

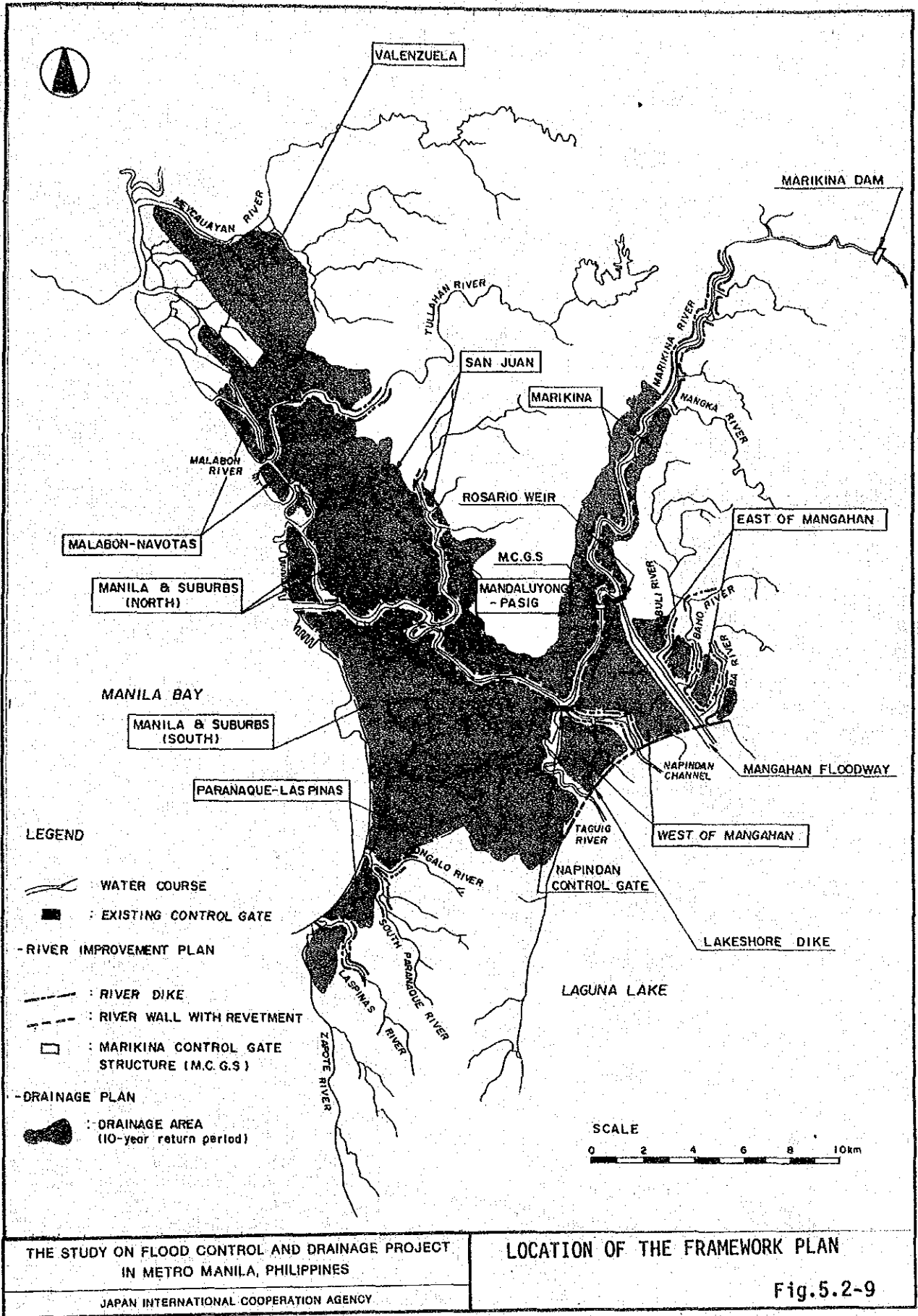
WORK ITEM	QUANTITY	UNIT	Y E A R					
			1991	1992	1993	1994	1995	
1. LOWER MARIKINA RIVER IMPROVEMENT								
PREPARATORY WORKS	1	L/S						
MCGS/MANGAHAN CONFLUENCE	1,210	m						
MANGAHAN CONFLUENCE/STA.7+425	790	m						
2. MARIKINA CONTROL GATE STRUCTURE								
PREPARATORY WORKS	1	L/S						
EARTHWORKS	1	L/S						
CONCRETE WORKS	1	L/S						
GATE	1	L/S						
3. PASIG RIVER IMPROVEMENT								
PREPARATORY WORKS	8,735	m						
RIVERMOUTH/SAN JUAN CONFL	9,760	m						
SN JUAN CONFL/NAPINDAN CONFL	5,580	m						
NAPINDAN CONFL/MCGS								

