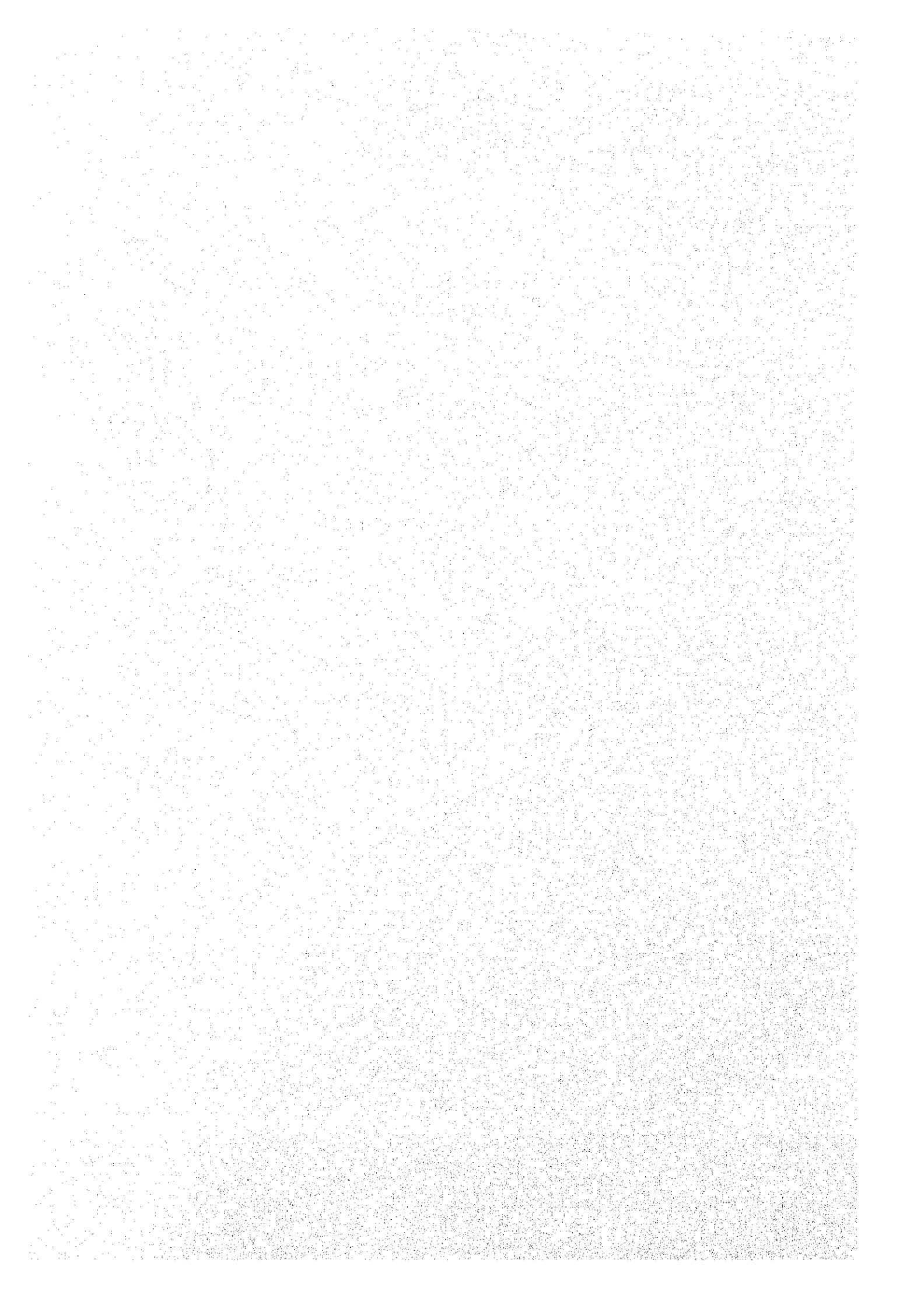


添 付 資 料

1. Terms of Reference



TERMS OF REFERENCE FOR THE APPLICATION FOR THE
TECHNICAL COOPERATION (DEVELOPMENT STUDY
BY THE GOVERNMENT OF JAPAN

I. PROJECT DIGEST

(1) PROJECT TITLE: MASTER PLAN ON WATER RESOURCES
MANAGEMENT IN THE PHILIPPINES

(2) LOCATION :

The Philippine archipelago is located within the zone bounded by latitude 4.5 to 21 and longitude 117 to 127 which is in the tropical belt and southeast of the Asia mainland. It is an archipelago consisting of more than 7,000 islands and islets with an aggregate land area of approximately 300,000 sq. km. Ninety percent of the area lies in 11 large islands, approximately two-thirds of which are in the great islands of Luzon and Mindanao. About 463 smaller islands have an aggregate area of only 2,500 sq. kms.

The country is divided into twelve (12) water resources regions defined by hydrological boundaries taking into consideration the physiographic features and homogeneity in climate. These water resources regions generally correspond to the existing political regions in the country with minor deviation due to hydrological boundaries. In the twelve (12) water resources regions, four hundred twenty one (421) principal river basins were identified with drainage areas ranging from 41 km. to 25,649 sq. kms.

