahil wishing not the project be implemented so that they will not be displaced



Ms. Janeth Go-Cabahil inquiring if there is a way to re-align the project



Ms. Myra Cabahil asking what is the basis for computing the structure



Ms. Emma Cabahil suggesting if they can have an option of buying another land instead of relocation





Ms. Dolores Flores inquiring if they can place their animal cages under the bridge of the CLLEX

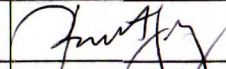
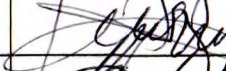
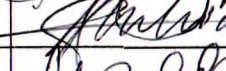
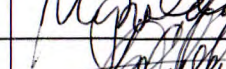


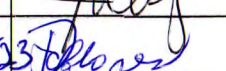
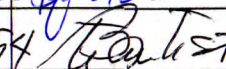
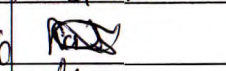




Mr. Dante Marcelo asking if the swine cages will be also compensated

# ATTENDANCE SHEET

## Information, Education, Communication Meeting

### Central Luzon Link Expressway Project (CLLEX) Phase 1

Meeting #:		Date: August 06, 2011	Time: From 1400	To 1500	Venue: Umangan, Aliaga, Nueva Ecija	
Type of stakeholder		Project Affected Persons				
Purpose of Meeting: To introduce the CLLEX Project; To gather and address the queries and concerns of the participants; and To conduct survey interview of PAPs						
Name		Designation/Title/Role	Address	Contact number	Signature	
1	Engr. Raul A. Fellizar	RAP Team Member	Ecosyscorp, Inc, Quezon City	951-40-59		
2	Mr. Joseph T. Vargas	RAP Team Member	Ecosyscorp, Inc, Quezon City	951-40-59		
3	Ms. Felicia G. Rubianes	RAP Team Member	Ecosyscorp, Inc, Quezon City	951-40-59		
4	Ms. Maricel P. Rolda	RAP Team Member	Ecosyscorp, Inc, Quezon City	951-40-59		
5	Ms. Crisley Ian V. Diot	RAP Team Member	Ecosyscorp, Inc, Quezon City	951-40-59		
6	Mr. Federico R. Talaña, Jr.	EIA Team Member	Ecosyscorp, Inc, Quezon City	951-40-59		
7	Mr. Glenn A. Alpez	EIA Team Member	Ecosyscorp, Inc, Quezon City	951-40-59		
8	Dolores C. Flores		Umangan, Aliaga Nueva Ecija	09396477523		
9	Teddy Bartista		Umangan Aliaga N.E	09284545654		
10	Ruth Mercio		Umangan Aliaga N.E	09186172076		
11	Monter C. Flores		umangan aliaga N.E	09474355874		
12	ALFRED CARANIL GRIFF		UMANGAN ALIAGA N.E	09474355874		



# ATTENDANCE SHEET

## Information, Education, Communication Meeting

### Central Luzon Link Expressway Project (CLLEX) Phase 1

Meeting #:	Date: July 29, 2011	Time: From 1000	To 1200	Venue: 2/F Kairos Hotel and Resort, Aliaga, Nueva Ecija
Type of stakeholder	Project Affected Persons			
Purpose of Meeting: To introduce the CLLEX Project; To gather and address the queries and concerns of the participants; and To conduct survey interview of PAPs				

Name	Designation/Title/Role	Address	Contact number	Signature
13 Wmna Cabahil		Umangan	09161784753	Wmna Cabahil
14 Janeth Cabahil		Umangan	09991926138	Janeth Cabahil
15 Camelita C. Hernandez		Umangan		
16 Norrita H. Delacruz		Umangan 09491411316	09105073531	Norrita H. Delacruz
17 Eulda Buedo		Umangan	09105073531	Eulda Buedo
18 Myra Cabahil		Umangan	09394628982	Myra Cabahil
19 Antonio Hernandez		Umangan		
20 Name Cabahil		Umangan		Name Cabahil
21 Julie Cabahil		Umangan		Julie Cabahil
22 Janeth				
23 Rito Hernandez		Umangan	09222809235	Rito Hernandez
24 Elmer Lopez		Umangan	0917548337	Elmer Lopez

# ATTENDANCE SHEET

Information, Education, Communication Meeting

Central Luzon Link Expressway Project (CLLEX) Phase 1

Meeting #:	Date: July 29, 2011	Time: From 1000	To 1200	Venue: 2/F Kairos Hotel and Resort, Aliaga, Nueva Ecija
Type of stakeholder	Project Affected Persons			
Purpose of Meeting: To introduce the CLLEX Project; To gather and address the queries and concerns of the participants; and To conduct survey interview of PAPs				

	Name	Designation/Title/Role	Address	Contact number	Signature
25	RAMIRO L. DIONISO	Brig. Capt.	MANOGAN		
26					
27					
28					
29					
30					
31					
32					
33					
34					
35					
36					

Meeting #: 9	Date: July 29,2011	Time: From 1400 To 1630
Venue: 2 <sup>nd</sup> Floor Zaragoza Municipal Hall, Zaragoza, Nueva Ecija		
Type of stakeholder: Municipal Officials of Zaragoza, Nueva Ecija, Project Affected Persons and Barangay Officials of Sta. Lucia Young, and Sta. Lucia Old, People's Organization, Farmer's Association, Non-Government Organization, Homeowner's Association, Transport Group		
Attendances: PAPs (M -18) (F -9 ); LGU (M -3 ) (F - 1); CBO (M - ) (F - ); GO (M-) (F - ); NGO (M - ) (F - ); DPWH (M - ) (F - ); Ecosyscorp. Inc. (M -5 ) (F -4 )		
Purpose of Meeting: To introduce the Project; To confirm and revise Scoping results and foreseeable negative effect by the Project; To agree on environmental study parameters; To agree on social study parameters; To explain to the stakeholders the procedures involved in RAP preparation; To allow stakeholders to express their ideas, apprehensions, concerns, and objections.		
Summary of Meeting: Welcome Remarks by George Baroga; Introduction of Participants headed by Glenn Michael Alpez; Objectives of the meeting and study explained by Felicia Rubianes; Presentation of Project Description, Alignment and Design was presented by Joseph Vargas; Open Forum was lead by Maricel Rolda and Closing Remarks was addressed by Floremy Regunan.		
Output of meeting: Attendance Sheet and Photographs		
Name(organization)	Issues	Responses
Paquito Bumanlag	What will happen if our lands will be divided in half due to the road construction? What will happen if a small portion of the land will be left?	If the land will be divided, an underground passageway where animals, tractors and man can pass thru will be built to allow access to the other side of the land. It will be located where a lot of people need to pass thru. If the owners and DPWH think that the remaining land will no longer be profitable to the owner, then DPWH will pay the



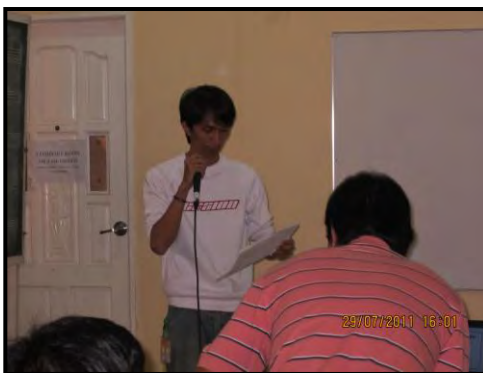
		entire land.
	Where are we going to plant if our land will be affected by the project?	The LGU will look for a land that can be bought and used for farming.
Agustin DG. Bao Jr. Brgy. Captain of Sta. Lucia Old	Will the stakes placed still be changed?	JICA is still studying the options. JICA will fund the CLLEX project and they are the ones making the design of the roads which consists of Filipino and Japanese engineers. They also have consultants for environment and resettlement action plan who will identify those who will be affected. That's why all are invited to a consultation meeting at the same time the RAP team will go house to house to identify those affected.
Floremy Regunan SB Member	Will the payment be settled first before the start of the project?	According to the guidelines as of 2003 D.O. #5, notice of awards will not be issued to the contractor until all right of way acquisition is finished. Any problem in the documents required by DPWH can delay the process.
	What is the mode of payment or agreement between owner and tenant?	It is much better if the landlord-tenant relationship has an agreement so that it will be clear with DPWH on how much is the partition. If there is no agreement or contract, DPWH will only transact with the legal owner. If they have a contract or agreement, DPWH will ask the owner to sign a waiver saying that they will not ask any compensation given to the tenants based on their agreement.
Antonito Bao PAPs, Sta. Lucia Old	Who will receive the payment for CLT holders? Who will be the owner, Matias estate or CLT holder?	DPWH will check how much are your total payments. As long as you're not yet done paying, you're not yet the owners. DPWH will also check if you haven't paid much

		yet, then DPWH can maybe pay you what you have paid then the full payment will be received by the old owner. If it is mortgaged, DPWH will settle the loan first then the remaining will be given to the owner.
George Baroga SB Member	Suggested that the CLT holders will settle their balances so that DPWH will just coordinate with them.	The total loan payable will be deducted to the total payment to be received by the owner.
Evangeline dela Cruz Brgy. Captain, Sta. Lucia Young	How sure are you that those affected are the one who will really be affected by the project?	The RAP Team will go to your area and will do tagging where they will place a sticker on the affected houses. The houses in the list is not yet final unless the parcellary survey is released. The only thing that can give the list is the parcellary survey of DPWH.
Hilario Bumanlag	Can we still plant in our lands even if the construction already begins?	Yes as long as it is outside the 60 meters.
Renato Asuncion PAPs, Sta. Lucia Old	Problem in our area is that when it rains, it floods. What more if it is embankment?	Box culverts and equalizers will be placed in irrigated areas so that there is continuous flow of water.
Aurea dela Cruz PAPs, Sta. Lucia Young	How are you going to pay the affected houses?	Payment is based on the size of the house, materials used and labor cost. We suggest that you demolish your own house to save any materials that can still be used.
Paquito Bumanlag PAPs, Sta. Lucia Old	What will happen if the owner of the house is different from the owner of the land?	Whoever paid for the construction of the house will receive the payment from DPWH. DPWH will ask the owner to sign a Quit claim waiver saying that the owner will not receive any payment for the house.
Ex-Brgy. Captain Morales- PAPs,	Will the fruit-bearing trees also be paid?	All trees that will be affected with the project will be paid

Brgy. Sta Lucia Old		especially the fruit-bearing trees. DPWH follows a guideline in paying trees. It depends on the height of the tree
Virginia Napico PAPs, Brgy. Sta. Lucia Old	I heard that a canal will be placed, what if the canal will get clogged?	We are coordinating with your Municipality if they have a place where to put other suitable materials since it cannot be used for maintenance because the soil has high clay content.
Agustin DG. Bao Jr. Brgy. Captain, Sta. Lucia Old	Will the stakes be moved further?	The stakes placed are the center line, so far it is not yet final if it will moved until the parcellary survey and design is available.



Registration started at 2:00



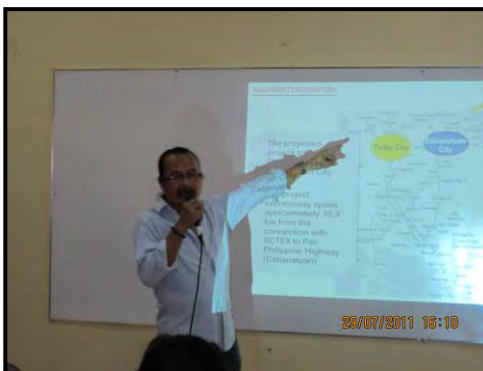
Introduction of Participants lead by Mr. Glenn Michael Alpez



Project design and alignment presented by Ms. Felicia Rubianes



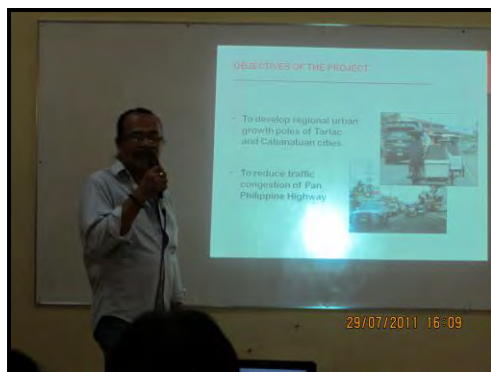
Welcome Remarks was delivered by Mr. George Baroga



Objectives of the Meeting and the Study was explained by Mr. Joseph Vargas



Project design and alignment presented by Felicia Rubianes



Project design and alignment presented by Joseph Vargas



**Paquito Bumanlag – PAPs Sta. Lucia Old** asking what will happen if his land will be divided into half, what will happen to the other part left which is too small.



**Hilario Bumanlag – PAPs, Sta. Lucia Old** asking if they can go along with their farming and land preparation during the construction period.



Closing remarks was lead by Mr. Floremy Regunan



**Floremy Regunan - SB Member, Zaragoza** asking the mode of payment for tenants and Landowners.



**Evangeline dela Cruz – Brgy. Captain Sta. Lucia Young**  
Asking for the final list of landowners to be affected and how to prove that the list of the landowners will be truly be affected





Renato Asuncion-PAPs Sta. Lucia Old  
Asking what will happen if the embankment will cause more flood to their farmlands.



Agustin DG. Bao Jr.- Brgy. Captain Sta. Lucia Old  
Asking if there will be any changes to the staking out and the alignment.



Auria dela Cruz inquiring on compensations of affected structures



Antonito Bao -PAPs Sta. Lucia Old  
Asking who will be recognized as owner to the CLT holders? And who will receive the compensation for road right of way?



Virginia Napico- PAPs, Sta. Lucia Old  
Asking for the canal that will be constructed at the expressway.



Ex Brgy. Captain Morales of Sta. Lucia Old inquiring on payments of affected crops and trees

# **P R O G R A M M E**

**Information, Education & Communication (IEC) Meeting  
with Project Affected Persons (PAPs)  
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS  
PROPOSED CENTRAL LUZON LINK EXPRESSWAY (CLLEX) PROJECT**

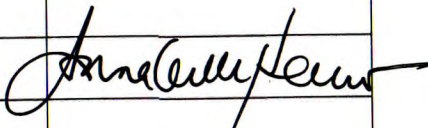
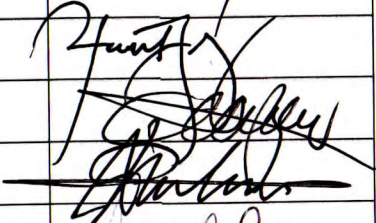
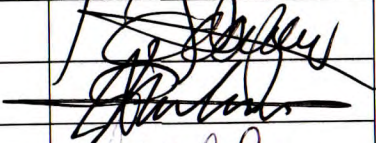




Venue: Session Hall, Municipality of Zaragoza Province of Nueva Ecija  
1400 – 1600HH, July 29, 2011

I. Registration	1400 – 1415HH	Session Hall
II. Welcome Remarks		Mr. George Baroga <i>SB Member</i>
III. Introduction of Participants		Ms. Crisley Ian V. Diot <i>Ecosyscorp, Inc.</i>
IV. Objectives of the Meeting		Ms. Annabelle N. Herrera <i>Ecosyscorp Inc.</i>
V. Presentation of the Project		Ms. Annabelle N. Herrera/ <i>Ecosyscorp, Inc.</i>
VI. Objectives and Activities of the Study		Ms. Annabelle N. Herrera <i>Ecosyscorp, Inc.</i>
VII. Open Forum:		Ms. Maricel P. Rolda <i>Ecosyscorp, Inc.</i>
VIII. Closing Remarks		Ms. Floremy M. Regunan <i>SB Member</i>

# ATTENDANCE SHEET

## Information, Education, Communication Meeting

### Central Luzon Link Expressway Project (CLLEX) Phase 1

Meeting #:	Date: July 29, 2011	Time: From 1400 To 1600	Venue: Municipal Session Hall of Zaragoza, Nueva Ecija	
Type of stakeholder	City officials of Zaragoza, Nueva Ecija, Project Affected Persons (PAPS) Direct and Indirect Barangay Officials of Sta. Lucia Young, and Sta. Lucia Young, Zaragoza, Nueva Ecija; Women's Sector, Senior Citizen's Sector; People's Organization, Farmer's Association, Non-Government Organization, Homeowner's Association, Transport Group			
Purpose of Meeting: To introduce the CLLEX Project; To gather and address the queries and concerns of the participants; and To conduct survey interview of PAPs and Indirectly Affected Persons				
Name	Designation/Title/Role	Address	Contact number	Signature
1 Engr. Sergio N. Dizon	Engr. III-PDD	DPWH Region III		
2 Engr. Fernando Dongca	District Engineer	Tarlac Sub District Office, Concepcion, Tarlac		
3 Engr. Edna Galora	Chief of Planning and Design	Tarlac Sub District Office, Concepcion, Tarlac		
4				
5 Engr. Florencio Rey Alano	PMO-BOT	DPWH NCR Comp. 2 <sup>nd</sup> St. Port Area, Manila		
6 Ms. Annabelle N. Herrera	EIA & RAP Team Leader	Ecosyscorp, Inc, Quezon City	951-40-59	
7 Mr. Arriz James N. Herrera	V.P. - Operations	Ecosyscorp, Inc, Quezon City	951-40-59	
8 Engr. Raul A. Fellizar	RAP Team Member	Ecosyscorp, Inc, Quezon City	951-40-59	
9 Mr. Joseph T. Vargas	RAP Team Member	Ecosyscorp, Inc, Quezon City	951-40-59	
10 Ms. Felicia G. Rubianes	RAP Team Member	Ecosyscorp, Inc, Quezon City	951-40-59	
11 Ms. Maricel P. Rolda	RAP Team Member	Ecosyscorp, Inc, Quezon City	951-40-59	
12 Ms. Crisley Ian V. Diot	RAP Team Member	Ecosyscorp, Inc, Quezon City	951-40-59	

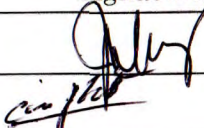


# ATTENDANCE SHEET

## Information, Education, Communication Meeting

### Central Luzon Link Expressway Project (CLLEX) Phase 1

Meeting #:	Date: July 29, 2011	Time: From 1400	To 1600	Venue: Municipal Session Hall of Zaragosa, Nueva Ecija
Type of stakeholder	City officials of Zaragosa, Nueva Ecija, Project Affected Persons (PAPS) Direct and Indirect Barangay Officials of Sta. Lucia Young, and Sta. Lucia Young, Zaragosa, Nueva Ecija; Women's Sector, Senior Citizen's Sector; People's Organization, Farmer's Association, Non-Government Organization, Homeowner's Association, Transport Group			
Purpose of Meeting: To introduce the CLLEX Project; To gather and address the queries and concerns of the participants; and To conduct survey interview of PAPs and Indirectly Affected Persons				