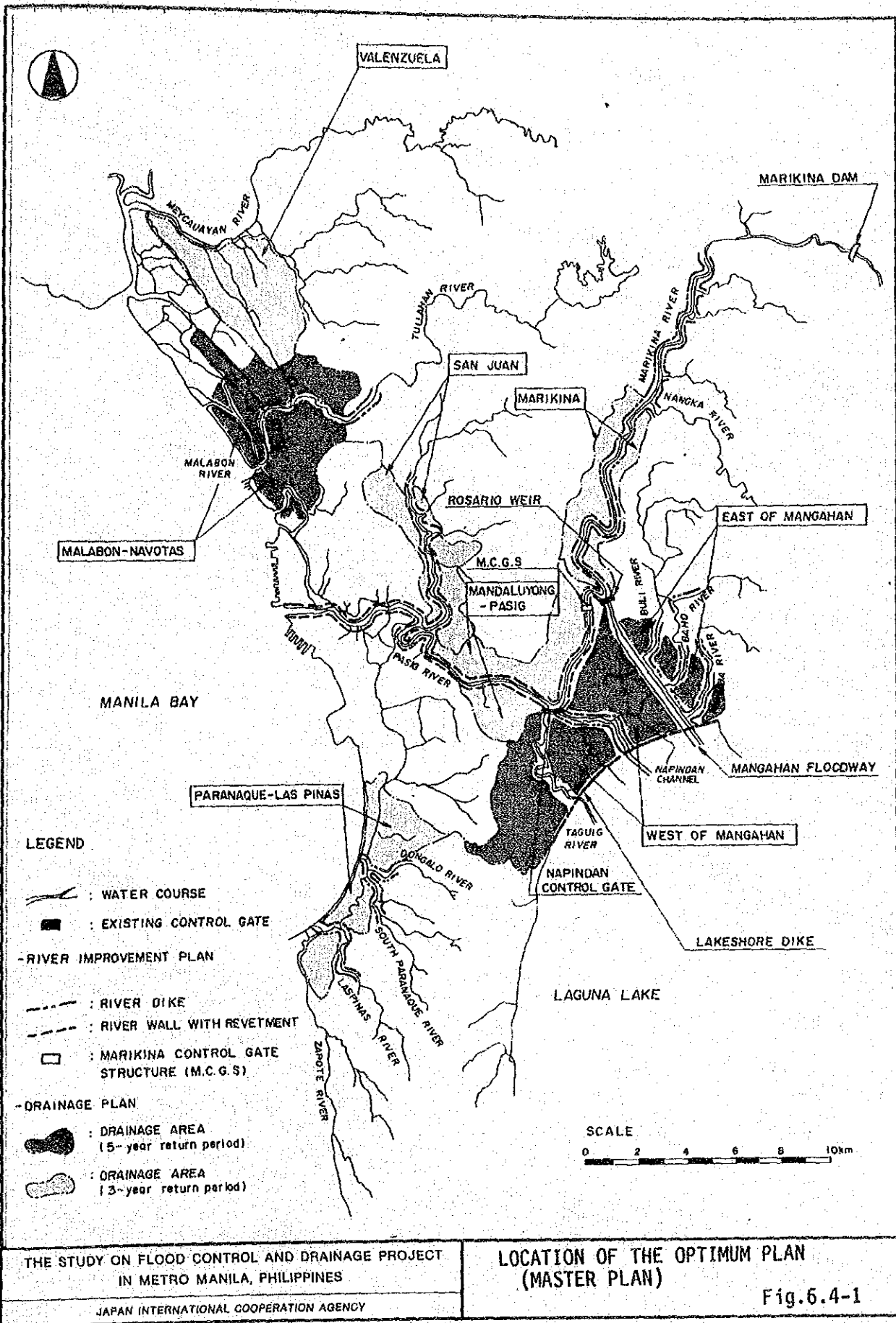
THE STUDY ON FLOOD CONTROL AND DRAINAGE PROJECT
IN METRO MANILA, PHILIPPINES

JAPAN INTERNATIONAL COOPERATION AGENCY

WORK SCHEDULE FOR PASIG-MARIKINA
RIVER IMPROVEMENT PROJECT

Fig.7.4-10





THE STUDY ON FLOOD CONTROL AND DRAINAGE PROJECT
IN METRO MANILA, PHILIPPINES
JAPAN INTERNATIONAL COOPERATION AGENCY

LOCATION OF THE OPTIMUM PLAN
(MASTER PLAN)
Fig.6.4-1

ANNEX

MINUTES OF MEETING ON
THE STUDY OF FLOOD CONTROL AND DRAINAGE IN
METRO MANILA

In a meeting held on 12 January 1988, at the Conference Room of Undersecretary Teodoro T. Encarnacion, DPWH between the representatives of the Government of the Philippines and the JICA Study Team/Advisory Committee (Attendance List, Annex 1) thirty copies of the Inception Report were submitted and presented.

The following aspects of the Inception Report and other matters were discussed/agreed upon.

I. INCEPTION REPORT:

1. GOP requested the Study Team to formulate the flood control and drainage master plan of all cities and 13 municipalities located in the study area. It was agreed by both parties that further discussion on the matter will be conducted as the study progresses due to the following reasons:
 - a. Target year of the master plan for flood control and drainage works in the captioned study is set forth at the year of 2020 (tentatively decided) for the long term plan. The components of the master plan shall, therefore, be completed up to the target year. The study area, on the other hand, is very wide and there exist a lot of projects in the flood control and drainage works. To carry-out the necessary flood control and drainage work for the study area, it will require a huge amount of construction cost and long construction period. Therefore, all plans of flood control and drainage works which shall be

prepared and included in the Master Plan Study will depend largely on the availability of financing. However, in case some of the selected projects in the identified priority areas are to be implemented beyond the target year 2020, the plan so prepared must be reviewed/revised with due consideration to land use conditions, design periods and financial conditions at that time.

From the aspects, lesser priority areas and/or projects will not be considered in the Master Plan Study, as it is not easy to justify at the moment due to insufficient related data.

2. DPWH revealed that NCR has plans to drain the storm water of the Marikina area into the Upper Marikina River through an intercepting canal and to construct a cut-off channel in the meandering portions of the Pasig River. DPWH confirmed that these plans have to be reviewed in this study. Both parties agreed that all of the conceivable plans including the above will be studied.


