

Figure 2-8 General View of Multipurpose Barangay Hall(3)

CLIENT	CONSULTANT	PROJECT	SCALE	CONTENTS	SHEET NO.
JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)	SANYU CONSULTANT INC. (SCI) KATAHIRA & ENGINEERS INTERNATIONAL (KEI)	BASIC DESIGN STUDY ON THE DEVELOPMENT OF AGRARIAN REFORM COMMUNITIES IN MARGINAL AREAS IN THE REPUBLIC OF THE PHILIPPINES	0 1 2 3 4 1 : 150	PROPOSED BARANGAY HALL FRONT ELEVATION REAR ELEVATION	3 / 4

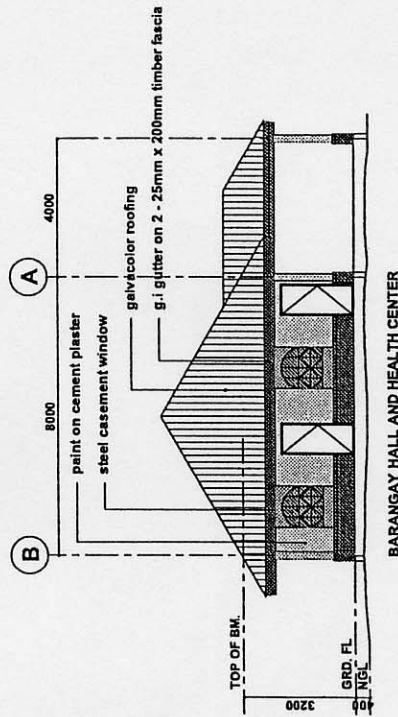
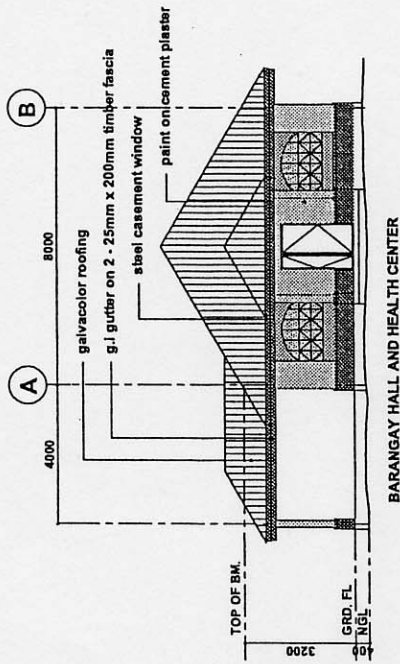


Figure 2-8 General View of Multipurpose Barangay Hall(4)

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 PROPOSED BARANGAY HALL RIGHT SIDE ELEVATION LEFT SIDE ELEVATION	SHEET NO.
--	---	--	-----------	---	---------------

2-2-4 Implementation Plan

2-2-4-1 Implementation Policy

(1) Outline of Facilities

The project components are summarized below. The project sites are located in the Marangog area, Leyte Island and the Silae-Dalacutan area, Mindanao Island.

Summary of Project Facilities

Facilities	Details	Construction /Rehabilitation	Unit	Marangog	Silae - Dalacutan
Road	Conception Bridge	Newly construction	No.	1	-
	Access road A	Rehabilitation	K m	3.84	-
	Access road B	Rehabilitation	K m	2.92	-
	Farm road A	Rehabilitation	K m	-	2.28
	Farm road B	Rehabilitation	K m	3.22	-
	Dalacutan road	Rehabilitation	No.	-	7
Post-harvest	Solar dry yard	Newly construction	No.	3	2
	Ware-house	Newly construction	No.	3	2
Rural water supply	Feeder pipeline	Newly construction	m	1,380	2,110
	Distribution pipeline	Newly construction	m	3,580	1,340
	Faucet	Newly construction	No.	12	22
	Deep well	Newly construction	No.	-	2
Barangay multi-purpose hall	Meeting room, Day care center, Health center	Newly construction	No.	1	1

The Conception Bridge will be built to cross the Salug River (width: about 200 m) with the length of 110.7 m and width of 4.6 m, excluding 90-meter flood release section. The bridge is a submerged type with nine spans of continuous reinforced concrete slab beams, which will be placed in-situ. The type of piers and abutments are concrete piles with 45-cm² sections, and ten meters of bearing piles will be installed, coping with the geological features of riverbed. All project roads are paved with gravel except for concrete

pavement sections that are limited to steep slopes. The road width for each type is indicated as follows.

Access road A - 6.0 meter wide,	Access road B - 4.0 meter wide
Farm road A - 4.0-meter wide	Farm road B - 3.0 meter wide

The appurtenant facilities of roads include crossing structures such as culverts and small-submerged bridges for streams, side slope protection works, and side ditches.

There are four feeder pipelines for rural water supply systems with a diameter of 25 to 40 mm, which have intake structures such as air valves and related pipeline structures. The five distribution pipeline systems with a diameter from 15 to 50 mm include two systems for rehabilitation and four distribution tanks.

Two community halls are designed as one-storied wooden house type. Each hall consists of office room, day care center and health center.

(2) Agencies or Organizations Concerned to the Implementation and Implementation Method

Department of Agrarian Reform (DAR) implements the Project together with the supporting agencies of DA, DENR, DPWH and NIA. At the provincial level, the Provincial Planning and Development Office (PPDO) will be established to implement the Project while DAR provincial office has responsibility for the project implementation with support from other implementation agencies and LGUs.

