

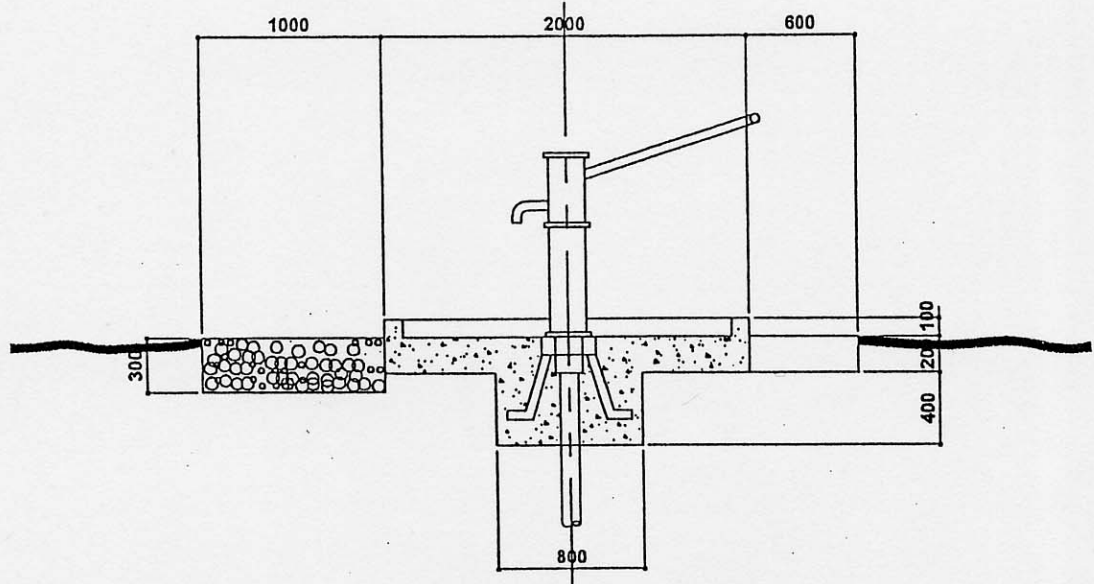
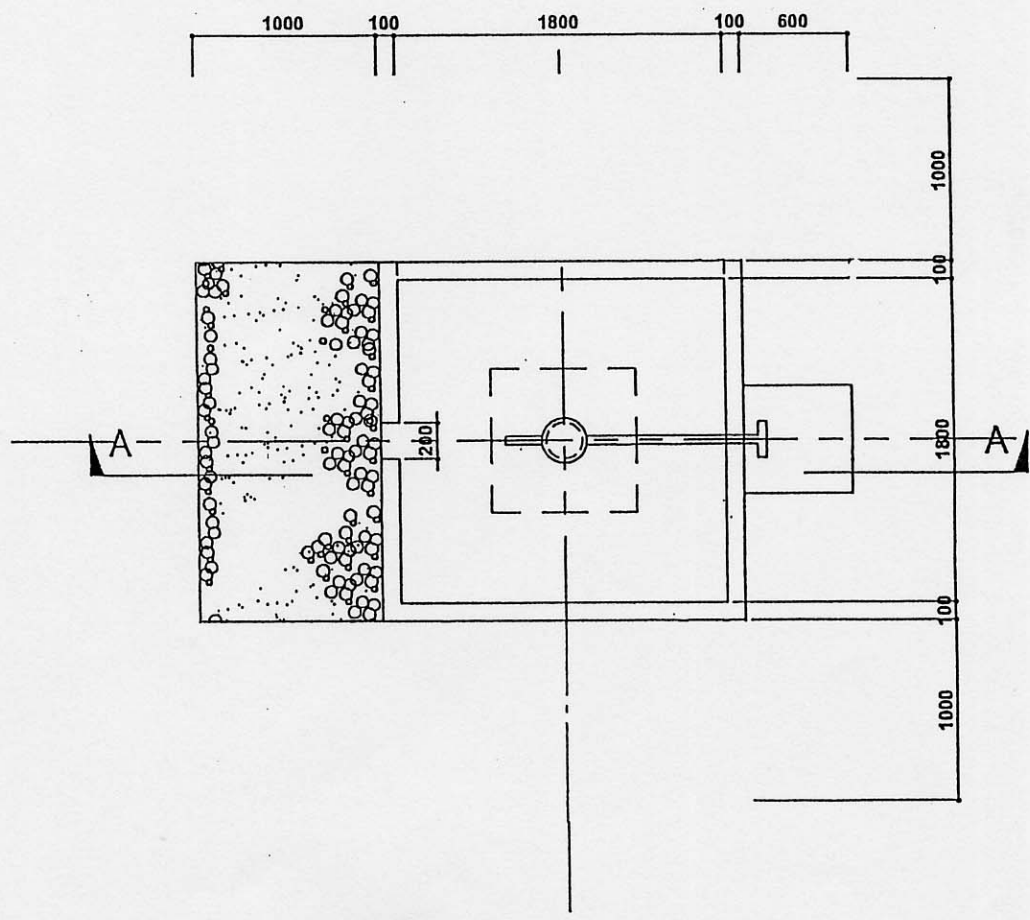


