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REVISED TERMS OF REFERENCE

FOR THE

NATIONWIDE RIVER CONTROL STUDY

IN THE PHILIPPINES

JUNE 1991

REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS
PORT AREA, MANILA

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1. BACKGROUND

The Philippines has suffered much from flood disasters due to its geographical and climatic conditions. The annual average amount of flood damage is estimated at 5.0 million pesos and such damages and losses are serious obstacles to the country's development.

The government has been making a continuous effort to mitigate flood damage with the aim of providing a safer and more pleasant living condition for the people. The government expenditures for flood control had reached to approximately 16.5 billion pesos in 1986, and the Medium Term Development Plan for 1987-1992 newly proposed a total of 7.5 billion pesos for flood control.

However, most of the government expenditures for flood control has been directed to the Metro Manila area and/or large-sized river basins which have a catchment areas of more than 1,400 km^2 each. Flood control works for the medium and small-sized river basins, especially for the areas of regional urban centers have been left behind accordingly.

The National Water Resources Board (NWRB) has identified 336 medium and small-sized river basins which have a catchment area ranging from 40 km^2 to 1,400 km^2 in the Philippines. The total area of the medium and small-sized river basins covers one-third of the national land area, and the population in the area is estimated at about 20,000,000 which corresponds to one-third of the gross population of the Philippines. Thereby, flood damage of the medium and small-sized river basins and its impact on the national

economy and social conditions are almost equal to those of the large-sized river basins.

Serious flood damage takes place particularly in and around the regional urban centers such as provincial capitals and chartered cities located along the medium and small-sized rivers. The regional urban centers are expanding their urban areas outwards by absorbing people from rural areas and changing paddy fields into residential areas. Such a rapid urbanization has increased the flood damage potential, while flood control works for the regional urban centers have been held in abeyance or limited to emergency measures good only for particular circumstances.

An important part of strategy for the future national development plan of the Philippines is to activate the regional economy resulting from the even distribution of development works. From this point of view, it is imperative to prepare a comprehensive flood control plan with a stepwise implementation program for the nationwide medium and small-sized river basins, particularly the areas of the regional urban centers.

2. OBJECTIVES AND APPROACH

2.1 Objectives

The objectives of the Study are:

(1) To carry out a nationwide overview survey for the medium and small-sized river basins in the Philippines assessing the need of flood control works of the respective river basin.

(2) To formulate a long term flood control plan for the representative river basins selected from all over the Philippines focusing on the flood damages of regional urban centers located in the basins; in principal one representative basin selected from each region.

(3) To carry out a feasibility study for a few river basins which are finally selected as the targets of the most urgent flood control works.

2.2 Approach

To attain the aforesaid objectives, the Study will be carried out in the following three (3) successive stages:

Stage 1: Overview Survey

The study aims at preparing a nationwide inventory list of the medium and small river basins which have a catchment area ranging from 40 km^2 to 1,400 km^2 each, and then assessing the need for flood control works of the respective basin. The study shall be at a conceptual plan level and carried out on the basis of existing available data and information.

Stage 2: Study on Long Term Flood Control Plan

The study aims at selecting the representative river basins based on the findings of the above overview survey and preparing a long term flood control plan for the selected river basins. The Philippines is divided into 13 regions and in principal, one (1) representative basin shall be selected among the river basins of each region. Furthermore, particular attention shall be paid on the need of flood control of the following regional urban centers which are located in the medium and small-sized river basins and require appropriate countermeasures urgently.

Name of City	Region No.	Name of Province	Population as of 1980 (x 1,000)
1. Laoag	I	Ilocos Norte	70.0
2. Ilagan	II	Isabela	89.0
3. Olongapo	III	Zambales	178.9
4. Batangas	IV-A	Batangas	161.4

... continued

Name of City		Region No.	Name of Province	Population as of 1980 (x 1,000)
5.	Lucena	IV-A	Quezon	126.4
6.	Puerto Princesa	IV-B	Palawan	60.0
7.	Legaspi	V	Albay	112.0
8.	Iloilo	VI	Iloilo	245.0
9.	Cebu	VII	Cebu	490.0
10.	Tacloban	VIII	Leyte	112.5
11.	Zamboanga	IX	Zamboanga del Sur	344.0
12.	Davao	XI	Davao del Sur	610.0

Stage 3: Feasibility Study

The study aims at selecting a few river basins which will require urgent flood control works and at carrying out a feasibility study for the flood control plan for the selected river basins.

3. INSTITUTIONAL ASPECT

The implementing agency for the Study is the Department of Public Works and Highways (DPWH). Technical assistance is expected to be provided by overseas aid, and counterpart support and logistic support shall be provided by DPWH. Coordination and cooperation with agencies related to the Study shall be arranged through the counterpart staff.

4. PLAN OF OPERATION

The plan of operation described in the following subsections is presented in the form of a rather continuous scheme in which the Study itself is divided into three stages. The duration and classification of each study item involved in the Overview Study, the Long Term Flood Control Plan and the Feasibility Study are given in Fig. 1, Study Schedule.

4.1 Overview Survey (Stage 1)

(1) Data Collection and Review of Data

This shall involve the collection of available data and updating of information including the following items:

(a) National and regional socio-economy;

(b) Meteorology and hydrology;

(c) River topography;

(d) Soil and geological conditions;

(e) Existing structures for flood control and other riparian structures; and

(f) Urban development plans such as housing, road, water supply, etc.

A preliminary nationwide river survey had been carried out by DPWH from 1977 to 1980, and a fair part of necessary data will be given from the results of the survey. It is, however, noted that several serious flood damages had occurred after completion of the survey, and the data related to the flood damages has to be additionally collected and reviewed.

(2) Review of Relevant Plans and Studies

All plans and studies relevant to nationwide river control works and/or developments shall be reviewed and evaluated to identify the flooding problems.

(3) Preparation of River Inventory

Based on information collected from (1) and (2) above, an inventory of medium and small-size river basins

shall be prepared describing the present conditions, past flood events, potential flood problems, and other noteworthy aspects.

(4) Classification of River Basins

The nationwide medium and small-sized river basins shall be divided into several classes in accordance with priority of necessity for flood control works.

4.2 Study on Long Term Flood Control Plan (Stage 2)

(1) Selection of Priority River Basins

Representative river basins shall be selected as the study areas for long term flood control plan. The selection shall be made on the basis of the findings of the Overview Survey (Stage 1) above and in consideration of the need of flood control works for urban centers located in the basins.

(2) Study and Analysis

The following items shall be carried out to provide the basic data for formulation of the long term flood control plan:

(a) Analyze flood hydrology in the river basins;

(b) Prepare a preliminary flood inundation map for each study area on the basis of the collected information and the existing topographic maps; and

(c) Estimate the flood damage potential at a preliminary level.

(3) Plan Formulation

The long term flood control plan shall be formulated for each study area through the following items:

(a) Determine the protection level against flood with due consideration of economic superiority and technical soundness;

(b) Study alternative flood control measures and propose the most practical plan which will suit the local condition;

(c) Prepare a preliminary cost estimation for the proposed plan; and

(d) Prepare a preliminary implementation schedule.

(4) Project Evaluation

The plan proposed from (3) above shall be evaluated in the following aspects:

(a) Evaluate the technical and economic viability of the proposed plan; and

(b) Assess environmental and social effects due to the proposed plan.

4.3 Feasibility Study (Stage 3)

(1) Selection of Priority Study Areas

A few river basins shall be selected as the study areas which require flood mitigation works most urgently in the implementation schedule for the long term flood control plan proposed above.

(2) Topographic Survey

The following topographic survey shall be carried out to provide the subject feasibility study:

(a) Photogrammetric survey with production of 1/5,000 map covering the whole flood vulnerable area of each regional urban center in the selected basin; and

(b) Topographic survey for the proposed structure sites including counter survey and river profile/cross section survey.

(3) Geological/Geotechnical Investigations

The appropriate test drilling, test pitting and laboratory tests shall be carried out to examine the foundation conditions of the proposed structure sites and the sources of construction materials.

(4) Study and Analysis

The results of earlier study made under Stage 2 shall be reviewed and updated on the basis of the results of topographic survey and geological/geotechnical investigation newly provided.

(5) Plan Formulation

The plan earlier formulated under Stage 2 shall be updated and refined incorporating the data and information newly made available.