	Name	Designation/Title/Role	Address	Contact number	Signature
13	Mr. Glenn A. Alpez	EIA Team Member	Ecosyscorp, Inc, Quezon City	951-40-59	
14	Mr. Carlito Alcober	EIA Team Member	Ecosyscorp, Inc, Quezon City	951-40-59	
15	Mr. Edwin Velasco	EIA Team Member	Ecosyscorp, Inc, Quezon City	951-40-59	
16					
17					
18					
19					
20					
21					
22					
23					
24					



# ATTENDANCE SHEET

## Information, Education, Communication Meeting

### Central Luzon Link Expressway Project (CLLEX) Phase 1

Meeting #:	Date: July 29, 2011	Time: From 1400	To 1600	Venue: Municipal Session Hall of Zaragosa, Nueva Ecija
Type of stakeholder	City officials of Zaragosa, Nueva Ecija, Project Affected Persons (PAPS) Direct and Indirect Barangay Officials of Sta. Lucia Young, and Sta. Lucia Young, Zaragosa, Nueva Ecija; Women's Sector, Senior Citizen's Sector; People's Organization, Farmer's Association, Non-Government Organization, Homeowner's Association, Transport Group			
Purpose of Meeting: To introduce the CLLEX Project; To gather and address the queries and concerns of the participants; and To conduct survey interview of PAPs and Indirectly Affected Persons				

	Name	Designation/Title/Role	Address	Contact number	Signature
25	Hon. Lovella DG Belmonte-Espiritu	Mayor			
26	Hon. Francisco Llena Gabriel, Jr.	Vice Mayor			
27	Ms. Erlinda A. Gasapos	Municipal Administrator			
28	Mr. Josefino M. Reyes	Municipal Planning & Devt. Officer			
29	Ms. Yolanda D. Angeles	Municipal Assessor			
30	Ms. Liberty Portugal	Municipal Treasurer			
31	Mr. Agustin DG. Bao, Jr.	PB -Sta. Lucia Old	Sta. Lucia Old Car. N.E.	-	
32	Ms. Evangeline D. dela Cruz	PB -Sta. Lucia Young	Sta. Lucia (Y) Zaragosa, N.E.	0949415403	
33		Municipal Agrarian Reform Officer			
34	Ms. Corazon DL Dasig	Municipal Agriculturist			
35	GEORGE P. BARDA SB member		Sta Lucia Zaragosa NE	0949-476480	
36	FLOREMY M. REGUNAN S.B. MEMBER		SAN ISIDRO ZARAGOSA N.E.	0918559-7809	



# ATTENDANCE SHEET

## Information, Education, Communication Meeting

### Central Luzon Link Expressway Project (CLLEX) Phase 1

Meeting #:	Date: July 29, 2011	Time: From 1400	To 1600	Venue: Municipal Session Hall of Zaragosa, Nueva Ecija
Type of stakeholder	City officials of Zaragosa, Nueva Ecija, Project Affected Persons (PAPS) Direct and Indirect Barangay Officials of Sta. Lucia Young, and Sta. Lucia Young, Zaragosa, Nueva Ecija; Women's Sector, Senior Citizen's Sector; People's Organization, Farmer's Association, Non-Government Organization, Homeowner's Association, Transport Group			
Purpose of Meeting: To introduce the CLLEX Project; To gather and address the queries and concerns of the participants; and To conduct survey interview of PAPs and Indirectly Affected Persons				

Name	Designation/Title/Role	Address	Contact number	Signature
37 Elisa M. dela Cruz	land owner	Pugo Sta Lucia (Y) Zaragoza N.E.	09104205389	emdelacruz
38 Lucita N. dela Cruz	land owner	Pugo Sta Lucia (Y) Zaragoza N.E.	09104205388	Lucita N. dela Cruz
39 Aurea D. dela Cruz	land owner	Pugo Sta. Lucia (Y) Zaragoza N.E.		Aurea D. dela Cruz
40 Alma Barrios		Pugo Sta Lucia (Y) Zaragoza N.E.		albarrios
41 DANIEL C. RAMOS JR	TERESITA CALDERON	STO. ROSARIO (X) ZAR. N.E.	09942816003	Daniel C. Ramos Jr
42 Cheena P. Berber	Land owner/tenant	Sta. Lucia (Y), zar. N.E.	0916-534-7873	Cheena P. Berber
43 EDWIN F. DIAZ	REP. FELISA DIAL	STA LUCIA (Y) ZAR. N.E		Edwin F. Diaz
44 AURELIO DE LEON	LANDOWNER	S - 20 -	0917-4867409	Aurelio de Leon
45 BIENVENIDO C. DELACRUZ	LANDOWNER	STA LUCIA YOUNG, ZAR. N.E.	0918 2288876	Benvenuto C. Delacruz
46				
47				
48				



# ATTENDANCE SHEET

## Information, Education, Communication Meeting

### Central Luzon Link Expressway Project (CLLEX) Phase 1

Meeting #:	Date: July 29, 2011	Time: From 1400	To 1600	Venue: Municipal Session Hall of Zaragoza, Nueva Ecija
Type of stakeholder	City officials of Zaragoza, Nueva Ecija, Project Affected Persons (PAPS) Direct and Indirect Barangay Officials of Sta. Lucia Young, and Sta. Lucia Young, Zaragoza, Nueva Ecija; Women's Sector, Senior Citizen's Sector; People's Organization, Farmer's Association, Non-Government Organization, Homeowner's Association, Transport Group			
Purpose of Meeting: To introduce the CLLEX Project; To gather and address the queries and concerns of the participants; and To conduct survey interview of PAPs and Indirectly Affected Persons				

Name	Designation/Title/Role	Address	Contact number	Signature
ANTONINO F. BAO	ADMINISTRATOR	STA LUCIA OLD ZNE.	0921772828	[Signature]
WILANION BUMANAG	OWNER	STA LUCIA OLD ZNE		[Signature]
Josue Pechia	"	STA LUCIA OLD		[Signature]
Conrado E. Pechia	"	Sta Lucia old		[Signature]
Conrado Hernandez	"			[Signature]
Lawena N. Villanueva		Sta Lucia (O) Z.N.E		[Signature]
Virginia Napicog	Land owner	Sta Lucia (O) Z.N.E		[Signature]
RECINTO PALAPAN	LAND OWNER	STA LUCIA (O) ZAR N.E	09176277147	[Signature]
GASPAR DE PANO	LAND OWNER	STA LUCIA (O) Zar. N.E.	09994109838	[Signature]
Benito A. Rivera	landowner	Sta. Lucia (O) Zar. N.E.	-	[Signature]
JOSE D. PALAPAN	land owner	STA LUCIA (O) ZAR. N.E		[Signature]



## ATTENDANCE SHEET

## Information, Education, Communication Meeting

## Central Luzon Link Expressway Project (CLLEX) Phase 1

Meeting #:	Date: July 29, 2011	Time: From 1400	To 1600	Venue: Municipal Session Hall of Zaragosa, Nueva Ecija
------------	---------------------	-----------------	---------	--

Type of stakeholder	City officials of Zaragosa, Nueva Ecija, Project Affected Persons (PAPS) Direct and Indirect Barangay Officials of Sta. Lucia Young, and Sta. Lucia Young, Zaragosa, Nueva Ecija; Women's Sector, Senior Citizen's Sector; People's Organization, Farmer's Association, Non-Government Organization, Homeowner's Association, Transport Group
---------------------	---

Purpose of Meeting: To introduce the CLLEX Project; To gather and address the queries and concerns of the participants; and To conduct survey interview of PAPs and Indirectly Affected Persons

[illegible]

## ATTENDANCE SHEET

## Information, Education, Communication Meeting

## Central Luzon Link Expressway Project (CLLEX) Phase 1

[illegible]

---

## **Appendix I**

### **JICA Scoping Matrix**

---



# CENTRAL LUZON LINK EXPRESSWAY SCOPING MATRIX

CENTRAL LUZON LINK EXPRESSWAY SCORING MATRIX

No.	Item	Evaluation				Description
		Construction		Operation		
		+	-	+	-	
1	Involuntary Resettlement	A	B	A	C	According to the latest road alignment plan, 28 HHs (around 150 people) are the PAPs. RAP should be draw up based on the discussion between agencies and PAPs, also should be consider the alignment that will be minimized affected people as much as possible.
2	Local Economy such as Employment	A	B	B	D	It is likely that negative impact such as economic recession will occur due to the lost of farmland. Additionally, due to the separated farmland by new road, the agricultural production efficiency will be decline. On the other hand, the demand for labor that attends the construction and related work will increase. It lead to the activated of local economic situation.
3	Land Use and Utilization	B	A	B	D	Much of farmland will be lost, and change to road. It is likely that land along the new road also will change to market place or residential area, for example.
	Local Resources	A	B	D	A	During the construction, it is likely to be shortage of local resources such as food, water for drink and electricity due to increasing of workers/labors.
	Farm Land	B	A	A	D	Almost 157ha of farmland will be lost by this project. At the same time, agricultural activities will not continue there anymore.
4*	Social Institution, Social Infrastructure and Local Decision-making	A	B	B	A	There are some universities and hospitals at Tarlac, Aliaga and Cabanatuan cities. During the construction, it will be difficult to access to those social institutions due to the increasing of vehicles for construction. On the other hand, it may be convenience to access to those institutions.
5*	Poor	A	A	B	D	It is likely that employment opportunities will increase during construction stage. Additionally, it may occur that increasing of that opportunities will be expected to continue due to arising of economic activities along road and around I/C.
	Indigenous People					So far it has not been confirmed that indigenous people live in project site.
6*	Misdistribution of Benefit and Damage	B	B	A	D	It is likely that misdistribution of benefit and damage by construction of roads will not likely occur.

# CENTRAL LUZON LINK EXPRESSWAY SCOPING MATRIX

No.	Item	Evaluation				Description
		Construction		Operation		
		+	-	+	-	
7*	Cultural Heritage	B	A	A	D	Cultural and historical heritage does not exist at project site. There are churches around area, but negative impact, such as a resettlement of church is not expected.
8*	Local Conflict of Interests	L	B	A	A	Depend on the location of new I/C, minor disputes between barangay may occur.
9*	Water Usage and Water Rights	A	B	A	D	For damming the river during the construction, some people cannot use water.
10*	Sanitation	B	A	D	A	Sanitary condition around construction site is likely to become unfavorable due to generation of waste and unsuitable human waste treatment during the construction.
11*	Risk, HIV/AIDS	A	A	B	A	Possible infectious diseases are likely to increase during construction due to increase of construction workers.
12*	Accident	D	A	B	B	Risk of traffic accidents is likely to increase due to growth of construction vehicles and heavily machines during construction and operation.
13	Topography and Geographical Feature	A	B	A	B	The proposed project will not include large scale change of topography and geographical features.
14	Soil Erosion					During the construction stage, the outflow of surface soil is likely to occur by rain.
15	Groundwater	B	B	A	A	There is groundwater aquifer from 0.5m to 4.3m at site. During the construction, It may not sufficient amount of water because the waterproof construction will be adopted, but that impact is limited.
16	Hydrology	A	B	A	A	Because the planned road through the rice paddies, and then in service during the construction period will be concerns about the impact to water. But impact on mainstream river is limited.
17	Flora, Fauna and Biodiversity	B	A	B	A	During construction, and to cut down trees near the road construction site, will affect the ecology of plants and animals. After construction activities by green plantations, the ecological recovery can be expected.
18*	Natural Reserve	L	A	B	A	There are no Natural Reserved area in accordance with DENR, NIPAS at project site

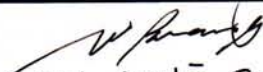


**CENTRAL LUZON LINK EXPRESSWAY SCOPING MATRIX**

No.	Item	Evaluation				Description
		Construction		Operation		
		+	-	+	-	
19*	Landscape	A	B	A	A	Some impact is expected during the construction temporary, but it will be minimized by mitigations.
20*	Global Warming	B	B	A	A	Extent of impact is unknown at present stage. However, CO2 emission is likely to increase during construction and operation due to usage of diesel engine for vehicles, machineries and generators.
21*	Air Pollution	A	B	A	B	Atmospheric pollutant is likely to increase during construction and operation due to increase of traffic, and usage of vehicles, machineries and generators. So baseline survey for regular observation is necessary at present stage.
22*	Water Pollution	B	A	A	A	During the construction and operation stage, excavated soil, surface water and liquid oil from vehicles and machineries may pollute the around river water. Baseline survey for regular observation is necessary at present stage.
23*	Soil Contamination	A	B	B	A	During the construction, excavated soil, surface water and liquid oil from vehicles and machineries may pollute the ground.
24*	Waste	A	B	A	A	Construction debris such as soil is likely to be generated during the construction. Human waste will be generated from workers during construction and operation.
25*	Noise and Vibration	B	B	B	A	Noise and vibration occurred from machineries and /or vehicles usage arising from construction works are expected. Baseline survey for regular observation is necessary at present stage.
26*	Ground Subsidence	A	A	A	B	Large scale construction and activities infecting ground water is not planned at present stage.
27*	Offensive Odor	B	B	B	D	Possible offensive odor by emission from construction vehicles and set latrine for workers during construction will be increased.
28*	Bottom sediment	D	B	B	D	There are few possibilities of bottom sediment deterioration due to inflow of soil from construction site.

# CENTRAL LUZON LINK EXPRESSWAY SCOPING MATRIX

No.	Item	Evaluation				Description	
		Construction		Operation			
		+	-	+	-		
29*	Traffic Jam					During the construction, traffic jam may occur at town are due to using existing roads. Additionally when the construction of I/C, traffic jam will be expected because of the roadblock.	
30*	Flood					During the construction, drainage function will be impacted due to excavating works. Project site is a flat terrain, and then there were floods up to now. It is necessary to consider adequate drainage system.	
Remarks; +: Positive, -: Negative A: Significant impact is expected, B: Some impact is expected, C: extent of impact is unknown at this stage, D: No impact is expected							
Resource;  ECC Application Document: EIS on Central Luzon Expressway (CLLEX) Project(2010, DPWH-PMO/FS) Marked "*" are items not including JICA ESC Guideline							

  
JUN-JUNE BUMANLAG  
 SIGNATURE OVER PRINTED NAME

BRGY BETES  
 DESIGNATION

BETES  
 BARANGAY  
 DATE: \_\_\_\_\_



# CENTRAL LUZON LINK EXPRESSWAY SCOPING MATRIX

No.	Item	Evaluation				Description
		Construction		Operation		
		+	-	+	-	
1	Involuntary Resettlement	A	B	C	B	According to the latest road alignment plan, 28 HHs (around 150 people) are the PAPs. RAP should be draw up based on the discussion between agencies and PAPs, also should be consider the alignment that will be minimized affected people as much as possible.
2	Local Economy such as Employment	A	B	B	D	It is likely that negative impact such as economic recession will occur due to the lost of farmland. Additionally, due to the separated farmland by new road, the agricultural production efficiency will be decline. On the other hand, the demand for labor that attends the construction and related work will increase. It lead to the activated of local economic situation.
3	Land Use and Utilization	B	A	D	B	Much of farmland will be lost, and change to road. It is likely that land along the new road also will change to market place or residential area, for example.
	Local Resources	A	B	D	A	During the construction, it is likely to be shortage of local resources such as food, water for drink and electricity due to increasing of workers/labors.
	Farm Land	B	A	A	D	Almost 157ha of farmland will be lost by this project. At the same time, agricultural activities will not continue there anymore.
4*	Social Institution, Social Infrastructure and Local Decision-making	A	B	B	A	There are some universities and hospitals at Tarlac, Aliaga and Cabanatuan cities. During the construction, it will be difficult to access to those social institutions due to the increasing of vehicles for construction. On the other hand, it may be convenience to access to those institutions.
5*	Poor	A	A	B	D	It is likely that employment opportunities will increase during construction stage. Additionally, it may occur that increasing of that opportunities will be expected to continue due to arising of economic activities along road and around I/C.
	Indigenous People	A	A	B	B	So far it has not been confirmed that indigenous people live in project site.
6*	Misdistribution of Benefit and Damage	B	D	A	B	It is likely that misdistribution of benefit and damage by construction of roads will not likely occur.



# CENTRAL LUZON LINK EXPRESSWAY SCOPING MATRIX

CENTRAL LUZON LINK EXPRESSWAY SCOPING MATRIX

No.	Item	Evaluation				Description
		Construction		Operation		
		+	-	+	-	
7*	Cultural Heritage	B	A	A	D	Cultural and historical heritage does not exist at project site. There are churches around area, but negative impact, such as a resettlement of church is not expected.
8*	Local Conflict of Interests	A	B	A	A	Depend on the location of new I/C, minor disputes between barangay may occur.
9*	Water Usage and Water Rights	A	B	A	A	For damming the river during the construction, some people cannot use water.
10*	Sanitation	B	A	D	A	Sanitary condition around construction site is likely to become unfavorable due to generation of waste and unsuitable human waste treatment during the construction.
11*	Risk, HIV/AIDS	A	A	B	A	Possible infectious diseases are likely to increase during construction due to increase of construction workers.
12*	Accident	B	B	A	A	Risk of traffic accidents is likely to increase due to growth of construction vehicles and heavily machines during construction and operation.
13	Topography and Geographical Feature	D	A	B	B	The proposed project will not include large scale change of topography and geographical features.
14	Soil Erosion	A	A	B	B	During the construction stage, the outflow of surface soil is likely to occur by rain.
15	Groundwater	B	B	A	A	There is groundwater aquifer from 0.5m to 4.3m at site. During the construction, It may not sufficient amount of water because the waterproof construction will be adopted, but that impact is limited.
16	Hydrology	A	D	A	B	Because the planned road through the rice paddies, and then in service during the construction period will be concerns about the impact to water. But impact on mainstream river is limited.
17	Flora, Fauna and Biodiversity	B	A	B	A	During construction, and to cut down trees near the road construction site, will affect the ecology of plants and animals. After construction activities by green plantations, the ecological recovery can be expected.
18*	Natural Reserve	A	A	A	A	There are no Natural Reserved area in accordance with DENR, NIPAS at project site

# CENTRAL LUZON LINK EXPRESSWAY SCOPING MATRIX

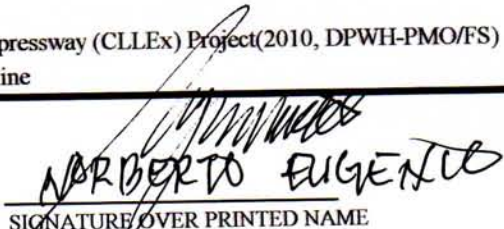
CENTRAL LUZON LINK EXPRESSWAY SCOPING MATRIX

No.	Item	Evaluation				Description
		Construction		Operation		
		+	-	+	-	
19*	Landscape	A	A	A	A	Some impact is expected during the construction temporary, but it will be minimized by mitigations.
20*	Global Warming	B	B	D	A	Extent of impact is unknown at present stage. However, CO2 emission is likely to increase during construction and operation due to usage of diesel engine for vehicles, machineries and generators.
21*	Air Pollution	A	D	B	A	Atmospheric pollutant is likely to increase during construction and operation due to increase of traffic, and usage of vehicles, machineries and generators. So baseline survey for regular observation is necessary at present stage.
22*	Water Pollution	B	B	D	D	During the construction and operation stage, excavated soil, surface water and liquid oil from vehicles and machineries may pollute the around river water. Baseline survey for regular observation is necessary at present stage.
23*	Soil Contamination	A	B	D	A	During the construction, excavated soil, surface water and liquid oil from vehicles and machineries may pollute the ground.
24*	Waste	A	B	A	A	Construction debris such as soil is likely to be generated during the construction. Human waste will be generated from workers during construction and operation.
25*	Noise and Vibration	B	B	A	A	Noise and vibration occurred from machineries and /or vehicles usage arising from construction works are expected. Baseline survey for regular observation is necessary at present stage.
26*	Ground Subsidence	A	A	D	B	Large scale construction and activities infecting ground water is not planned at present stage.
27*	Offensive Odor	B	A	A	B	Possible offensive odor by emission from construction vehicles and set latrine for workers during construction will be increased.
28*	Bottom sediment	A	D	A	A	There are few possibilities of bottom sediment deterioration due to inflow of soil from construction site.