Figure 2-5 Standard Well Design(for Level-1)

| | | | | | |
|--|---|--|---|---|---|
| CLIENT JAPAN INTERNATIONAL COOPERATION AGENCY (JICA) | CONSULTANT SANYU CONSULTANT INC. (SCI) KATAHIRA & ENGINEERS INTERNATIONAL (KEI) | PROJECT BASIC DESIGN STUDY ON THE DEVELOPMENT OF AGRARIAN REFORM COMMUNITIES IN MARGINAL AREAS IN THE REPUBLIC OF THE PHILIPPINES | SCALE  | CONTENTS TYPICAL DEEP WELL PAD PLAN AND SECTION | SHEET NO.  |
|--|---|--|---|---|---|



SECTION A-A
SCALE 1:30M.



PLAN
SCALE 1:30M.

Figure 2-6 Standard Appurtenant Facilities(for Level-1)

3) Appurtenant facilities

To make the pump facility easy to operate and maintain, as well as to prevent the infiltration of surface water into the well, a concrete slab with a drain pit will be constructed. The structure of the facility is shown in Figure 2-6.

(b) Level-2 Water Supply

1) Water supply plan

To secure safe water with minimal operation and maintenance burden, level-2 facilities will utilize springs with a simple pipe distribution system by gravity. The following design criteria will be adopted for the Project.

- Design period: 10 years,
- Annual growth of population: 3%,
- Design population: Present population \times 1.34,
- Design water demand: 40 liters per capita,
- Average day water demand: Design population \times Design water demand
- Maximum day water demand: Average day water demand \times 1.3.

Water supply plan for the Project is summarized as the following table.

Water Supply Plan for the Project Areas

| Area | Sitio | Design population (person) | Design water demand (lit./capita) | Average day water demand (lit./day) | Maximum day water demand (lit./day) |
|-----------|------------|----------------------------|-----------------------------------|-------------------------------------|-------------------------------------|
| Marangog | Proper-1 | 288 | 40 | 11,520 | 14,976 |
| | Proper-2 | 318 | 40 | 12,720 | 16,536 |
| | Guintolian | 224 | 40 | 8,960 | 11,648 |
| | Total | 830 | | 33,200 | 43,160 |
| | Iba-1 | 161 | 40 | 6,440 | 8,372 |
| | Iba-2 | 172 | 40 | 6,880 | 8,944 |
| | Caimito | 209 | 40 | 8,360 | 10,868 |
| | Total | 542 | | 21,680 | 28,184 |
| | Banban | 260 | 40 | 10,400 | 13,520 |
| Silae | Proper | 1,557 | 40 | 62,280 | 80,964 |
| Dalacutan | Proper | 377 | 40 | 15,080 | 19,604 |

2) Water supply facility plan

a) Water source: Spring water

b) Intake box: To use spring water, 3 new intake boxes made by reinforced concrete will

have been decrepit in Marangog, and one more box will be constructed in Silae. The standard design of intake box is shown in Figure 2-7.

- c) Reservoir tank: The tank shall be a ground type. The capacity of reservoir tanks is one-fourth of maximum day demand based on the design criteria of DPWH. Capacity of existing reservoir tank (23cm³) in Silae satisfies the criteria, but the elevation of the tank is too low to supply water for public faucets situated in the southeast parts of the village. Therefore, a new reservoir tank on high land will be constructed to supply water for all the faucets. Designs of reservoir tanks are shown in the design figures attached in this Report. Required capacity of reservoir tank in each area is summarized as follows.

