



REPUBLIC OF THE PHILIPPINES  
MINISTRY OF PUBLIC WORKS AND HIGHWAYS  
OFFICE OF THE MINISTER  
MANILA

28 January 1982

MINISTERIAL ORDER)  
NO. **10** )  
SERIES OF 1982)

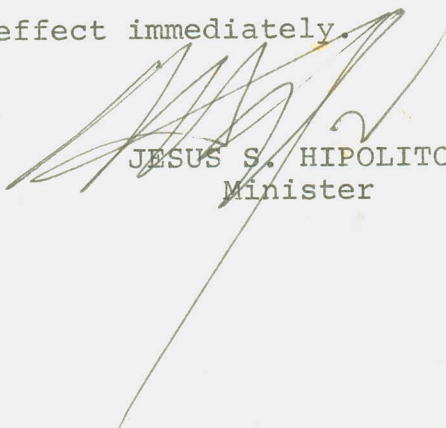
SUBJECT: Information Requirements  
for Water Supply Project  
Proposals

To ensure the systematic and adequate preparation, presentation and evaluation of proposals for water supply projects, all regional/district offices shall see to it that such project proposals are supported by the necessary technical and socio-economic information in accordance with the enclosed forms:

Form WSP-82-1 : Proposed Level I Project Data

Form WSP-82-2 : Proposed Level II or III Project Design  
and Feasibility Study

This Order takes effect immediately.

  
JESUS S. HIPOLITO  
Minister

Republic of the Philippines  
 MINISTRY OF PUBLIC WORKS & HIGHWAYS  
 OFFICE OF THE DISTRICT/CITY ENGINEER

\_\_\_\_\_

PROPOSED LEVEL II OR III PROJECT  
 DESIGN AND FEASIBILITY STUDY

\_\_\_\_\_ Rural Water Supply Project

Prepared By: \_\_\_\_\_  
 (Name)

Position: \_\_\_\_\_

Office : \_\_\_\_\_

Date : \_\_\_\_\_

(Part II of III)  
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 to MPWH Ministry Order No. 10 dtd. 1-28-82

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Republic of the Philippines  
MINISTRY OF PUBLIC WORKS  
OFFICE OF THE DISTRICT/CITY ENGINEER

PROJECT SUMMARY

REGION NO. \_\_\_\_\_

NAME : \_\_\_\_\_

LOCATION : \_\_\_\_\_

POPULATION DATA :

Present Population : \_\_\_\_\_

Design Population : \_\_\_\_\_

Number of Households : \_\_\_\_\_

TECHNICAL DATA :

Type of Source ☐ Spring ☐ Well ☐ Surface Water  
Type of System ☐ Gravity ☐ Pumped

Total Average Daily Demand : \_\_\_\_\_ ☐ Gallons ☐ Liters

Number of Faucets : \_\_\_\_\_

Storage Tank Capacity : \_\_\_\_\_ ☐ Gallons ☐ Liters

Pump Discharge Capacity : \_\_\_\_\_ ☐ GPM ☐ LPS

Pump Horsepower : \_\_\_\_\_ HP

Pumping Time : \_\_\_\_\_ Hours

FINANCIAL DATA :

Total Cost of System : P \_\_\_\_\_

Maximum Amount of Loan : P \_\_\_\_\_

Funding Cost per Household : P \_\_\_\_\_

Loan Terms : P \_\_\_\_\_ % Per Annum \_\_\_\_\_ Years

Local Equity : P \_\_\_\_\_

Type of Local Equity : ☐ Cash ☐ Labor ☐ Materials

Total Monthly Expenses : P \_\_\_\_\_

Monthly Fee Per Household : P \_\_\_\_\_

Submitted By: \_\_\_\_\_ Recommending Approval :  
NAME

POSITION

Checked By: \_\_\_\_\_ APPROVED BY:  
NAME

POSITION

DISTRICT/CITY ENGINEER

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### A. LOCATION

## D. GENERAL INFORMATION

1. Population \_\_\_\_\_
2. Number of Households \_\_\_\_\_
3. Distance from Poblacion \_\_\_\_\_ kilo \_\_\_\_\_
4. Availability of electricity ☒ Yes ☐ No
5. Distance from electric line \_\_\_\_\_ kilo \_\_\_\_\_
6. Availability of public transportation ☒ Land transport ☐ Water transport
7. Main livelihood of residents ☒ Farming ☐ Fishing ☐ Industry ☐ Others: \_\_\_\_\_
- Specify \_\_\_\_\_