(a) Implementation Method

The construction works can be divided into civil and building components and both of them are rather small scale. Moreover, almost all materials and machines required for this Project are available in the Philippines. There are many Philippine construction firms that are capable for the construction works with sub-contract condition of appropriate management by a Japanese contractor, except for the construction of Conception Bridge, which requires a large-scale temporary works.

When the project will be implemented under the Japanese Grant Aid, the prime Contractor should be "Japanese nationals". Some Philippine sub-contractors could be

employed for the construction works with the stipulated laws and regulation. The project sites are separately located - one in Leyte and another in Mindanao - and the Project includes various construction works. Taking into consideration these circumstances, it is proposed to carry out the works by one Japanese general contractor in order to keep best work quality.

(b) Base Camp for Construction and Site Camp

Although there are no suitable hotels and rental offices near project areas, campsite should be near the construction sites. Considering the transportation, residential and social infrastructure conditions in the areas, Conception town is proposed as a campsite in Leyte and Silae village in Mindanao respectively.

The base camp shall be settled in the town of Hilongos for Marangog area and in the city of Malaybalay for Silae-Dalacutan area. The base camps should have office rooms, stockyards for materials and machines, concrete production facilities, repairing shop for machines, generator, water supply system and laboratory. Office rooms should be equipped with meeting rooms, simple kitchen rooms and toilets. Hotels or rental houses at Hilongos town in Marangog area or Malaybalay city in Silae-Dalacutan area can be used for housings for Japanese engineers, while operators of heavy machines and foremen will stay at campsite or rental housings at Conception, Silae and Cabanglasan.

2-2-4-2 Key Points to be considered for Construction Works

(1) Construction Works

Main works include earthworks and road pavement works, side slope protection works, pile foundation works, concrete works, river works, pipeline works, deep well works, building works and so on. The contents of major work are as follows.

Earthwork:	excavation, backfill, embankment, gravel foundation, land preparation
Road pavement work:	Gravel pavement, concrete pavement at steep slope portion
Side slope protection work:	Sodding at surface, wet masonry
Foundation work:	R.C pile of bridge
Concrete work:	Bridge slab, solar dry yard and structures

River work:	Riverbed protection or road located at major bed revetment for abutment
Pipeline work:	Pipeline for rural water supply system
Deep well work:	Digging and hand pump
Building work:	Community hall and warehouse
Others:	Electric and water supply facility, land leveling

(2) Conception Bridge

Although the Salug River has discharge all the year round, less rainfall are recorded from March to May in Marangog area. Therefore, it is proposed that the construction of the bridge shall be scheduled in this dry period. However, attentions shall be paid to rainfall because the daily rainfall in this season is not stable at a minimum level.

(3) Earth Work and Concrete Work

(a) Excavation and Spoil Bank

In Marangog, the topsoil is very thin with many exposing soft rocks. The roads for rehabilitation, including access roads from Conception to Marangog, are running in sloping regions or ridges in the hilly areas with long steep longitudinal distances. Bulldozer with ripper will carry out excavation of soft rocks without dynamite. Considering the narrow width of rehabilitation roads, it is proposed to apply one-way construction for the road construction work. Generally, the excavated soils will be used for filling or embanking so far the soils are suitable. However, the unsuitable excavated soils shall be transported to disposing area. Spreading of excavated materials is not allowed without permission of Consultant.

(b) Concrete Work

About 500 m³ of concrete placing is required for the construction of Conception Bridge. Therefore, a simple concrete mixing plant of drum type shall be placed at Conception yard. However, for other concrete mixing works that are rather small structures, portable mixers will be used. Aggregate of concrete for the construction works are available from the quarry sites nearby the Hilongos River. In the Silae-Dalacutan area, the contractor has to collect sand and gravel from the Silae River and mostly from the Cabanglasan River.

The available volume of sand and gravel is not enough in the case that the aggregate and road gravel pavement are included. Therefore, it will be necessary to collect sand and gravel from other areas nearby Cabanglasan. The collectors may be requested to pay their royalty for local government or related agencies concerned.

(4) Temporary Works

Followings are the major temporary works that are necessary for the construction of project facilities.

- By-pass canals and coffer dam: crossing points of rivers or streams
- Temporally bridges: crossing points of rivers or streams
- By-pass roads: Detour road
- Concrete plants: Simple concrete mixer (drum type)

(a) Crossing Structures of Rivers or Streams

The Conception Bridge over the Salug River is one of the major structures in this Project. The Salug River has discharge throughout the year and flooding with about one meter depth occurs two or three times a year. The construction work of bridge requires pile driving. And then it needs slab concrete works, which generally require cofferdam, dewatering pump and by-pass canal. River filling construction method with by-pass canal would be proposed to apply in this case, considering the river conditions - low water level, rate of occurrence of unexpected flood, geological condition, structural type, and economical/ constructional conditions.

Marangog area is seven kilometers far from the riverside, where a temporally bridge is needed for the transportation of materials and machines. This temporally bridge can be used for the pile driving works and the slab concrete works. A surface elevation of slab is designed to EL.232.20 as the level of five-year return period plus 60cm freeboard.