Required Capacity of Reservoir Tank in each Area

| Area | Sitio | Maximum day water demand (L/day) | Storage capacity (m ³) | Remarks |
|-----------|------------------------------------|----------------------------------|------------------------------------|--|
| Marangog | Proper-1 Proper-2 Guintolian | 43.16 | 10.8 | Existing reservoir tank (12m ³) |
| Marangog | Iba-1 Iba-2 Caimito | 28.18 | 7.0 | Newly constructed |
| Marangog | Banban | 13.52 | 3.4 | Newly constructed |
| Silae | Proper | 30.24* | 7.6 | Newly constructed |
| Dalacutan | Proper | 19.60 | 4.9 | Existing tank (2.0m ³) is too small, Newly constructed |

Note: *Maximum of available water source

- d) Supply pipeline: The pipeline is to send water from a spring to a reservoir tank by gravity.
- e) Delivery pipeline: The pipeline is to send water from a reservoir tank to public faucets. Polyethylene pipes shall be used for this pipeline.
- f) Public faucets: Each public faucet is located with the 50-meter interval in the densely built-up areas and in the less populated areas, and one faucet will be constructed for every 5 to 7 households. Since almost all existing faucets have been broken, all of them should be rehabilitated in this Project.

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PROJECT: BASIC DESIGN STUDY ON THE DEVELOPMENT OF AGRARIAN REFORM COMMUNITIES IN MARGINAL AREAS IN THE REPUBLIC OF THE PHILIPPINES