# CENTRAL LUZON LINK EXPRESSWAY SCOPING MATRIX

No.	Item	Evaluation				Description	
		Construction		Operation			
		+	-	+	-		
29*	Traffic Jam	A	B	A	D	During the construction, traffic jam may occur at town are due to using existing roads. Additionally when the construction of I/C, traffic jam will be expected because of the roadblock.	
30*	Flood	A	B	A	A	During the construction, drainage function will be impacted due to excavating works. Project site is a flat terrain, and then there were floods up to now. It is necessary to consider adequate drainage system.	
<p>Remarks;</p> <p>+: Positive, -: Negative</p> <p>A: Significant impact is expected, B: Some impact is expected,</p> <p>C: extent of impact is unknown at this stage, D: No impact is expected</p> <p>Resource;</p> <p>ECC Application Document: EIS on Central Luzon Expressway (CLLEX) Project(2010, DPWH-PMO/FS)</p> <p>Marked "*" are items not including JICA ESC Guideline</p>							

  
 NORBERTO EUGENIO  
 SIGNATURE OVER PRINTED NAME  
 BRGY. CAPTAIN  
 DESIGNATION  
 BIBICLAT  
 BARANGAY  
 DATE: \_\_\_\_\_

**CENTRAL LUZON LINK EXPRESSWAY SCOPING MATRIX**

No.	Item	Evaluation				Description
		Construction		Operation		
		+	-	+	-	
1	Involuntary Resettlement	D	A	D	D	According to the latest road alignment plan, 28 HHs (around 150 people) are the PAPs. RAP should be draw up based on the discussion between agencies and PAPs, also should be consider the alignment that will be minimized affected people as much as possible.
2	Local Economy such as Employment	C	B	C	C	It is likely that negative impact such as economic recession will occur due to the lost of farmland. Additionally, due to the separated farmland by new road, the agricultural production efficiency will be decline. On the other hand, the demand for labor that attends the construction and related work will increase. It lead to the activated of local economic situation.
3	Land Use and Utilization	D	B	C	D	Much of farmland will be lost, and change to road. It is likely that land along the new road also will change to market place or residential area, for example.
	Local Resources	D	B	D	D	During the construction, it is likely to be shortage of local resources such as food, water for drink and electricity due to increasing of workers/labors.
	Farm Land	D	A	D	B	Almost 157ha of farmland will be lost by this project. At the same time, agricultural activities will not continue there anymore.
4*	Social Institution, Social Infrastructure and Local Decision-making	D	B	B	D	There are some universities and hospitals at Tarlac, Aliaga and Cabanatuan cities. During the construction, it will be difficult to access to those social institutions due to the increasing of vehicles for construction. On the other hand, it may be convenience to access to those institutions.
5*	Poor	C	B	B	D	It is likely that employment opportunities will increase during construction stage. Additionally, it may occur that increasing of that opportunities will be expected to continue due to arising of economic activities along road and around I/C.
	Indigenous People	D	D	D	D	So far it has not been confirmed that indigenous people live in project site.



**CENTRAL LUZON LINK EXPRESSWAY SCOPING MATRIX**

No.	Item	Evaluation				Description
		Construction		Operation		
		+	-	+	-	
6*	Misdistribution of Benefit and Damage	D	D	C	C	It is likely that misdistribution of benefit and damage by construction of roads will not likely occur.
7*	Cultural Heritage	D	D	D	D	Cultural and historical heritage does not exist at project site. There are churches around area, but negative impact, such as a resettlement of church is not expected.
8*	Local Conflict of Interests	D	D	D	C	Depend on the location of new I/C, minor disputes between barangay may occur.
9*	Water Usage and Water Rights	D	B	D	C	For damming the river during the construction, some people cannot use water.
10*	Sanitation	D	B	D	D	Sanitary condition around construction site is likely to become unfavorable due to generation of waste and unsuitable human waste treatment during the construction.
11*	Risk, HIV/AIDS	D	D	D	D	Possible infectious diseases are likely to increase during construction due to increase of construction workers.
12*	Accident	D	B	D	B	Risk of traffic accidents is likely to increase due to growth of construction vehicles and heavily machines during construction and operation.
13	Topography and Geographical Feature	D	D	D	D	The proposed project will not include large scale change of topography and geographical features.
14	Soil Erosion	D	D	D	D	During the construction stage, the outflow of surface soil is likely to occur by rain.
15	Groundwater	D	D	D	D	There is groundwater aquifer from 0.5m to 4.3m at site. During the construction, It may not sufficient amount of water because the waterproof construction will be adopted, but that impact is limited.
16	Hydrology	D	B	D	D	Because the planned road through the rice paddies, and then in service during the construction period will be concerns about the impact to water. But impact on mainstream river is limited.
17	Flora, Fauna and Biodiversity	D	B	D	D	During construction, and to cut down trees near the road construction site, will affect the ecology of plants and animals. After construction activities by green plantations, the ecological recovery can be expected.



**CENTRAL LUZON LINK EXPRESSWAY SCOPING MATRIX**

No.	Item	Evaluation				Description
		Construction		Operation		
		+	-	+	-	
18*	Natural Reserve	D	D	D	D	There are no Natural Reserved area in accordance with DENR, NIPAS at project site
19*	Landscape	D	D	D	C	Some impact is expected during the construction temporary, but it will be minimized by mitigations.
20*	Global Warming	D	E	D	E	Extent of impact is unknown at present stage. However, CO2 emission is likely to increase during construction and operation due to usage of diesel engine for vehicles, machineries and generators.
21*	Air Pollution	D	E	D	E	Atmospheric pollutant is likely to increase during construction and operation due to increase of traffic, and usage of vehicles, machineries and generators. So baseline survey for regular observation is necessary at present stage.
22*	Water Pollution	D	E	D	E	During the construction and operation stage, excavated soil, surface water and liquid oil from vehicles and machineries may pollute the around river water. Baseline survey for regular observation is necessary at present stage.
23*	Soil Contamination	D	E	D	C	During the construction, excavated soil, surface water and liquid oil from vehicles and machineries may pollute the ground.
24*	Waste	D	E	D	D	Construction debris such as soil is likely to be generated during the construction. Human waste will be generated from workers during construction and operation.
25*	Noise and Vibration	D	E	D	C	Noise and vibration occurred from machineries and /or vehicles usage arising from construction works are expected. Baseline survey for regular observation is necessary at present stage.
26*	Ground Subsidence	D	D	D	D	Large scale construction and activities infecting ground water is not planned at present stage.
27*	Offensive Odor	D	E	D	D	Possible offensive odor by emission from construction vehicles and set latrine for workers during construction will be increased.
28*	Bottom sediment	D	D	D	C	There are few possibilities of bottom sediment deterioration due to inflow of soil from construction site.

# CENTRAL LUZON LINK EXPRESSWAY SCOPING MATRIX

No.	Item	Evaluation				Description
		Construction		Operation		
		+	-	+	-	
29*	Traffic Jam	D	B	C	D	During the construction, traffic jam may occur at town are due to using existing roads. Additionally when the construction of I/C, traffic jam will be expected because of the roadblock.
30*	Flood	D	C	D	C	During the construction, drainage function will be impacted due to excavating works. Project site is a flat terrain, and then there were floods up to now. It is necessary to consider adequate drainage system.
Remarks; +: Positive, -: Negative A: Significant impact is expected, B: Some impact is expected, C: extent of impact is unknown at this stage, D: No impact is expected						
Resource;  ECC Application Document: EIS on Central Luzon Expressway (CLLEx) Project(2010, DPWH-PMO/FS) Marked "*" are items not including JICA ESC Guideline						

  
 RENATO A. IMPERIO

SIGNATURE OVER PRINTED NAME

PUNONG BARANGAY  
 DESIGNATION

CHALUANGANGAN  
 BARANGAY

DATE: AUG. 04, 2011



# CENTRAL LUZON LINK EXPRESSWAY SCOPING MATRIX

No.	Item	Evaluation				Description
		Construction		Operation		
		+	-	+	-	
1	Involuntary Resettlement	A	A	D	D	According to the latest road alignment plan, 28 HHs (around 150 people) are the PAPs. RAP should be draw up based on the discussion between agencies and PAPs, also should be consider the alignment that will be minimized affected people as much as possible.
2	Local Economy such as Employment	D	A	D	D	It is likely that negative impact such as economic recession will occur due to the lost of farmland. Additionally, due to the separated farmland by new road, the agricultural production efficiency will be decline. On the other hand, the demand for labor that attends the construction and related work will increase. It lead to the activated of local economic situation.
3	Land Use and Utilization	D	A	C	D	Much of farmland will be lost, and change to road. It is likely that land along the new road also will change to market place or residential area, for example.
	Local Resources	D	A	D	D	During the construction, it is likely to be shortage of local resources such as food, water for drink and electricity due to increasing of workers/labors.
	Farm Land		A			Almost 157ha of farmland will be lost by this project. At the same time, agricultural activities will not continue there anymore.
4*	Social Institution, Social Infrastructure and Local Decision-making	D	B	C	D	There are some universities and hospitals at Tarlac, Aliaga and Cabanatuan cities. During the construction, it will be difficult to access to those social institutions due to the increasing of vehicles for construction. On the other hand, it may be convenience to access to those institutions.
5*	Poor	B	B	B	D	It is likely that employment opportunities will increase during construction stage. Additionally, it may occur that increasing of that opportunities will be expected to continue due to arising of economic activities along road and around I/C.
	Indigenous People	D	B	D	D	So far it has not been confirmed that indigenous people live in project site.

# CENTRAL LUZON LINK EXPRESSWAY SCOPING MATRIX

No.	Item	Evaluation				Description
		Construction		Operation		
		+	-	+	-	
6*	Misdistribution of Benefit and Damage	D	B	D	D	It is likely that misdistribution of benefit and damage by construction of roads will not likely occur.
7*	Cultural Heritage	D	B	D	D	Cultural and historical heritage does not exist at project site. There are churches around area, but negative impact, such as a resettlement of church is not expected.
8*	Local Conflict of Interests	D	D	D	C	Depend on the location of new I/C, minor disputes between barangay may occur.
9*	Water Usage and Water Rights	D	B	D	C	For damming the river during the construction, some people cannot use water.
10*	Sanitation	D	B	D	D	Sanitary condition around construction site is likely to become unfavorable due to generation of waste and unsuitable human waste treatment during the construction.
11*	Risk, HIV/AIDS	D	B	D	D	Possible infectious diseases are likely to increase during construction due to increase of construction workers.
12*	Accident	D	B	D	B	Risk of traffic accidents is likely to increase due to growth of construction vehicles and heavily machines during construction and operation.
13	Topography and Geographical Feature	D	B	D	B	The proposed project will not include large scale change of topography and geographical features.
14	Soil Erosion	D	B	D	D	During the construction stage, the outflow of surface soil is likely to occur by rain.
15	Groundwater	D	B	D	D	There is groundwater aquifer from 0.5m to 4.3m at site. During the construction, It may not sufficient amount of water because the waterproof construction will be adopted, but that impact is limited.
16	Hydrology	D	B	D	D	Because the planned road through the rice paddies, and then in service during the construction period will be concerns about the impact to water. But impact on mainstream river is limited.
17	Flora, Fauna and Biodiversity	D	B	D	C	During construction, and to cut down trees near the road construction site, will affect the ecology of plants and animals. After construction activities by green plantations, the ecological recovery can be expected.




**CENTRAL LUZON LINK EXPRESSWAY SCOPING MATRIX**

No.	Item	Evaluation				Description
		Construction		Operation		
		+	-	+	-	
18*	Natural Reserve	D	D	D	C	There are no Natural Reserved area in accordance with DENR, NIPAS at project site
19*	Landscape	D	D	D	C	Some impact is expected during the construction temporary, but it will be minimized by mitigations.
20*	Global Warming	D	D	D	B	Extent of impact is unknown at present stage. However, CO2 emission is likely to increase during construction and operation due to usage of diesel engine for vehicles, machineries and generators.
21*	Air Pollution	D	D	D	B	Atmospheric pollutant is likely to increase during construction and operation due to increase of traffic, and usage of vehicles, machineries and generators. So baseline survey for regular observation is necessary at present stage.
22*	Water Pollution	D	D	D	B	During the construction and operation stage, excavated soil, surface water and liquid oil from vehicles and machineries may pollute the around river water. Baseline survey for regular observation is necessary at present stage.
23*	Soil Contamination	D	B	D	C	During the construction, excavated soil, surface water and liquid oil from vehicles and machineries may pollute the ground.
24*	Waste	D	B	D	D	Construction debris such as soil is likely to be generated during the construction. Human waste will be generated from workers during construction and operation.
25*	Noise and Vibration	D	B	D	C	Noise and vibration occurred from machineries and /or vehicles usage arising from construction works are expected. Baseline survey for regular observation is necessary at present stage.
26*	Ground Subsidence	D	B	D	D	Large scale construction and activities infecting ground water is not planned at present stage.
27*	Offensive Odor	D	B	D	D	Possible offensive odor by emission from construction vehicles and set latrine for workers during construction will be increased.
28*	Bottom sediment	D	D	D	C	There are few possibilities of bottom sediment deterioration due to inflow of soil from construction site.



# CENTRAL LUZON LINK EXPRESSWAY SCOPING MATRIX

No.	Item	Evaluation				Description
		Construction		Operation		
		+	-	+	-	
29*	Traffic Jam	D	B	C	D	During the construction, traffic jam may occur at town are due to using existing roads. Additionally when the construction of I/C, traffic jam will be expected because of the roadblock.
30*	Flood	D	A	D	C	During the construction, drainage function will be impacted due to excavating works. Project site is a flat terrain, and then there were floods up to now. It is necessary to consider adequate drainage system.
Remarks;						
+: Positive, -: Negative						
A: Significant impact is expected, B: Some impact is expected,						
C: extent of impact is unknown at this stage, D: No impact is expected						
Resource;						
ECC Application Document: EIS on Central Luzon Expressway (CLLEx) Project(2010, DPWH-PMO/FS)						
Marked "*" are items not including JICA ESC Guideline						

  
EDNA R. DELA CRUZ  
 SIGNATURE OVER PRINTED NAME

PROJ. CAPTAIN  
 DESIGNATION

GUEVARA  
 BARANGAY  
 DATE: 07/27/2011

## CENTRAL LUZON LINK EXPRESSWAY SCOPING MATRIX

SAMPL

No.	Item	Evaluation				Description
		Construction		Operation		
		+	-	+	-	
1	Involuntary Resettlement	D	A	D	D	According to the latest road alignment plan, 28 HHs (around 150 people) are the PAPs. RAP should be draw up based on the discussion between agencies and PAPs, also should be consider the alignment that will be minimized affected people as much as possible.
2	Local Economy such as Employment	C	B	C	C	economic recession will occur due to the lost of farmland. Additionally, due to the separated farmland by new road, the agricultural production efficiency will be decline. On the other hand, the demand for labor that attends the construction and related work will increase. It lead to the activated of local economic situation.
3	Land Use and Utilization	D	B	C	D	Much of farmland will be lost, and change to road. It is likely that land along the new road also will change to market place or residential area, for example.
	Local Resources	D	B	D	D	During the construction, it is likely to be shortage of local resources such as food, water for drink and electricity due to increasing of workers/labors.
	Farm Land	D	A	D	B	Almost 15/ha of farmland will be lost by this project. At the same time, agricultural activities will not continue there anymore.
4*	Social Institution, Social Infrastructure and Local Decision-making	D	B	B	D	There are some universities and hospitals at Tarlac, Aliaga and Cabanatuan cities. During the construction, it will be difficult to access to those social institutions due to the increasing of vehicles for construction. On the other hand, it may be convenience to access to those institutions.
5*	Poor	C	B	B	D	It is likely that employment opportunities will increase during construction stage. Additionally, it may occur that increasing of that opportunities will be expected to continue due to arising of economic activities along road and around I/C.
	Indigenous People	D	D	D	D	So far it has not been confirmed that indigenous people live in project site.
6*	Misdistribution of Benefit and Damage	D	D	C	C	It is likely that misdistribution of benefit and damage by construction of roads will not likely occur.
7*	Cultural Heritage	D	D	D	D	Cultural and historical heritage does not exist at project site. There are churches around area, but negative impact, such as a resettlement of church is not expected.
8*	Local Conflict of Interests	D	D	D	C	Depend on the location of new I/C, minor disputes between barangay may occur.
9*	Water Usage and Water Rights	D	B	D	C	For damming the river during the construction, some people cannot use water.