Other small river crossing structures are pipe culverts cased with concrete lining overflow outlets. Other construction works are carried out by dry work with cofferdam, by-pass canal and pump dewatering because small rivers have no spaces to make cofferdam in the center of river.

(b) Detour during Construction Period

There are two of impassable roads from Conception to Marangog. Prior to road construction works, temporally restoration works of existing roads would be needed to secure traffic conditions. There are no detour roads via Santa Margarita because this road has no bridges to cross the Salug River. Although the proposed road from Tagnate to Marangok has not much traffic during the road construction, the road will not be completely closed. The road would be closed just for several hours to secure the path of villagers.

(5) Transportation / Repairing of Roads and Others

(a) Transportation

The materials and equipments required for this project shall be procured in the Philippines. Materials such as pipes and heavy machines would be transported by land or sea from Luzon or Cebu islands to base camps or campsites.

(b) Repairing of Existing Roads

During construction period, existing roads may be damaged by heavy traffic to transport heavy machines and various materials. All access roads are not paved and there are many muddy patches whenever it rains heavily, in particular, in the sections that have few culverts and drainage structures. For these roads including the section from Hilongos to Conception (L=5.0 km) and the section from Cabanglasan to Dalacutan (L=10 km), repair work with sand and gravel pavement may be required in the damaged sections by the dump trucks.

(c) Safety

Guards and watchmen are arranged to secure the passengers' safety at the road construction sites. Protection fences and notice boards are required to install at deep digging sites (eg. culvert works) to prevent fatal accident. Guards and fences also are needed to protect from theft. Large information boards will be installed nearby the campsites and along approach roads to inform communities the outline of works and construction period.

(d) Holiday and Working Time

Most of villagers are Christian, and they take a rest on every Saturday and Sunday and other national and local holidays. There are twelve national holidays and two local holidays. According to “The Labor Code of the Philippines”, typical working time is eight hours from 8AM to 12 AM and 1 PM to 5 PM from Monday to Friday.

2-2-4-3 Scopes of Works

(1) Land Acquisition and Compensating

The Philippine side shall be responsible for the land acquisition for construction and for renting land for temporary works including the negotiation with the landowners about compensation or land rent. Leased land shall be restored after the project.

(2) Power Supply

Power supply for the construction works is generated by diesel engines in principal. In case of community hall, the Philippine side shall bear the costs of installation for power lines from the exiting trunk to the site.

(3) Protection Fence

The Philippine side shall be responsible to provide protection fences, gates, keys and garden trees around the intake structures of water supply, hand pumping stations, multi-purpose pavements and community halls. Japanese side will provide drainage ditches around campsites and along the approach roads to the construction site for community halls and multi-purpose pavements.

2-2-4-4 Consultant Supervision

(1) Basic Concepts of Supervision

Considering the transportation, communication and security for all workers, the base camps should be settled at Hilongos and Malaybalay. The site offices for DAR, Consultants and Contractor shall be constructed in the same compound in order to keep good

relationships among the agencies and to control management, working progress and construction quality.

(2) Consultants

Department of Agrarian Reform (DAR), which is the executive agency for the Project, shall select a consulting firm recommended by JICA and have a contract with it. The consultant firm shall carry out the detailed design and the supervision of the project. The consultant firm shall prepare the design drawings and tender documents, and then DAR shall approve them.

The detailed design consists of following works and documents.

- Site investigation for the detailed design,
- Survey works of water supply route and spot plan survey for road structures sites,
- Preparation of the detailed design and tender documents related to the construction, materials and equipments,
- Conducting the tendering operation on behalf of the Philippine government,
- Attending negotiations for the contract between the Philippine Government and the contractor related to the above tendering,
- Giving advice for analyzing and appraising the tenders to the Philippine Government, and
- Others necessary consulting services.

The Consultants shall appoint supervising engineers who stay at the base camps and supervise the following siting works.

- Approving the construction drawings,
- Supervising the construction progress and quality control,
- Supervising and approving the construction records, and
- Inspecting the construction progress and issuing construction completion certificate

2-2-4-5 Procurement Plan

(1) Procurement Conditions in the Philippines

Construction works had been remarkably expanded in both civil and architectural field in the Philippines. Although the growth in the construction industry in the Philippines becomes somewhat stagnant due to the recent Asian economic crisis, the materials and equipments for the Project are available in the Philippine markets.

(2) Procurement of Construction Materials and Equipments

The contractor shall procure the following construction materials and equipments for the Project.

- Construction equipments: In Manila, there are many lease companies that provide general-purpose construction machineries. They supply sufficient number of devices that are necessary for the construction works.
- Steel materials for temporary works: Steel sheet piles, H-beam and other steel materials are locally abundant in terms of quantity and type.
- Foundation piles: Although there are some pile manufacturers in Cebu, concrete piles shall be processed at the construction sites, taking into consideration of quantities and transportation costs.
- Concrete: There are no ready mixed concrete manufacturers around the construction sites. Concrete shall be processed by concrete plant (drum type) at Marangog. At Sila-Daracutan site, portable mixer shall be procured because of limited concrete volume.
- Reinforcing bar: Reinforcing bar of the various diameter sizes can be procured everywhere in the Philippines.
- Pipes: Only small diameter pipes will be used and they are abundant in the Philippines.

2-2-4-6 Quality Control Plan

An effort shall be made to control quality of construction materials by laboratories at each site. This includes sieve analysis test for fine and coarse aggregate, concrete compressive strength test and rolled embankment test. Concrete test shall be made to

measure the strength of 7-day and 28-day specimens.