(3) IMPLEMENTING AGENCY:

NWRB, DPWH, NEDA in collaboration with all agencies involved in water related activities.

(4) JUSTIFICATION OF THE PROJECT:

The development and management of water resources and related land resources is a concern of several government agencies. Generally, these agencies have mandates for a certain aspect of water resources development often resulting in the overlapping of activities and competition for the right to develop and use the same water resources. This situation will probably be made more complex with the new roles given to LGUs particularly affecting the environment and natural resources sector as provided for in the Local Government Code.

While one of the major problem areas of the water resources sector is its not being available at the right place, quantity and quality at the right time, it

is also well recognized that the problem is more on instituting more rational and better management practices. This is further aggravated by insufficient coordination among agencies charged with the implementation of infrastructure plans, policies, programs and projects due to the absence of an integrated water management plan. Water supply, irrigation, hydropower, etc. were often approached as if they were separate subsectors, causing water management problems like inadequate water supplies for various uses, which are very vital in the attainment of our development goals. In addition, the chronic drought due to El Nino which usually accompanies water shortage adversely affected agriculture productivity. Rapid population growth in Metro Manila with limited source of water supply has worsen water problems.

Another management issue that has to be addressed is the increasing concern for the protection of the environment i.e. achievement of proper balance between socio-economic development and preservation of the environment.

This study will also address the water supply and demand problem to speed up the industrialization process as envisioned in the Philippine 2000 as well as strengthen and institutionalize the water data system.

Sectoral Development Policies .

Existing policies in the water resources sector include:

- a. Water resources projects shall be planned in an integrated planning and development strategy for an area-wide development scheme to realize optimum benefits;
- b. Priorities in the use and in the development of water resources shall reflect current usages of water and responsive to the changing demands for water which occur under developing conditions;
- c. Identifiable beneficiaries of water resources development projects shall bear an equitable share of repayment costs commensurate with the beneficial used derived from the project; and
- d. Continuing program of basic data collection, manpower development and research shall be maintained, since these are indispensable components of water resources development and management.

Outline of the Project

In the preparation of the Master Plan, wide ranging studies would be carried out. However, prominent specific studies shall be as under:

- a. Present status of development and economic conditions;
- b. Needs for water related development;
- c. Existing water resources development and management;
- d. Water Resources Geographic Information System;
- e. Assessment of water resources for future development;
- f. Assessment of land resources for future development;
- g. Population;
- h. Agricultural Performance, Practices and Constraints;
- i. Environmental Constraints;
- j. Future use of water and demand projects;
- k. Potential Projects to include the potential of water as an export;
- l. Formulation of National Water Resources Master Plan;
- m. Policies and Institutional strengthening for recommended plan;
- n. Human Resources Development.

Purpose of the Project

This study will address the need to support the country's socio-economic objectives of better quality of life and international competitiveness thru the establishment of a long-term development and management plan of our water resources, to ensure realistic and sustainable development considering the availability of our water resources consistent with the changing water demand patterns, its economic use and environmental implications.

Goal of the Project

The long term objective is to rationalize the management and development of water resources in the country thru an integrated and coordinated approach to ensure sustainable use, development, protection and conservation of the scarce water resources.

Prospective Beneficiaries

The prospective beneficiaries of this project are government agencies in particular, and the people in general owing to a more efficient delivery of services.

Project's Priority in the National Development Plan

Water resources is a vital component of socio-economic infrastructure under the National Development Plan and therefore affects various sectors of the economy in the attainment of our development goals. Cognizant of the growing concern in water issues, the President in his Memorandum dated 16 August 1994 instructed the Sub-Committee on Water of Cabinet Cluster "D" to formulate a master plan on water resources management in coordination with the National Water Resources Board.

(5) TIME SCHEDULE

The desirable time for the commencement of the project is 1995.

(6) EXPECTED FUNDING SOURCES AND/OR ASSISTANCE

The study has been estimated to cost 127.57 M. The funding source shall be taken from grant-in-aid and from the general appropriation for local counterpart.

II. TERMS OF REFERENCE OF THE PROPOSED STUDY

(1) Justification of the Study

The need for an integrated approach in the development and management of water resources is well recognized and acknowledged by everyone involved in the sector.

Water management problems such as droughts, floods and water quality are constraints in the attainment of the country's development goals. What is urgently needed now is the formulation of a long-term master development plans and management framework on a sustaining basis consistent with the dynamic water supply and demand patterns, efficient economical use and better understanding of the social and environmental concerns to minimize adverse impacts.

(2) Necessity of the Japanese Technical Cooperation

The cost of the study is such that only a grant-in-aid can be tapped to fund the project. The JTC-JICA with its remarkable record of funding projects similar in magnitude is being approached here to pro-

vide the necessary funding.

(3) Objectives of the Study

a. Development Objective:

To rationalize water resources development and management of the country thru an integrated and coordinated approach to ensure sustainable use, development, conservation, protection and allocation of scarce water resources.

b. Immediate Objectives:

- * To enhance the availability of and access to reliable and comprehensive water resources information thru GIS.
- * To assess the country's water resources supply, utilization, protection, conservation and management system.
- * To formulate a national water resources development and management master plan for the sector consistent with the overall national socio-economic development objectives.
- * To strengthen the institutional capacity of water resources agencies thru human resource development.