(6) Design of Proposed Flood Control Structures

The following works shall be performed:

(a) Prepare design criteria taking into account the local condition and investigation results;

(b) Prepare design form the proposed structures; and

(c) Estimate work quantities.

(7) Estimate of Project Cost and Benefit

The following works shall be performed:

(a) Prepare construction plan and method;

(b) Prepare implementation schedule; and

(c) Estimate positive and negative benefit of the proposed plan.

(8) Project Evaluation

The technical, economical and financial feasibility of the proposed plan shall be evaluated and the environmental impacts shall be assessed.

4.4 Transfer of Knowledge

Transfer of knowledge shall be provided to selected government staff through on-the-job and overseas training.

5. EXTERNAL AND GOVERNMENT INPUTS

The proposed external inputs for the Study are as follows:

(1) Engineering Services

This will include One Hundred Seventy-Nine (179) man-months of engineering services. The list of expatriates in Table 1 shows the required specialty and length of service of the respective experts.

(2) Overseas Training of Counterpart Staff

Ten (10) man-months will be required for special training in the eligible foreign country for the counterpart staff.

(3) Equipment

Equipment, as shown in Table 2, will be required for the Study.

5.2 Government Input

The Government of the Philippines will provide the following in support of the Study.

(1) Data, information and all available documents relevant to the Study;

(2) Counterpart staff with accommodation and facilities to assist the Study Team in conducting technical works;

(3) Staff as may be required to assist the Study Team concerning administrative works; and

(4) Exemption from tax and customs duties of materials, machinery, equipment, office supplies and commodities needed in conducting the Study.

6. REPORTING REQUIREMENTS

The Study Team shall prepare and submit the following reports:

(1) Inception Report

The Inception Report shall be submitted in twenty-five (25) copies, one (1) month after commencement of the Study. This report shall identify the comments and/or any suggestion based on the review of previous reports and data, and summarize main findings.

(2) Progress Report I

The Progress Report I shall be submitted in twenty-five (25) copies, five (5) months after commencement of the Study. This report shall present all the results of the Overview Survey (Stage 1).

(3) Interim Report

The Preliminary Study Report shall be submitted in fifty (50) copies, eleven (11) months after commencement of the Study. This report shall present all the results of the Study on the Long Term Flood Control Plan (Stage 2). The comments of the Government will be given to the Study Team within one (1) month after receipt of this report.

(4) Progress Report II

The Progress Report II shall be submitted in twenty-five (25) copies, eighteen (18) months after commencement of the Study. This report shall present a summary of the findings of the Feasibility Study (Stage 3) and problems encountered, if any.

(5) Draft Final Report

The Draft Final Report shall be submitted in twenty-five (25) copies within twenty-three (23) months after commencement of the Study, compiling all the results of the Study. The comments of the Government will be given to the Study Team within one (1) month after receipt of this draft report.

(6) Final Report

The Final Report shall be submitted in fifty (50) copies at the completion of the Study, incorporating the comments of the Government on the Draft Final Report.

7. STUDY SCHEDULE

The Study shall be carried out in twenty-five (25) months, as shown in Fig. 1.

TABLE 1. LIST OF EXPATRIATES REQUIRED

Item No.	Designation	Man-Month
1.	Team Leader	25
2.	Flood Prevention Planning Engineer	25
3.	River Planning Engineer	18
4.	Drainage Planning Engineer	18
5.	Hydrologist	15
6.	Geologist	6
7.	Land Use Analyst	6
8.	River Structural Engineer	12
9.	Drainage Facility Engineer	12
10.	Construction Planner/Cost Estimator	12
11.	Socio-Economist	10
12.	Environmental Expert	6
13.	Survey Expert	4
14.	Other Specialists (As Required)	10
	Total	179

TABLE 2. LIST OF EQUIPMENT REQUIRED FOR THE ENGINEERING SERVICES

Item No.	Name of Equipment	Quantity
1.	Electro-Optical Distance Meter	1 unit
2.	Transit with Tripod	3 units
3.	Level with Tripod	3 units
4.	Hand Level	3 units
5.	Leveling Staff	6 units
6.	Pole	6 units
7.	Binoculars	1 unit
8.	Mirror Stereoscope	2 units
9.	Walkie-Talkie	2 units
10.	Current Meter	4 units
11.	Rainfall Recorder	3 units
12.	Water Level Recorder	6 units
13.	Drafting Table	2 sets
14.	Work Processing Device	1 unit
15.	Micro-Computer	1 unit
16.	Consumables	1 lot
17.	Vehicle	4 units

Work Item	Months 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
Stage I: Overview Survey																									
(1) Data Collection and and Review of Data	———	———																							
(2) Review of Relevant Plans and Studies		———	———																						
(3) Preparation of River Inventory List			———	———																					
Stage 2: Study on Long Term Flood Control Plan																									
(1) Selection of Priority Area					———																				
(2) Study and Analysis					———	———	———																		
(3) Plan Formulation							———	———	———																
(4) Project Evaluation									———	———															
Stage 3: Feasibility Study																									
										———															
(1) Selection of Priority Study Areas											———	———	———												
(2) Topographic Survey											———	———	———	———											
(3) Geological/Geotechnical Investigations													———	———	———	———									
(4) Study and Analysis																———	———	———							
(5) Plan Formulation																		———	———	———	———	———			
(6) Design of Proposed Flood Control Structures																						———	———	———	
(7) Estimate of Project Cost and Benefit																						———	———	———	———
(8) Project Evaluation																									
Reporting																									
(1) Inception Report		★																							
(2) Progress Report I						★																			
(3) Interim Report												★													
(4) Progress Report II																			★						
(5) Draft Final Report																								★	
(6) Final Report																									★

Fig.1 STUDY SCHEDULE

Work Item	Month	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
1. Team Leader	25	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
2. Flood Prevention Planning Engineer	25	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
3. River Planning Engineer	18	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---							
4. Drainage Planning Engineer	18	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---							
5. Hydrologist	15	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---										
6. Geologist	6										---	---	---	---	---	---										
7. Land Use Analyst	6		---	---	---					---	---	---														
8. River Structural Engineer	12							---	---	---	---							---	---	---	---	---	---	---	---	
9. Drainage Facility Engineer	12							---	---	---	---							---	---	---	---	---	---	---	---	
10. Construction Planner/Cost Estimator	12							---	---	---	---							---	---	---	---	---	---	---	---	
11. Socio-Economist	10			---	---					---	---										---	---	---	---	---	---
12. Environmental Expert	6									---	---												---	---	---	---
13. Survey Expert	4										---	---	---	---												
14. Other Specialist (As Required)	10																									
Total	179																									

Fig. 2. STAFFING SCHEDULE

THE APPLICATION FORM FOR JAPAN'S GRANT AID

Applicant	Project Title
The Government of the Republic of the Philippines	Flood Mitigation Project in Ormoc City
Economic Sector	**Project Type:**
Flood Control	1. Facilities Construction 2. Equipment Supply
Total Project Cost : 1.9 billion Yen (Y 19,915,000,000)	
Responsible Ministry (Ministry requesting the aid)	**Implementing Agency** (Agency in charge of execution of the Project)
Department of Public Works and Highways (DPWH)	Office of Region VIII, DPWH

I. Project Description

1. Background (Please describe in detail.)

(1) Current Situation of the Sector (Please describe in detail.)

The Government of the Philippines has been making continuous efforts to mitigate flood damages with the aim of providing a safer and more pleasant living conditions for the people. However, most of the effort were directed to Metro Manila and to large river basins. Flood problems of medium and small river, especially those in regional urban centers, were left without any comprehensive program. Flood disasters have not only deteriorated basic infrastructure facilities but also hampered urban development.

In this circumstance, Ormoc City was attacked by Typhoon Uring on November 5, 1991, which brought the tremendous damage over the city proper, accounting approximately 8,000 death and missing, 14,000 houses destroyed and 400 million pesos of estimated damages. (This disaster has been recalled by all Philippines as "Ormoc Tragedy of 1991" because of huge number of death and missing of people.)

Although some rehabilitation works have been undertaken by the Government, they are limited to reconstruction of the destroyed bridges and dikes.