The construction management work is made with the presence of the concerned Philippine engineers and the Japanese consultants. Monthly meeting with the Philippine engineers, consultants and contractors shall be held in order to grasp work progress and to discuss and solve problems.

2-2-4-7 Implementation Schedule

When the project is implemented under the Japanese Grant Aid, the contract for the Consultant shall be concluded after E/N (Exchange of Notes) and appraised by the Japanese Government. After the conclusion, the detailed design and tender documents shall be prepared and approved within four months. It shall take another twelve months to carry out the construction after the verification of contract procedures with the contractor. (Refer to Table 2-4)

Table2-4 Implementation Schedule

ITEM/MONTH	1	2	3	4	5	6	7	8	9	10	11	12	
Detail Design	Site Study												
	Works in the Home Office												
					Confirmation at site								
									(Total 4months)				
Implementation of works	Marangog Area												
	Preliminary construction												
			Conception Bridge										
			Road										
			Post-Harvest Facilitation										
							Rural Water Supply						
			Multi-purpose Barangay Hall										
											Completion	△	
	Silae-Dalacutan Area												
			Preliminary Construction										
					Road								
					Post-Harvest Facilitation								
								Rural Water Supply					
								Multi-purpose Barangay Hall					
												Completion	△
										(Total 12months)			

2-3 Obligations of Recipient Country

The Philippine government shall undertake following items for the Project.

- (1) To provide necessary data and information for the Japanese Consultant to conduct the detailed design study,
- (2) To secure the land for project facilities,
- (3) To open an account with an authorized exchange bank of Japan immediately after the E/N (Exchange of Note), and to issue A/P (Authorization to Pay) smoothly if necessary,
- (4) To make appropriate arrangements for the prompt transportation of the equipment to be delivered to the project sites by the Contractor,
- (5) To provide tax exemption for the equipments to be procured and tax relief to all Japanese staff engaged in the implementation of the Project during their stay in the Philippines,
- (6) To facilitate the necessary measures for the embarkation and disembarkation and the stay of Japanese related to the implementation of the Project,
- (7) To provide the permits necessary for the implementation of the Project and the ratification of the said permits,
- (8) To bear appropriate budgets with assignment of staff members for proper and effective operation and maintenance of the facilities constructed under the Project,
- (9) To follow up the proper operation and maintenance of facilities constructed under the Project and to report operating records of facilities to the Japanese Government as the need arises, and
- (10) To bear any other necessary expenses which are not included in the Japanese grant aid.

The Project cost to be born by the Philippine government shall be as follow.

Project cost born by the Philippines	
Item	Cost (Philippine Peso)
1. Preparatory Work for Building Sites	2,520
2. Installment of Plates (3locations)	180
3. Institutional Development	5,226
4. Personnel Expenses	13,086
5. Maintenance and Operation of Project Office	25,440
6. Taxes (Value Added Tax)	30,000
7. Contingency	15,611
Total	92,063

Note: Refer to Appendix 5 for the detail

2-4 Project Operation Plan

(1) Road

Followings are major maintenance activities that are necessary for the new roads.

Routine maintenance (yearly): At the beginning of rainy season

- Cleaning side ditches and culverts,
- Re-shaping and grass cutting on road shoulders, and
- Filling up potholes with gravel.

Periodic maintenance: As the occasion demands

- Repair of side ditches,
- Repair of culverts and spillways,
- Gravel re-surfacing,
- Repair of slope failures,
- Repair of abutment protections, and
- Repair/reconstruction of concrete pavement.

Municipal offices and barangay councils are responsible for the maintenance of the roads improved/constructed under the Project. In particular, barangay captains are the ones who take initiatives for maintenance activities depending on the road conditions. They are

supposed to organise maintenance crews by mobilizing volunteers from residents along the road and to procure materials.

Road maintenance division of municipal office will assist the road maintenance of barangays by providing technical support and construction machines with operators. As for the maintenance materials and fuels for equipments, barangays should shoulder. For these expenses, barangays budget comes from Internal Revenue Allotment. The maintenance cost except for labor cost, which will be born by villagers' voluntarily, is estimated about 1,500 Peso per km as shown in Table 2-5.

To make sure the execution of the sound maintenance by the barangays concerned, the followings are proposed in the course of construction supervision of the Project.

- Preparation of maintenance manual for roads,
- Execution of seminars on the road maintenance at the barangays concerned, and
- Advice to organize the road maintenance activities.

(2) Post-Harvest Facilities

The operation and maintenance of the solar drying pavement and warehouse will be transferred to multi-purpose agricultural cooperatives after the construction. Whenever the cooperatives need any assistance to repair the facilities, the engineering division of municipal office provides the technical assistance to the cooperatives. However, any expenses of the operation and maintenance have to be shouldered by the farmers through collecting fees to use the facilities.