1. Are there reliable sources of potable water?

☒ Yes ☐ No

a) For Wells

Well capacity : \_\_\_\_\_ ☐ GPM ☐ LPS  
Casing diameter : \_\_\_\_\_ ☐ In. ☐ mm  
Casing depth : \_\_\_\_\_ ☐ ft. ☐ m.  
Water level from top of well : \_\_\_\_\_ ☐ ft. ☐ m.  
Location : ☐ Within service area  
☐ Outside, \_\_\_\_\_ H. from service area

### b) For Springs

Average dry season flow :      ☒ cfm ☐ l

Elevation above service area :      ☐ ft. ☒ m.

Location : ☐ Within service area

☒ Outside,      m. from service area

2. Are there water supply system materials and equipment  
(pumps, pipes, fittings) available in the barrio?  
(PACD donations, local government contributions, etc.)

☐ Yes

☐ No

For pumps : Type: \_\_\_\_\_ Power: \_\_\_\_\_ HP

For pipes : ☐ Galvanized Iron ☐ Cast Iron

☐ Others, specify \_\_\_\_\_

Diameter: \_\_\_\_\_ No. of pieces: \_\_\_\_\_

3. Is there an existing water tank that can be used?

☐ Yes

☐ No

Type : ☐ Steel ☐ Reinforced Concrete

Capacity : \_\_\_\_\_ ☐ Gallons ☐ Liters

Location : (Please indicate in the map of the project  
area)

4. Are there sites where the water tank can erected?

☐ Yes

☐ No

Location : (Please indicate in the map of the project  
area)

5. Does the barrio have skilled personnel?

☐ Yes

☐ No

If yes, how many?

Number

Plumber : \_\_\_\_\_

Mason : \_\_\_\_\_

Carpenters : \_\_\_\_\_

Others : \_\_\_\_\_

If no, are there competent contractors near the area?

Plumbing contractors: ☐ Yes ☐ No

Tank fabricator : ☐ Yes ☐ No

6. Are there suppliers of materials (pumps, pipes, fittings) in the province?  
☐ Yes      ☐ No

**D. FINANCIAL INFORMATION**

1. Are the people willing to provide at least 10% of the system's cost as local equity? ☐ Yes      ☐ No

2. What can the barrio provide as local equity?

Cash : P \_\_\_\_\_  
Labor : \_\_\_\_\_ man-days  
Materials : Sand ; \_\_\_\_\_ cu. m.  
Gravel; \_\_\_\_\_ cu. m.  
Cement; \_\_\_\_\_ bags  
Others, specify: \_\_\_\_\_

3. Are the people willing to repay a loan equivalent of 90% of the system cost by paying a monthly fee?  
☐ Yes      ☐ No

4. Are people capable of paying a monthly water fee of P6 to P10.00 per household? ☐ Yes      ☐ No  
If no, how much are the people willing to pay per household per month? P \_\_\_\_\_

**E. INSTITUTIONAL INFORMATION**

1. Are people willing to organize themselves into a water service association to operate and manage a water supply system? ☐ Yes      ☐ No

2. How many households are willing to be members?  
\_\_\_\_\_ households.

3. Name at least three (3) leaders of the community who act as officers of the association.

| Name  | Address |
|-------|---------|
| _____ | _____   |
| _____ | _____   |
| _____ | _____   |
| _____ | _____   |

**F. MAP OF THE AREA**

Please attach an area map of the area proposed to be served. Indicate location of houses, buildings and other structures to be served including roads, the water source(s) and possible locations of storage tanks. The map should preferably be drawn to scale.