## CENTRAL LUZON LINK EXPRESSWAY SCOPING MATRIX

SAMPLE

No.	Item	Evaluation				Description
		Construction		Operation		
		+	-	+	-	
10*	Sanitation	D	B	D	D	Sanitary condition around construction site is likely to become unfavorable due to generation of waste and unsuitable human waste treatment during the construction.
11*	Risk, HIV/AIDS	D	B	D	D	Possible infectious diseases are likely to increase during construction due to increase of construction workers.
12*	Accident	D	B	D	B	Risk of traffic accidents is likely to increase due to growth of construction vehicles and heavily machines during construction and operation.
13	Topography and Geographical Feature	D	D	D	D	The proposed project will not include large scale change of topography and geographical features.
14	Soil Erosion	D	B	D	D	During the construction stage, the outflow of surface soil is likely to occur by rain.
15	Groundwater	D	B	D	D	There is groundwater aquifer from 0.5m to 4.5m at site. During the construction, It may not sufficient amount of water because the waterproof construction will be adopted, but that impact is limited.
16	Hydrology	D	B	D	D	Because the planned road through the rice paddies, and then in service during the construction period will be concerns about the impact to water. But impact on mainstream river is limited.
17	Flora, Fauna and Biodiversity	D	B	D	C	During construction, and to cut down trees near the road construction site, will affect the ecology of plants and animals. After construction activities by green plantations, the ecological recovery can be expected.
18*	Natural Reserve	D	D	D	C	There are no Natural Reserved area in accordance with DENR, NIPAS at project site
19*	Landscape	D	D	D	C	Some impact is expected during the construction temporary, but it will be minimized by mitigations.
20*	Global Warming	D	B	D	B	Extent of impact is unknown at present stage. However, CO2 emission is likely to increase during construction and operation due to usage of diesel engine for vehicles, machineries and generators.
21*	Air Pollution	D	B	D	B	Atmospheric pollutant is likely to increase during construction and operation due to increase of traffic, and usage of vehicles, machineries and generators. So baseline survey for regular observation is necessary at present stage.
22*	Water Pollution	D	B	D	B	During the construction and operation stage, excavated soil, surface water and liquid oil from vehicles and machineries may pollute the around river water. Baseline survey for regular observation is necessary at present stage.
23*	Soil Contamination	D	B	D	C	During the construction, excavated soil, surface water and liquid oil from vehicles and machineries may pollute the ground.

## CENTRAL LUZON LINK EXPRESSWAY SCOPING MATRIX

SAMPLE

No.	Item	Evaluation				Description
		Construction		Operation		
		+	-	+	-	
24*	Waste	D	B	D	D	Construction debris such as soil is likely to be generated during the construction. Human waste will be generated from workers during construction and operation.
25*	Noise and Vibration	D	B	D	C	Noise and vibration occurred from machineries and /or vehicles usage arising from construction works are expected. Baseline survey for regular observation is necessary at present stage.
26*	Ground Subsidence	D	D	D	D	Large scale construction and activities infecting ground water is not planned at present stage.
27*	Offensive Odor	D	B	D	D	Possible offensive odor by emission from construction vehicles and set latrine for workers during construction will be increased.
28*	Bottom sediment	D	D	D	C	There are few possibilities of bottom sediment deterioration due to inflow of soil from construction site.
29*	Traffic Jam	D	B	C	D	During the construction, traffic jam may occur at town are due to using existing roads. Additionally when the construction of I/C, traffic jam will be expected because of the roadblock.
30*	Flood	D	C	D	C	During the construction, drainage function will be impacted due to excavating works. Project site is a flat terrain, and then there were floods up to now. It is necessary to consider adequate drainage system.
Remarks;						
+: Positive, -: Negative						
A: Significant impact is expected, B: Some impact is expected,						
C: extent of impact is unknown at this stage, D: No impact is expected						
Resource;						
ECC Application Document: EIS on Central Luzon Expressway (CLLEx) Project(2010, DPWH-PMO/FS)						
Marked ”*” are items not including JICA ESC Guideline						

  
**EDSON PAJABILLO**

SIGNATURE OVER PRINTED NAME

**DR. Y. CONCEPCION**

DESIGNATION

**LA PURISIMA**

BARANGAY

DATE: 7/27/11



# CENTRAL LUZON LINK EXPRESSWAY SCOPING MATRIX

No.	Item	Evaluation				Description
		Construction		Operation		
		+	-	+	-	
1	Involuntary Resettlement	D	B	D	D	According to the latest road alignment plan, 28 HHs (around 150 people) are the PAPs. RAP should be draw up based on the discussion between agencies and PAPs, also should be consider the alignment that will be minimized affected people as much as possible.
2	Local Economy such as Employment	C	B	C	B	It is likely that negative impact such as economic recession will occur due to the lost of farmland. Additionally, due to the separated farmland by new road, the agricultural production efficiency will be decline. On the other hand, the demand for labor that attends the construction and related work will increase. It lead to the activated of local economic situation.
3	Land Use and Utilization	D	A	B	D	Much of farmland will be lost, and change to road. It is likely that land along the new road also will change to market place or residential area, for example.
	Local Resources	D	D	D	D	During the construction, it is likely to be shortage of local resources such as food, water for drink and electricity due to increasing of workers/labors.
	Farm Land	D	B	B	B	Almost 157ha of farmland will be lost by this project. At the same time, agricultural activities will not continue there anymore.
4*	Social Institution, Social Infrastructure and Local Decision-making	B	B	A	D	There are some universities and hospitals at Tarlac, Aliaga and Cabanatuan cities. During the construction, it will be difficult to access to those social institutions due to the increasing of vehicles for construction. On the other hand, it may be convenience to access to those institutions.
5*	Poor	D	B	A	C	It is likely that employment opportunities will increase during construction stage. Additionally, it may occur that increasing of that opportunities will be expected to continue due to arising of economic activities along road and around I/C.
	Indigenous People	C	C	C	C	So far it has not been confirmed that indigenous people live in project site.



# CENTRAL LUZON LINK EXPRESSWAY SCOPING MATRIX

No.	Item	Evaluation				Description
		Construction		Operation		
		+	-	+	-	
6*	Misdistribution of Benefit and Damage	B	A	B	C	It is likely that misdistribution of benefit and damage by construction of roads will not likely occur.
7*	Cultural Heritage	D	D	C	C	Cultural and historical heritage does not exist at project site. There are churches around area, but negative impact, such as a resettlement of church is not expected.
8*	Local Conflict of Interests	D	D	D	D	Depend on the location of new I/C, minor disputes between barangay may occur.
9*	Water Usage and Water Rights	B	A	D	B	For damming the river during the construction, some people cannot use water.
10*	Sanitation	B	A	C	A	Sanitary condition around construction site is likely to become unfavorable due to generation of waste and unsuitable human waste treatment during the construction.
11*	Risk, HIV/AIDS	D	B	D	B	Possible infectious diseases are likely to increase during construction due to increase of construction workers.
12*	Accident	D	B	D	B	Risk of traffic accidents is likely to increase due to growth of construction vehicles and heavily machines during construction and operation.
13	Topography and Geographical Feature	D	D	D	D	The proposed project will not include large scale change of topography and geographical features.
14	Soil Erosion	D	B	D	D	During the construction stage, the outflow of surface soil is likely to occur by rain.
15	Groundwater	D	B	B	D	There is groundwater aquifer from 0.5m to 4.3m at site. During the construction, It may not sufficient amount of water because the waterproof construction will be adopted, but that impact is limited.
16	Hydrology	D	B	D	D	Because the planned road through the rice paddies, and then in service during the construction period will be concerns about the impact to water. But impact on mainstream river is limited.
17	Flora, Fauna and Biodiversity	D	B	C	C	During construction, and to cut down trees near the road construction site, will affect the ecology of plants and animals. After construction activities by green plantations, the ecological recovery can be expected.

# CENTRAL LUZON LINK EXPRESSWAY SCOPING MATRIX

No.	Item	Evaluation				Description
		Construction		Operation		
		+	-	+	-	
18*	Natural Reserve	D	B	D	D	There are no Natural Reserved area in accordance with DENR, NIPAS at project site
19*	Landscape	D	D	D	C	Some impact is expected during the construction temporary, but it will be minimized by mitigations.
20*	Global Warming	D	B	D	D	Extent of impact is unknown at present stage. However, CO2 emission is likely to increase during construction and operation due to usage of diesel engine for vehicles, machineries and generators.
21*	Air Pollution	D	B	D	B	Atmospheric pollutant is likely to increase during construction and operation due to increase of traffic, and usage of vehicles, machineries and generators. So baseline survey for regular observation is necessary at present stage.
22*	Water Pollution	D	B	D	B	During the construction and operation stage, excavated soil, surface water and liquid oil from vehicles and machineries may pollute the around river water. Baseline survey for regular observation is necessary at present stage.
23*	Soil Contamination	D	B	D	C	During the construction, excavated soil, surface water and liquid oil from vehicles and machineries may pollute the ground.
24*	Waste	D	B	D	D	Construction debris such as soil is likely to be generated during the construction. Human waste will be generated from workers during construction and operation.
25*	Noise and Vibration	D	B	D	C	Noise and vibration occurred from machineries and /or vehicles usage arising from construction works are expected. Baseline survey for regular observation is necessary at present stage.
26*	Ground Subsidence	D	D	D	D	Large scale construction and activities infecting ground water is not planned at present stage.
27*	Offensive Odor	D	B	D	D	Possible offensive odor by emission from construction vehicles and set latrine for workers during construction will be increased.
28*	Bottom sediment	D	D	D	C	There are few possibilities of bottom sediment deterioration due to inflow of soil from construction site.



# CENTRAL LUZON LINK EXPRESSWAY SCOPING MATRIX

No.	Item	Evaluation				Description	
		Construction		Operation			
		+	-	+	-		
29*	Traffic Jam	D	A	B	B	During the construction, traffic jam may occur at town are due to using existing roads. Additionally when the construction of I/C, traffic jam will be expected because of the roadblock.	
30*	Flood	D	B	B	B	During the construction, drainage function will be impacted due to excavating works. Project site is a flat terrain, and then there were floods up to now. It is necessary to consider adequate drainage system.	
Remarks; +: Positive, -: Negative A: Significant impact is expected, B: Some impact is expected, C: extent of impact is unknown at this stage, D: No impact is expected							
Resource;  ECC Application Document: EIS on Central Luzon Expressway (CLLEx) Project(2010, DPWH-PMO/FS) Marked "*" are items not including JICA ESC Guideline							

HON. MICHAEL M. MANUEL  
SIGNATURE OVER PRINTED NAME

MUNICIPAL MAYOR  
DESIGNATION

LA PAZ  
MUNICIPALITY  
DATE: \_\_\_\_\_

**CENTRAL LUZON LINK EXPRESSWAY SCOPING MATRIX**

No.	Item	Evaluation				Description
		Construction		Operation		
		+	-	+	-	
1	Involuntary Resettlement	D	D	D	D	According to the latest road alignment plan, 28 HHs (around 150 people) are the PAPs. RAP should be draw up based on the discussion between agencies and PAPs, also should be consider the alignment that will be minimized affected people as much as possible.
2	Local Economy such as Employment		A			It is likely that negative impact such as economic recession will occur due to the lost of farmland. Additionally, due to the separated farmland by new road, the agricultural production efficiency will be decline. On the other hand, the demand for labor that attends the construction and related work will increase. It lead to the activated of local economic situation.
3	Land Use and Utilization		A			Much of farmland will be lost, and change to road. It is likely that land along the new road also will change to market place or residential area, for example.
	Local Resources		A			During the construction, it is likely to be shortage of local resources such as food, water for drink and electricity due to increasing of workers/labors.
	Farm Land		A			Almost 157ha of farmland will be lost by this project. At the same time, agricultural activities will not continue there anymore.
4*	Social Institution, Social Infrastructure and Local Decision-making		B			There are some universities and hospitals at Tarlac, Aliaga and Cabanatuan cities. During the construction, it will be difficult to access to those social institutions due to the increasing of vehicles for construction. On the other hand, it may be convenience to access to those institutions.
5*	Poor		B			It is likely that employment opportunities will increase during construction stage. Additionally, it may occur that increasing of that opportunities will be expected to continue due to arising of economic activities along road and around I/C.
	Indigenous People		B			So far it has not been confirmed that indigenous people live in project site.

**CENTRAL LUZON LINK EXPRESSWAY SCOPING MATRIX**

No.	Item	Evaluation				Description
		Construction		Operation		
		+	-	+	-	
6*	Misdistribution of Benefit and Damage		B			It is likely that misdistribution of benefit and damage by construction of roads will not likely occur.
7*	Cultural Heritage		B			Cultural and historical heritage does not exist at project site. There are churches around area, but negative impact, such as a resettlement of church is not expected.
8*	Local Conflict of Interests		B			Depend on the location of new I/C, minor disputes between barangay may occur.
9*	Water Usage and Water Rights		B			For damming the river during the construction, some people cannot use water.
10*	Sanitation		B			Sanitary condition around construction site is likely to become unfavorable due to generation of waste and unsuitable human waste treatment during the construction.
11*	Risk, HIV/AIDS		B			Possible infectious diseases are likely to increase during construction due to increase of construction workers.
12*	Accident		B			Risk of traffic accidents is likely to increase due to growth of construction vehicles and heavily machines during construction and operation.
13	Topography and Geographical Feature		C			The proposed project will not include large scale change of topography and geographical features.
14	Soil Erosion		B			During the construction stage, the outflow of surface soil is likely to occur by rain.
15	Groundwater		B			There is groundwater aquifer from 0.5m to 4.3m at site. During the construction, It may not sufficient amount of water because the waterproof construction will be adopted, but that impact is limited.
16	Hydrology		B			Because the planned road through the rice paddies, and then in service during the construction period will be concerns about the impact to water. But impact on mainstream river is limited.
17	Flora, Fauna and Biodiversity		B			During construction, and to cut down trees near the road construction site, will affect the ecology of plants and animals. After construction activities by green plantations, the ecological recovery can be expected.



# CENTRAL LUZON LINK EXPRESSWAY SCOPING MATRIX

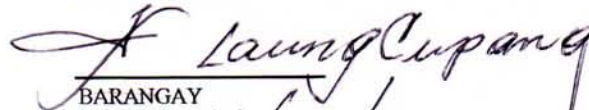
No.	Item	Evaluation				Description
		Construction		Operation		
		+	-	+	-	
18*	Natural Reserve		B			There are no Natural Reserved area in accordance with DENR, NIPAS at project site
19*	Landscape		B			Some impact is expected during the construction temporary, but it will be minimized by mitigations.
20*	Global Warming		P			Extent of impact is unknown at present stage. However, CO2 emission is likely to increase during construction and operation due to usage of diesel engine for vehicles, machineries and generators.
21*	Air Pollution		P			Atmospheric pollutant is likely to increase during construction and operation due to increase of traffic, and usage of vehicles, machineries and generators. So baseline survey for regular observation is necessary at present stage.
22*	Water Pollution		D			During the construction and operation stage, excavated soil, surface water and liquid oil from vehicles and machineries may pollute the around river water. Baseline survey for regular observation is necessary at present stage.
23*	Soil Contamination		B			During the construction, excavated soil, surface water and liquid oil from vehicles and machineries may pollute the ground.
24*	Waste		B			Construction debris such as soil is likely to be generated during the construction. Human waste will be generated from workers during construction and operation.
25*	Noise and Vibration		B			Noise and vibration occurred from machineries and /or vehicles usage arising from construction works are expected. Baseline survey for regular observation is necessary at present stage.
26*	Ground Subsidence		B			Large scale construction and activities infecting ground water is not planned at present stage.
27*	Offensive Odor		B			Possible offensive odor by emission from construction vehicles and set latrine for workers during construction will be increased.
28*	Bottom sediment		B			There are few possibilities of bottom sediment deterioration due to inflow of soil from construction site.

# CENTRAL LUZON LINK EXPRESSWAY SCOPING MATRIX

No.	Item	Evaluation				Description
		Construction		Operation		
		+	-	+	-	
29*	Traffic Jam	C				During the construction, traffic jam may occur at town are due to using existing roads. Additionally when the construction of I/C, traffic jam will be expected because of the roadblock.
30*	Flood	/	A			During the construction, drainage function will be impacted due to excavating works. Project site is a flat terrain, and then there were floods up to now. It is necessary to consider adequate drainage system.
Remarks; +: Positive, -: Negative A: Significant impact is expected, B: Some impact is expected, C: extent of impact is unknown at this stage, D: No impact is expected						
Resource;  ECC Application Document: EIS on Central Luzon Expressway (CLLEx) Project(2010, DPWH-PMO/FS) Marked "*" are items not including JICA ESC Guideline						

  
 SIGNATURE OVER PRINTED NAME

DESIGNATION

  
 BARANGAY  
 DATE: 07/27/11

# CENTRAL LUZON LINK EXPRESSWAY SCOPING MATRIX

No.	Item	Evaluation				Description
		Construction		Operation		
		+	-	+	-	
1	Involuntary Resettlement	D	D	D	D	According to the latest road alignment plan, 28 HHs (around 150 people) are the PAPs. RAP should be draw up based on the discussion between agencies and PAPs, also should be consider the alignment that will be minimized affected people as much as possible.
2	Local Economy such as Employment		A			It is likely that negative impact such as <i>economic recession will occur due to the lost of farmland</i> . Additionally, due to the separated farmland by new road, the agricultural production efficiency will be decline. On the other hand, the demand for labor that attends the construction and related work will increase. It lead to the activated of local economic situation.
3	Land Use and Utilization		A			Much of farmland will be lost, and change to road. It is likely that land along the new road also will change to market place or residential area, for example.
	Local Resources		A			During the construction, it is likely to be shortage of local resources such as food, water for drink and electricity due to increasing of workers/labors.
	Farm Land		A			Almost 157ha of farmland will be lost by this project. At the same time, agricultural activities will not continue there anymore.
4*	Social Institution, Social Infrastructure and Local Decision-making		B			There are some universities and hospitals at Tarlac, Aliaga and Cabanatuan cities. During the construction, it will be difficult to access to those social institutions due to the increasing of vehicles for construction. On the other hand, it may be convenience to access to those institutions.
5*	Poor		B			It is likely that employment opportunities will increase during construction stage. Additionally, it may occur that increasing of that opportunities will be expected to continue due to arising of economic activities along road and around I/C.
	Indigenous People		D			So far it has not been confirmed that indigenous people live in project site.



# CENTRAL LUZON LINK EXPRESSWAY SCOPING MATRIX

No.	Item	Evaluation				Description
		Construction		Operation		
		+	-	+	-	
6*	Misdistribution of Benefit and Damage		B			It is likely that misdistribution of benefit and damage by construction of roads will not likely occur.
7*	Cultural Heritage		B			Cultural and historical heritage does not exist at project site. There are churches around area, but negative impact, such as a resettlement of church is not expected.
8*	Local Conflict of Interests		D			Depend on the location of new I/C, minor disputes between barangay may occur.
9*	Water Usage and Water Rights		B			For damming the river during the construction, some people cannot use water.
10*	Sanitation		B			Sanitary condition around construction site is likely to become unfavorable due to generation of waste and unsuitable human waste treatment during the construction.
11*	Risk, HIV/AIDS		B			Possible infectious diseases are likely to increase during construction due to increase of construction workers.
12*	Accident		B			Risk of traffic accidents is likely to increase due to growth of construction vehicles and heavily machines during construction and operation.
13	Topography and Geographical Feature		C			The proposed project will not include large scale change of topography and geographical features.
14	Soil Erosion		B			During the construction stage, the outflow of surface soil is likely to occur by rain.
15	Groundwater		B			There is groundwater aquifer from 0.5m to 4.3m at site. During the construction, It may not sufficient amount of water because the waterproof construction will be adopted, but that impact is limited.
16	Hydrology		B			Because the planned road through the rice paddies, and then in service during the construction period will be concerns about the impact to water. But impact on mainstream river is limited.
17	Flora, Fauna and Biodiversity		D			During construction, and to cut down trees near the road construction site, will affect the ecology of plants and animals. After construction activities by green plantations, the ecological recovery can be expected.