For the Marangog area, the operation and maintenance cost are estimated per location. There are three locations of post harvest facilities in the Marangog area, where the total operation and maintenance cost of the post harvest facilities amount for 6,900 Peso per year. The total corn production is estimated at 71 ton, where this expenses is payable by collection of five peso per cavan (50kg)

Item of Cost	Computation	Amount (Peso)
Repair of concrete pavement	$15\text{m}^2 \times \text{P}100/\text{year}$ (mortar plugging)	1,500
Repair of ware house	Repair of fittings	800
Cleaning of facilities	Two times a year by volunteer basis	
Total		2,300

For the Silae-Dalacutan area, the operation and maintenance cost is estimated per location. There are two locations of post harvest facilities in the Mrangog area, where the total operation and maintenance cost of the post harvest facilities amount for 5,600 Peso per year. The total corn production is estimated at 536 ton, where this expenses is payable by collection of one peso per cavan (50kg)

Item of Cost	Computation	Amount (Peso)
Repair of concrete pavement	20 m ² × P100/year (mortar plugging)	2,000
Repair of ware house	Repair of fittings	800
Cleaning of facilities	Two times a year by volunteer basis	
Total		2,800

(3) Rural Water Supply

(a) Operation and Maintenance Plan

After the completion of the construction works, all of the water supply facilities will be handed over to each Barangay Water and Sanitation Association (BWSA) organized by villagers. The operation and maintenance of the facilities are carried out voluntarily and continuously by BWSA, which will be established on the premise of the facilities construction. The activities of BWSA include daily inspection, cleaning the facilities, collection of water fees and safekeeping association's fund. Caretaker of the facility shall do the minor repair works and report to the municipal engineer's office if extensive repair works is required in the system. Costs for repair inclusive of spare parts will be financed from the fund that is saved up by collecting the water fees. BWSA consists of six members elected by villagers. The roles of the members are shown below.

Structure of BWSA and Roles of Member

President: represents the organization in activities

Vice president: assists the roles and functions of the president

Secretary: prepares the minutes for meetings and keeps records and documents of the association

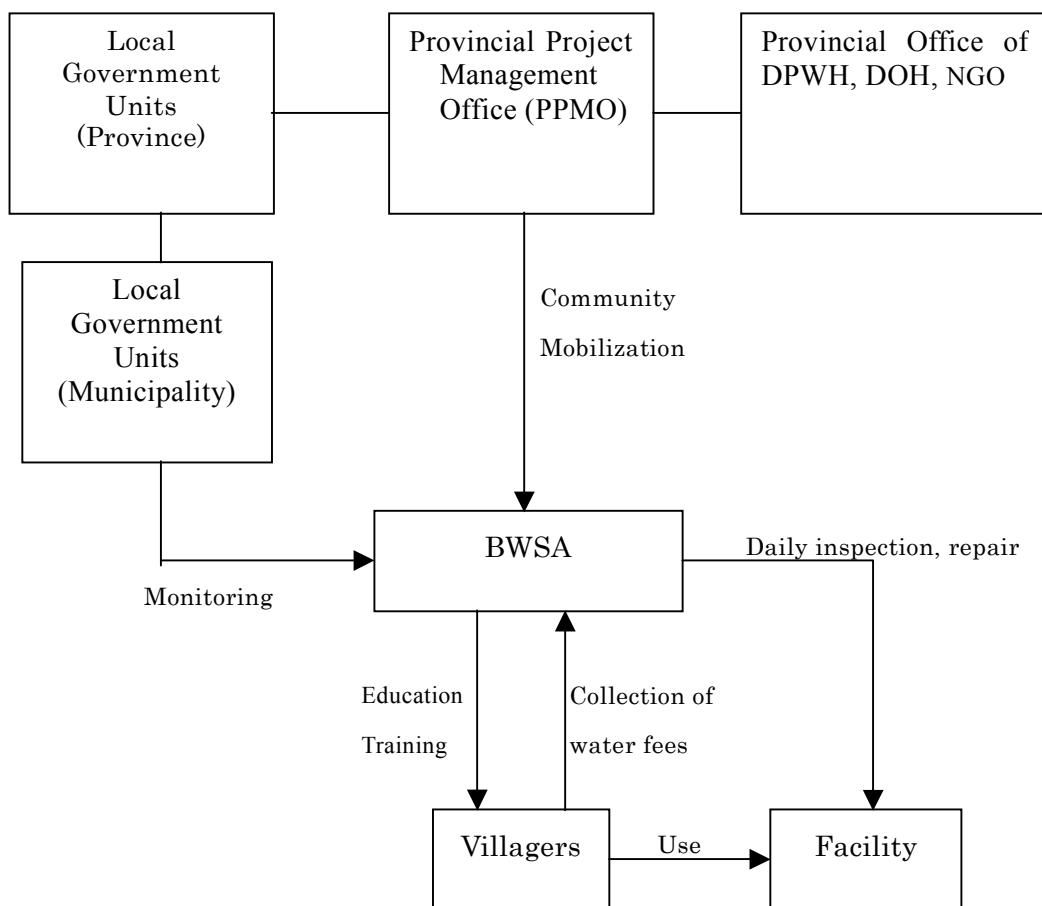
Treasurer: is in charge of safekeeping of the association's funds and property

Bookkeeper: collects the water fees from users and records cash collections

Caretaker: supervises the proper use of water supply system and maintains the system

The BWSA for the existing water supply facilities has not been organized in the Project areas, so that the water fees have not been collected from villagers. Consequently, the establishment of BWSA through community mobilization for villagers is essential for the sustainable operation and maintenance activities under the Project. Provincial Project Management Office (PPMO) of DAR in collaboration with DPWH, DOH, LGUs and NGO will mobilize the community concerned for the establishment of BWSA. The organization structure of operation and maintenance is shown below.