II. OTHER MATTERS:


1. In compliance with the agreed Minutes of Discussion dated 4 August 1987, GOP earnestly requested two (2) vehicles and one (1) micro computer. GOP explained that four-wheel drive type vehicles are indispensable for use in the investigation of flooding condition such as study of flood mark, flood discharge measurement, inundation depth during flood periods which will be conducted by GOP. Micro computer will be utilized for the processing of surveying data and hydrological

observation data.


2. GOP emphasized the necessity of transfer of knowledge and, in this connection, requested the overseas technical training in Japan.
3. Advisory committee answered that above requests, Items II.1 and II.2 will be conveyed to JICA.


AGREED BY AND BETWEEN:


TEODORO T. ENCARNACION
Undersecretary
Department of Public Works
and Highways (DPWH)


KATSUHISA ABE
Team Leader
JICA Study Team

Witness:


EUGENIO D. MANALO
Director
National Capital Region (NCR)


YOICHI TAKEUCHI
Head, Advisory Committee
Japan International Cooperation
Agency (JICA)

14 January 1988
Manila, Philippines

LIST OF ATTENDANCE

Authorities Concerned - Philippine Side:

<u>Name</u>	<u>Designation</u>	<u>Office</u>
1. Teodoro T. Encarnacion	Undersecretary	DPWH
2. Manuel M. Bonoan	Asst. Secretary for Planning	DPWH
3. Eugenio D. Manalo	Regional Director	DPWH-NCR
4. Antonio A. Alpasan	Project Manager IV	PNO-Major Flood Control Projects, DPWH
5. Cipriano C. Feranlis	Deputy Director	PAGASA
6. Rogelio A. Flores	Project Manager III	PNO-Major Flood Control Projects, DPWH
7. Nonito F. Fano	Chief Civil Engineer	Planning & Design Div. NCR, DPWH
8. Julian D. Centeno	Manager EPD	Laguna Lake Dev. Authority (LLDA)
9. Pio A. Teston	Head Civil Engineer	Construction Div. NCR, DPWH
10. L.F. Quitariano	Supervising EDS	National Economic Dev. Authority (NED)
11. Eric C. Lopez	Representative Technical Working Group	Metropolitan Manila Commission (MMC)
12. Magiting F. Aquino	Hydro Engineer	National Water Resources Board
13. Jose Guanzon	Chief Civil Engineer	(NWRB) PED, Planning Service, DPWH
II. JICA Advisory Committee and Study Team:		
<u>Advisory Committee</u>		
1. Yoichi Takeuchi	Chairman	Ministry of Construction
2. Naoya Matsumoto	Member	Ministry of Construction
3. Tomiaki Ito	Member	JICA
<u>Study Team</u>		
1. Katsuhisa Abe	Team Leader	JICA
2. Makoto Migita	Asst. Team Leader	JICA
3. Masahiro Asada	Hydrologist/Hydraulics & Water Quality Analyst	JICA
4. Katsuhiko Ikari	River Structures Planner	JICA
5. Munenori Tada	Financial Expert	JICA
6. Toshiki Kuroiwa	Survey Expert	JICA
III. JICA Expert		
1. Toshiki Kawakami	Flood Control Expert	DPWH
2. Katsumi Seki	Hydrologist	ESCAP/WMO Typhoon Secretariat