(2) Problems to be solved in the Sector

As the rehabilitation works are limited to reconstructing the damaged structures including bridges, the improvement works of Anilao and Malbasag rivers which

brought a huge flood and damage have not been carried out and thus the poor flood control capacity of both rivers have been left the same as before the flood in 1991. Therefore, Ormoc City is still left under the menace of dangerous flood like in November 1991.

(3) Necessity and Importance of Improvement in the Sector which lead to the formulation of the Project

After the "Ormoc Tragedy in 1991", a necessity of comprehensive flood control works was advocated by all the agencies, experts and officials who visited and surveyed the flood conditions in Ormoc City. Peoples in Ormoc City had also requested the Government for an early execution of the flood control works of Anilao and Malbasag rivers.

In response to the request of the Government of the Philippines, the flood control study of Ormoc City has been conducted by the Japan International Cooperation Agency (JICA) in 1993 and 1994 under "**STUDY ON FLOOD CONTROL FOR RIVERS IN THE SELECTED URBAN CENTERS**" (JICA Study). Ormoc City is selected one of the four cities where the Master Plan Study was carried out , and further being undertaken with the Feasibility Study for early implementation.

(4) Relations between the Sector and the Project

The Project is expected to mitigate flood damage, especially to protect human lives from the flash flood as in 1991. It will also help to improve people's living conditions and riverine environment.

(5) Reasons why Japan's Grant Aid is requested for this particular Project

Due to the budgetary restriction and the inadequate engineering experience, the immediate implementation of river improvement works are difficult for the agency-in-charge of the works. To undertake effective mitigation works for flood damages which are expected in the coming rainy season, the Japan's Grant Aid is essential.

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2. Objective and Outline of the Project

(1) Objectives of the Project

(i) Short-term Objectives

To mitigate the flood damage on human lives and people's properties; and to improve the urban environment and people's living standards.

(ii) Medium and Long-term Objectives

To reconstruct, conserve and develop Ormoc City and the vicinity affected by the flash flood from Anilao and Malbasag rivers, as well as to give a great impact to the other urban centers as an model project to mitigate flood damage and improve the environment.

(iii) Please fully describe the relations between the project and objectives, and how the Project will contribute to the accomplishment of the objectives.

The flood in November 1991 was brought by a heavy rain triggered by Typhoon Uring. The scale of the rainfall is evaluated at about 20 to 30 years return period in the occurrence probability, while the flood discharge is

estimated to be about 800 m^3/s which is more than 30 year return period. This increase in flood discharge is contributed by the dam-up of flow, the "dam" was made of debris and drifting logs.

On the other hand, the channels of Anilao and Malbasag rivers may only confine the flood discharge with a scale of 2 to 5 years return period at their bankful capacities. The river channels are generally steep and flow velocity is very high, resulting the flood flow along the rivers are very strong and destructive.

The proposed river improvement works and the construction of slit dams in the upstream will provide the adequate flow capacity to confine the flood with less than 20-year return period, stop the flowing debris and logs, and dissipate the flood energy. The Project is aimed at mitigating the damage expected in the coming rainy season in the urban areas and other important assets, as well as providing the pleasant riverine environment helping the people's living conditions.

(2) Outline of the Project (Please give a full description of each facility and equipment and their detailed specifications.)

The Project is composed of the civil works, the engineering services and the right-of-way acquisition, their outlines are as follows:

Civil Works

River improvement of Anilao and Malbasag rivers with a scale of 20-year return period, together with the construction of three (3) sabo (slit) dams in their upstream reaches.

Items of the improvement works are as follows:

Work Item	Anilao	Malbasag
(1) Design Flood Discharge	650 m^3/s	310 m^3/s
(2) Improvement Stretch	2.0 km	2.1 km
(3) Cross-section	Single cross-section	
(4) Related Structures	Revetment, drops and concrete wall	
(5) Sabo (Slit) Dam	2 sites	1 site
(6) Reconstruction of Bridge	3 bridge	2 bridges

Engineering Services

The engineering services are required for the detailed design and the construction supervision for 3 months (12 man-months) and 18 months (54 man-months), respectively.

Right-of-Way Acquisition

Item	Anilao	Malbasag
(1) Land Acquisition:	51,600 m^2	37,200 m^2
(2) House Evacuation:	83 units	123 units

Refer to Fig. 1

(4) Cost estimates (Please describe in detail all the premises on which the cost estimates are based such basic unit prices, inflation rate, foreign exchange rate, and so on. Please attach detailed tables of estimated costs of each facility and item of equipment. If estimated in local currency, please mention the latest exchange rate of the currency to the US dollar or the Japanese yen.)

The cost of the Project is estimated on the basis of the following premises:

i) The basis of project cost estimation is the price level as of July 1994.
ii) The price escalation and physical contingency are not considered.

The estimated project cost is as follows:(Details are shown in Table 1)

Item No.	Particulars	Unit	Unit Cost (Yen)	Quantity	Amount ($Y10^6$)
I.	Main Construction Cost				
1.	Preparatory Works	L.S.	-	-	74,000
2.	Main Works				1,466,500
(1)	Excavation	m^3	300	340,000	102,000
(2)	Embankment	m^3	700	31,000	21,700
(3)	Sodding	m^2	100	48,000	4,800
(4)	Gravel Pavement	m^2	2,000	20,000	40,000
(5)	Revetment	m^2	10,000	56,000	560,000
(6)	Retaining Wall	m	30,000	2,000	60,000
(7)	Drops	site	4,000,000	7	28,000
(8)	Bridge	m^2	100,000	2,000	200,000
(9)	Slit Dam	site	150,000,000	3	450,000
3.	Miscellaneous Cost	L.S.	-	-	154,000
	Total of I				1,694,500
II.	Engineering Services	L.S.			297,000
	Design and Tendering		(12m/m)		
	Construction Supervision		(54m/m)		
	Total of Yen	-	-	-	1,991,500

3. Benefit, Effect and Publicity of the Project

(1) Population that will benefit directly from the Project

City proper area : 43,000 (8,300 households)

(2) Population that will benefit indirectly from the Project

Population of Ormoc City will be benefited;

129,000 (25,000 households)

(3) Area that will benefit from the Project

The city proper area of Ormoc City: 3.8 km^2.

(4) Economic and Social Effects of the Project (Please describe in detail.)

(i) Current Situation

After the Ormoc Tragedy in 1991 , no comprehensive flood control works has been undertaken. Therefore, Ormoc City and its people have been left under the menace of the same disaster as the flood of 1991. The proposed flood control project (the Project) formulated in the JICA Study is the first plan which could prevent the flood disaster, further the Project is evaluated to have the economic internal rate of return of 35%.

On the other hand, the implementation of the Project is to help improving the people s living standards and the riverine as well as urban environment.

(ii) Expected Effects of the Project

To mitigate further damage on the urban area from floods in the coming rainy season.

To increase employment opportunity for the people who have suffered from the floods in 1991 and later.

To strengthen the infrastructure development works undertaken by DPWH.

To encourage the affected people to participate in the reconstruction of the devastated area by assuring the key station (urban area) for the undertakings.

(5) Publicity (How many people are expected to notice the benefit or positive effect of the Project implemented with Japan's grant aid when it is completed ?)

The flood of 1991 in Ormoc City is believed to be the biggest with its damages in this century and its occurrence gave the pre-warning of the deteriorating the river conditions in the urban centers in the Philippines. The Project will be known as the best solution to the flood and environmental problems in the regional urban centers.

Furthermore, this proposed assistance for actual construction works under the Japan's Grant Aid will be much appreciated, since other assistance have been made only for survey and investigation on the phenomena and conditions.

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4. Request to Other Donors

(1) Is there any request made to other donors for assistance closely related to this project ?

1. Yes 2. No

(2) If yes, please fill in below:

(I) Name of the donors;

(ii) Title and outline of the assistance;

(iii) Possibilities that the donor will extend the assistance requested;

Not clear yet.

(iv) In the case where other donors do not extend assistance, please describe in detail appropriateness and effectiveness of this project;

The Project is formulated and proposed to have an immediate implementation under the JICA Study: **STUDY ON FLOOD CONTROL FOR RIVERS IN THE SELECTED URBAN CENTERS.** Therefore, it is preferable that the Project be implemented with the technical and economic

assistance of the Government of Japan. The Project will not only relieve the people and their properties form the flood disaster but help to improve the riverine and urban environment.