Figure 3-2-2-1 Organization Structure of Maintenance and Operation



For the sustainable operation and maintenance activities, the Philippine side will take measures to ensure the personnel and the fund (about 420,000 pesos) necessary for organizing the three barangay associations. Since BWSA for the operation and maintenance of the water supply system is new approach in the Project areas, the monitoring and guidance by each LGU will be necessary for at least two years.

(b) Operation and Maintenance Costs

Annual operation and maintenance costs for the system are estimated below.

Level-1 facility -Yearly repairing of a cylinder of hand pump (1,000 Pesos)

Level-2 facility - Repairing of a public faucet part twice a year (5 Pesos/faucet)

	<u>Annual operation and maintenance costs (unit: Pesos)</u>		
	<u>Marangog</u>	<u>Silae Proper</u>	<u>Dalacutan proper</u>
Level-1 facility	-	1,000	1,000
<u>Level-2 facility</u>	<u>120</u>	<u>140</u>	<u>80</u>
Total	<u>120</u>	<u>1,140</u>	<u>1,080</u>

In the workshop with the villagers, the Study team confirmed the following matters:

- the villagers will cooperate to establish the BWSA, and
- the villagers will pay 10 Pesos/household/month for the water fees of the facilities.

In consideration of average household annual income in the areas (24,000~6,4000 Pesos), 10 Pesos/household of water fees is considered to be reasonable. With the estimation of 80% collection rate for water fee, annual operation and maintenance costs are calculated as shown below.

Marangog: $212 \text{ Households} \times 10 \text{ Pesos} \times 12 \text{ months} \times 0.8 = 20,352 \text{ Pesos}$

Silae Proper: $197 \text{ Households} \times 10 \text{ Pesos} \times 12 \text{ months} \times 0.8 = 18,912 \text{ Pesos}$

Dalacutan Proper: $55 \text{ Households} \times 10 \text{ Pesos} \times 12 \text{ months} \times 0.8 = 5,280 \text{ Pesos}$

These figures indicate that 10 Pesos/household/month of water fees is enough to operate and maintain the facilities steadily. The surplus of the water fees will be reserved for further repair works in future.

(4) Multi-purpose Barangay Hall

Currently, the barangay council is responsible for the operation and maintenance of the existing barangay hall including the day care center. The new multi-purpose barangay halls will be transferred to the barangay council for the regular operation and maintenance.

However, the municipal office of LGU is responsible for the major repair works. The responsible parties and the activities for the operation and maintenance are classified as follows.

- Regular inspection: Barangay council
- Cleaning and minor repair works: Barangay council and villagers
- Major repair works: Municipal LGU office

The operation and maintenance cost per year for the multi-purpose barangay hall, which is shouldered by barangay LGU, is estimated at 12,000 pesos per year like below. Also the multi-purpose barangay halls will be operated and maintained with volunteer basis labor by village people.

Item of Cost	Computation	Amount (Peso)
Painting of building	Once ten years	8,400
Repair of building	Repair of fittings	3,200
Cleaning of facilities	Two times a year by volunteer basis	
Total		11,600

CHAPTER 3 VERIFICATION OF PROJECT SUITABILITY

3-1 Project Benefit

The implementation of the Project will directly benefit about 8,400 people. This is about 4% of the total population of the three municipalities (217,600 populations as projected in the year 2000), where two ARCs are located.

The benefits shown as follow can be expected by the implementation of the Project.

- 1) The benefit to the people is the increase in income that comes from the improvement in marketing due to the provision/construction of roads, bridges and post harvest facilities.
- 2) The provision of safe water will decrease time being spent for transporting water from water resource.
- 3) The improvement of the multi-purpose Barangay hall will contribute to the development of ARCs as well as other various sub-project activities of the peoples' organizations and women's groups. In addition, the upgraded barangay health stations will enable periodical health check-up/consultations and medical guidance for barangay people. Day Care Center will improve health and nutrient condition of children because these facilities can make educational opportunities for the parents and other adults in the villages. The instructors of the municipal sanitation office visit the villages for immunization every two or three months at least even though the road condition could not be worst now. Hence, if the road condition and health stations are repaired and improved, the instructors can visit the villages more frequently such as others. As the result, the workers of the Day Care Center who are hired by the municipal authority can learn from those instructors. Furthermore, it is expected that the Project will contribute to develop marginal ARCs in Visaya and Mindanao areas. (Refer to Table below.)

Beneficiary Population

Area	Population (Projection 2000)	Remarks
Direct Benefit		
Marangog Area	5,286	Surrounding Area of Marangog includes Brgy. Stagnate, Tanbis, Imelda and Concepcion
- Brgy. Marangog	1,217	
- Surrounding Area of Marangog (Benefited by Road)	4,069	
Silae/Dalacutan Area	3,132	
- Brgy. Silae	2,685	
- Brgy. Dalacutan	447	
Total	8,418	

Source : DAR, LGU (Population of Marangog Area is based on 1995 Census) and Study Team

3-2 Recommendations and Requirements

The Project can be implemented more smoothly and effectively when the following points will be taken into a consideration and improved.