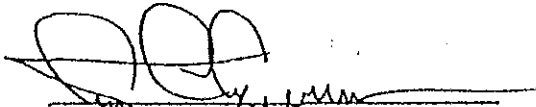
MINUTES OF MEETING
ON
THE STUDY ON FLOOD CONTROL AND DRAINAGE PROJECT
IN METRO MANILA

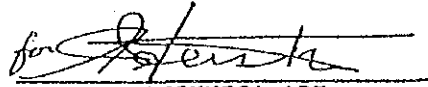
The meeting was held on June 14, 1988, at the Room of Mr. Nonito F. Fano, Chief Civil Engineer, Planning and Design Division, DPWH-NCR.

The attendance were members of Technical Working Group, related officers of Government of the Philippines and JICA Study Team as listed in the Attachment.

In the meeting, two (2) items, shown in Annex I, namely, Tidal Datum Planes and Land Use Conditions in the Future were accepted and agreed upon by both parties.

AGREED BY AND BETWEEN:


ANTONIO A. ALPASAN
Project Manager IV
PMO-Major Flood Control Project
DPWH


KATSUHISA ABE
Team Leader
JICA Study Team

15 June 1988
Manila, Philippines

ATTENDANCE FOR THE MEETING

SUBJECT : Flood Control and Drainage Project in Metro Manila
DATE : June 14, 1988 (10:10 A.M.)
PLACE : DPWH-NCR (Mr. Fano's Room)

I) Philippine Side

a) Technical Working Group

1. Antonio Alpasan
Chairman
Project Manager IV
PMO-Major Flood Control Projects
(DPWH)
2. Jose Guanzon
Member
Chief Civil Engineer
PED, Planning Service (DPWH)
3. Nonito F. Fano
Member
Chief Civil Engineer
Planning & Design Div. (DPWH-NCR)
4. Cipriano Ferraris
Member
Deputy Director
(PAG-ASA)
5. Eric C. Lopez
Member
Representative
Metropolitan Manila Commission (MMC)

b) Other Engineer/Expert

1. Rogelio A. Flores
DPWH, Special Technical Evaluation
Committee (Survey Component)
2. Sofia T. Santiago
Officer-In-Charge
Hydraulics Division, BOD
(Survey Component)
3. Pedro P. Tercino
Chief Civil Engineer
SID, BOD, STEG (Survey Component)
4. Cipriano Ravanos, Jr.
NEDA-Infrastructure Staff
5. N. P. Cabance
Laguna Lake Development Authority
(LLDA)
6. Dolora N. Nepomuceno
Mngt., Planning & Project Devp. Div.
Laguna Lake Development Authority
(LLDA)
7. Toshiaki Kawakami
JICA Expert for Flood Control

II. JICA Study Team

1. Susumu Heishi
Non-Structural Measure Planner
2. Yuji Morioka
Urban Planner
3. Katsuhiro Ikari
River Structure Planner

ITEMS TO BE CONFIRMED FOR
THE STUDY ON FLOOD CONTROL AND DRAINAGE PROJECT
IN METRO MANILA

The JICA Study Team (The Study Team) has conducted additional data collection since May 18, 1988 in the Philippines and will leave for Japan on June 16, 1988.

The Study Team will continue the basic analysis and commence formulation of the Master Plan in Japan. In order to make the work in Japan smooth and fruitful, the following items need to be confirmed/agreed upon between the Technical Working Group and the Study Team.