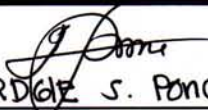
# CENTRAL LUZON LINK EXPRESSWAY SCOPING MATRIX

No.	Item	Evaluation				Description
		Construction		Operation		
		+	-	+	-	
18*	Natural Reserve		D			There are no Natural Reserved area in accordance with DENR, NIPAS at project site
19*	Landscape		D			Some impact is expected during the construction temporary, but it will be minimized by mitigations.
20*	Global Warming		D			Extent of impact is unknown at present stage. However, CO2 emission is likely to increase during construction and operation due to usage of diesel engine for vehicles, machineries and generators.
21*	Air Pollution		D			Atmospheric pollutant is likely to increase during construction and operation due to increase of traffic, and usage of vehicles, machineries and generators. So baseline survey for regular observation is necessary at present stage.
22*	Water Pollution		D			During the construction and operation stage, excavated soil, surface water and liquid oil from vehicles and machineries may pollute the around river water. Baseline survey for regular observation is necessary at present stage.
23*	Soil Contamination		B			During the construction, excavated soil, surface water and liquid oil from vehicles and machineries may pollute the ground.
24*	Waste		B			Construction debris such as soil is likely to be generated during the construction. Human waste will be generated from workers during construction and operation.
25*	Noise and Vibration		B			Noise and vibration occurred from machineries and /or vehicles usage arising from construction works are expected. Baseline survey for regular observation is necessary at present stage.
26*	Ground Subsidence		B			Large scale construction and activities infecting ground water is not planned at present stage.
27*	Offensive Odor		B			Possible offensive odor by emission from construction vehicles and set latrine for workers during construction will be increased.
28*	Bottom sediment		B			There are few possibilities of bottom sediment deterioration due to inflow of soil from construction site.



# CENTRAL LUZON LINK EXPRESSWAY SCOPING MATRIX

No.	Item	Evaluation				Description
		Construction		Operation		
		+	-	+	-	
29*	Traffic Jam		D			During the construction, traffic jam may occur at town are due to using existing roads. Additionally when the construction of I/C, traffic jam will be expected because of the roadblock.
30*	Flood		A			During the construction, drainage function will be impacted due to excavating works. Project site is a flat terrain, and then there were floods up to now. It is necessary to consider adequate drainage system.
Remarks; +: Positive, -: Negative A: Significant impact is expected, B: Some impact is expected, C: extent of impact is unknown at this stage, D: No impact is expected						
Resource;  ECC Application Document: EIS on Central Luzon Expressway (CLLEX) Project(2010, DPWH-PMO/FS) Marked "*" are items not including JICA ESC Guideline						

  
LORDEGE S. PONCE SR.  
 SIGNATURE OVER PRINTED NAME

PUNONG BARANGAY  
 DESIGNATION

MACALONG, LATA, BAYO  
 BARANGAY  
 DATE: 07, 27, 2011

**CENTRAL LUZON LINK EXPRESSWAY SCOPING MATRIX**

No.	Item	Evaluation				Description
		Construction		Operation		
		+	-	+	-	
1	Involuntary Resettlement	B	D	D	C	According to the latest road alignment plan, 28 HHs (around 150 people) are the PAPs. RAP should be draw up based on the discussion between agencies and PAPs, also should be consider the alignment that will be minimized affected people as much as possible.
2	Local Economy such as Employment	D	B	D	B	It is likely that negative impact such as economic recession will occur due to the lost of farmland. Additionally, due to the separated farmland by new road, the agricultural production efficiency will be decline. On the other hand, the demand for labor that attends the construction and related work will increase. It lead to the activated of local economic situation.
3	Land Use and Utilization	D	B	C	D	Much of farmland will be lost, and change to road. It is likely that land along the new road also will change to market place or residential area, for example.
	Local Resources	C	D	B	D	During the construction, it is likely to be shortage of local resources such as food, water for drink and electricity due to increasing of workers/labors.
	Farm Land	B	C	B	D	Almost 157ha of farmland will be lost by this project. At the same time, agricultural activities will not continue there anymore.
4*	Social Institution, Social Infrastructure and Local Decision-making	D	B	C	D	There are some universities and hospitals at Tarlac, Aliaga and Cabanatuan cities. During the construction, it will be difficult to access to those social institutions due to the increasing of vehicles for construction. On the other hand, it may be convenience to access to those institutions.
5*	Poor	C	B	B	D	It is likely that employment opportunities will increase during construction stage. Additionally, it may occur that increasing of that opportunities will be expected to continue due to arising of economic activities along road and around I/C.
	Indigenous People	D	D	D	C	So far it has not been confirmed that indigenous people live in project site.
6*	Misdistribution of Benefit and Damage	D	B	D	C	It is likely that misdistribution of benefit and damage by construction of roads will not likely occur.



**CENTRAL LUZON LINK EXPRESSWAY SCOPING MATRIX**

No.	Item	Evaluation				Description
		Construction		Operation		
		+	-	+	-	
7*	Cultural Heritage	D	B	B	D	Cultural and historical heritage does not exist at project site. There are churches around area, but negative impact, such as a resettlement of church is not expected.
8*	Local Conflict of Interests	B	C	D	D	Depend on the location of new I/C, minor disputes between barangay may occur.
9*	Water Usage and Water Rights	D	B	D	C	For damming the river during the construction, some people cannot use water.
10*	Sanitation	D	B	D	C	Sanitary condition around construction site is likely to become unfavorable due to generation of waste and unsuitable human waste treatment during the construction.
11*	Risk, HIV/AIDS	B	D	D	D	Possible infectious diseases are likely to increase during construction due to increase of construction workers.
12*	Accident	D	D	D	D	Risk of traffic accidents is likely to increase due to growth of construction vehicles and heavily machines during construction and operation.
13	Topography and Geographical Feature	B	B	B	B	The proposed project will not include large scale change of topography and geographical features.
14	Soil Erosion	A	D	B	A	During the construction stage, the outflow of surface soil is likely to occur by rain.
15	Groundwater	D	B	D	D	There is groundwater aquifer from 0.5m to 4.3m at site. During the construction, It may not sufficient amount of water because the waterproof construction will be adopted, but that impact is limited.
16	Hydrology	B	C	D	D	Because the planned road through the rice paddies, and then in service during the construction period will be concerns about the impact to water. But impact on mainstream river is limited.
17	Flora, Fauna and Biodiversity	D	D	D	D	During construction, and to cut down trees near the road construction site, will affect the ecology of plants and animals. After construction activities by green plantations, the ecological recovery can be expected.
18*	Natural Reserve	D	B	D	C	There are no Natural Reserved area in accordance with DENR, NIPAS at project site

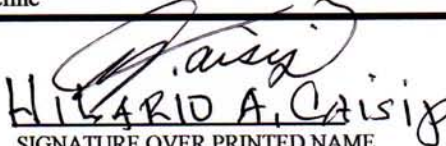
**CENTRAL LUZON LINK EXPRESSWAY SCOPING MATRIX**

No.	Item	Evaluation				Description
		Construction		Operation		
		+	-	+	-	
19*	Landscape	D	B	D	C	Some impact is expected during the construction temporary, but it will be minimized by mitigations.
20*	Global Warming	D	D	D	D	Extent of impact is unknown at present stage. However, CO2 emission is likely to increase during construction and operation due to usage of diesel engine for vehicles, machineries and generators.
21*	Air Pollution	D	B	D	C	Atmospheric pollutant is likely to increase during construction and operation due to increase of traffic, and usage of vehicles, machineries and generators. So baseline survey for regular observation is necessary at present stage.
22*	Water Pollution	D	D	D	D	During the construction and operation stage, excavated soil, surface water and liquid oil from vehicles and machineries may pollute the around river water. Baseline survey for regular observation is necessary at present stage.
23*	Soil Contamination	D	B	D	C	During the construction, excavated soil, surface water and liquid oil from vehicles and machineries may pollute the ground.
24*	Waste	D	C	B	D	Construction debris such as soil is likely to be generated during the construction. Human waste will be generated from workers during construction and operation.
25*	Noise and Vibration	B	D	C	D	Noise and vibration occurred from machineries and /or vehicles usage arising from construction works are expected. Baseline survey for regular observation is necessary at present stage.
26*	Ground Subsidence	D	B	D	C	Large scale construction and activities infecting ground water is not planned at present stage.
27*	Offensive Odor	D	D	C	B	Possible offensive odor by emission from construction vehicles and set latrine for workers during construction will be increased.
28*	Bottom sediment	B	D	C	D	There are few possibilities of bottom sediment deterioration due to inflow of soil from construction site.



# CENTRAL LUZON LINK EXPRESSWAY SCOPING MATRIX

No.	Item	Evaluation				Description
		Construction		Operation		
		+	-	+	-	
29*	Traffic Jam	D	B	C	D	During the construction, traffic jam may occur at town are due to using existing roads. Additionally when the construction of I/C, traffic jam will be expected because of the roadblock.
30*	Flood	D	C	D	C	During the construction, drainage function will be impacted due to excavating works. Project site is a flat terrain, and then there were floods up to now. It is necessary to consider adequate drainage system.
Remarks; +: Positive, -: Negative A: Significant impact is expected, B: Some impact is expected, C: extent of impact is unknown at this stage, D: No impact is expected						
Resource;  ECC Application Document: EIS on Central Luzon Expressway (CLLEx) Project(2010, DPWH-PMO/FS) Marked "*" are items not including JICA ESC Guideline						

  
 HILARIO A. CAISIG  
 SIGNATURE OVER PRINTED NAME

  
 BRGY. CAPTAIN  
 DESIGNATION

MAGSAYSAY  
 BARANGAY

DATE: 7/29/11



## CENTRAL LUZON LINK EXPRESSWAY SCOPING MATRIX

No.	Item	Evaluation				Description
		Construction		Operation		
		+	-	+	-	
1	Involuntary Resettlement	D	A	D	D	According to the latest road alignment plan, 28 HHs (around 150 people) are the PAPs. RAP should be draw up based on the discussion between agencies and PAPs, also should be consider the alignment that will be minimized affected people as much as possible.
2	Local Economy such as Employment	C	B	C	C	It is likely that negative impact such as economic recession will occur due to the lost of farmland. Additionally, due to the separated farmland by new road, the agricultural production efficiency will be decline. On the other hand, the demand for labor that attends the construction and related work will increase. It lead to the activated of local economic situation.
3	Land Use and Utilization	D	B	C	D	Much of farmland will be lost, and change to road. It is likely that land along the new road also will change to market place or residential area, for example.
	Local Resources	D	B	C	D	During the construction, it is likely to be shortage of local resources such as food, water for drink and electricity due to increasing of workers/labors.
	Farm Land	D	A	D	D	Almost 157ha of farmland will be lost by this project. At the same time, agricultural activities will not continue there anymore.
4*	Social Institution, Social Infrastructure and Local Decision-making	D	B	B	D	There are some universities and hospitals at Tarlac, Aliaga and Cabanatuan cities. During the construction, it will be difficult to access to those social institutions due to the increasing of vehicles for construction. On the other hand, it may be convenience to access to those institutions.
5*	Poor	C	B	B	D	It is likely that employment opportunities will increase during construction stage. Additionally, it may occur that increasing of that opportunities will be expected to continue due to arising of economic activities along road and around I/C.
	Indigenous People	D	D	D	D	So far it has not been confirmed that indigenous people live in project site.

# CENTRAL LUZON LINK EXPRESSWAY SCOPING MATRIX

No.	Item	Evaluation				Description
		Construction		Operation		
		+	-	+	-	
6*	Misdistribution of Benefit and Damage	D	D	C	C	It is likely that misdistribution of benefit and damage by construction of roads will not likely occur.
7*	Cultural Heritage	D	D	D	D	Cultural and historical heritage does not exist at project site. There are churches around area, but negative impact, such as a resettlement of church is not expected.
8*	Local Conflict of Interests	D	D	D	C	Depend on the location of new I/C, minor disputes between barangay may occur.
9*	Water Usage and Water Rights	D	B	D	C	For damming the river during the construction, some people cannot use water.
10*	Sanitation	D	B	D	D	Sanitary condition around construction site is likely to become unfavorable due to generation of waste and unsuitable human waste treatment during the construction.
11*	Risk, HIV/AIDS	D	B	D	D	Possible infectious diseases are likely to increase during construction due to increase of construction workers.
12*	Accident	D	B	D	B	Risk of traffic accidents is likely to increase due to growth of construction vehicles and heavily machines during construction and operation.
13	Topography and Geographical Feature	D	D	D	D	The proposed project will not include large scale change of topography and geographical features.
14	Soil Erosion	D	B	D	D	During the construction stage, the outflow of surface soil is likely to occur by rain.
15	Groundwater	D	B	D	D	There is groundwater aquifer from 0.5m to 4.3m at site. During the construction, It may not sufficient amount of water because the waterproof construction will be adopted, but that impact is limited.
16	Hydrology	D	B	D	D	Because the planned road through the rice paddies, and then in service during the construction period will be concerns about the impact to water. But impact on mainstream river is limited.
17	Flora, Fauna and Biodiversity	D	B	D	C	During construction, and to cut down trees near the road construction site, will affect the ecology of plants and animals. After construction activities by green plantations, the ecological recovery can be expected.

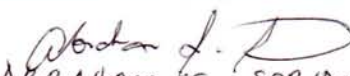


**CENTRAL LUZON LINK EXPRESSWAY SCOPING MATRIX**

No.	Item	Evaluation				Description
		Construction		Operation		
		+	-	+	-	
18*	Natural Reserve	D	D	D	C	There are no Natural Reserved area in accordance with DENR, NIPAS at project site
19*	Landscape	D	D	D	C	Some impact is expected during the construction temporary, but it will be minimized by mitigations.
20*	Global Warming	D	B	D	B	Extent of impact is unknown at present stage. However, CO2 emission is likely to increase during construction and operation due to usage of diesel engine for vehicles, machineries and generators.
21*	Air Pollution	D	B	D	B	Atmospheric pollutant is likely to increase during construction and operation due to increase of traffic, and usage of vehicles, machineries and generators. So baseline survey for regular observation is necessary at present stage.
22*	Water Pollution	D	B	D	B	During the construction and operation stage, excavated soil, surface water and liquid oil from vehicles and machineries may pollute the around river water. Baseline survey for regular observation is necessary at present stage.
23*	Soil Contamination	D	B	D	C	During the construction, excavated soil, surface water and liquid oil from vehicles and machineries may pollute the ground.
24*	Waste	D	B	D	D	Construction debris such as soil is likely to be generated during the construction. Human waste will be generated from workers during construction and operation.
25*	Noise and Vibration	D	B	D	C	Noise and vibration occurred from machineries and /or vehicles usage arising from construction works are expected. Baseline survey for regular observation is necessary at present stage.
26*	Ground Subsidence	D	D	D	D	Large scale construction and activities infecting ground water is not planned at present stage.
27*	Offensive Odor	D	B	D	D	Possible offensive odor by emission from construction vehicles and set latrine for workers during construction will be increased.
28*	Bottom sediment	D	D	D	C	There are few possibilities of bottom sediment deterioration due to inflow of soil from construction site.

# CENTRAL LUZON LINK EXPRESSWAY SCOPING MATRIX

No.	Item	Evaluation				Description
		Construction		Operation		
		+	-	+	-	
29*	Traffic Jam	D	B	C	D	During the construction, traffic jam may occur at town are due to using existing roads. Additionally when the construction of I/C, traffic jam will be expected because of the roadblock.
30*	Flood	D	C	D	C	During the construction, drainage function will be impacted due to excavating works. Project site is a flat terrain, and then there were floods up to now. It is necessary to consider adequate drainage system.
Remarks; +: Positive, -: Negative A: Significant impact is expected, B: Some impact is expected, C: extent of impact is unknown at this stage, D: No impact is expected						
Resource;						
ECC Application Document: EIS on Central Luzon Expressway (CLLEX) Project(2010, DPWH-PMO/FS) Marked "*" are items not including JICA ESC Guideline						

  
 ABRAHAM S. SORIANO  
 SIGNATURE OVER PRINTED NAME

BRGY. CAPT.  
 DESIGNATION

MAYAPYAP NORTE  
 BARANGAY

DATE: Aug. 6, 2011



**CENTRAL LUZON LINK EXPRESSWAY SCOPING MATRIX**

No.	Item	Evaluation				Description
		Construction		Operation		
		+	-	+	-	
1	Involuntary Resettlement	D	A	C	D	According to the latest road alignment plan, 28 HHs (around 150 people) are the PAPs. RAP should be draw up based on the discussion between agencies and PAPs, also should be consider the alignment that will be minimized affected people as much as possible.
2	Local Economy such as Employment	D	D	D	D	It is likely that negative impact such as economic recession will occur due to the lost of farmland. Additionally, due to the separated farmland by new road, the agricultural production efficiency will be decline. On the other hand, the demand for labor that attends the construction and related work will increase. It lead to the activated of local economic situation.
3	Land Use and Utilization	D	D	C	C	Much of farmland will be lost, and change to road. It is likely that land along the new road also will change to market place or residential area, for example.
	Local Resources	D	B	D	D	During the construction, it is likely to be shortage of local resources such as food, water for drink and electricity due to increasing of workers/labors.
	Farm Land	D	A	D	B	Almost 157ha of farmland will be lost by this project. At the same time, agricultural activities will not continue there anymore.
4*	Social Institution, Social Infrastructure and Local Decision-making	D	B	B	D	There are some universities and hospitals at Tarlac, Aliaga and Cabanatuan cities. During the construction, it will be difficult to access to those social institutions due to the increasing of vehicles for construction. On the other hand, it may be convenience to access to those institutions.
5*	Poor	C	B	B	D	It is likely that employment opportunities will increase during construction stage. Additionally, it may occur that increasing of that opportunities will be expected to continue due to arising of economic activities along road and around I/C.
	Indigenous People	D	D	D	D	So far it has not been confirmed that indigenous people live in project site.
6*	Misdistribution of Benefit and Damage	D	D	C	C	It is likely that misdistribution of benefit and damage by construction of roads will not likely occur.