(4) Area to be covered by the Study

The study area shall cover the twelve Water Resources regions of the Philippines.

(5) Scope of the study

The master plan study would eventually include but not limited to the following:

- ✓ a. Inventory and update of available data and information;
- ✓ b. Inventory/assessment of available sources of water and their qualities;
- ✓ c. Inventory/assessment of available land resources, their characteristics, qualities and their capabilities;
- ✓ d. Present and future water and land uses and future demand of water

- e. Establishment of a comprehensive water resources geographic information system;
- f. Inventory of present water withdrawal facilities from all sources (surface and groundwater);
- g. Identification and articulation of development problems and policy issues;
- h. Identification of water resources development and research projects with due consideration on the possibility of water as an export;
- i. Identification and setting of priorities for promising water resources development projects based on technical, economic, financial, social and environmental consideration;
- j. Formulation of a comprehensive long term development plan, coordination and management framework for twelve water resources regions; and
- k. Formulation of a long term water policy with due consideration for the economic, social and environmental aspects of development.

(6) Study Schedule

The suggested study schedule is two and half (2 1/2) years starting 1995.

(7) Expected Major Outputs of the Study

At the end of the project the study group will produce not only a detailed water resources development and management master plan for the whole country but also a comprehensive national water resources geographic information system. The plan will provide ranking list of the project which have been found technically feasible and economically and financially viable. The list will be used for project implementation in the future. The information system will enhance the availability and accessibility of reliable and comprehensive data and information in water resources readily accessible in usable format for decision making.

The local staff associated with the preparation of the plan will be provided on-the-job training in the various aspects of the study. This group will form a highly trained planning nucleus in the country. Ten (10) to twelve (12) staff will be selected from the group and sent to the consultant home office to train further in a different environment on similar project. This will broaden the outlook of the staff who after completion of the study will be in an ideal situation

to undertake future similar responsibilities.

After the completion of the study a nucleus group will be retained in NWRB which will serve as group for review and updating of the master plan.

The various reports to be issued are as follows:

- a. Monthly Progress Reports ----- End of each month
- b. Conceptual Report ----- End of 3rd month
- c. Draft Report ----- End of 27th month
- d. Final Master Plan Report ----- End of 30th month
- e. Special Report(s) ----- As required

III. FACILITIES AND INFORMATION FOR THE STUDY TEAM

(1) Counterpart Personnel

A counterpart group to work with Foreign Study Team shall be organized to carry out activities in connection with the project. Since NWRB does not have all the concerned disciplines it is proposed to create an inter-agency multidisciplinary group. The group shall be drawn from various concerned agencies including staff of NWRB. A total of 42 professional staff and 74 support staff shall be provided. It shall be composed of specialist managers, engineers, lawyers, economist, environmentalist, scientist, financial analyst, etc.

(2) Available Data, Information, Documents, Maps Related to the Study

The study shall be based on existing information such as all relevant studies and reports, publications, plans and basic data generated by national local agencies as well as additional new information to be generated by the study.

(3) Information on the Security Conditions with the Study Area

With the present effort of the administration to unify the different sectors of society, the peace and order situation of the country is deemed stable and there is no perceived problem on the security of consultants to be assigned to the project.

IV. GLOBAL ISSUES

(1) Environmental Components of the Project

All issues and concerns with respect to a balance between water resources development and preservation of the environment should be looked into by the study.

(2) Anticipated Environmental Impacts of the Projects

No adverse environmental impact of this study is anticipated. On the contrary, it will promote orderly coordinated planning and implementation of the projects in the water sector.

(3) Women in Water Resources Development

One of the main beneficiaries of the study is the women. The role of women is crucial in meeting the crisis in the water resources sector. The provision of water for the family in the rural areas of most developing countries is the primary responsibility of women.

The Philippine government fully supports the participation of women in the planning, implementation and application of technology for water supply projects.

(4) Poverty Reduction of the Project

Water resources development thru a well-conceived master plan stimulates coordinated and sustainable economic growth and enhance the attainment of our development goals which is better quality of life for every Filipino.

Among the various development goals of the country related to the water resources sector are the improvement of the living standards of the poor; attainment of self-sufficiency in food; and proper management of the environment.

V. Undertakings of the Government of the Philippines

In order to facilitate a smooth and effective implementation of the study, the Government of the Republic of the Philippines thru the National Water Resources Board shall undertake the following resources:

- a. Extend adequate assistance for the security of life and property including medical services as needed for the Study Team during their stay in the Philippines;
- b. Permit the member of the Study team to enter, leave and sojourn in the Philippines for the duration of their assignment therein;
- c. Arrange for the foreign experts necessary immigration requirements such as entry, stay, exit and work permits as well as exemption from income tax and charges of any kind imposed on or in connection with their living

allowance remitted from abroad and from import and export duties imposed on their personal effects, instruments, equipment and materials necessary for the study;

- d. Provide a sufficient and suitable office with appropriate furniture and facilities including vehicles with driver if necessary, for the duration of the study;
- e. Secure permission or entry into private properties to carry out field work in connection with the project; and
- f. Secure permission or furnish available documents such as reports, drawings, topographic maps, statistical data and relevant information related to the expectation of the study.