1. Tidal Datum Planes

For the design of rivers and creeks in Metro Manila, their elevations are required to be related to the sea level since the flow capacity is controlled by the sea level. Accordingly, it is advisable that the profile and cross section survey for this study is leveled from Tidal Datum Planes.

Tidal Datum Planes are as follows based on those tabulated in Tide and Current Tables published by BCGS in 1988.

- Primary Bench Mark, 4b	13.247m
- Mean Higher High Water (MHHW)	10.980m
- Mean High Water (MHW)	10.838m
- Mean Sea Level (MSL)	10.462m
- Mean Low Water (MLW)	10.101m
- Mean Lower Low Water (MLLW)	10.000m
- Datum Line (DL)	0.000m

By the leveling of the related bench marks from the primary bench mark, it is found that the elevations of some bench marks have a little difference from those indicated in FIRST, SECOND AND THIRD-ORDER LEVELINGS IN THE METRO MANILA AREA published by BCGS in 1979.

In consideration of importance of sea level for design of rivers and creeks, the primary bench mark will be used as the basis for the waterway location, profile and cross section survey for this study.

2. Land Use Conditions in the Future

The primary concern of this Master Plan Study in land use conditions in A.D. 2020 and 2000 is for evaluation of the flood damage as well as estimation of the runoff discharge which will be influenced by future infiltration and storage areas.

In consideration of the above, the land use in the future will be categorized in accordance with the runoff feature of basins.

For the categorization of basins, the official land use plan set forth in 1981 will be used in this study with revision in the existing land use tendency and national development policy: intensifying commercial and business activities in Metro Manila and local allocation of manufacturing activities in the future.

As for the future population projection, the full consideration has been paid for the existing NEDA projection based on the estimation of demographic factors. However, from the viewpoint of population density, the projection is rather high to accommodate the population in Metro Manila in reference to the adopted land use in this Study.

Thus, in consideration to the moderate population density, the total population in 2020 in Metro Manila can be projected to be ten (10) to eleven (11) millions.

MINUTES OF MEETING FOR INTERIM REPORT

ON

THE STUDY ON FLOOD CONTROL AND DRAINAGE IN METRO MANILA

The meeting was held on November 3, 1988 at the Conference Room of Undersecretary Teodoro T. Encarnacion, DPWH between the Steering Committee, the officers of other concerned government agencies and the JICA Study Team together with the Advisory Committee, as listed in the Attached Sheet

Explanation on the contents of Interim Report, thirty (30) copies of which were submitted on November 2, 1988, was made by the Team Leader of JICA Study Team, and its contents were understood and accepted.

After the explanation, the following aspects were mainly discussed and agreed upon by both parties.

(1) Significant Rivers/Areas to Be Protected

The Philippine Side suggested that the rivers/areas with a high vulnerability to flood losses should be protected from flooding urgently. These are:

- (a) Pasig-Marikina River;
- (b) East and West of the Mangahan Floodway; and
- (c) Malabon and Navotas Areas.

In formulating the Priority Project(s) in the further study, consideration will be given to the above, after studying the technical and economic aspects.

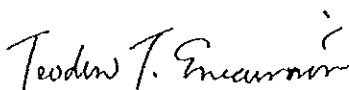
(2) Request to JICA

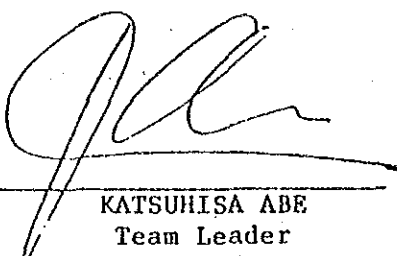
Although the Philippine Side will make the most efforts to carry out topographic survey works on the rivers and drainage channels

related to the Priority Project(s), it requested JICA to conduct some of these works, and also to provide additional recording sheets and other related spare parts necessary for another three years for the rainfall and water level gauges installed by JICA in March, 1988.


JICA took note of this request and will convey it to its Head Office.