(v) In the case where other donors extend loans, please describe the reason why Japan's Grant Aid is requested for the project.

Japan's Grant Aid is effective for immediate execution for urgently required program, while execution of loans takes some time until the actual works be undertaken

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5. Priority (Please describe priority of this project among other projects for which requests are made to Japan.)
(Please attach project list with priorities.)

For the year 1994, DPWH requests Japan's Grant Aid for the following projects;

1. Sediment Transport and Disposal System in the Mt. Pinatubo Disaster Area. (Portable Dike Project)
2. Flood Mitigation Project in Ormoc City.
3. Project for the Retrieval of Drainage System in Flood Prone Areas in Cebu City.

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6. Ministry and Agency in charge of the Project

(1) Outline of Implementing Agency (Please describe in detail the agency in charge of the execution of the Project.)

(I) Organization Chart of the Agency (in general)

(Please mark the responsible department and division in charge of the project.)

Refer to Fig. 2

(ii) Authorities and Duties of the Agency

To be responsible for undertaking the planning, design, construction and maintenance of infrastructure facilities, especially national highways, flood control and water resources development systems, and other public works in Region VIII area.

(iii) Personnel (Please mention the number of staff, workers, and employee of the agency and the responsible department, division and section in charge of the Project.)

(a) Regional Director	:	1
(b) Assistant Director	:	2
(c) Office of the Regional Director	:	3
(d) Legal Staff	:	6
(e) Internal Audit Unit	:	1
(f) Monitoring & Computer Section	:	8
(g) Administrative Div.	:	21
(h) Comptrollership & Financial Management Div.	:	13
(i) Maintenance Div.	:	19
(j) Material Quality Control & Hydrology Div.	:	17

(k) Construction Div. : 80
(l) Planning Design Div. : 55

Total : 226

(iv) Budget (Revenue and Expenditure)

Approximately P834,000,000 in 1994.

(2) Outline of Supervising Ministry (Please describe in detail.)

(i) Organization Chart of the Ministry (in general)

(Please mark the responsible department and division in charge of the project and implementing agency.)

Refer to Fig. 3

(Please attach detailed organization chart pointing out the responsible department, division, and sections in charge of the project and implementing agency.)

(ii) Authorities and Duties of the Ministry

Refer to Executive Order No. 124, dated January 30, 1987, entitled Reorganizing the Ministry of Public Works and Highways, redifining its powers and functions, and for other purposes.

(iii) Personnel (Please mention the number of staff, workers and employees of the Ministry and the responsible department, division and section.)

17,000 of permanent employee in DPWH, all related division, section will engage and support the Project.

(iv) Budget (Revenue and Expenditure)

(If mentioned in local currency, please state foreign exchange rate of the currency to the US dollar or the Japanese yen.)

See Table 2

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7. Preparation

(1) Project Site (Please attach photographs and maps of the site which the various including that of 10,000:1.)

Refer to Fig. 4

(i) Location and Area

(a) Address of the Site

Ormoc City in Leyte Province

(b) Total Area of the Site

Approx. 50 ha

(ii) Land Preparation

(a) To which extend has the land been expropriated for the project?

The Project is to be made in the area along the rivers where Ormoc City executed the zoning as a high risk area, therefore land expropriation will have less difficulty.

(b) When will the expropriation of the land be completed?

Before the start of the construction works.

(Please attach the laws and procedures concerning the expropriation of land.)

(2) Electricity, Water Supply, Telephone, Drainage and Other Facilities (Please describe the extent to which above mentioned incidental facilities have been prepared.)

Since the project site is located in the vicinity of urban area, electricity, water supply, etc. necessary for the project works will be provided.

(3) Is there any information, statistics and data regarding geographical, geological, meteorological, oceanographic situations, etc. (If any, please attach those information.)

Meteorological, hydrological and geographical data will be obtained from PAGASA, DPWH and NWRB, respectively. Topographical map with a scale of 1 : 500 is available through the JICA Study. Geological and soil mechanical investigation have been also completed through the JICA Study.

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8. Capabilities of the Implementing Agency

(Please describe the capabilities of the agency to manage, sustain, and operate the project.)

(1) Current Situation

Office of Region VIII, DPWH has been carrying out the reconstruction works, and have enough experience various construction works. Therefore, the office is adequately capable to execute the Project.

(2) Problems of the Agency

As the Office of Region VIII has also conducted rehabilitation works for the damaged structures caused by the flood of 1991, the fund and manpower are not satisfactorily provided.

(3) Improvement Plan (If any, please describe in detail the contents of such a plan that will enable the Agency to handle the project more effectively and efficiently.)

To be provided when the Project is approved.

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9. Operation and Management of the Project

(1) Personnel (Please fill in the number of personnel.)

	Current	When the Project is completed
Supervising Ministry		To be provided
Implementing Agency	40,311	40,311
Directly Responsible Personnel	10	15

(In the case of hospital, research institutes, training centers, please attach the functional personnel charts.)

(In the case where necessary personnel are not yet secured, when and how this is to be done.)

(2) Budget (Please fill in the budget in the below table.)

(If mentioned in local currency, please refer to the latest foreign exchange rate of the currency to the US dollar or Japanese yen.)

The annual budget of infrastructure development of the Department of Pubic Works and Highways for 1991 to 1994 are as below:

In Million Yen

	(1991)	(1992)	(1993)	(1994)
Supervising Ministry	2,638.5	3,627.3	3,322.3	3,463.0
Implementing Agency	-	-	-	207.5
Direct Budget of the Project	-	-	-	-

Exchange Rate: P1 = Y4.00

(In the case where additional budgetary allocation is needed for the implementation of the project, please answer the following question.)

(i) Has the additional budget been already allocated ?

1. Yes 2. No

(ii) If no, how and when will the additional budget be allocated ?

On the basis of the implementation schedule of the Project, the additional budget for the right-of-way acquisition will be required in 1995 before the construction of the Project.

(3) Technical Abilities of Local Staff

(i) Please describe technical abilities of local staff operating the Project.

The abilities of local staff are adequate for the operation and maintenance of the Project since they have been participating in many civil work construction projects.

(ii) Please describe in detail educational background of those who are in charge of the operation and management of the facilities and equipment.

Engineers in the Office of Region VIII, DPWH are mostly graduates from the engineering courses in universities or colleges and have passed the national examination for civil engineering, and asst. engineer are graduates of the same course with less experience.

10. List of Related Projects

(Please fill in below if there is a project executed by another donor country or international organization in related areas.)

(1) Name of donor

(2) Project Title

(3) Project Outline

(4) Type of assistance (grant, loan, technical assistance, etc.)

(5) Project Period

(6) Relations with this Project

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11. Technical Assistance

(1) Has technical assistance been extended to this Project ?

1. Yes 2. No

(2) Is technical assistance needed for the implementation of this Project ?

1. Yes 2. No

(3) If no, please describe the reasons why technical assistance is not needed.

(4) If yes, please fill in below.

(i) Short-term experts (persons) (sector:)

(ii) Long-term experts (persons) (sector:)

(iii) Acceptance of trainees (persons) (sector:)

(iv) Project-type Technical Cooperation (If needed, please describe the proposed project outline.)

(v) Japan Overseas Cooperation Volunteers (if needed, please describe the proposed sector and related information.)

(vi) Development Survey Program (Feasibility Studies; and Master Plan)

(if needed, please describe the outline of the proposed development survey program.)

(5) Has an official request for technical assistance been already made ?

1. Yes 2. No

(i) If yes, please mention the date of the request.

(ii) If no, please describe the reason why the official request has not yet been made.

(iii) When will the request be made to the Embassy of Japan ?

II. General Development Plan

1. Title of the Plan (Please attach the whole volume of the latest general development plan)

Medium Term Development Plan

2. Economic and Social Situation

(Please mention the basic statistics of economic fundamentals.)