**CENTRAL LUZON LINK EXPRESSWAY SCOPING MATRIX**

No.	Item	Evaluation				Description
		Construction		Operation		
		+	-	+	-	
7*	Cultural Heritage	D	D	D	D	Cultural and historical heritage does not exist at project site. There are churches around area, but negative impact, such as a resettlement of church is not expected.
8*	Local Conflict of Interests	C	A	C	C	Depend on the location of new I/C, minor disputes between barangay may occur.
9*	Water Usage and Water Rights	B	B	B	C	For damming the river during the construction, some people cannot use water.
10*	Sanitation	D	B	D	D	Sanitary condition around construction site is likely to become unfavorable due to generation of waste and unsuitable human waste treatment during the construction.
11*	Risk, HIV/AIDS	D	B	D	D	Possible infectious diseases are likely to increase during construction due to increase of construction workers.
12*	Accident	D	B	D	B	Risk of traffic accidents is likely to increase due to growth of construction vehicles and heavily machines during construction and operation.
13	Topography and Geographical Feature	D	D	D	D	The proposed project will not include large scale change of topography and geographical features.
14	Soil Erosion	D	B	D	D	During the construction stage, the outflow of surface soil is likely to occur by rain.
15	Groundwater	D	B	D	D	There is groundwater aquifer from 0.5m to 4.3m at site. During the construction, It may not sufficient amount of water because the waterproof construction will be adopted, but that impact is limited.
16	Hydrology	D	B	D	D	Because the planned road through the rice paddies, and then in service during the construction period will be concerns about the impact to water. But impact on mainstream river is limited.
17	Flora, Fauna and Biodiversity	D	B	D	C	During construction, and to cut down trees near the road construction site, will affect the ecology of plants and animals. After construction activities by green plantations, the ecological recovery can be expected.
18*	Natural Reserve	D	D	D	C	There are no Natural Reserved area in accordance with DENR, NIPAS at project site

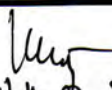
**CENTRAL LUZON LINK EXPRESSWAY SCOPING MATRIX**

No.	Item	Evaluation				Description
		Construction		Operation		
		+	-	+	-	
19*	Landscape	D	D	D	C	Some impact is expected during the construction temporary, but it will be minimized by mitigations.
20*	Global Warming	D	B	D	B	Extent of impact is unknown at present stage. However, CO2 emission is likely to increase during construction and operation due to usage of diesel engine for vehicles, machineries and generators.
21*	Air Pollution	D	B	D	D	Atmospheric pollutant is likely to increase during construction and operation due to increase of traffic, and usage of vehicles, machineries and generators. So baseline survey for regular observation is necessary at present stage.
22*	Water Pollution	D	B	D	B	During the construction and operation stage, excavated soil, surface water and liquid oil from vehicles and machineries may pollute the around river water. Baseline survey for regular observation is necessary at present stage.
23*	Soil Contamination	D	B	D	C	During the construction, excavated soil, surface water and liquid oil from vehicles and machineries may pollute the ground.
24*	Waste	D	D	D	D	Construction debris such as soil is likely to be generated during the construction. Human waste will be generated from workers during construction and operation.
25*	Noise and Vibration	D	B	D	C	Noise and vibration occurred from machineries and /or vehicles usage arising from construction works are expected. Baseline survey for regular observation is necessary at present stage.
26*	Ground Subsidence	D	D	D	D	Large scale construction and activities infecting ground water is not planned at present stage.
27*	Offensive Odor	D	B	D	D	Possible offensive odor by emission from construction vehicles and set latrine for workers during construction will be increased.
28*	Bottom sediment	D	D	D	C	There are few possibilities of bottom sediment deterioration due to inflow of soil from construction site.



# CENTRAL LUZON LINK EXPRESSWAY SCOPING MATRIX

No.	Item	Evaluation				Description
		Construction		Operation		
		+	-	+	-	
29*	Traffic Jam	D	A	C	D	During the construction, traffic jam may occur at town are due to using existing roads. Additionally when the construction of I/C, traffic jam will be expected because of the roadblock.
30*	Flood	C	C	C	C	During the construction, drainage function will be impacted due to excavating works. Project site is a flat terrain, and then there were floods up to now. It is necessary to consider adequate drainage system.
Remarks; +: Positive, -: Negative A: Significant impact is expected, B: Some impact is expected, C: extent of impact is unknown at this stage, D: No impact is expected						
Resource;  ECC Application Document: EIS on Central Luzon Expressway (CLLEX) Project(2010, DPWH-PMO/FS) Marked ”*” are items not including JICA ESC Guideline						

  
WENCESLAO STUMPALAN  
 SIGNATURE OVER PRINTED NAME

BRGY. SEC.  
 DESIGNATION

PANTOC, ALABANG N.E.  
 BARANGAY  
 DATE: 07-29-11

# CENTRAL LUZON LINK EXPRESSWAY SCOPING MATRIX

No.	Item	Evaluation				Description
		Construction		Operation		
		+	-	+	-	
1	Involuntary Resettlement	A	B	C	B	According to the latest road alignment plan, 28 HHs (around 150 people) are the PAPs. RAP should be draw up based on the discussion between agencies and PAPs, also should be consider the alignment that will be minimized affected people as much as possible.
2	Local Economy such as Employment	A	D	B	D	It is likely that <i>negative impact</i> such as economic recession will occur due to the lost of farmland. Additionally, due to the separated farmland by new road, the agricultural production efficiency will be decline. On the other hand, the demand for labor that attends the construction and related work will increase. It lead to the activated of local economic situation.
3	Land Use and Utilization	B	D	A	B	Much of farmland will be lost, and change to road. It is likely that land along the new road also will change to market place or residential area, for example.
	Local Resources	D	A	A	B	During the construction, it is likely to be shortage of local resources such as food, water for drink and electricity due to increasing of workers/labors.
	Farm Land	A	D	B	C	Almost 157ha of farmland will be lost by this project. At the same time, agricultural activities will not continue there anymore.
4*	Social Institution, Social Infrastructure and Local Decision-making	A	B	C	D	There are some universities and hospitals at Tarlac, Aliaga and Cabanatuan cities. During the construction, it will be difficult to access to those social institutions due to the increasing of vehicles for construction. On the other hand, it may be convenience to access to those institutions.
5*	Poor	D	B	A	C	It is likely that <i>employment opportunities</i> will increase during construction stage. Additionally, it may occur that increasing of that opportunities will be expected to continue due to arising of economic activities along road and around I/C.
	Indigenous People	A	C	D	A	So far it has not been confirmed that indigenous people live in project site.
6*	Misdistribution of Benefit and Damage	B	C	A	D	It is likely that misdistribution of benefit and damage by construction of roads will not likely occur.



# CENTRAL LUZON LINK EXPRESSWAY SCOPING MATRIX

No.	Item	Evaluation				Description
		Construction		Operation		
		+	-	+	-	
7*	Cultural Heritage	D	D	A	C	Cultural and historical heritage does not exist at project site. There are churches around area, but negative impact, such as a resettlement of church is not expected.
8*	Local Conflict of Interests	A	B	D	C	Depend on the location of new I/C, minor disputes between barangay may occur.
9*	Water Usage and Water Rights	A	D	C	B	For damming the river during the construction, some people cannot use water.
10*	Sanitation	D	C	B	A	Sanitary condition around construction site is likely to become unfavorable due to generation of waste and unsuitable human waste treatment during the construction.
11*	Risk, HIV/AIDS	D	B	A	C	Possible infectious diseases are likely to increase during construction due to increase of construction workers.
12*	Accident	B	A	C	D	Risk of traffic accidents is likely to increase due to growth of construction vehicles and heavily machines during construction and operation.
13	Topography and Geographical Feature	D	A	C	B	The proposed project will not include large scale change of topography and geographical features.
14	Soil Erosion	C	B	A	D	During the construction stage, the outflow of surface soil is likely to occur by rain.
15	Groundwater	A	B	D	C	There is groundwater aquifer from 0.5m to 4.3m at site. During the construction, It may not sufficient amount of water because the waterproof construction will be adopted, but that impact is limited.
16	Hydrology	A	D	C	A	Because the planned road through the rice paddies, and then in service during the construction period will be concerns about the impact to water. But impact on mainstream river is limited.
17	Flora, Fauna and Biodiversity	D	A	B	C	During construction, and to cut down trees near the road construction site, will affect the ecology of plants and animals. After construction activities by green plantations, the ecological recovery can be expected.
18*	Natural Reserve	D	A	B	C	There are no Natural Reserved area in accordance with DENR, NIPAS at project site



**CENTRAL LUZON LINK EXPRESSWAY SCOPING MATRIX**

No.	Item	Evaluation				Description
		Construction		Operation		
		+	-	+	-	
19*	Landscape	C	A	B	D	Some impact is expected during the construction temporary, but it will be minimized by mitigations.
20*	Global Warming	D	A	B	C	Extent of impact is unknown at present stage. However, CO2 emission is likely to increase during construction and operation due to usage of diesel engine for vehicles, machineries and generators.
21*	Air Pollution	A	B	C	D	Atmospheric pollutant is likely to increase during construction and operation due to increase of traffic, and usage of vehicles, machineries and generators. So baseline survey for regular observation is necessary at present stage.
22*	Water Pollution	B	C	A	D	During the construction and operation stage, excavated soil, surface water and liquid oil from vehicles and machineries may pollute the around river water. Baseline survey for regular observation is necessary at present stage.
23*	Soil Contamination	C	B	A	D	During the construction, excavated soil, surface water and liquid oil from vehicles and machineries may pollute the ground.
24*	Waste	B	C	D	A	Construction debris such as soil is likely to be generated during the construction. Human waste will be generated from workers during construction and operation.
25*	Noise and Vibration	D	A	C	B	Noise and vibration occurred from machineries and /or vehicles usage arising from construction works are expected. Baseline survey for regular observation is necessary at present stage.
26*	Ground Subsidence	C	D	A	B	Large scale construction and activities infecting ground water is not planned at present stage.
27*	Offensive Odor	A	D	C	B	Possible offensive odor by emission from construction vehicles and set latrine for workers during construction will be increased.
28*	Bottom sediment	D	A	B	C	There are few possibilities of bottom sediment deterioration due to inflow of soil from construction site.

# CENTRAL LUZON LINK EXPRESSWAY SCOPING MATRIX

No.	Item	Evaluation				Description
		Construction		Operation		
		+	-	+	-	
29*	Traffic Jam	D	B	A	C	During the construction, traffic jam may occur at town are due to using existing roads. Additionally when the construction of I/C, traffic jam will be expected because of the roadblock.
30*	Flood	C	D	A	B	During the construction, drainage function will be impacted due to excavating works. Project site is a flat terrain, and then there were floods up to now. It is necessary to consider adequate drainage system.
Remarks;						
+: Positive, -: Negative						
A: Significant impact is expected, B: Some impact is expected,						
C: extent of impact is unknown at this stage, D: No impact is expected						
Resource;						
ECC Application Document: EIS on Central Luzon Expressway (CLLEx) Project(2010, DPWH-PMO/FS)						
Marked "*" are items not including JICA ESC Guideline						

  
 EFFREN C. ARMOABIT  
 SIGNATURE/OVER PRINTED NAME

BARANGAY CHAIRMAN  
 DESIGNATION

SAN JUAN  
 BARANGAY

DATE: \_\_\_\_\_

**CENTRAL LUZON LINK EXPRESSWAY SCOPING MATRIX**

No.	Item	Evaluation				Description
		Construction		Operation		
		+	-	+	-	
1	Involuntary Resettlement	D		D		According to the latest road alignment plan, 28 HHs (around 150 people) are the PAPs. RAP should be draw up based on the discussion between agencies and PAPs, also should be consider the alignment that will be minimized affected people as much as possible.
2	Local Economy such as Employment	B		B		It is likely that negative impact such as economic recession will occur due to the lost of farmland. Additionally, due to the separated farmland by new road, the agricultural production efficiency will be decline. On the other hand, the demand for labor that attends the construction and related work will increase. It lead to the activated of local economic situation.
3	Land Use and Utilization	D		C		Much of farmland will be lost, and change to road. It is likely that land along the new road also will change to market place or residential area, for example.
	Local Resources		D		B	During the construction, it is likely to be shortage of local resources such as food, water for drink and electricity due to increasing of workers/labors.
	Farm Land	B		B		Almost 157ha of farmland will be lost by this project. At the same time, agricultural activities will not continue there anymore.
4*	Social Institution, Social Infrastructure and Local Decision-making		B	B		There are some universities and hospitals at Tarlac, Aliaga and Cabanatuan cities. During the construction, it will be difficult to access to those social institutions due to the increasing of vehicles for construction. On the other hand, it may be convenience to access to those institutions.
5*	Poor	B		B		It is likely that employment opportunities will increase during construction stage. Additionally, it may occur that increasing of that opportunities will be expected to continue due to arising of economic activities along road and around I/C.
	Indigenous People	B		B		So far it has not been confirmed that indigenous people live in project site.



**CENTRAL LUZON LINK EXPRESSWAY SCOPING MATRIX**

No.	Item	Evaluation				Description
		Construction		Operation		
		+	-	+	-	
6*	Misdistribution of Benefit and Damage	B		B		It is likely that misdistribution of benefit and damage by construction of roads will not likely occur.
7*	Cultural Heritage	B		B		Cultural and historical heritage does not exist at project site. There are churches around area, but negative impact, such as a resettlement of church is not expected.
8*	Local Conflict of Interests		D		D	Depend on the location of new I/C, minor disputes between barangay may occur.
9*	Water Usage and Water Rights		D		D	For damming the river during the construction, some people cannot use water.
10*	Sanitation	B			B	Sanitary condition around construction site is likely to become unfavorable due to generation of waste and unsuitable human waste treatment during the construction.
11*	Risk, HIV/AIDS		D		D	Possible infectious diseases are likely to increase during construction due to increase of construction workers.
12*	Accident	D			D	Risk of traffic accidents is likely to increase due to growth of construction vehicles and heavily machines during construction and operation.
13	Topography and Geographical Feature	B		B		The proposed project will not include large scale change of topography and geographical features.
14	Soil Erosion	B			B	During the construction stage, the outflow of surface soil is likely to occur by rain.
15	Groundwater		B		B	There is groundwater aquifer from 0.5m to 4.3m at site. During the construction, It may not sufficient amount of water because the waterproof construction will be adopted, but that impact is limited.
16	Hydrology		D		D	Because the planned road through the rice paddies, and then in service during the construction period will be concerns about the impact to water. But impact on mainstream river is limited.
17	Flora, Fauna and Biodiversity	C		C		During construction, and to cut down trees near the road construction site, will affect the ecology of plants and animals. After construction activities by green plantations, the ecological recovery can be expected.


**CENTRAL LUZON LINK EXPRESSWAY SCOPING MATRIX**

No.	Item	Evaluation				Description
		Construction		Operation		
		+	-	+	-	
18*	Natural Reserve	B		B		There are no Natural Reserved area in accordance with DENR, NIPAS at project site
19*	Landscape	D		D		Some impact is expected during the construction temporary, but it will be minimized by mitigations.
20*	Global Warming	C		C		Extent of impact is unknown at present stage. However, CO2 emission is likely to increase during construction and operation due to usage of diesel engine for vehicles, machineries and generators.
21*	Air Pollution	C		C		Atmospheric pollutant is likely to increase during construction and operation due to increase of traffic, and usage of vehicles, machineries and generators. So baseline survey for regular observation is necessary at present stage.
22*	Water Pollution	B		B		During the construction and operation stage, excavated soil, surface water and liquid oil from vehicles and machineries may pollute the around river water. Baseline survey for regular observation is necessary at present stage.
23*	Soil Contamination	A		A		During the construction, excavated soil, surface water and liquid oil from vehicles and machineries may pollute the ground.
24*	Waste	B		B		Construction debris such as soil is likely to be generated during the construction. Human waste will be generated from workers during construction and operation.
25*	Noise and Vibration	B		B		Noise and vibration occurred from machineries and /or vehicles usage arising from construction works are expected. Baseline survey for regular observation is necessary at present stage.
26*	Ground Subsidence	B		B		Large scale construction and activities infecting ground water is not planned at present stage.
27*	Offensive Odor	B		B		Possible offensive odor by emission from construction vehicles and set latrine for workers during construction will be increased.
28*	Bottom sediment	D		D		There are few possibilities of bottom sediment deterioration due to inflow of soil from construction site.



# CENTRAL LUZON LINK EXPRESSWAY SCOPING MATRIX

No.	Item	Evaluation				Description
		Construction		Operation		
		+	-	+	-	
29*	Traffic Jam		B		B	During the construction, traffic jam may occur at town are due to using existing roads. Additionally when the construction of I/C, traffic jam will be expected because of the roadblock.
30*	Flood	B		B		During the construction, drainage function will be impacted due to excavating works. Project site is a flat terrain, and then there were floods up to now. It is necessary to consider adequate drainage system.
Remarks;						
+: Positive, -: Negative						
A: Significant impact is expected, B: Some impact is expected,						
C: extent of impact is unknown at this stage, D: No impact is expected						
Resource;						
ECC Application Document: EIS on Central Luzon Expressway (CLLEX) Project(2010, DPWH-PMO/FS)						
Marked "*" are items not including JICA ESC Guideline						

  
Evangelina D. Dela Cruz  
 SIGNATURE OVER PRINTED NAME

Barangay Captain  
 DESIGNATION

Sta. Lucia (D)  
 BARANGAY  
 DATE: 7-29-2011

**CENTRAL LUZON LINK EXPRESSWAY SCOPING MATRIX**

No.	Item	Evaluation				Description
		Construction		Operation		
		+	-	+	-	
1	Involuntary Resettlement	D	A	D	D	According to the latest road alignment plan, 28 HHs (around 150 people) are the PAPs. RAP should be draw up based on the discussion between agencies and PAPs, also should be consider the alignment that will be minimized affected people as much as possible.
2	Local Economy such as Employment	B	C	B	D	It is likely that negative impact such as economic recession will occur due to the lost of farmland. Additionally, due to the separated farmland by new road, the agricultural production efficiency will be decline. On the other hand, the demand for labor that attends the construction and related work will increase. It lead to the activated of local economic situation.
3	Land Use and Utilization	B	B	D	D	Much of farmland will be lost, and change to road. It is likely that land along the new road also will change to market place or residential area, for example.
	Local Resources	B	B	D	D	During the construction, it is likely to be shortage of local resources such as food, water for drink and electricity due to increasing of workers/labors.
	Farm Land	B	B	C	D	Almost 157ha of farmland will be lost by this project. At the same time, agricultural activities will not continue there anymore.
4*	Social Institution, Social Infrastructure and Local Decision-making	B		B		There are some universities and hospitals at Tarlac, Aliaga and Cabanatuan cities. During the construction, it will be difficult to access to those social institutions due to the increasing of vehicles for construction. On the other hand, it may be convenience to access to those institutions.
5*	Poor	B		B		It is likely that employment opportunities will increase during construction stage. Additionally, it may occur that increasing of that opportunities will be expected to continue due to arising of economic activities along road and around I/C.
	Indigenous People	D		D		So far it has not been confirmed that indigenous people live in project site.