- 1) The ownership, operation and maintenance of the facilities under the Project will be turned over to the barangays and community groups or organizations after the completion. The DAR shall provide and coordinate the necessary support needed by the LGUs and agencies concerned for the smooth operation and maintenance of the facilities in a prompt and timely manner.
- 2) Before the implementation of the grant-aid cooperation, DAR should provide the information about the project for the beneficiaries and residents concerned for their understanding on the Project. DAR shall also undertake preparatory works including the institutional development for the proper turnover of the Project facilities to Barangays and the community organizations and groups.

3-3 Project Suitability

Operation and maintenance works for the Project facilities are to be undertaken by barangays and beneficiary organizations with having the support by concerned local administrations. While labors and such local materials as piles, sand and gravel required for O/M of facilities shall be supplied free of charge by barangays and beneficiary organizations. Those expenses to be incurred to purchase materials for O/M and fuel for construction equipments will be charged the budget of barangays or O/M fee collected from concerned beneficiaries. For the jeepnies, which are major users of road system provided under the Project, there are some cases of fee collection in the other areas, and it is considered that the same fee collection can be applied to this project. Bodies directly in-charge and O/M fees to be collected are proposed as follow for various facilities provided under the Project.

Facility	Organization for Maintenance	Maintenance Cost	Financial Resource
Road • Bridge	Municipal Office / Barangay Council	• Marangog & Silae-Dalacutan Area 1,500 pesos/km	Municipal Budget for Road Maintenance
Post-Harvest Facility	Multi-Purpose Agricultural Cooperative	• Marangog Area 2,300 pesos • Silae-Dalacutan Area 2,800 pesos	• Marangog Area 2,300 pesos • Silae-Dalacutan Area 2,800 pesos
Rural Water Supply	Barangay Water and Sanitation Association	• Marangog Area 120 pesos • Silae-Dalacutan Area 2,320 pesos	10 pesos/household /month
Multi-Purpose Barangay Hall	Municipal Office	12,000 pesos/year	Municipal Budget for Development

Budget for O/M of village road is secured with 9,000 pesos/km per year in case of Hilongos Municipality, and the budget of Malaybalay city, Silae Area and other municipals in Cabanglasan Municipality is secured at more than 5,000 pesos/km per year. Major resource of the budget is derived from the grant from the Central Government. The average annual budget (3 years, 1997-1999) is 0.3 million pesos / year in case of two villages concerned with the project, and the amount of the budget is steadily increasing year by year. Out of the total budget, about 70 %, 0.21 million pesos is allocated for personnel cost, while for development and O/M cost, the remaining 90,000 pesos is allocated. In parallel with the progress in MRA, it is expected that the community's own budget may be increased year by year.

Out of the O/M cost for the access road to be constructed under the project, about 1,500 pesos / km is estimated to be spent for purchase of requested materials and fuel for the construction equipments. In case of Marangog, about 6 km of the access road is planned and the required budget for O/M is estimated as follow.

$$6.52 \text{ km} \times 1,500 \text{ pesos/km} = 9,780 \text{ pesos}$$

As is the case, the 90,000 pesos budget for the development and O/M is judged to be sufficient. Similarly, those villages up to Marangog may fix the sections of O/M responsibility for each villages so that O/M works would be made by using budgets of each village. In addition, O/M for the farm roads can be undertaken by the same budget of each village. In case of major repair works, which requires much larger amount of budget beyond the payable limitation of the village, it can be made by the financial support by higher level local administrations that secure O/M budget for the main roads of 5,000 – 9,000 pesos / km. Further, bridges are designed with sufficient clearance for allowing floating objects such as the driftwoods passing through smoothly and that superior point makes O/M works of bridges easier.

The Post-Harvest Facilities are operated and maintained using the fee collected by the Agricultural Cooperative, which is arranged under the Project. Total annual maintenance cost of three facilities in Marangog is 6,900 pesos, and fee per 1 cavan (50kg) can be estimated as 5 pesos. And then, fee per 1 cavan is 1 peso in case of Silae-Dalacutan Area. Therefore, it is totally possible to operate and maintain the facilities if 1 – 5 pesos per 1 cavan can be collected as the fee, and it is obviously payable for the farmers considering their annual salary, 30,000 pesos.

It costs 2,440 pesos annually to exchange or repair the public faucet parts of Level-1 and Level-2 facility in the rural water supply in two areas. If the water fee, which is about 10 pesos /household/month, is collected from the beneficiaries every month, the annual maintenance cost can be paid from the collected water fee. In addition, large amount of repairing fee, which is probably

necessary for the future, can be saved. Maintenance cost for the Multi-Purpose Barangay Hall is supposed to be 12,000 pesos/year. This cost can be paid by the concerned organizations because this is just 13 % of the annual barangay budget for the development, 90,000 pesos.

Concerned barangays and communities can operate and maintain the facilities provided under the project after the implementation, so the poverty alleviation and improvement of Basic Human Needs of the people are supposed to be realized. Therefore, this project is surely justifiable to be implemented under the grant-aid cooperation.

3-4 Conclusion

The Project will also contribute greatly to the improvement of Basic Human Needs of the people. In addition, Personnel and financial capability of the Philippine side is sufficient for the operation and maintenance of the Project. Therefore, the project is justifiable to be implemented under the grant-aid cooperation due to the reasons already cited.