(1) GNP

Gross National Product (GNP) at current prices and at constant 1985 prices are as follows:

Calendar Year	At current prices		At constant 1985 prices	
	GNP (Mil.pesos)	Growth Rate (%)	GNP (Mil.pesos)	Growth Rate (%)
1985	556,074	-	556,038	-
1975	596,276	7.23	579,134	4.15
1980	670,826	12.50	605,861	7.73
1985	791,822	18.04	652,411	7.68
1986	914,126	15.45	690,801	5.88
1987	1,078,408	17.97	721,762	4.48
1988	1,262,358	17.06	722,330	0.08
1989	1,370,379	8.56	727,460	0.71

(2) National Income, Sector by Sector

National Income by sector in 1991 and 1992 is at current prices and at constant 1985 prices are shown as follows:

(Million pesos)

Sector	At current prices		At 1985 prices	
	1991	1992	1991	1992
1. Agriculture, Fishery and Forestry	261,348	290,338	160,465	159,895
2. Industry Sector	424,504	446,334	248,718	248,189
3. Service Sector	558,889	601,749	303,133	302,312
4. GDP	1,244,741	1,338,421	712,316	710,396
5. Net factor income from abroad	17,617	31,958	10,014	17,064
6. GNP	1,262,358	1,370,379	722,330	727,460

(3) Unemployment Rate

The unemployment rate of the whole country in 1992 was 8.6% and that of the Region VIII was 6.7%.

(4) Inflation Rate

Prices of consumer goods and services were climbing faster from 1988 (=100.0) to 1991 (=152.0) annualy; 112.2 in1989 and 128.0 in 1990. The consumer price

index (CPI) rose at an annual rate of 6.6% from 165.4 index points in 1992 to 176.3 index points in 1993.

(5) Growth Rate

As shown in table of (1), the GNP registered a growth rate of 0.7% or from a value of P722,330 million in 1991 to P727,460 million in 1992 at constant 1985 prices.

(6) Balance of International Payments

The balance of international payment that indicates national government's external debt continuously grew from 1983 ($24,816 million) to 1987 ($28,649 million) posting an annual average increase of 3.86%. As of July 1988, the debt amounted to $28,039 million.

(7) Labor Population (as a whole, and sector by sector)

In 1992, of the total 26,940 thousand persons in the labor force, 24,618 thousand or 91.4% were employed while the remaining 2,322 thousand or 8.6% were unemployed. Employment by sectors in October 1992 were as follows:

Sector	Employed Person (Thousands)
1. Agriculture, Fishery and Forestry	10,869
2. Industry Sector	3,816
3. Service Sector	9,232
4. Total	23,917

(8) Debt Service Ratio

30.3% in 1985.

(9) Outstanding Debts

The outstanding debt was come from foreign bank institutions as shown by the $13.72 billion as of July 1988, as classified as follows:

(Million US$)

Institution and Country	1987	1988
Total	28,649	28,039
I. Banks	14,624	13,719
II. Financial Institutions	390	399
III. Supplier Credit	2,355	2,036
IV. Multilateral	5,033	4,928
a. IBRD	2,454	2,507
b. ADB	1,097	1,148
c. IMF	1,342	1,129
d. Others	140	142
V. Bilateral	5,203	6,234
a. Japan	2,487	2,880
b. USA	579	639
c. Germany	100	94
d. Export Credit Agencies	1,828	2,364
e. Other Countries	209	257
VI. Others	844	723

(10) Major Items of Exports and Imports and their value

The major items of exports were made up essentially of food, forest, extractive, agricultural, metallic and non-metallic products. Among them, the top three major exports were coconut products, mineral products and fruits/vegetabls. Aggregate earnings of the three constituted US$1,486 million or 15.13% of total exports accounting US$9,824. The major items of imports were, as the first; special transactions and commodities not classified according to kind, the second; petroleum products and related materials, and the third; iron and steel among the total import of US$14,519. in 1992.

(11) Major Trading Partner

Among the foreign trading partners, Americans transacted a total of US$6,332 million worth of goods accounting for 25.60% of total trade in 1992. Japanese partners had a share of 19.54% followed by the Taiwanese with 5.04%.

(12) Population and its Growth Rate

By the census in 1990, the total population of the Philippines was 60,703.2 thousand and its annual growth rate was at 2.35%.

(13) Average Life Expectancy (Male and Female)

The average life expectancy of the Filipinos reached 64.6 years in 1990.

(14) Death Rate and Birth Rate

The death rate declined to 5.4 (per thousand population) in 1989 and went down to 5.1 in 1990. The number of live births reached to 1,631,069 resulting in the birth rate of 26.3 (per thousand population) in 1990.

(15) Medical Structure

The Government has been executing several health programs and services under the Department of Health such as Primary Health Care Program, Maternal and Child Health Program, etc. There were totally 1,696 hospitals of 583 public and 1,113 private, 11,423 barangay health stations, 2,385 clinics and other medical units under operation. Totally 7,107 doctors, 1,614 dentists, 13,853nurses, and other medical and paramedical manpower were accounted in 1992.

(16) Ten Diseases most afflicting the nation

The following table gives the ten leading diseases of mortality in 1990:

Diseases	Number	Rate
1. Bronchitis	980,557	1,580.3
2. Diarrhea	943,580	1,520.7
3. Influenza	544,768	878.0
4. Pneumonia	235,947	380.3
5. Tuberculosis, all forms	152,688	246.1
6. Malaria	133,737	118.7
7. Measles	80,744	69.2
8. Malignant neoplasms	73,232	54.3
9. Diseases of the heart	99,688	160.7
10. Septicemia	-	-

(17) Illiteracy Rate (or Literacy Rate)

The literacy rate of private household population 15 years old and over increased to 83.32% in 1980.

(18) Other data

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3. Outline of the Plan

(1) Most Important Sectors in the Plan

(2) Basic Objectives of the Plan

(Please describe in detail the objectives by using concrete figures.)

(3) How will the above-mentioned objectives be achieved ?

(Please mention specific projects and program to achieve the objectives.)

---

4. When will the plan be executed and completed ?

---

5. Relations between this project and the general development plan. (Please describe the significance of the project in the general plan.)

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6. Is there any assistance that other donors have extended/will extend to the projects an/or program listed in the general plan ?

(I) Yes.

(ii) No.

(iii) If yes, please give basic information on the assistance

(a) Name of donor

(b) Prospect Title

(c) Project Cost

(d) Type of assistance (Grant, Loan, Technical Assistance, etc.)

(e) Project Outline

Table 1. DETAILS OF PROJECT COST

(Unit:1000 Yen)

WORK ITEM	UNIT	UNIT COST (Yen)	Anilao River QUANTITY	Anilao River AMOUNT (1000 Y.)	Malbasag River QUANTITY	Malbasag River AMOUNT (1000 Y.)	Total QUANTITY	Total AMOUNT (1000 Y.)
I Main Construction								
1. Preparatory Works				49,500		24,500		74,000
2. Main Works				976,400		490,100		1,466,500
(1) Excavation	m3	300	150,000	45,000	190,000	57,000	340,000	102,000
(2) Embankment	m3	700	24,000	16,800	7,000	4,900	31,000	21,700
(3) Sodding	m2	100	26,000	2,600	22,000	2,200	48,000	4,800
(4) Gravel Pavement	m2	2,000	15,000	30,000	5,000	10,000	20,000	40,000
(5) Revetment	m2	10,000	45,000	450,000	11,000	110,000	56,000	560,000
(6) Retraning Wall	m	30,000	0	0	2,000	60,000	2,000	60,000
(7) Drops	site	4,000,000	3	12,000	4	16,000	7	28,000
(8) Bridge	m2	100,000	1,200	120,000	800	80,000	2,000	200,000
(9) Silt Dam	site	150,000,000	2	300,000	1	150,000	3	450,000
3. Miscellaneous Works (10% of 1.+2.)				102,500		51,500		154,000
Total of I				1,128,400		566,100		1,694,500
II Compensation (Amount is in 1000 Pesos)								
(1) Land Acquisition	m2		51,600	10,965	37,200	5,880	88,800	16,845
(2) House Evacuation	no.		83	6,885	123	10,170	206	17,055
Total of II				17,850		16,050		33,900
III Engineering Services								297,000