AGREED BY AND BETWEEN:


TEODORO T. ENCARNACION
Undersecretary
Department of Public Works
and Highways (DPWH)
(Chairman, Steering Committee)


KATSUHISA ABE
Team Leader
JICA Study Team

WITNESS:


ANTONIO A. ALPASAN
Project Manager IV
Department of Public Works
and Highways (DPWH)
(Member, Steering Committee)


YOICHI TAKEUCHI
Head, Advisory Committee
Japan International
Cooperation Agency
(JICA)

November 4, 1988
Manila, Philippines

LIST OF ATTENDANCE

I. Philippine Side:

1. Teodoro T. Encarnacion	Undersecretary	DPWH
2. Jesus M. Sunga	Director	NEDA-IS
3. Cipriano C. Ferraris (Representing Dr. Kintanar)	Deputy Director	PAGASA
4. Antonio A. Alpasan	Project Manager IV	DPWH, PMO-MFCP
5. Rogelio A. Flores	Project Manager III	DPWH, PMO-MFCP
6. Jose C. Guanzon	Chief Civil Engineer	DPWH
7. Nonito F. Fano	Chief Civil Engineer	DPWH, NCR-PDD
8. Sofia T. Santiago	Chief Civil Engineer	DPWH
9. Eric C. Lopez	Service Chief	MMC
10. Derlyn Geminiano	Sr. Civil Engineer	LLDA

II. Japan Side

Advisory Committee

1. Yoichi Takeuchi	Chairman	MOC, Japan
2. Izumi Furukawa	Member	MOC, Japan
3. Tomiaki Ito	Member	JICA

Study Team

1. Katsuhisa Abe	Team Leader	JICA
2. Makoto Migita	Asst. Team Leader	JICA
3. Susumu Heishi Measure Planner	Non-Structural	JICA
4. Masahiro Asada	Hydrologist	JICA
5. Kimihiko Kotoo	Geologist	JICA
6. Katsuhiko Ikari Engineer	River Structural	JICA
7. Takashi Furukawa Engineer	Structural Design	JICA
8. Yuzo Mizota Maintenance Planner	Operation and	JICA
9. Kimio Shimomura	Project Economist	JICA
10. Munenori Tada	Financial Expert	JICA

III. JICA Expert:

1. Toshiki Kawakami	Flood Control Expert	DPWH
2. Atsushi Yoshii	Hydrologist	Typhoon Committee Secretariat

MINUTES OF MEETING
ON
THE STUDY ON FLOOD CONTROL AND DRAINAGE
IN METRO MANILA

The JICA Team headed by Mr. Katsuhisa Abe, hereinafter referred to as "the Team", has been conducting the study on Flood Control and Drainage Project in Metro Manila since January 1988. The Team visited Manila on March 16 1989, and a meeting was held on March 20, 1989 at the conference room of Undersecretary Teodoro T. Encarnacion, DPWH between the Steering Committee, hereinafter referred to as "the Committee", and the Team with the attendance listed in the attached sheet. Presentation of the contents of the Progress Report 2 was carried out in this meeting, and the following were confirmed by and between the Committee and the Team.

1. The Team submitted to the Committee thirty (30) copies of Progress Report 2.

2. All the contents of this report have been in principle understood and accepted by the Committee with discussion and comments on the following items:

2.1 On the Optimum Master Plan

Among the five (5) alternative cases presented in page 2-32 of the report, Case 2 was selected as the optimum plan, but as for the Pasig-Marikina River, the Committee suggested that the safety degree from flooding should be upgraded to a 100-year return period, considering flood control practice of other major rivers in the Philippines.

2.2 Recalculation of Benefit-Cost Ratio

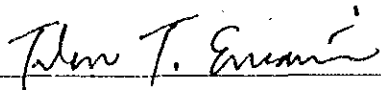
In the calculation of benefit-cost ratios, the Committee suggested to the Team to use 15 percent interest rate instead of 10 percent as indicated in the report.

3. Request to JICA

The Committee requested the following, which will be conveyed to JICA by the Team.

- (1) Geological investigation and surveying works in the priority project areas for funding by JICA.
- (2) Further study on the effect of the Parañaque Spillway on the lowering of the Laguna lake level should be included in the study.

AGREED BY AND BETWEEN :

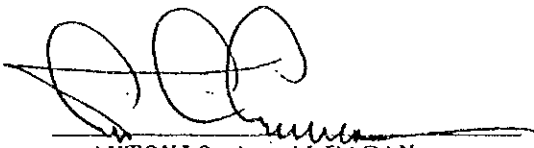


TEODORO T. ENCARNACION
Undersecretary
Department of Public Works
and Highways (DPWH)
(Chairman, Steering Committee)

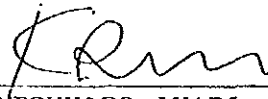


KATSUHISA ABE
Team Leader
JICA Study Team

WITNESS :



ANTONIO A. ALPASAN
Project Manager IV
Department of Public Works
and Highways (DPWH)
(Member, Steering Committee)