Important: If map can not be drawn to scale, indicate distances between important points along roads, or possible routes of distribution pipes with households properly indicated. For rolling terrain, indicate elevation differences between measurement points.

**G. REMARKS:**

Submitted by:

\_\_\_\_\_  
Name

\_\_\_\_\_  
Designation

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# ANNEX A-2

## MAP OF THE PROJECT AREA

### RURAL WATER SUPPLY PROJECT

(Part II of II)  
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#### LEGEND:

-  SPRING
-  WELL
-  SPRING
-  COMPOUND
-  WATER
-  PUMP
-  FOUNTAIN
-  EXISTING
-  HOUSE
-  SCHOOL
-  CHURCH
-  OTHER

# ANNEX 8-1

## DESIGN CRITERIA AND BASIC DESIGN DATA

### RURAL WATER SUPPLY PROJECT

#### DESIGN CRITERIA

1. Design Period : 5 years
2. Population
  - Annual Growth : 3 %
  - Average Household Size : 6 persons/HH
  - Design Population : Present Population X 1.16
3. Per Capita Water Consumption
  - Level II : 15 gpcd (60 lpcd)
  - Level II with garden : 20 gpcd (75 lpcd)
  - Level III : 25 gpcd (100 lpcd)
4. Water Demand
  - Average Day Demand : Design Population X Per Capita Consumption
  - Maximum Day Demand : 1.3 X Average Day Demand
  - Maximum Hour Demand : 2.5 X Average Day Demand
5. Pump Operation
  - Pumping Hours : 8 - 15 hours
  - Pumping Rate : Maximum Day Demand ÷ Pumping Hours
6. Storage Capacity : 1/4 of Average Day Demand
7. System Pressure
  - : 5 psi at faucet (For Barangay System)
  - : 10 psi at faucet (For Poblacion System)
8. Households Served Per Faucet : 4 - 6 HH (For Barangay System)  
: 10 - 15 HH (For Poblacion System)

#### DESIGN DATA

1. Present Population : \_\_\_\_\_
2. Design Population (Present Population X 1.16) : \_\_\_\_\_
3. Average Day Demand  $\frac{\text{(Per Capita Consumption)}}{\text{(Design Pop.)}}$  X \_\_\_\_\_ : \_\_\_\_\_
4. Maximum Day Demand 1.3 X  $\frac{\text{(Average Day Demand)}}{\text{(Average Day Demand)}}$  : \_\_\_\_\_

# ANNEX B-2

## SCHEMATIC DIAGRAM OF THE SYSTEM

### RURAL WATER SUPPLY PROJECT

(Part II of II)  
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- LEGEND
- ⊗ WELL
  - ⊙ SPRING
  - ⊗ CUMING
  - ⊙ WATER TANK
  - ⊙ PUMP
  - ⊙ SERVIC
  - ⊙ NODE
  - ⊙ HOUSEHOLD
  - Z PIPE SECTION

## DESIGN OF PIPE LINES

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# ANNEX B-4

## DESIGN OF RESERVOIR AND PUMP

### RURAL WATER SUPPLY PROJECT

#### DESIGN OF RESERVOIR:

1. Determine Capacity of Reservoir, (Cr)

$$Cr = 1/4 \times \text{Average Day Demand}$$

$$Cr = 1/4 \times Da \text{ (LPD)}$$

$$Cr = \text{_____ LITERS}$$

2. Determine Minimum Water Elevation, (Wlm)

$$Wlm = \text{total head loss} + \text{Minimum Pressure in Main (Meters)}$$

\*For Barangay System, Min. Pressure = 5 psi

(use 3M.)

For Poblacion System, Min. Pressure = 10 psi

(use 7M.)

$$Wlm = \text{_____ M.}$$

Note: The bottom of the storage tank should be below this elevation.