VI. Government of the Philippines shall bear Claims

The Government of the Philippines shall be responsible for dealing with claims, if any against member(s) of the Study Team, resulting from, occurring in the course of, or otherwise connected with the discharge of their duties in the implementation of the study, except when such claim or liabilities arise from gross negligence or willful misconduct of the above mentioned members.

VII. Counterpart Agency

The National Water Resources Board as the implementing agency shall act as counterpart agency in the Study Team and also as coordinating body in relation with other governmental and non-governmental organizations concerned for the smooth implementation of the Study.

The Government of the Philippines and the Government of Japan shall consult with each other to ensure the smooth implementation of the study.

LUIS M. SOSA
Executive Director
National Water Resources Board
Republic of the Philippines

September 7, 1994

ANNEX "A"

ESTIMATED COST OF THE STUDY

The study has been estimated to cost P24.8 M plus foreign exchange cost of US\$ 3.923 M. The work will be carried out over a period of thirty (30) months.

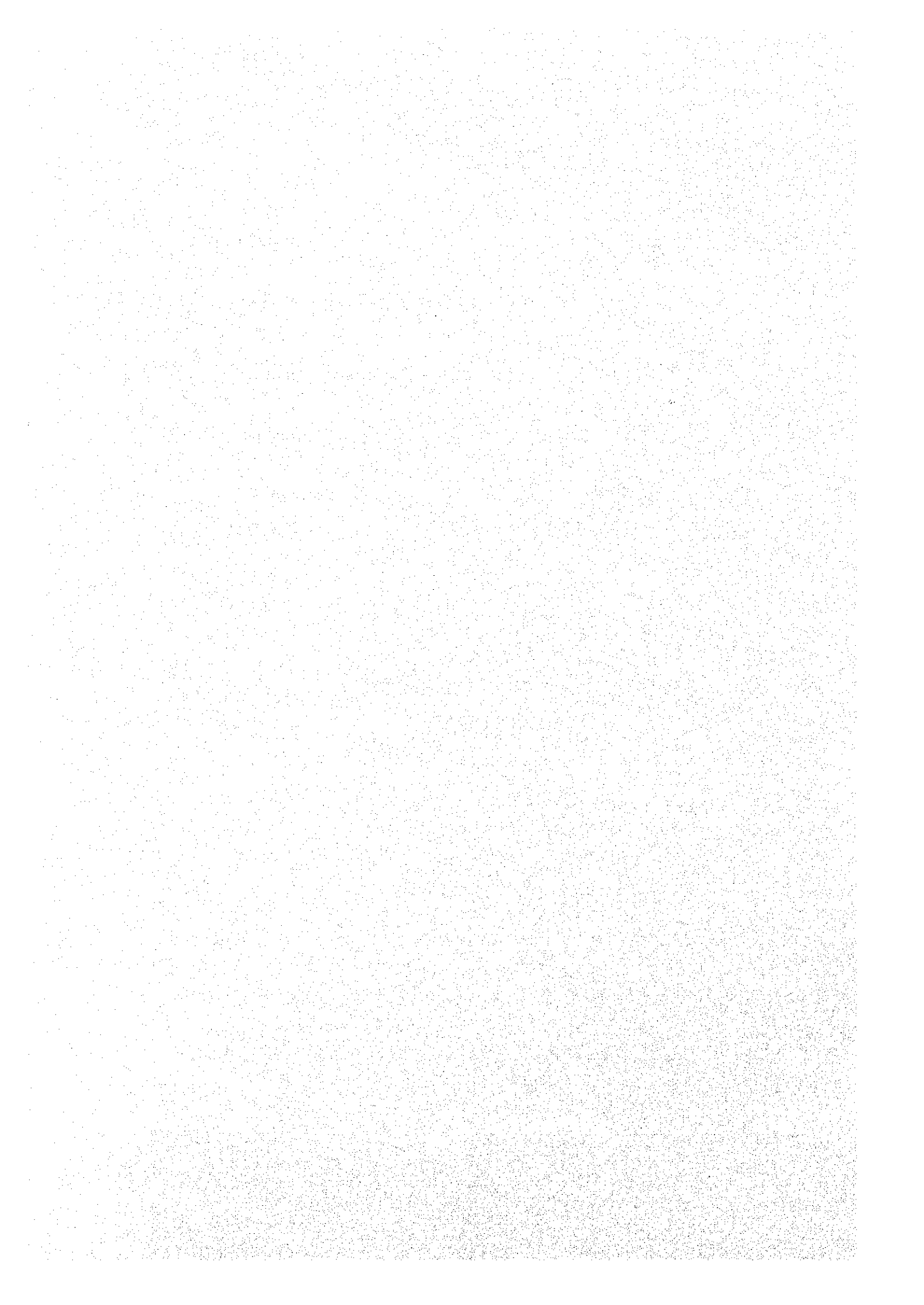
The detailed estimate is shown below:

PROJECT COST SUMMARY

(1994 Price Index)

	Local	E.F\$
1. Pays and Allowances		
Expatriate Staff	-	2,760,000
Local Staff	14,542,800	-
2. Travel		
Local	2,025,000	-
International	-	100,000
3. Equipment	-	345,064
4. Supplies	2,000,000	-
5. Miscellaneous	3,000,000	-
6. Investigation Works and Aerial Photography	-	717,550
Sub-total	P 21,567,800	US\$ 3,922,614
Contingencies (15%)	3,232,200	
Total Local	P 24,800,000	
Forex		US\$ 3,922,614