**CENTRAL LUZON LINK EXPRESSWAY SCOPING MATRIX**

No.	Item	Evaluation				Description
		Construction		Operation		
		+	-	+	-	
6*	Misdistribution of Benefit and Damage	B		D		It is likely that misdistribution of benefit and damage by construction of roads will not likely occur.
7*	Cultural Heritage	B		D		Cultural and historical heritage does not exist at project site. There are churches around area, but negative impact, such as a resettlement of church is not expected.
8*	Local Conflict of Interests	D		D		Depend on the location of new I/C, minor disputes between barangay may occur.
9*	Water Usage and Water Rights	B		B		For damming the river during the construction, some people cannot use water.
10*	Sanitation	B		B		Sanitary condition around construction site is likely to become unfavorable due to generation of waste and unsuitable human waste treatment during the construction.
11*	Risk, HIV/AIDS		C	D		Possible infectious diseases are likely to increase during construction due to increase of construction workers.
12*	Accident	B			B	Risk of traffic accidents is likely to increase due to growth of construction vehicles and heavily machines during construction and operation.
13	Topography and Geographical Feature		D		D	The proposed project will not include large scale change of topography and geographical features.
14	Soil Erosion		D		D	During the construction stage, the outflow of surface soil is likely to occur by rain.
15	Groundwater	B		B		There is groundwater aquifer from 0.5m to 4.3m at site. During the construction, It may not sufficient amount of water because the waterproof construction will be adopted, but that impact is limited.
16	Hydrology		B		B	Because the planned road through the rice paddies, and then in service during the construction period will be concerns about the impact to water. But impact on mainstream river is limited.
17	Flora, Fauna and Biodiversity		B		B	During construction, and to cut down trees near the road construction site, will affect the ecology of plants and animals. After construction activities by green plantations, the ecological recovery can be expected.

**CENTRAL LUZON LINK EXPRESSWAY SCOPING MATRIX**

No.	Item	Evaluation				Description
		Construction		Operation		
		+	-	+	-	
18*	Natural Reserve		D		D	There are no Natural Reserved area in accordance with DENR, NIPAS at project site
19*	Landscape		D		D	Some impact is expected during the construction temporary, but it will be minimized by mitigations.
20*	Global Warming	B		B		Extent of impact is unknown at present stage. However, CO2 emission is likely to increase during construction and operation due to usage of diesel engine for vehicles, machineries and generators.
21*	Air Pollution	B		B		Atmospheric pollutant is likely to increase during construction and operation due to increase of traffic, and usage of vehicles, machineries and generators. So baseline survey for regular observation is necessary at present stage.
22*	Water Pollution	B		B		During the construction and operation stage, excavated soil, surface water and liquid oil from vehicles and machineries may pollute the around river water. Baseline survey for regular observation is necessary at present stage.
23*	Soil Contamination		D		D	During the construction, excavated soil, surface water and liquid oil from vehicles and machineries may pollute the ground.
24*	Waste	B			B	Construction debris such as soil is likely to be generated during the construction. Human waste will be generated from workers during construction and operation.
25*	Noise and Vibration	D	B	D	C	Noise and vibration occurred from machineries and /or vehicles usage arising from construction works are expected. Baseline survey for regular observation is necessary at present stage.
26*	Ground Subsidence	D	D	D	D	Large scale construction and activities infecting ground water is not planned at present stage.
27*	Offensive Odor	D	B	D	C	Possible offensive odor by emission from construction vehicles and set latrine for workers during construction will be increased.
28*	Bottom sediment	C	D	C	D	There are few possibilities of bottom sediment deterioration due to inflow of soil from construction site.



# CENTRAL LUZON LINK EXPRESSWAY SCOPING MATRIX

No.	Item	Evaluation				Description
		Construction		Operation		
		+	-	+	-	
29*	Traffic Jam	B	C	D	C	During the construction, traffic jam may occur at town are due to using existing roads. Additionally when the construction of I/C, traffic jam will be expected because of the roadblock.
30*	Flood	B		B		During the construction, drainage function will be impacted due to excavating works. Project site is a flat terrain, and then there were floods up to now. It is necessary to consider adequate drainage system.
Remarks; +: Positive, -: Negative A: Significant impact is expected, B: Some impact is expected, C: extent of impact is unknown at this stage, D: No impact is expected						
Resource;						
ECC Application Document: EIS on Central Luzon Expressway (CLLEX) Project(2010, DPWH-PMO/FS) Marked "*" are items not including JICA ESC Guideline						

Agustin G. Bawir  
SIGNATURE OVER PRINTED NAME

Brig. Captain  
DESIGNATION

Sgt. Lucia OI  
BARANGAY

DATE: 07/28/2011

# CENTRAL LUZON LINK EXPRESSWAY SCOPING MATRIX

No.	Item	Evaluation				Description
		Construction		Operation		
		+	-	+	-	
1	Involuntary Resettlement	A	B	A	C	According to the latest road alignment plan, 28 HHs (around 150 people) are the PAPs. RAP should be draw up based on the discussion between agencies and PAPs, also should be consider the alignment that will be minimized affected people as much as possible.
2	Local Economy such as Employment	A	B	A	C	It is likely that <i>negative impact</i> such as economic recession will occur due to the lost of farmland. Additionally, due to the separated farmland by new road, the agricultural production efficiency will be decline. On the other hand, the demand for labor that attends the construction and related work will increase. It lead to the activated of local economic situation.
3	Land Use and Utilization	A	B	A	C	Much of farmland will be lost, and change to road. It is likely that land along the new road also will change to market place or residential area, for example.
	Local Resources	A	A	B	C	During the construction, it is likely to be shortage of local resources such as food, water for drink and electricity due to increasing of workers/labors.
	Farm Land	A	A	B	C	Almost 157ha of farmland will be lost by this project. At the same time, agricultural activities will not continue there anymore.
4*	Social Institution, Social Infrastructure and Local Decision-making	A	A	B	C	There are some universities and hospitals at Tarlac, Aliaga and Cabanatuan cities. During the construction, it will be difficult to access to those social institutions due to the increasing of vehicles for construction. On the other hand, it may be convenience to access to those institutions.
5*	Poor	A	A	B	C	It is likely that <i>employment opportunities</i> will increase during construction stage. Additionally, it may occur that increasing of that opportunities will be expected to continue due to arising of economic activities along road and around I/C.
	Indigenous People	B	B	B	C	So far it has not been confirmed that indigenous people live in project site.
6*	Misdistribution of Benefit and Damage	A	A	B	C	It is likely that misdistribution of benefit and damage by construction of roads will not likely occur.



# CENTRAL LUZON LINK EXPRESSWAY SCOPING MATRIX

No.	Item	Evaluation				Description
		Construction		Operation		
		+	-	+	-	
7*	Cultural Heritage	A	B	B	C	Cultural and historical heritage does not exist at project site. There are churches around area, but negative impact, such as a resettlement of church is not expected.
8*	Local Conflict of Interests	A	A	B	C	Depend on the location of new I/C, minor disputes between barangay may occur.
9*	Water Usage and Water Rights	A	A	B	C	For damming the river during the construction, some people cannot use water.
10*	Sanitation	A	A	B	C	Sanitary condition around construction site is likely to become unfavorable due to generation of waste and unsuitable human waste treatment during the construction.
11*	Risk, HIV/AIDS	C	C	C	C	Possible infectious diseases are likely to increase during construction due to increase of construction workers.
12*	Accident	C	C	C	C	Risk of traffic accidents is likely to increase due to growth of construction vehicles and heavily machines during construction and operation.
13	Topography and Geographical Feature	A	B	B	C	The proposed project will not include large scale change of topography and geographical features.
14	Soil Erosion	A	B	B	A	During the construction stage, the outflow of surface soil is likely to occur by rain.
15	Groundwater	A	A	B	B	There is groundwater aquifer from 0.5m to 4.3m at site. During the construction, It may not sufficient amount of water because the waterproof construction will be adopted, but that impact is limited.
16	Hydrology	A	A	A	B	Because the planned road through the rice paddies, and then in service during the construction period will be concerns about the impact to water. But impact on mainstream river is limited.
17	Flora, Fauna and Biodiversity	A	A	B	C	During construction, and to cut down trees near the road construction site, will affect the ecology of plants and animals. After construction activities by green plantations, the ecological recovery can be expected.
18*	Natural Reserve	A	A	B	C	There are no Natural Reserved area in accordance with DENR, NIPAS at project site

# **CENTRAL LUZON LINK EXPRESSWAY SCOPING MATRIX**

No.	Item	Evaluation				Description
		Construction		Operation		
		+	-	+	-	
19*	Landscape					Some impact is expected during the construction temporary, but it will be minimized by mitigations.
20*	Global Warming					Extent of impact is unknown at present stage. However, CO2 emission is likely to increase during construction and operation due to usage of diesel engine for vehicles, machineries and generators.
21*	Air Pollution					Atmospheric pollutant is likely to increase during construction and operation due to increase of traffic, and usage of vehicles, machineries and generators. So baseline survey for regular observation is necessary at present stage.
22*	Water Pollution					During the construction and operation stage, excavated soil, surface water and liquid oil from vehicles and machineries may pollute the around river water. Baseline survey for regular observation is necessary at present stage.
23*	Soil Contamination					During the construction, excavated soil, surface water and liquid oil from vehicles and machineries may pollute the ground.
24*	Waste					Construction debris such as soil is likely to be generated during the construction. Human waste will be generated from workers during construction and operation.
25*	Noise and Vibration					Noise and vibration occurred from machineries and /or vehicles usage arising from construction works are expected. Baseline survey for regular observation is necessary at present stage.
26*	Ground Subsidence					Large scale construction and activities infecting ground water is not planned at present stage.
27*	Offensive Odor					Possible offensive odor by emission from construction vehicles and set latrine for workers during construction will be increased.
28*	Bottom sediment					There are few possibilities of bottom sediment deterioration due to inflow of soil from construction site.



# CENTRAL LUZON LINK EXPRESSWAY SCOPING MATRIX

No.	Item	Evaluation				Description	
		Construction		Operation			
		+	-	+	-		
29*	Traffic Jam	C	C	C	C	During the construction, traffic jam may occur at town are due to using existing roads. Additionally when the construction of I/C, traffic jam will be expected because of the roadblock.	
30*	Flood	A	A	A	3	During the construction, drainage function will be impacted due to excavating works. Project site is a flat terrain, and then there were floods up to now. It is necessary to consider adequate drainage system.	
<p>Remarks;</p> <p>+: Positive, -: Negative</p> <p>A: Significant impact is expected, B: Some impact is expected,</p> <p>C: extent of impact is unknown at this stage, D: No impact is expected</p> <p>Resource;</p> <p>ECC Application Document: EIS on Central Luzon Expressway (CLLEX) Project(2010, DPWH-PMO/FS)</p> <p>Marked "*" are items not including JICA ESC Guideline</p>							

MARIO "TIGRO" S SUBA  
SIGNATURE OVER PRINTED NAME

BUGY CAPTAIN  
DESIGNATION

STA. MOTHICA  
BARANGAY

DATE: \_\_\_\_\_

# CENTRAL LUZON LINK EXPRESSWAY SCOPING MATRIX

No.	Item	Evaluation				Description
		Construction		Operation		
		+	-	+	-	
1	Involuntary Resettlement	D	A	D	D	According to the latest road alignment plan, 28 HHs (around 150 people) are the PAPs. RAP should be draw up based on the discussion between agencies and PAPs, also should be consider the alignment that will be minimized affected people as much as possible.
2	Local Economy such as Employment	C	B	C	C	It is likely that negative impact such as economic recession will occur due to the lost of farmland. Additionally, due to the separated farmland by new road, the agricultural production efficiency will be decline. On the other hand, the demand for labor that attends the construction and related work will increase. It lead to the activated of local economic situation.
3	Land Use and Utilization	B	B	C	D	Much of farmland will be lost, and change to road. It is likely that land along the new road also will change to market place or residential area, for example.
	Local Resources	B	B	D	D	During the construction, it is likely to be shortage of local resources such as food, water for drink and electricity due to increasing of workers/labors.
	Farm Land	D	A	B	B	Almost 157ha of farmland will be lost by this project. At the same time, agricultural activities will not continue there anymore.
4*	Social Institution, Social Infrastructure and Local Decision-making	C	B	B	D	There are some universities and hospitals at Tarlac, Aliaga and Cabanatuan cities. During the construction, it will be difficult to access to those social institutions due to the increasing of vehicles for construction. On the other hand, it may be convenience to access to those institutions.
5*	Poor	C	B	B	D	It is likely that employment opportunities will increase during construction stage. Additionally, it may occur that increasing of that opportunities will be expected to continue due to arising of economic activities along road and around I/C.
	Indigenous People	D	D	D	D	So far it has not been confirmed that indigenous people live in project site.
6*	Misdistribution of Benefit and Damage	D	D	C	C	It is likely that misdistribution of benefit and damage by construction of roads will not likely occur.



# CENTRAL LUZON LINK EXPRESSWAY SCOPING MATRIX

No.	Item	Evaluation				Description
		Construction		Operation		
		+	-	+	-	
7*	Cultural Heritage	D	D	D	D	Cultural and historical heritage does not exist at project site. There are churches around area, but negative impact, such as a resettlement of church is not expected.
8*	Local Conflict of Interests	C	A	C	C	Depend on the location of new I/C, minor disputes between barangay may occur.
9*	Water Usage and Water Rights	B	B	B	C	For damming the river during the construction, some people cannot use water.
10*	Sanitation	D	B	D	D	Sanitary condition around construction site is likely to become unfavorable due to generation of waste and unsuitable human waste treatment during the construction.
11*	Risk, HIV/AIDS	D	B	D	D	Possible infectious diseases are likely to increase during construction due to increase of construction workers.
12*	Accident	D	B	D	B	Risk of traffic accidents is likely to increase due to growth of construction vehicles and heavily machines during construction and operation.
13	Topography and Geographical Feature	D	D	D	D	The proposed project will not include large scale change of topography and geographical features.
14	Soil Erosion	D	B	D	D	During the construction stage, the outflow of surface soil is likely to occur by rain.
15	Groundwater	D	B	D	D	There is groundwater aquifer from 0.5m to 4.3m at site. During the construction, It may not sufficient amount of water because the waterproof construction will be adopted, but that impact is limited.
16	Hydrology	D	B	D	D	Because the planned road through the rice paddies, and then in service during the construction period will be concerns about the impact to water. But impact on mainstream river is limited.
17	Flora, Fauna and Biodiversity	D	B	D	C	During construction, and to cut down trees near the road construction site, will affect the ecology of plants and animals. After construction activities by green plantations, the ecological recovery can be expected.
18*	Natural Reserve	D	D	D	C	There are no Natural Reserved area in accordance with DENR, NIPAS at project site

# CENTRAL LUZON LINK EXPRESSWAY SCOPING MATRIX

No.	Item	Evaluation				Description
		Construction		Operation		
		+	-	+	-	
19*	Landscape	D	D	D	C	Some impact is expected during the construction temporary, but it will be minimized by mitigations.
20*	Global Warming	D	B	D	B	Extent of impact is unknown at present stage. However, CO2 emission is likely to increase during construction and operation due to usage of diesel engine for vehicles, machineries and generators.
21*	Air Pollution	D	B	D	B	Atmospheric pollutant is likely to increase during construction and operation due to increase of traffic, and usage of vehicles, machineries and generators. So baseline survey for regular observation is necessary at present stage.
22*	Water Pollution	D	B	D	B	During the construction and operation stage, excavated soil, surface water and liquid oil from vehicles and machineries may pollute the around river water. Baseline survey for regular observation is necessary at present stage.
23*	Soil Contamination	D	B	D	C	During the construction, excavated soil, surface water and liquid oil from vehicles and machineries may pollute the ground.
24*	Waste	D	B	D	D	Construction debris such as soil is likely to be generated during the construction. Human waste will be generated from workers during construction and operation.
25*	Noise and Vibration	D	B	D	C	Noise and vibration occurred from machineries and /or vehicles usage arising from construction works are expected. Baseline survey for regular observation is necessary at present stage.
26*	Ground Subsidence	D	D	D	D	Large scale construction and activities infecting ground water is not planned at present stage.
27*	Offensive Odor	D	B	D	D	Possible offensive odor by emission from construction vehicles and set latrine for workers during construction will be increased.
28*	Bottom sediment	D	D	D	C	There are few possibilities of bottom sediment deterioration due to inflow of soil from construction site.



# CENTRAL LUZON LINK EXPRESSWAY SCOPING MATRIX

No.	Item	Evaluation				Description
		Construction		Operation		
		+	-	+	-	
29*	Traffic Jam	D	A	D	C	During the construction, traffic jam may occur at town are due to using existing roads. Additionally when the construction of I/C, traffic jam will be expected because of the roadblock.
30*	Flood	C	C	C	C	During the construction, drainage function will be impacted due to excavating works. Project site is a flat terrain, and then there were floods up to now. It is necessary to consider adequate drainage system.
Remarks;						
+: Positive, -: Negative						
A: Significant impact is expected, B: Some impact is expected,						
C: extent of impact is unknown at this stage, D: No impact is expected						
Resource;						
ECC Application Document: EIS on Central Luzon Expressway (CLLEx) Project(2010, DPWH-PMO/FS)						
Marked "*" are items not including JICA ESC Guideline						

  
REYNALDO V. SANCHEZ  
 SIGNATURE OVER PRINTED NAME

BRGT CAPTAIN  
 DESIGNATION

STO. ROSARIO  
 BARANGAY  
 DATE: 7-28-2011

**SAMPLE**  
**CENTRAL LUZON LINK EXPRESSWAY SCOPING MATRIX**

**SAMPLI**

No.	Item	Evaluation				Description
		Construction		Operation		
		+	-	+	-	
1	Involuntary Resettlement	D	A	D	D	According to the latest road alignment plan, 28 HHs (around 150 people) are the PAPs. RAP should be draw up based on the discussion between agencies and PAPs, also should be consider the alignment that will be minimized affected people as much as possible.
2	Local Economy such as Employment	C	B	C	C	economic recession will occur due to the lost of farmland. Additionally, due to the separated farmland by new road, the agricultural production efficiency will be decline. On the other hand, the demand for labor that attends the construction and related work will increase. It lead to the activated of local economic situation.
3	Land Use and Utilization	D	B	C	D	Much of farmland will be lost, and change to road. It is likely that land along the new road also will change to market place or residential area, for example.
	Local Resources	D	B	D	D	During the construction, it is likely to be shortage of local resources such as food, water for drink and electricity due to increasing of workers/labors.
	Farm Land	D	A	D	B	Almost 157ha of farmland will be lost by this project. At the same time, agricultural activities will not continue there anymore.
4*	Social Institution, Social Infrastructure and Local Decision-making	D	B	B	D	There are some universities and hospitals at Tarlac, Aliaga and Cabanatuan cities. During the construction, it will be difficult to access to those social institutions due to the increasing of vehicles for construction. On the other hand, it may be convenience to access to those institutions.
5*	Poor	C	B	B	D	It is likely that employment opportunities will increase during construction stage. Additionally, it may occur that increasing of that opportunities will be expected to continue due to arising of economic activities along road and around I/C.
	Indigenous People	D	D	D	D	So far it has not been confirmed that indigenous people live in project site.
6*	Misdistribution of Benefit and Damage	D	D	C	C	It is likely that misdistribution of benefit and damage by construction of roads will not likely occur.
7*	Cultural Heritage	D	D	D	D	Cultural and historical heritage does not exist at project site. There are churches around area, but negative impact, such as a resettlement of church is not expected.
8*	Local Conflict of Interests	D	D	D	C	Depend on the location of new I/C, minor disputes between barangay may occur.
9*	Water Usage and Water Rights	D	B	D	C	For damming the river during the construction, some people cannot use water.