KATSUHIRO IKARI
Member
JICA Study Team

21 March 1989
Manila, Philippines

LIST OF ATTENDANCE

The Steering Committee- Philippine Side :

- | | | |
|---------------------------|---------------------------|---------------------------------------|
| 1. Teodoro T. Encarnacion | Undersecretary | DPWH |
| 2. Antonio A. Alpasan | Project Manager IV | PMO-Major Flood Control Project, DPWH |
| 3. Cipriano C. Ferraris | Deputy Director | PAGASA |
| 4. Rogelio A. Flores | Project Manager III | PMO-Major Flood Control Projects DPWH |
| 5. Nonito F. Fano | Chief Civil Engineer | Planning & Design Div., NCR, DPWH |
| 6. Miguel D. Lopez | General Manager | Laguna Lake Dev. Authority (LLDA) |
| 7. Julian D. Centeno, Jr. | Assistant General Manager | LLDA |

JICA Study Team :

- | | | |
|--------------------|--------------------------|------|
| 1. Katsuhisa Abe | Team Leader | JICA |
| 2. Katsuhiko Ikari | River Structures Planner | JICA |
| 3. Kimio Shimomura | Project Economist | JICA |

JICA Expert :

- | | | |
|---------------------|----------------------|------|
| 1. Toshiki Kawakami | Flood Control Expert | DPWH |
|---------------------|----------------------|------|

MINUTES OF MEETING
ON
THE STUDY ON FLOOD CONTROL AND DRAINAGE
IN METRO MANILA

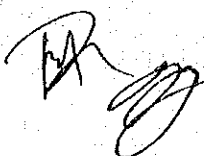
The JICA Team headed by Mr. Katsuhisa Abe, hereinafter referred to as "the Team", has been conducting the study on Flood Control and Drainage Project in Metro Manila since January 1988. The Team visited Manila on October 5, 1989, and a meeting was held in the presence of Mr. Yoichi Takeuchi, Chairman of the Advisory Committee, on October 11, 1989 at the conference room of Undersecretary Teodoro T. Encarnacion, DPWH between the Steering Committee, hereinafter referred to as "the Committee", and the Team with the attendance listed in the attached sheet. Presentation of the contents of the Progress Report 3 was carried out during this meeting, and the following were confirmed by and between the Committee and the Team.

1. The Team submitted to the Committee thirty (30) copies of Progress Report 3.

2. All the contents of this report have been in principle understood and accepted by the Committee with comments and request on the following items:

2.1 Description of Alternative Alignments for Lakeshore Dike

The description of alternative alignments in Page 6-3 shall be changed to read "To protect all the areas higher than ground elevation of EL 12.5, 11.5 or 10.5 m" for

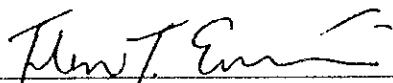


Alternative Case 1, 2 and 3, respectively.

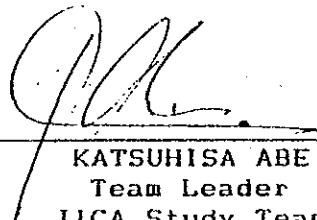
2.2 Request to JICA

The Committee strongly requested the Team to conduct a study on flood control for the Laguna Lake, including Paranaque Spillway, in continuation of this Study. The Team will convey this request to the JICA Head Office.

AGREED BY AND BETWEEN

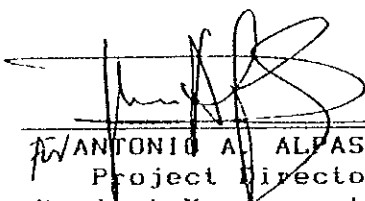


TEODORO T. ENCARNACION
Undersecretary
Department of Public Works
and Highways (DPWH)
(Chairman, Steering Committee)



KATSUHISA ABE
Team Leader
JICA Study Team

WITNESS



ANTONIO A. ALPASAN
Project Director,
Project Management Office
Department of Public Works
and Highways (DPWH)
(Member, Steering Committee)



YOICHI TAKEUCHI
Chairman, Advisory Committee
Japan International
Cooperation Agency
(JICA)

October 12, 1989
Manila, Philippines

LIST OF ATTENDANCE

I. Philippine Side:

1. Teodoro T. Encarnacion	Undersecretary	DPWH
2. Antonio A. Alpasan	Director	DPWH, PMO-MFCP
3. Rogelio A. Flores	Project Manager III	DPWH, PMO-MFCP
4. Nonito F. Fano	Chief Civil Engr.	DPWH, NCR-PDD