2. Questionnaire



Questionnaire for Master Plan of Water Resources Management in the Philippines
A: On Master Plan on Water resources Management in the Philippines (hereafter referred to as "the project")

GOP TO FILL IN THE BLANKS BELOW		
Serial No.	title, page	responsible agency/ organization to the subject
	descriptions of needed information	
A-(1)-1	National Water Summit	Government of the Philippines (GOP)
A-(1)-2	Memorandum Order (MO) #243, MO #244 [資料提供]	GOP
A-(1)-3	Water Crisis Act of 1995	GOP
A-(1)-4	Waterborne disease outbreaks report [資料提供]	Department of Health (DOH)
A-(1)-5		
A-(2)-1	Integrated Plan on Action on the Arrangement of the Water Summit [資料提供]	GOP
A-(2)-2		
A-(2)-3		
A-(2)-4		
A-(2)-5		
A-(3)-1	On-going and proposed projects by MWSS [資料提供]	MWSS
A-(3)-2	On-going and proposed projects by LWUA [資料提供]	LWUA
A-(3)-3	On-going and proposed projects by NIA [資料提供]	NIA
A-(3)-4	On-going and proposed projects by NPC [資料提供]	NPC
A-(3)-5		
A-()		
A-()		
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A-()		
	<p>(1) Background of the project: Causes that made the project necessary (i.e., occurrence of water shortage, water born diseases etc.). Inform us with records of actual incidents preferably reported in newspapers etc.</p> <p>(2) Relevant plans and researches: A summary. Plans and researches of relevant water development plans. The name of the plans, purpose, executing agencies, and summary of contents.</p> <p>(3) Relevant completed/on-going projects: A summary. The name of projects, purpose, executing agencies, prominent figures of the facilities.</p>	

B: On the project executing bodies

GOP TO FILL IN THE BLANKS BELOW		
Serial No.	title, page	responsible agency/organization to the subject
B-(1)-1	Water Code of Philippines [資料提供]	NWRB
B-(1)-2	Philippines Environmental Code [資料提供]	DENR (EMB)
B-(1)-3	Organizational Relationships [資料提供]	NWRB
B-(1)-4	Functional Relationships [資料提供]	NWRB
B-(1)-5		
B-(2)-1	Basic Information [資料提供]	NWRB
B-(2)-2		
B-(2)-3		
B-(2)-4		
B-(2)-5		
B-(3)-1	Council of Engineering Consultants of the Philippines (CECOPHIL) directory [資料提供]	NEDA infrastructure division
B-(3)-2		
B-(3)-3		
B-(3)-4		
B-(3)-5		
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descriptions of needed information

(1) Relevant governmental agencies and laws of water resources:

A summary of the agencies and organizations that develop and/or manage water resources. Their relationship, their roles.

(2) Executive agency of GOP on this project:

A summary of NWRB. Objectives of its establishment, organizations chart, each division's functions.

(3) Philippines consultants:

A list of them who are eligible for the project's collaboration.

Please furnish us with their achievements, a number of engineers, and the rate of charges.

C: On social environment

GOP TO FILL IN THE BLANKS BELOW		
Serial No.	title, page	responsible agency /organization to the subject
C-(1)-1	Population, Land Area and Density by City; 1970, 1980, 1990 [資料提供]	National Statistical Office (NSO)
C-(1)-2		
C-(1)-3		
C-(2)-1	Agricultural Lands Converted to MOH- agricultural purposes[資料提供]	Bureau of Agricultural Statistics
C-(2)-2		
C-(2)-3		
C-(2)-4		
C-(3)-1	Summary of Water Rights Grants by Region [資料提供]	NWRB
C-(3)-2		
C-(3)-3		
C-(3)-4		
C-(4)-1	Water Resources Development Programs and Projects [資料提供]	MWSS, LWUA, NIA, NPC
C-(4)-2		
C-(4)-3		
C-(5)-1	List of Environment and Development NGOs in Manila [資料提供]	DENR
C-(5)-2		
C-(5)-3		

descriptions of needed information

(1) Statistics of society and economics:
A newest summary that describes the Philippines' and major cities' population density, growth, and economic growth.

(2) Land use:
A newest summary of land use patterns of the Philippines and changes in recent year.

(3) Water use:
A newest summary of water use in an each industrial sector; present and future consumption's predictions.

(4) Water resources development facilities:
A newest summary of their settings, capacity, operating status, and any problems if there are.

(5) Human right movements and environmental concerns that are relevant to the project:
Names of important organizations and their concerns, activities.