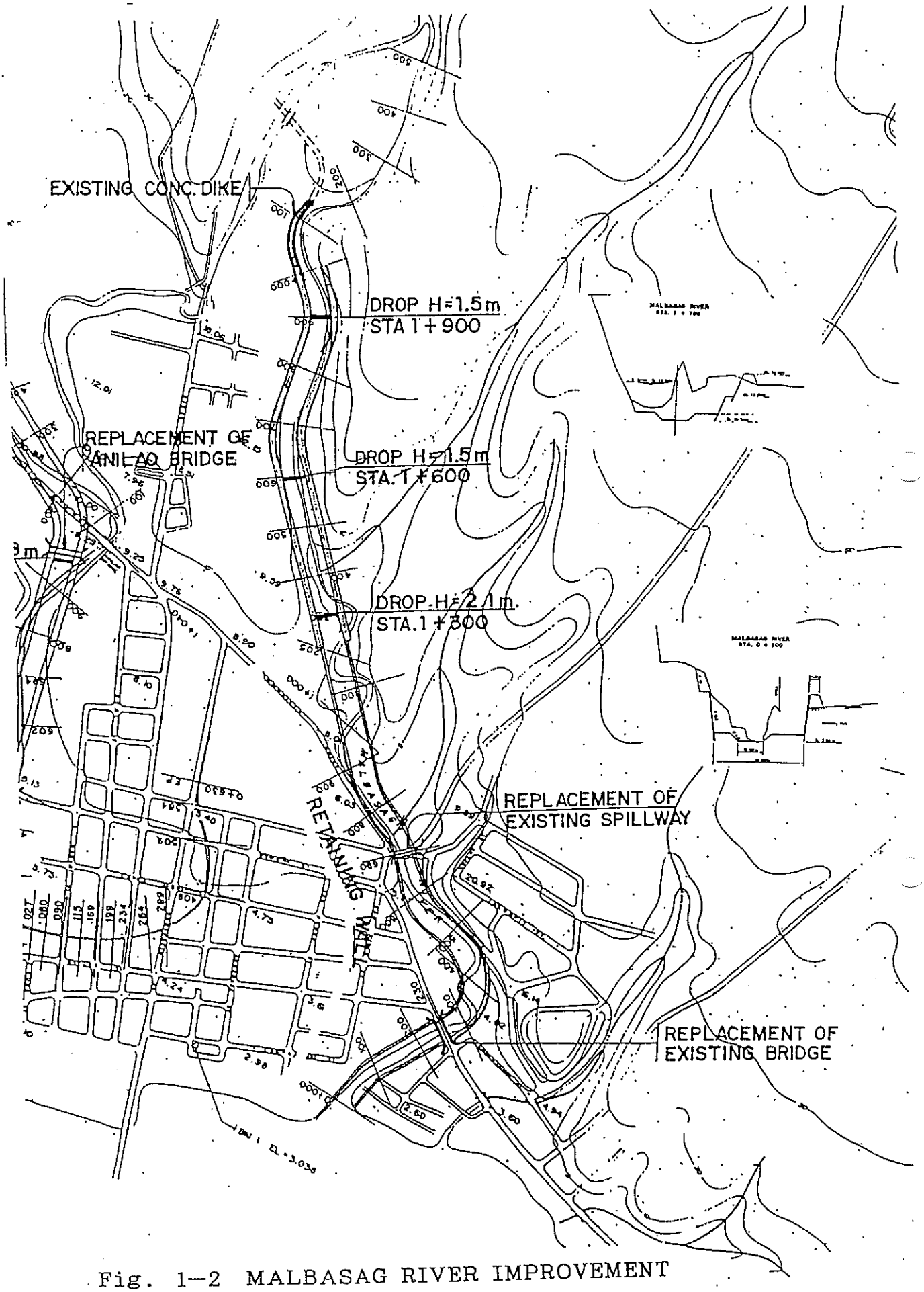


Fig. 1—2 MALBASAG RIVER IMPROVEMENT

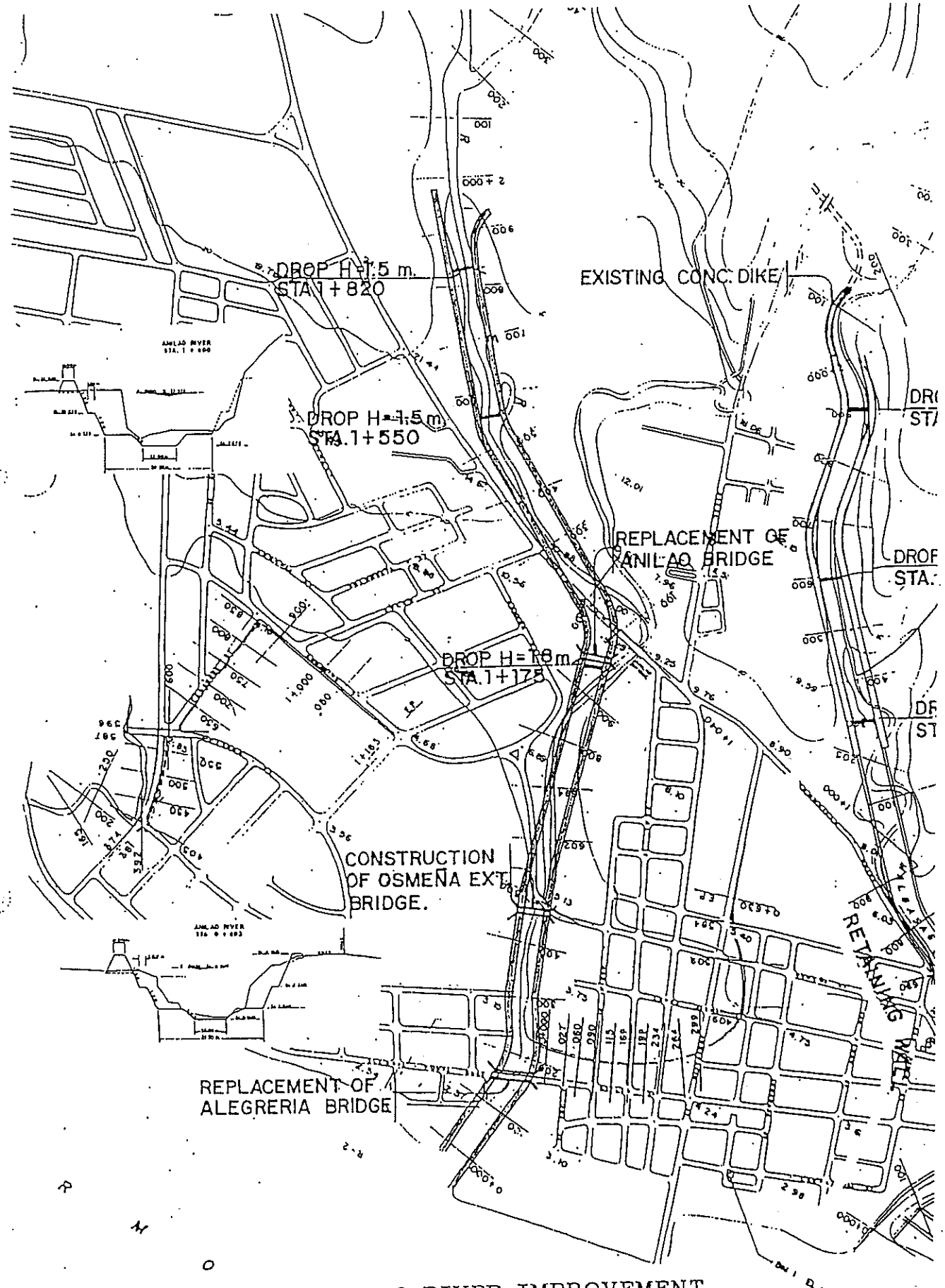
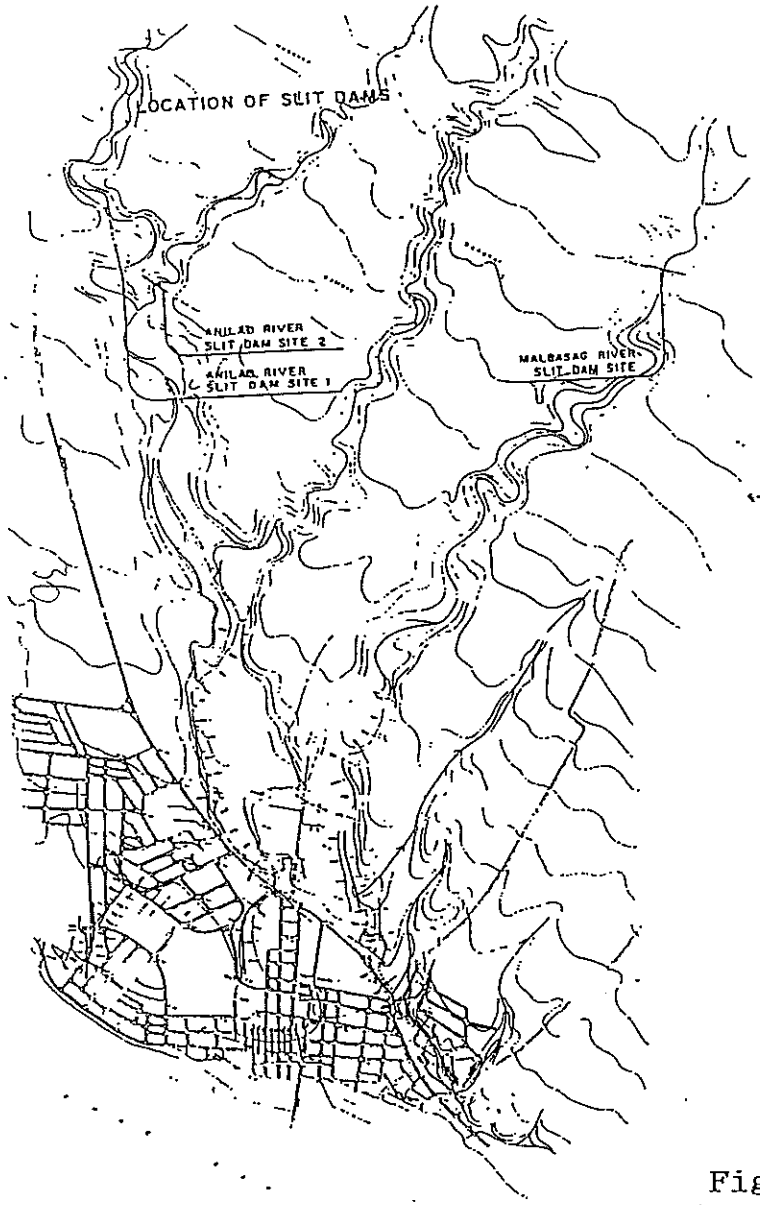
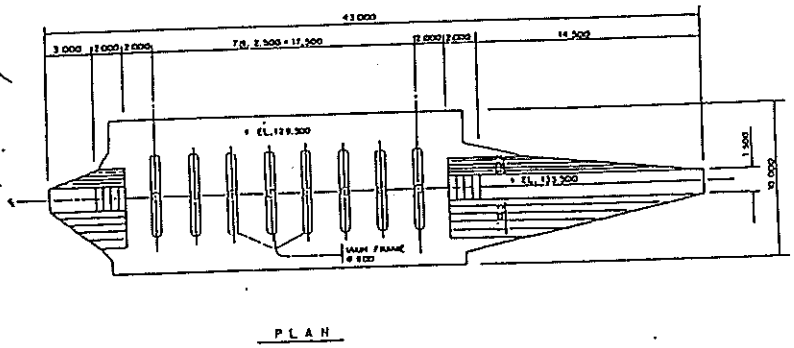
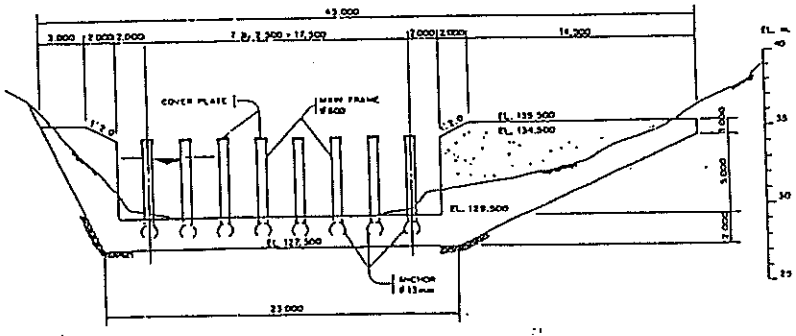