SCALE: 1:30

CONTENTS: TYPICAL SPRING BOX FOR RURAL WATER SUPPLY PLAN AND SECTION

SHEET NO. SP 1

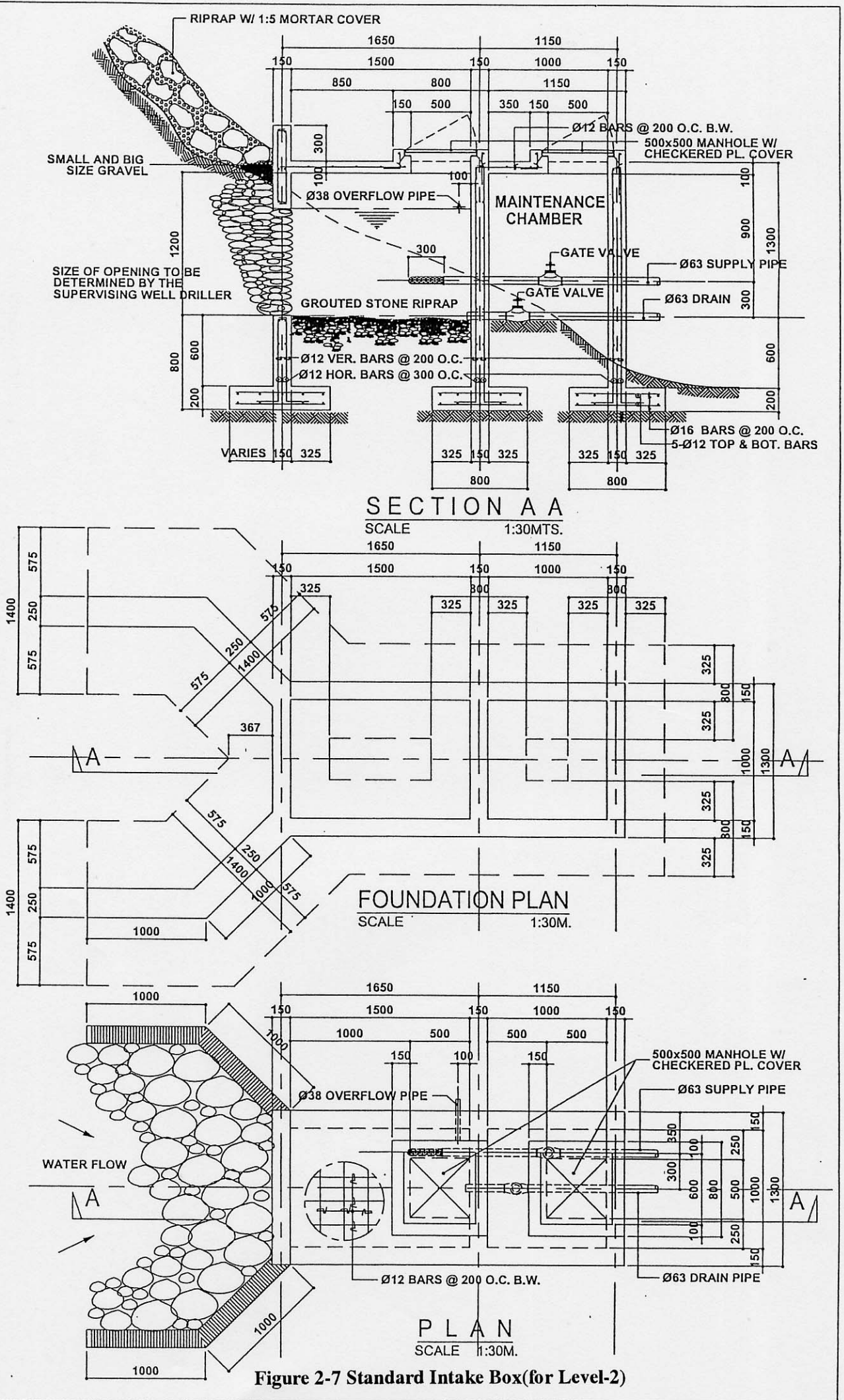


Figure 2-7 Standard Intake Box (for Level-2)

Length of pipelines and quantity of faucets

| | Unit | Marangog | Silae | Dalacutan |
|---------------------------------|-------|----------|-------|-----------|
| Supply pipe(ϕ 25~40mm) | m | 1,380 | 2,110 | - |
| Delivery pipe (ϕ 15~50mm) | m | 3,580 | 755 | 585 |
| Public faucet | Sites | 12 | 14 | 8 |

(4) Multi-purpose Barangay Hall

Multi-purpose barangay hall is designed to have functions of meeting hall, day care center and health center. In term of number of the users and frequency of usage of hall, two multi-purpose barangay halls in Marangog and Silae-Dalacutan are supposed to be almost same. Therefore, the following common conditions are applied to design two multi-purpose barangay halls. The Engineering Offices of Hilongos and Cabanglasan municipalities have separately prepared their plans for the barangay halls. These design plans are utilized for the design of multi-purpose barangay halls for this Project.

- Meeting rooms have a capacity of 12 persons for the use of Barangay councils, multi-purpose agricultural cooperatives and women groups' members.
- Meeting assembly halls have a capacity of 100 persons for the meeting of the communities and various groups concerned. For the convenience to use the halls even in rainy days, the halls shall be equipped with roof.
- Day care center will be designed with a capacity of 20 children either in the morning or in the afternoon and in total 40 children have day care service per day.
- Floor space of health care will be designed according to the typical facility design in the Philippines and Japan, together with the balance with other rooms.
- Floor space per person is decided as shown below in consideration of design standard of the Philippines and Japan.

Meeting Space : 1.5~1.8 m²/person (conference style)

0.7~1.2 m²/person (lecture style)

Day Care Center : 1.98~3.20 m²/child

- Materials for construction shall be procured in the Philippines.
- Each room will be equipped with an exclusive door.
- It is proposed to get daylight through windows because power supply is often unstable in the marginal areas.

The floor space for each room is estimated as follows based on the criteria mentioned above.

Meeting Room

$$12 \text{ persons} \times 1.8 \text{ m}^2 + 1.5 \text{ m} \times 1.5 \text{ m} = 23.85 \quad \text{say} \quad 24 \text{ m}^2$$

Assembly Room

$$100 \text{ persons} \times 0.95 \text{ m}^2 = 95 \text{ m}^2$$

Day Care Center

$$20 \text{ children} \times 2.0 \text{ m}^2 + 1.5 \text{ m} \times 1.5 \text{ m} + 1.5 \text{ m} \times 3.5 \text{ m} = 47.5 \quad \text{say} \quad 48 \text{ m}^2$$

Health Center

$$15 \text{ m}^2 + 1.5 \text{ m} \times 1.5 \text{ m} + 1.5 \text{ m} \times 3.5 \text{ m} = 22.5 \quad \text{say} \quad 24 \text{ m}^2$$

2-2-3 Basic Design Drawing

The basic design drawings are separately bound.