D: On natural environment

GOP TO FILL IN THE BLANKS BELOW		Natural Disasters' Coordinating Council (NDCC)	responsible agency/organization to the subject
Serial No.	title, page		
D-(1)-1	Listing of meteo-hydrology data [資料提供]		PAGASA
D-(1)-2	Damages caused by major natural disasters [資料提供]		National Disasters Coordinating Council (NDCC)
D-(1)-3			
D-(1)-4			
D-(1)-5			
D-(1)-6			
D-(1)-7			
D-(1)-8			
D-(1)-9			
D-(2)-1	List of aerial photographs and available remote sensing data [資料提供]		National Mapping Resources Information Authority (NAMRIA)
D-(2)-2			
D-(2)-3			
D-(3)-1	Geological maps		Mines and Geology Bureau (MGB)
D-(3)-2	Geological Water Investigation Report		NWRB
D-(3)-3			
D-(4)-1	Map showing the location of game refuge and bird sanctuaries and national parks [資料提供]		Forest Management Bureau (FMB)
D-(4)-2			
D-(4)-3			

descriptions of needed information

(1) Meteo-hydrology:
An inventory list of meteo-hydrology data collected for national water development researches by NWRB (or other organizations). JICA team need to receive the prominent figures only during this I/A mission. Also a summary of records of flood disasters is needed.

(2) Topography:
A list of availability of satellite images, aerial photographs and the scopes.

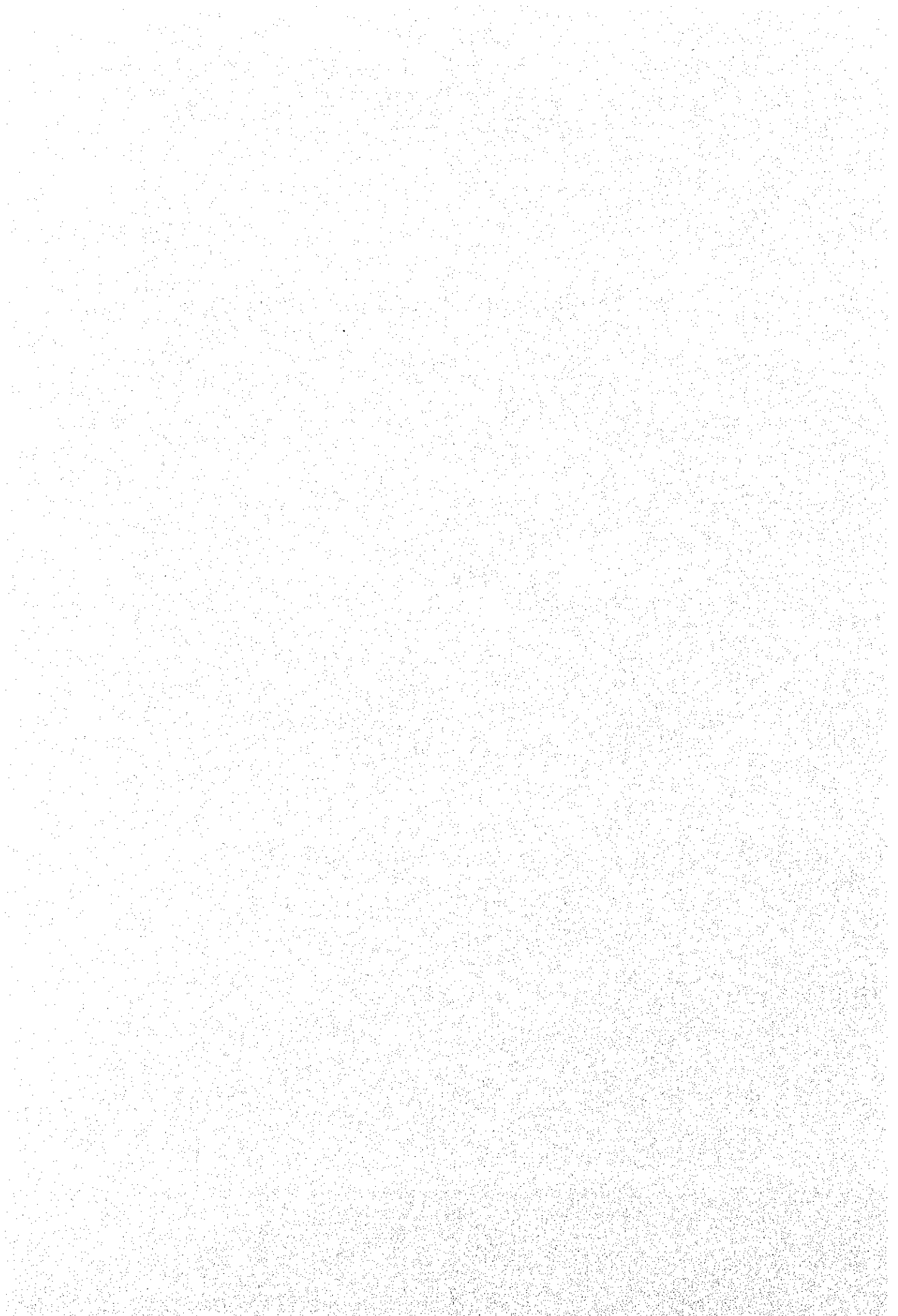
(3) Geology:
An list of available hydro-geology maps and others.

(4) Biology:
A distribution map (or equivalent) of rare species' habitat and relevant public issues today.