Fig. 1—1 ANILAO RIVER IMPROVEMENT





PLAN



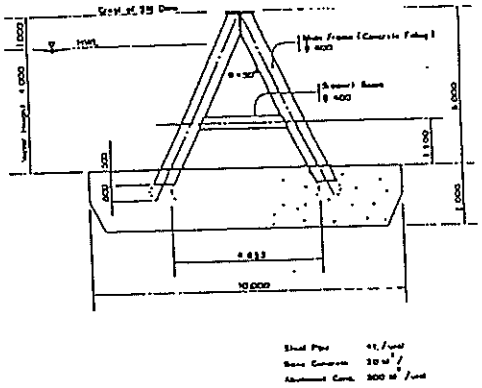


Fig. 1—3 CONSTRUCTION OF SLIT DAM

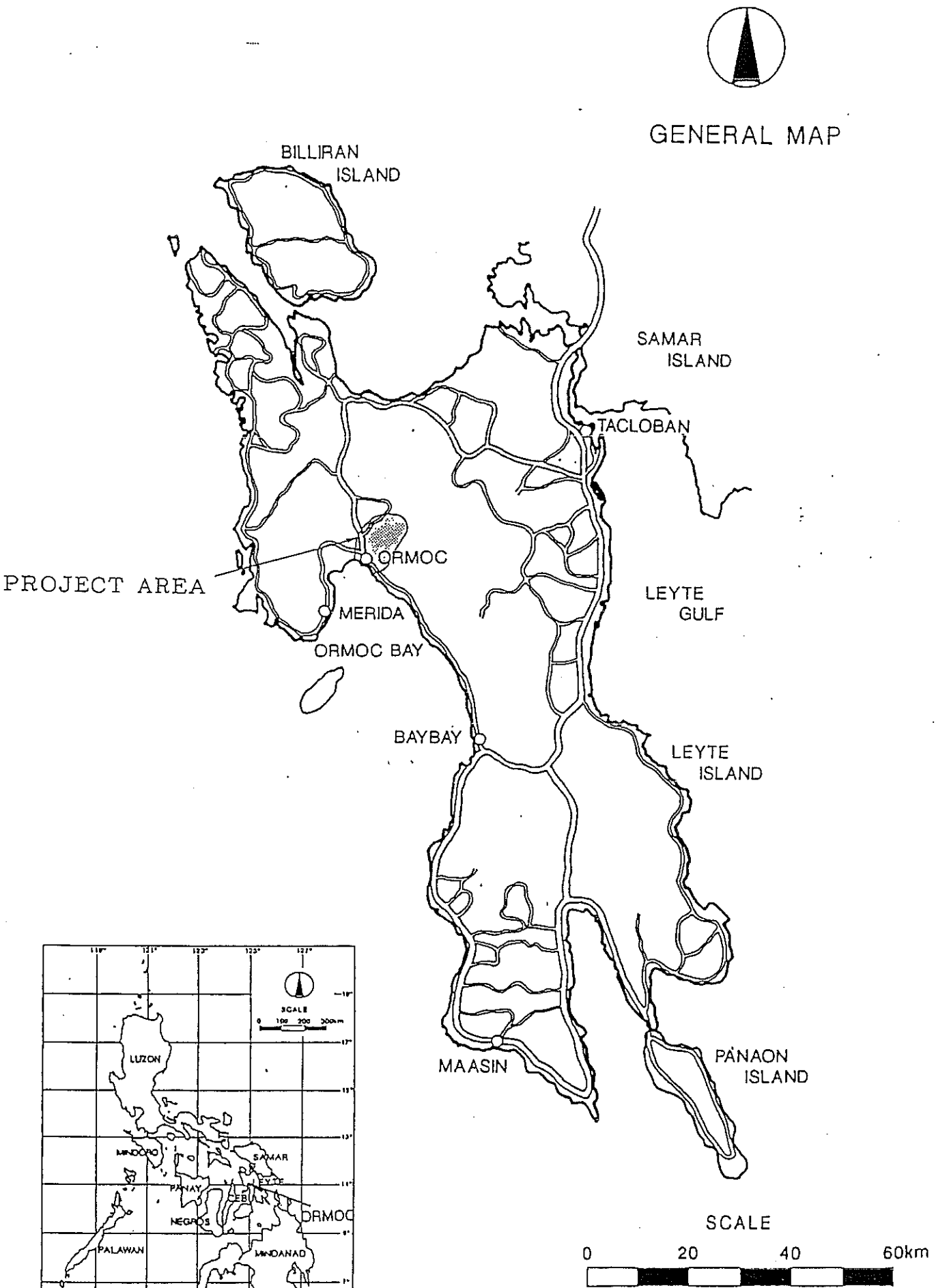


Fig. 4 LOCATION OF THE PROJECT