II. Japan Side

Advisory Committee

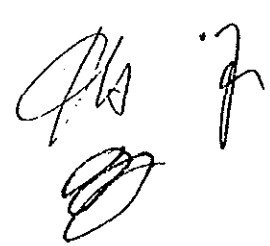
1. Yoichi Takeuchi	Chairman	MOC, Japan
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Study Team

1. Katsuhisa Abe	Team Leader	JICA
2. Katsuhiko Ikari	River Structural Engineer	JICA
3. Kimio Shimomura	Project Economist	JICA

III. JICA Expert:

1. Toshiki Kawakami	Flood Control Expert	DPWH
2. Katsuhiko Ozawa	JICA Staff	JICA, Philippines



MINUTES OF MEETING
ON
THE STUDY ON FLOOD CONTROL AND DRAINAGE
IN METRO MANILA

The JICA Study Team headed by Mr. Katsuhisa Abe, hereinafter referred to as "the Team", has been conducting the Study on Flood Control and Drainage Project in Metro Manila since January 1988. The Team visited Manila on February 1, 1990, and a meeting was held between the Team and the Steering Committee headed by Undersecretary Teodoro T. Encarnacion, hereinafter referred to as "the Committee", on February 6, 1990 at the DPWH Central Office, in the presence of the Technical Advisory Committee headed by Mr. Hidehiro Sadakane, with the attendance listed in the attached sheet. Presentation of the Draft Final Report was carried out during this meeting, and the following were confirmed by and between the Committee and the Team.

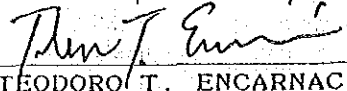
1. The Team submitted to the Committee thirty (30) copies of the Main Report, twenty (20) copies of the Supporting Report and two (2) copies of the Data Book.

2. All the contents of the report on the project have been understood and accepted by the Committee, but more appropriate wording and/or expression, for better understanding, should be used for some portions of the report, as recommended.


3. Additional comments on this report shall be transmitted to the Team not later than February 23, 1990.

PH *J*
AB
AA

AGREED BY AND BETWEEN

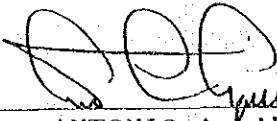


TEODORO T. ENCARNACION
Undersecretary
Department of Public Works
and Highways (DPWH)
(Chairman, Steering Committee)



KATSUHISA ABE
Team Leader
JICA Study Team

WITNESS



ANTONIO A. ALPASAN
Project Director,
Project Management Office
Department of Public Works
and Highways (DPWH)
(Member, Steering Committee)



HIDEHIRO SADAKANE
Chairman, Advisory Committee
Japan International
Cooperation Agency
(JICA)

February 7, 1990
Manila, Philippines

LIST OF ATTENDANCE

I. PHILIPPINE SIDE:

1. Teodoro T. Encarnacion	Undersecretary	DPWH
2. Manuel M. Bonoan	Asst. Secretary for Planning	DPWH
3. Miguel D. Lopez	General Manager	LLDA
4. Antonio A. Alpasan	Project Director	DPWH, PMO-MFCP
5. Francisco N. Pascual	Director	DPWH, BOD
6. Rogelio A. Flores	Project Manager III	DPWH, PMO-MFCP
7. Nonito F. Fano	Project Manager, OIC, PDD	DPWH, NCR
8. Leoncio A. Amadore	Chief, FFB	PAGASA
9. Sofia T. Santiago	Chief Civil Engr.	DPWH, HYD/BOD
10. Pedro P. Tenciño	Chief Civil Engr.	DPWH, SID/BOD
11. Librado F. Quitariano	Chief, WRD	NEDA
12. Julian D. Centeno	Chief, WRD	LLDA

II. JAPAN SIDE:

Advisory Committee

1. Hidehiro Sadakane	Chairman,	MOC, Japan
2. Akira Mizobuchi	Member	JICA

Study Team

1. Katsuhisa Abe	Team Leader	JICA
2. Makoto Migita	Asst. Team Leader (Flood Control & Drainage Planner)	JICA
3. Susumu Heishi	Non-structural Measures Planner	JICA
4. Katsuhiko Ikari	River Structural Engineer	JICA
5. Kimio Shimomura	Project Economist	JICA

III. JICA EXPERTS:

1. Toshiki Kawakami	Flood Control Expert	DPWH
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