E: Others

descriptions of needed information	GOP TO FILL IN THE BLANKS BELOW		
	Serial No.	title, page	responsible agency/organization to the subject
Other presumably important figures, reports, columns, comments, etc. in the course of the project formation period.	E-()	N/A	
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3. Implementing Arrangement



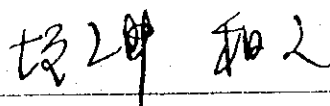
IMPLEMENTING ARRANGEMENT
ON
THE TECHNICAL COOPERATION
FOR
MASTER PLAN STUDY ON WATER RESOURCES MANAGEMENT
IN
THE REPUBLIC OF THE PHILIPPINES

AGREED UPON BETWEEN
NATIONAL WATER RESOURCES BOARD
AND
JAPAN INTERNATIONAL COOPERATION AGENCY

MANILA, September 25, 1996



Mr. Luis M. Sosa
Executive Director,
National Water Resources Board
(NWRB)



Mr. Kazuyuki Sakanoi
Leader of the Preparatory Study Team,
Japan International Cooperation Agency
(JICA)

I. INTRODUCTION

In response to the official request of the Government of The Republic of the Philippines (hereinafter referred to as "GOP") , the Government of Japan (hereinafter referred to as "GOJ") has decided to conduct Master Plan Study on Water Resources Management (hereinafter referred to as "the Study"), and exchanged the Notes Verbals with GOP concerning the implementation of the Study.

Japan International Cooperation Agency (hereinafter referred to as "JICA"), the official agency responsible for the implementation of the technical cooperation programmes of the GOJ, will undertake the Study, in accordance with the relevant laws and regulations in force in Japan.

On the part of GOP, National Water Resources Board (hereinafter referred to as "NWRB") shall act as a counterpart agency to the Japanese Study Team and also as a coordinating body in relation with other relevant governmental and nongovernmental organizations concerned for the smooth implementation of the Study.

The present document sets forth the implementing arrangement between JICA and NWRB under the above mentioned Notes Verbals exchanged between the two governments.

II. OBJECTIVES OF THE STUDY

The objectives of the Study are:

- (1) to formulate a master plan on water resources development and management in the twelve water resources regions of the Philippines.
- (2) to perform technology transfer to Philippine counterpart personnel in the courses of the Study.

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III. STUDY AREA

The planning target area will cover the twelve water resources regions of the Philippines with the area of approximately 300,000km².

Field reconnaissance, however, shall not be conducted in all the river basins, but in several important basins, only if the safety of the study team is secured.

IV. SCOPE OF THE STUDY

In order to achieve the objectives mentioned above, the Study shall cover the following items;

1. Data collection and review of previous studies

- (1) National and regional socio-economic data
- (2) Topographical data and maps
- (3) Meteorological and hydrological data
- (4) Soil and geological data
- (5) Land use
- (6) Existing hydraulic structure and other relevant facilities
- (7) Flood damage
- (8) Water use (surface water, groundwater)
- (9) River environment
- (10) Previous studies and relevant development plans
- (11) Relevant on-going projects
- (12) Relevant laws and the institutions
- (13) Other related data and information

2. Field reconnaissance

- (1) Topography
- (2) Local socio-economy
- (3) Land use
- (4) Present river condition
- (5) Present water resources facilities

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- (6) Water use
- (7) Water quality
- (8) Social and environmental condition
- (9) Others

3. Water demand forecast

- (1) Domestic water
- (2) Industrial water
- (3) Agricultural water
- (4) Hydropower water

4. Water resources potential analysis

- (1) Hydrological analysis
- (2) Water balance
- (3) Available water sources
- (4) Water resources potential

5. Formulation of master plan

- (1) Water resources development plan
- (2) Water resources management plan
- (3) Preliminary facilities plan
- (4) Operation and maintenance plan
- (5) Cost estimation

6. Evaluation

- (1) Initial Environmental Examination (IEE)
- (2) Social impact assessment
- (3) Financial and economical analysis

7. Implementation plan

8. Short term development strategy (selection of urgent projects)

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V. WORK SCHEDULE

The Study will be carried out in accordance with the tentative work schedule shown in the ANNEX.

VI. REPORTS

JICA shall prepare and submit the following reports in English to GOP.

1. Inception Report :

Thirty (30) copies at the commencement of the first work in the Philippines.

(This report contains the schedule and methodology of the Study.)

2. Progress Report (1) :

Thirty (30) copies at the end of the first work in the Philippines.

(This report will summarize the findings in the first field survey.)

3. Interim Report :

Thirty (30) copies at the commencement of the second work in the Philippines.

(This report contains the results of analysis of the first work in Japan.)

4. Progress Report (2) :

Thirty (30) copies at the end of the second work in the Philippines.

(This report will summarize the outline of the master plan.)

5. Draft Final Report :

Thirty (30) copies at the commencement of the third work in the Philippines.

(This report will cover the whole result of the Study including the completed master plan, and will be the Final Report if there is no comments made on it by the Philippine side.)

NWRB shall submit comments on this report to JICA within one (1) month after the receipt of the Draft Final Report.

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6. Final Report :

Fifty (50) copies within two (2) months after the receipt of the comments on the Draft Final Report.

VII. UNDERTAKING OF GOP

In accordance with the Note Verbal exchanged between GOJ and GOP, GOP shall accord privileges, exemptions and other assistance to the Japanese study team (hereinafter referred to as "the Team") and, through the authorities concerned, take necessary measures to facilitate the smooth conduct of the Study.