#### DESIGN OF PUMP:

1. Determine Pump Capacity, Qp (LPS)

$$Qp = \text{Max. Day Demand (LPD)} / \text{Operating Time (SEC.)}$$

$$Qp = 78 Pd/T$$

Where: Pd = Design Population

$$Qp = \text{_____ LPS}$$

T = Operating Time in seconds

2. Calculate Pump TDH (Meters)

$$TDH = \text{Depth of Pumping Level} + \text{Maximum Reservoir Elevation} + \text{Friction Loss}$$

$$TDH = \text{_____ M.}$$

3. Calculate Brake Horsepower Requirement:

$$\text{Brake Horsepower} = \frac{Qp \times TDH}{75 \times \text{Efficiency}}$$

Where:

Efficiency for Centrifugal

Pump = 30-60%

Efficiency for Submersible

Pump = 50-60%

Efficiency for Jet

Pump = 20-30%

$$\text{Brake Horsepower} = \text{_____ HP}$$

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ANNEX B-5  
DETAILED DESIGN PLAN

RURAL WATER SUPPLY PROJECT

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LEGEND:  
① WELL  
② SPRING  
③ COMMERCIAL  
④ WATER TOWER  
⑤ PUMP STATION  
⑥ CHECK VALVE  
⑦ GATE VALVE  
⑧ UNION  
⑨ REDUCER  
⑩ TEE  
⑪ ELBOW

PIPES SCHEDULE

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## BILL OF MATERIALS

[illegible]

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ANNEX C-2

COST SUMMARY

RURAL WATER SUPPLY PROJECT

1. ESTIMATED COST OF THE SYSTEM

1. a) Cost of Pipes

b) Cost of Fittings

Total Cost of Pipes and Fittings

2. Cost of Reservoir

3. Cost of Pump\*

4. Labor (10% of Pipes and Fittings)

5. Contingencies (5% of Pipes and Fittings + Labor)

Total Cost of the System

\* For gravity system, omit cost of pump.

II. FINANCIAL DATA

1. Total Cost of the System

2. Local Equity

3. Amount of Loan

FINANCIAL ANALYSISRURAL WATER SUPPLY PROJECTA. RELEVANT DATA

1. Pumping Hours : \_\_\_\_\_ hrs.
2. Pump Horsepower : \_\_\_\_\_ HP
3. Cost/KWH : ₱ \_\_\_\_\_
4. Pump Cost : ₱ \_\_\_\_\_
5. Amount of Loan : ₱ \_\_\_\_\_
6. Loan Terms : \_\_\_\_\_ % (Interest per annum)  
\_\_\_\_\_ years (Repayment Period)
7. Number of Households : \_\_\_\_\_

B. COMPUTATION OF MONTHLY EXPENSES

1. Power \* :  $\frac{\text{_____}}{\text{(Monthly KWH)}} \times \text{₱ } \frac{\text{_____}}{\text{(Cost/KWH)}} = \text{₱ } \underline{\hspace{2cm}}$
2. Pump \*  
Depreciation:  $\text{₱ } \frac{\text{_____}}{\text{(Pump Cost)}} \div 60 = \text{₱ } \underline{\hspace{2cm}}$
3. Amortization:  $\frac{\text{_____}}{\text{(CRF)}} \times \frac{\text{_____}}{\text{(Loan Amt.)}} \times \frac{1}{1000} = \text{₱ } \underline{\hspace{2cm}}$
4. Maintenance :  $\frac{\text{_____}}{\text{(Power)}} + \frac{\text{_____}}{\text{(Depreciation)}} + \frac{\text{_____}}{\text{(Amortization)}} \times \frac{1}{8} = \text{₱ } \underline{\hspace{2cm}}$
5. Salaries : \_\_\_\_\_  
(Same as Maintenance) = ₱ \_\_\_\_\_
6. Total Monthly Expenses = ₱ \_\_\_\_\_

\* Note: For gravity systems, omit power and depreciation costs.

C. COMPUTATION OF WATER FEE

$$\text{Monthly Water Fee Per Household} = \frac{\text{(Total Monthly Expenses)}}{\text{(No. of HH)}} \div \underline{\hspace{2cm}} = \text{₱ } \underline{\hspace{2cm}}$$