Appendices

- 1 Member List of the Study Team**
- 2 Study Schedule**
- 3 List of Parties Concerned in the Recipient Country**
- 4 Minute of Discussions**
- 5 Cost Estimation Born by the Recipient Country**
- 6 Traffic Survey Result and Traffic Forecast**
- 7 Result of Water Examination**
- 8 Check List of Environment**
- 9 Reference**

1. Member List of Study Team

- | | |
|--------------------------------|--|
| 1 Mr. Katumi YAMANOME | Leader
Fourth Project Management Division
Grant Aid Management Department,
Japan International Cooperation Agency (JICA) |
| 2 Mr. Yasukuni KIMURA | Technical Advisor
Overseas Land Improvement Cooperation Office
Design Division, Construction Department,
Agricultural Structure Improvement Bureau,
Ministry of Agriculture, Forestry and Fisheries |
| 3 Mr. Yasunori Hasegawa | Chief /Rural Development
Sanyu Consultants Inc.(SCI) |
| 4 Mr. Jiro YABE | Facility Planner / Designer
SCI |
| 5 Mr. Soemu OSHITA | Road Planner
Katahira Engineering International |
| 6 Makoto UOTANI | Deep Well / Water Distribution Planner / Designer
SCI |
| 7 Hiroshi HAYATA | Cost Estimation / Construction Planner
SCI |

3. List of Parties Concerned in the Recipient Country

Department of Agrarian Reform (DAR)

Ms. Antoinette RAQUIZA	Assistant Secretary, Support Service, DAR
Mr. Jose Mari B. PONCE	Executive Director Foreign-Assisted Project Office Director, Project Development & Management Staff
Ms. Erlinda F. DOLATRE	Chief Agrarian Reform Program Officer
Ms. Florida M. ROMERO	Project Development Officer
Ms. Rose Ann CABLIOLE	Project Development and Management Staff
Ms. Nora A. BRIONES	Project Development and Management Staff
Mr. Iehiro NODA	JICA Expert

Department of Public Works and Highways (DPWH)

Mr. Manuel M. BONOAN	Unedersecretary
Mr. Jose C. GUANZON	Director of Central Labor-Based/Comprehensive Agrarian Reform Program Office
Mr. Constante A. LLANES, Jr.	Engineer of Central Labor-Based/Comprehensive Agrarian Reform Program Office
Mr. B. C. LEUTERIO	Director of Bureau of Design (BOD)
Mr. Gilberts S. REYES	Assistant Director of BOD
Ms. Sofia T. SANTIAAGO	Chief of Hydraulics Division, BOD
Mr. Adriano DOROI	Chief of Bridge Division, BOD
Mr. Carlos G. MUTOC	Assistant Chief of Highway Division, BOD
Mr. Ricardo J. INCIONG	Deputy Project Manager, CLB-CARP Mr. Ethelwaldd A. ANDRES Project Director, Rural Water Supply Project Management Office
Mr. Virgilio G. GACUSANA	Acting Assistant Project Manager, Rural Water Supply Project Management Office
Mr. Apolonoi E. BAGUIO	Chief Engineer, Planning/Programming Section, 1st Division, Malaybalay

National Irrigation Administration (NIA)

Mr. Alfonso De Los REYES	Comprehensive Agrarian Reform Program Officer
--------------------------	---

Department of Environment and Natural Resources (DENR)

Mr. Silverio VELEZ	Comprehensive Agrarian Reform Program Officer
--------------------	---

Department of Health

Mr. Joxelito M. RIEGO DE DIOS	Officer-in-Charge, Environmental Sanitation Division
-------------------------------	--

National Economic and Development Authority (NEDA)

Mr. Jose Dominador C. GOMEZ, Jr. Chief Economic Development Specialist, Rural
Infrastructure and Institution Division

Department of Agrarian Reform Regional Office VIII

Ms. Josefina D. AMANDE Support Services Division/Region VIII

Department of Agrarian Reform Regional Office X

Mr. Benjamin R. DE VERA Regional Director

Mr. Albert V. VICERRA Regional Engineer

Provincial Department of Agrarian Reform Office of Tanghas (Leyte)

Ms. Fe D. MALIANO Support Service Officer

Provincial Agrarian Reform Office of Bukidnon (Mindanao)

Mr. Julio C. CELESTIANO Jr. Provincial Agrarian Reform Officer

Mr. Vincente M. TAN Development Coordination Division Beneficiary

Ms. Ofelia O. Hernandez Development Coordination Division Beneficiary

DAR Adjudication Board in Malaybalay

Mr. Jaime M. ESCALDERON Chief Agrarian Reform Officer

Ms. Prima Oro. LINOAY Development Facilitator

Municipal Agrarian Reform Office in Hilongos

Mr. Freasen APILAR Municipal Agrarian Reform Program Officer

Ms. Elena T. ALIAS Development Facilitator

Municipality of Hilongos

Ms. Altagracia R. VILLAFLOR Mayor of Municipality

Mr. Rogelio F. SANCHEZ Municipal Planning & Development Coordinator

Mr. Jose M. VISEARA Municipal Engineer

Ms. Leonila BUENAFE-DICHOSO Municipal Social Welfare & Development Officer

Municipality of Cabanglasan

Mr. Agustin H. DIONALD Mayor of Municipality

Ms. Dolores B. APOSTOL Municipal Agrarian Reform Officer

Asian Development Bank

Dr. Adrianus G. RIJK Senior Project Specialist

Mr. Stephen P. GROFF Project Economist, Agriculture & Rural Development
Division