## CENTRAL LUZON LINK EXPRESSWAY SCOPING MATRIX

SAMPLE

No.	Item	Evaluation				Description
		Construction		Operation		
		+	-	+	-	
10*	Sanitation	D	B	D	D	Sanitary condition around construction site is likely to become unfavorable due to generation of waste and unsuitable human waste treatment during the construction.
11*	Risk, HIV/AIDS	D	B	D	D	Possible infectious diseases are likely to increase during construction due to increase of construction workers.
12*	Accident	D	B	D	B	Risk of traffic accidents is likely to increase due to growth of construction vehicles and heavily machines during construction and operation.
13	Topography and Geographical Feature	D	D	D	D	The proposed project will not include large scale change of topography and geographical features.
14	Soil Erosion	D	B	D	D	During the construction stage, the outflow of surface soil is likely to occur by rain.
15	Groundwater	D	B	D	D	There is groundwater aquifer from 0.5m to 4.5m at site. During the construction, It may not sufficient amount of water because the waterproof construction will be adopted, but that impact is limited.
16	Hydrology	D	B	D	D	Because the planned road through the rice paddies, and then in service during the construction period will be concerns about the impact to water. But impact on mainstream river is limited.
17	Flora, Fauna and Biodiversity	D	B	D	C	During construction, and to cut down trees near the road construction site, will affect the ecology of plants and animals. After construction activities by green plantations, the ecological recovery can be expected.
18*	Natural Reserve	D	D	D	C	There are no Natural Reserved area in accordance with DENR, NIPAS at project site
19*	Landscape	D	D	D	C	Some impact is expected during the construction temporary, but it will be minimized by mitigations.
20*	Global Warming	D	B	D	B	Extent of impact is unknown at present stage. However, CO2 emission is likely to increase during construction and operation due to usage of diesel engine for vehicles, machineries and generators.
21*	Air Pollution	D	B	D	B	Atmospheric pollutant is likely to increase during construction and operation due to increase of traffic, and usage of vehicles, machineries and generators. So baseline survey for regular observation is necessary at present stage.
22*	Water Pollution	D	B	D	B	During the construction and operation stage, excavated soil, surface water and liquid oil from vehicles and machineries may pollute the around river water. Baseline survey for regular observation is necessary at present stage.
23*	Soil Contamination	D	B	D	C	During the construction, excavated soil, surface water and liquid oil from vehicles and machineries may pollute the ground.

## CENTRAL LUZON LINK EXPRESSWAY SCOPING MATRIX

SAMPL

No.	Item	Evaluation				Description
		Construction		Operation		
		+	-	+	-	
24*	Waste	D	B	D	D	Construction debris such as soil is likely to be generated during the construction. Human waste will be generated from workers during construction and operation.
25*	Noise and Vibration	D	B	D	C	Noise and vibration occurred from machineries and /or vehicles usage arising from construction works are expected. Baseline survey for regular observation is necessary at present stage.
26*	Ground Subsidence	D	D	D	D	Large scale construction and activities infecting ground water is not planned at present stage.
27*	Offensive Odor	D	B	D	D	Possible offensive odor by emission from construction vehicles and set latrine for workers during construction will be increased.
28*	Bottom sediment	D	D	D	C	There are few possibilities of bottom sediment deterioration due to inflow of soil from construction site.
29*	Traffic Jam	D	B	C	D	During the construction, traffic jam may occur at town are due to using existing roads. Additionally when the construction of I/C, traffic jam will be expected because of the roadblock.
30*	Flood	D	C	D	C	During the construction, drainage function will be impacted due to excavating works. Project site is a flat terrain, and then there were floods up to now. It is necessary to consider adequate drainage system.
Remarks;						
+: Positive, -: Negative						
A: Significant impact is expected, B: Some impact is expected,						
C: extent of impact is unknown at this stage, D: No impact is expected						
Resource;						
ECC Application Document: EIS on Central Luzon Expressway (CLLEx) Project(2010, DPWH-PMO/FS)						
Marked ”*” are items not including JICA ESC Guideline						

*Jose B. Santos*

*JOSE B. SANTOS*

SIGNATURE OVER PRINTED NAME

*CITY ADMINISTRATION*

DESIGNATION

TARLAC CITY

DATE. 08-05-11



# CENTRAL LUZON LINK EXPRESSWAY SCOPING MATRIX

No.	Item	Evaluation				Description
		Construction		Operation		
		+	-	+	-	
1	Involuntary Resettlement	A	B	A	C	According to the latest road alignment plan, 28 HHs (around 150 people) are the PAPs. RAP should be draw up based on the discussion between agencies and PAPs, also should be consider the alignment that will be minimized affected people as much as possible.
2	Local Economy such as Employment	A	B	B	D	It is likely that negative impact such as economic recession will occur due to the lost of farmland. Additionally, due to the separated farmland by new road, the agricultural production efficiency will be decline. On the other hand, the demand for labor that attends the construction and related work will increase. It lead to the activated of local economic situation.
3	Land Use and Utilization	B	A	D	B	Much of farmland will be lost, and change to road. It is likely that land along the new road also will change to market place or residential area, for example.
	Local Resources	A	B	D	A	During the construction, it is likely to be shortage of local resources such as food, water for drink and electricity due to increasing of workers/labors.
	Farm Land	B	A	A	D	Almost 157ha of farmland will be lost by this project. At the same time, agricultural activities will not continue there anymore.
4*	Social Institution, Social Infrastructure and Local Decision-making	A	B	B	A	There are some universities and hospitals at Tarlac, Aliaga and Cabanatuan cities. During the construction, it will be difficult to access to those social institutions due to the increasing of vehicles for construction. On the other hand, it may be convenience to access to those institutions.
5*	Poor	A	A	B	D	It is likely that employment opportunities will increase during construction stage. Additionally, it may occur that increasing of that opportunities will be expected to continue due to arising of economic activities along road and around I/C.
	Indigenous People	A	A	B	B	So far it has not been confirmed that indigenous people live in project site.
6*	Misdistribution of Benefit and Damage	B	D	A	D	It is likely that misdistribution of benefit and damage by construction of roads will not likely occur.

# CENTRAL LUZON LINK EXPRESSWAY SCOPING MATRIX

No.	Item	Evaluation				Description
		Construction		Operation		
		+	-	+	-	
7*	Cultural Heritage	B	A	A	D	Cultural and historical heritage does not exist at project site. There are churches around area, but negative impact, such as a resettlement of church is not expected.
8*	Local Conflict of Interests	A	B	A	A	Depend on the location of new I/C, minor disputes between barangay may occur.
9*	Water Usage and Water Rights	A	B	A	A	For damming the river during the construction, some people cannot use water.
10*	Sanitation	B	A	D	A	Sanitary condition around construction site is likely to become unfavorable due to generation of waste and unsuitable human waste treatment during the construction.
11*	Risk, HIV/AIDS	A	A	B	A	Possible infectious diseases are likely to increase during construction due to increase of construction workers.
12*	Accident	B	D	A	A	Risk of traffic accidents is likely to increase due to growth of construction vehicles and heavily machines during construction and operation.
13	Topography and Geographical Feature	D	A	B	B	The proposed project will not include large scale change of topography and geographical features.
14	Soil Erosion	A	A	B	D	During the construction stage, the outflow of surface soil is likely to occur by rain.
15	Groundwater	B	D	A	A	There is groundwater aquifer from 0.5m to 4.3m at site. During the construction, It may not sufficient amount of water because the waterproof construction will be adopted, but that impact is limited.
16	Hydrology	A	D	A	D	Because the planned road through the rice paddies, and then in service during the construction period will be concerns about the impact to water. But impact on mainstream river is limited.
17	Flora, Fauna and Biodiversity	B	A	B	A	During construction, and to cut down trees near the road construction site, will affect the ecology of plants and animals. After construction activities by green plantations, the ecological recovery can be expected.
18*	Natural Reserve	A	A	A	B	There are no Natural Reserved area in accordance with DENR, NIPAS at project site



# CENTRAL LUZON LINK EXPRESSWAY SCOPING MATRIX

No.	Item	Evaluation				Description
		Construction		Operation		
		+	-	+	-	
19*	Landscape	A	A	A	A	Some impact is expected during the construction temporary, but it will be minimized by mitigations.
20*	Global Warming	B	D	A	A	Extent of impact is unknown at present stage. However, CO2 emission is likely to increase during construction and operation due to usage of diesel engine for vehicles, machineries and generators.
21*	Air Pollution	A	D	B	A	Atmospheric pollutant is likely to increase during construction and operation due to increase of traffic, and usage of vehicles, machineries and generators. So baseline survey for regular observation is necessary at present stage.
22*	Water Pollution	B	B	D	A	During the construction and operation stage, excavated soil, surface water and liquid oil from vehicles and machineries may pollute the around river water. Baseline survey for regular observation is necessary at present stage.
23*	Soil Contamination	A	B	D	A	During the construction, excavated soil, surface water and liquid oil from vehicles and machineries may pollute the ground.
24*	Waste	A	B	A	A	Construction debris such as soil is likely to be generated during the construction. Human waste will be generated from workers during construction and operation.
25*	Noise and Vibration	B	B	A	A	Noise and vibration occurred from machineries and /or vehicles usage arising from construction works are expected. Baseline survey for regular observation is necessary at present stage.
26*	Ground Subsidence	A	A	D	D	Large scale construction and activities infecting ground water is not planned at present stage.
27*	Offensive Odor	B	A	A	B	Possible offensive odor by emission from construction vehicles and set latrine for workers during construction will be increased.
28*	Bottom sediment	A	D	A	A	There are few possibilities of bottom sediment deterioration due to inflow of soil from construction site.

# CENTRAL LUZON LINK EXPRESSWAY SCOPING MATRIX

No.	Item	Evaluation				Description
		Construction		Operation		
		+	-	+	-	
29*	Traffic Jam	A	B	A	D	During the construction, traffic jam may occur at town are due to using existing roads. Additionally when the construction of I/C, traffic jam will be expected because of the roadblock.
30*	Flood	A	B	A	A	During the construction, drainage function will be impacted due to excavating works. Project site is a flat terrain, and then there were floods up to now. It is necessary to consider adequate drainage system.
Remarks;						
+: Positive, -: Negative						
A: Significant impact is expected, B: Some impact is expected,						
C: extent of impact is unknown at this stage, D: No impact is expected						
Resource;						
ECC Application Document: EIS on Central Luzon Expressway (CLLEX) Project(2010, DPWH-PMO/FS)						
Marked "*" are items not including JICA ESC Guideline						

SIGNATURE OVER PRINTED NAME

DESIGNATION

UMANGAN

BARANGAY

DATE: \_\_\_\_\_



## CENTRAL LUZON LINK EXPRESSWAY SCOPING MATRIX

No.	Item	Evaluation				Description
		Construction		Operation		
		+	-	+	-	
1	Involuntary Resettlement	D	C	B	B	According to the latest road alignment plan, 28 HHs (around 150 people) are the PAPs. RAP should be draw up based on the discussion between agencies and PAPs, also should be consider the alignment that will be minimized affected people as much as possible.
2	Local Economy such as Employment	C	D	D	D	It is likely that negative impact such as economic recession will occur due to the lost of farmland. Additionally, due to the separated farmland by new road, the agricultural production efficiency will be decline. On the other hand, the demand for labor that attends the construction and related work will increase. It lead to the activated of local economic situation.
3	Land Use and Utilization	D	D	B	D	Much of farmland will be lost, and change to road. It is likely that land along the new road also will change to market place or residential area, for example.
	Local Resources	D	D	D	D	During the construction, it is likely to be shortage of local resources such as food, water for drink and electricity due to increasing of workers/labors.
	Farm Land	D	A	D	B	Almost 157ha of farmland will be lost by this project. At the same time, agricultural activities will not continue there anymore.
4*	Social Institution, Social Infrastructure and Local Decision-making	D	D	C	D	There are some universities and hospitals at Tarlac, Aliaga and Cabanatuan cities. During the construction, it will be difficult to access to those social institutions due to the increasing of vehicles for construction. On the other hand, it may be convenience to access to those institutions.
5*	Poor	B	C	B	D	It is likely that employment opportunities will increase during construction stage. Additionally, it may occur that increasing of that opportunities will be expected to continue due to arising of economic activities along road and around I/C.
	Indigenous People	-	-	-	-	So far it has not been confirmed that indigenous people live in project site.
6*	Misdistribution of Benefit and Damage	D	D	D	D	It is likely that misdistribution of benefit and damage by construction of roads will not likely occur.

# CENTRAL LUZON LINK EXPRESSWAY SCOPING MATRIX

No.	Item	Evaluation				Description
		Construction		Operation		
		+	-	+	-	
7*	Cultural Heritage	D	D	D	D	Cultural and historical heritage does not exist at project site. There are churches around area, but negative impact, such as a resettlement of church is not expected.
8*	Local Conflict of Interests	D	D	D	D	Depend on the location of new I/C, minor disputes between barangay may occur.
9*	Water Usage and Water Rights	D	A	C	C	For damming the river during the construction, some people cannot use water.
10*	Sanitation	D	C	D	D	Sanitary condition around construction site is likely to become unfavorable due to generation of waste and unsuitable human waste treatment during the construction.
11*	Risk, HIV/AIDS	D	C	D	D	Possible infectious diseases are likely to increase during construction due to increase of construction workers.
12*	Accident	D	B	B	B	Risk of traffic accidents is likely to increase due to growth of construction vehicles and heavily machines during construction and operation.
13	Topography and Geographical Feature	B	D	A	D	The proposed project will not include large scale change of topography and geographical features.
14	Soil Erosion	D	B	D	D	During the construction stage, the outflow of surface soil is likely to occur by rain.
15	Groundwater	D	D	D	D	There is groundwater aquifer from 0.5m to 4.3m at site. During the construction, It may not sufficient amount of water because the waterproof construction will be adopted, but that impact is limited.
16	Hydrology	D	A	D	C	Because the planned road through the rice paddies, and then in service during the construction period will be concerns about the impact to water. But impact on mainstream river is limited.
17	Flora, Fauna and Biodiversity	D	D	D	C	During construction, and to cut down trees near the road construction site, will affect the ecology of plants and animals. After construction activities by green plantations, the ecological recovery can be expected.
18*	Natural Reserve	D	D	D	C	There are no Natural Reserved area in accordance with DENR, NIPAS at project site

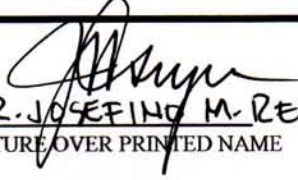


**CENTRAL LUZON LINK EXPRESSWAY SCOPING MATRIX**

No.	Item	Evaluation				Description
		Construction		Operation		
		+	-	+	-	
19*	Landscape	D	D	B	D	Some impact is expected during the construction temporary, but it will be minimized by mitigations.
20*	Global Warming	D	B	<del>B</del> D	B	Extent of impact is unknown at present stage. However, CO2 emission is likely to increase during construction and operation due to usage of diesel engine for vehicles, machineries and generators.
21*	Air Pollution	D	C	D	B	Atmospheric pollutant is likely to increase during construction and operation due to increase of traffic, and usage of vehicles, machineries and generators. So baseline survey for regular observation is necessary at present stage.
22*	Water Pollution	D	C	D	D	During the construction and operation stage, excavated soil, surface water and liquid oil from vehicles and machineries may pollute the around river water. Baseline survey for regular observation is necessary at present stage.
23*	Soil Contamination	D	B	D	D	During the construction, excavated soil, surface water and liquid oil from vehicles and machineries may pollute the ground.
24*	Waste	D	B	D	D	Construction debris such as soil is likely to be generated during the construction. Human waste will be generated from workers during construction and operation.
25*	Noise and Vibration	D	D	D	C	Noise and vibration occurred from machineries and /or vehicles usage arising from construction works are expected. Baseline survey for regular observation is necessary at present stage.
26*	Ground Subsidence	D	D	D	D	Large scale construction and activities infecting ground water is not planned at present stage.
27*	Offensive Odor	D	C	D	D	Possible offensive odor by emission from construction vehicles and set latrine for workers during construction will be increased.
28*	Bottom sediment	D	D	D	D	There are few possibilities of bottom sediment deterioration due to inflow of soil from construction site.

# CENTRAL LUZON LINK EXPRESSWAY SCOPING MATRIX

No.	Item	Evaluation				Description
		Construction		Operation		
		+	-	+	-	
29*	Traffic Jam	D	D	A	D	During the construction, traffic jam may occur at town are due to using existing roads. Additionally when the construction of I/C, traffic jam will be expected because of the roadblock.
30*	Flood	D	B	D	A	During the construction, drainage function will be impacted due to excavating works. Project site is a flat terrain, and then there were floods up to now. It is necessary to consider adequate drainage system.
Remarks; +: Positive, -: Negative A: Significant impact is expected, B: Some impact is expected, C: extent of impact is unknown at this stage, D: No impact is expected						
Resource;  ECC Application Document: EIS on Central Luzon Expressway (CLLEx) Project(2010, DPWH-PMO/FS) Marked "*" are items not including JICA ESC Guideline						

  
**ENGR. JOSEFINO M. REYES**  
 SIGNATURE OVER PRINTED NAME

MPDC  
 DESIGNATION

ZARAGOZA N. ECUA  
 MUNICIPALITY  
 DATE: 8/5/11