Fig. 2 ORGANIZATION CHART OF DPWH

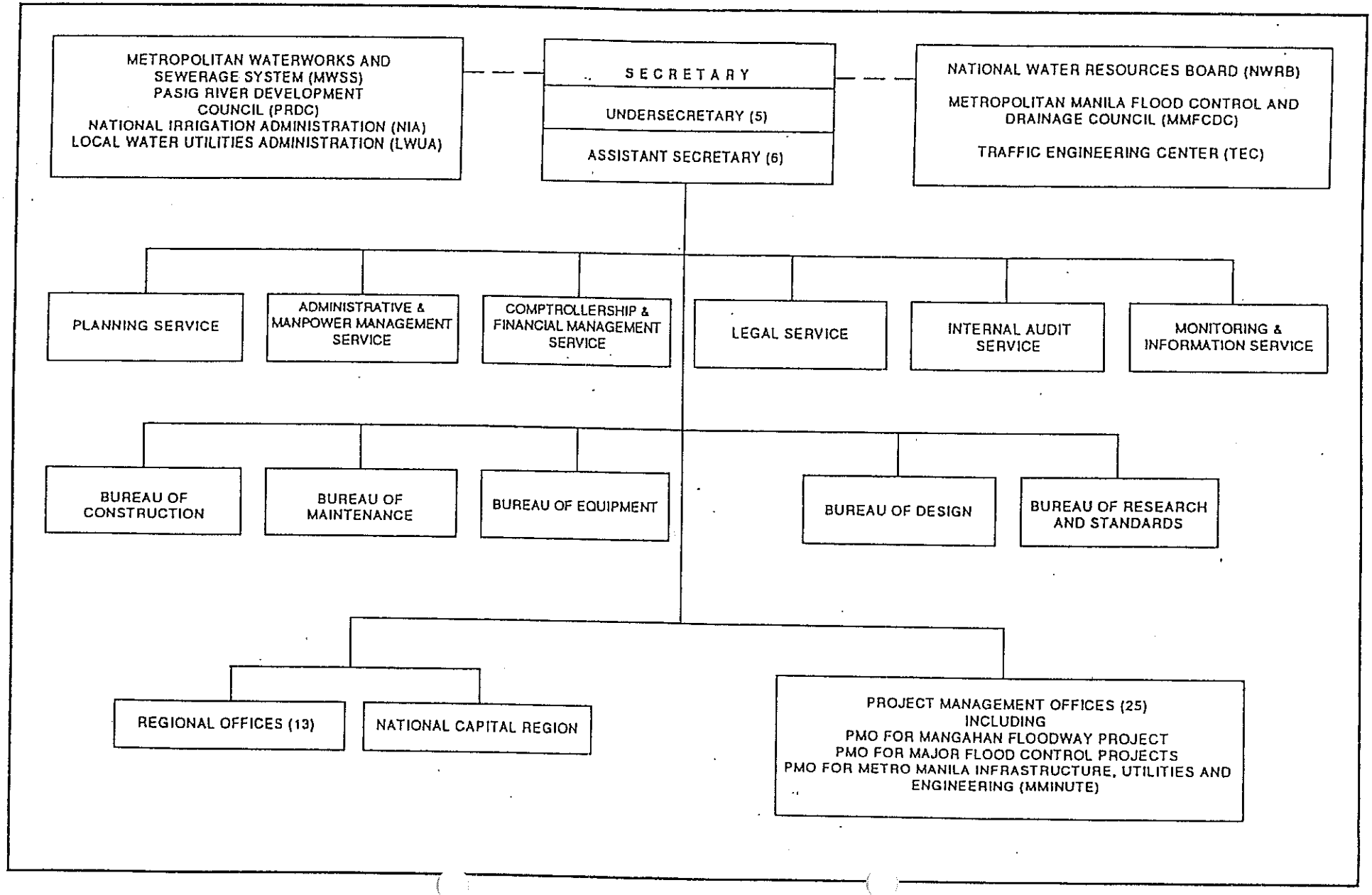


Fig. 3 ORGANIZATION CHART OF DPWH REGION VIII

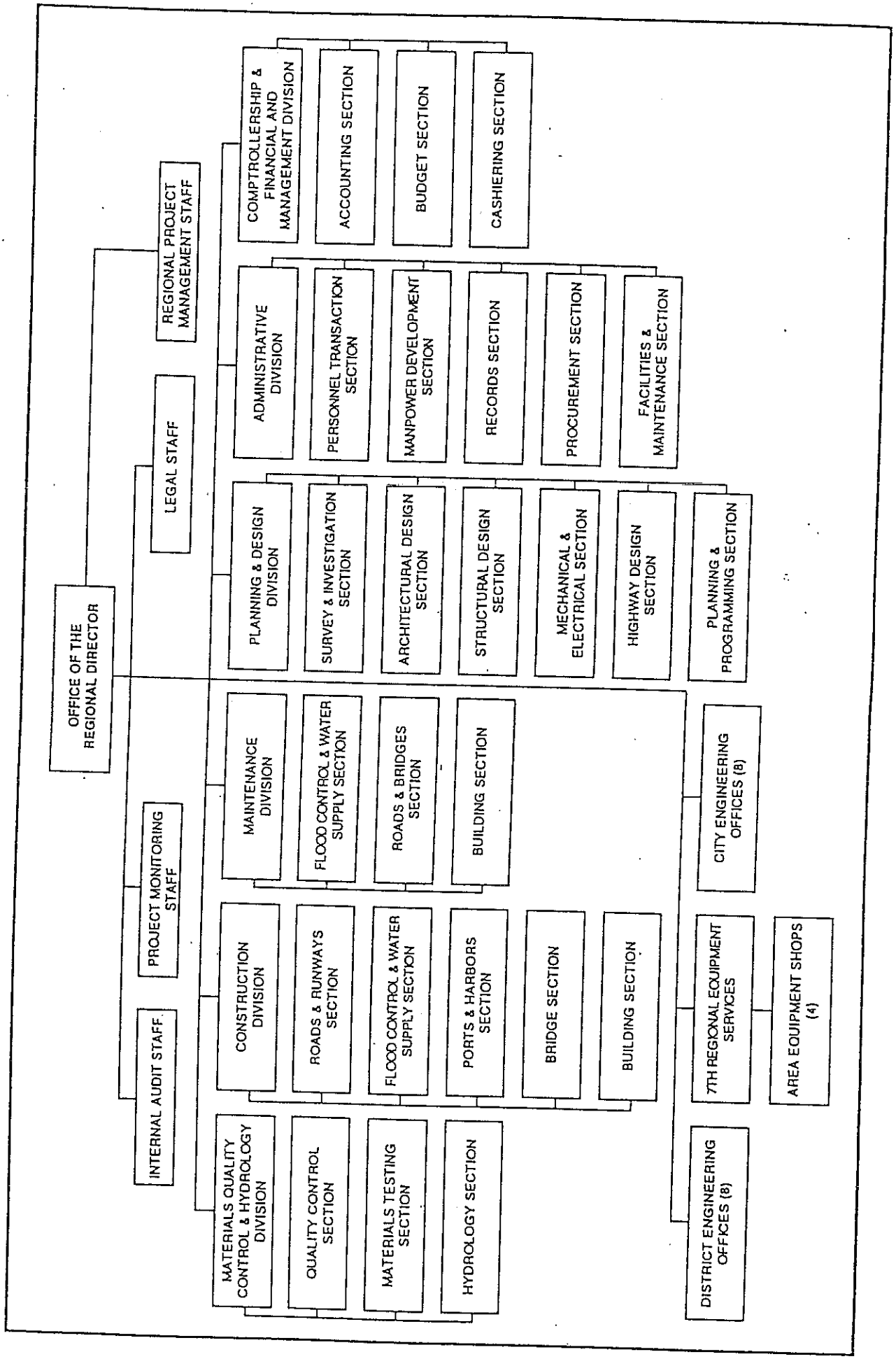


Fig. 5 PROJECT IMPLEMENTATION SCHEDULE