1. GOP shall be responsible for dealing with claims which may be brought by third parties against the members of the Team and shall hold them harmless in receipt of claims and liabilities arising in the course of, or otherwise connected with the discharge of their duties in the implementation for the Study, except when such claims or liabilities arise from gross negligence or willful misconduct of the above-mentioned members.

2. NWRB shall, at its own expenses, provide the Team with the following in cooperation with other relevant agencies concerned;

- (1) available data and information related to the Study,
- (2) counterpart personnel and support staff necessary for the Study,
- (3) suitable office space with necessary equipment and furniture in Manila,
- (4) credentials or identification cards to the members of the Team,
- (5) appropriate number of vehicles with drivers.

3. To facilitate smooth conduct of the Study, NWRB shall make necessary arrangements with other governmental and non-governmental organizations concerned for the following;

- (1) to secure the safety of the Team,
- (2) to permit the members of the Team to enter, leave and sojourn in the

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Philippines for the duration of their assignment therein,

- (3) to exempt the member of the Team from taxes, duties fees and other charges on equipment, machinery, vehicles and other materials brought into the Philippines for the conduct of the Study,
- (4) to exempt the members of the Team from income tax and charges of any kind imposed on or in connection with any emoluments or allowances paid to the members of the Team for their services in connection with the implementation of the Study,
- (5) to provide necessary facilities to the Team for remittance as well as utilization of the funds introduced into the Philippines from Japan in connection with the implementation of the Study,
- (6) to secure permission for entry into private properties or restricted areas for the conduct of the Study,
- (7) to secure permission for the Team to take all data and documents (including maps and aerial photographs) related to the Study out of the Philippines to Japan by the Team,
- (8) to provide medical services as needed. Their expenses will be chargeable on members of the Team.

VIII. UNDERTAKINGS OF GOJ

In accordance with the Note Verbal exchanged between GOJ and GOP, GOJ, through JICA, shall take the following measures for the implementation of the Study.

1. to dispatch, at its own expense, the Team to Philippines.
2. to pursue technology transfer to Philippine counterpart personnel in the course of the Study.

IX. CONSULTATION

JICA and NWRB shall consult with each other in respect of any matter that may arise from or in connection with the Study.

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MASTER PLAN STUDY ON WATER RESOURCES MANAGEMENT
IN THE REPUBLIC OF THE PHILIPPINES

TENTATIVE SCHEDULE

MONTH DESCRIPTION	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
WORK IN THE PHILIPPINES	■	■	■				■	■	■	■	■				■	
WORK IN JAPAN	□					■	■					■	■	■		□
REPORT PRESENTATION	▲ IC/R			▲ P/R(1)			▲ IT/R			▲ P/R(2)				▲ DF/R		▲ F/R

NOTE
 IC/R : Inception Report
 P/R : Progress Report
 IT/R : Interim Report
 DF/R : Draft Final Report
 F/R : Final Report

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4. Minutes of Discussion

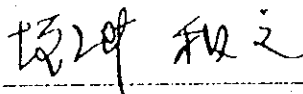
MINUTES OF DISCUSSIONS
FOR
IMPLEMENTING ARRANGEMENT
ON
TECHNICAL COOPERATION
FOR
MASTER PLAN STUDY ON WATER RESOURCES MANAGEMENT
IN
THE REPUBLIC OF THE PHILIPPINES

AGREED UPON BETWEEN
NATIONAL WATER RESOURCES BOARD
AND
JAPAN INTERNATIONAL COOPERATION AGENCY

MANILA, September 25, 1996



Mr. Luis M. Sosa
Executive Director,
National Water Resources Board (NWRB)



Mr. Kazuyuki Sakanoi
Leader of the Preparatory Study Team,
Japan International Cooperation
Agency (JICA)

Japan International Cooperation Agency (hereinafter referred to as "JICA"), at the official request of the Government of the Philippines (hereinafter referred to as "GOP"), dispatched a Preparatory Study Team headed by Mr. Kazuyuki Sakanoi (hereinafter referred to as "the Preparatory Team") from September 17th to October 3rd, 1996 to discuss and determine the Implementing Arrangement for Master Plan Study on Water Resources Management in the Republic of the Philippines (hereinafter referred to as "the Study").

During the stay in the Philippines, the Preparatory Team carried out field surveys of some parts of the study area, and had a series of discussions on the draft Implementing Arrangement submitted by the Preparatory Team with the authorities concerned of GOP, in particular with National Water Resources Board (hereinafter referred to as "NWRB"). Through the intensive discussions in the joint meeting with the authorities concerned of GOP, the Implementing Arrangement was agreed upon by both sides, and was signed on September 25th, 1996. The participants list is attached in the Annex 1.

The main items discussed regarding the Implementing Arrangement are as follows;

1. Both sides agreed that the signer of the Philippine side for the Implementing Arrangement and the Minutes of Discussion shall be the Executive Director of NWRB.
2. The Preparatory Team explained and the Philippine side understood and agreed the following basic policies concerning the Study;
 - 1) The full-scale study team (hereinafter referred to as "the Study Team") shall make the best use of the existing data and information concerning water resources, river basins and groundwater, and no field surveys such as meteorological observations, river measurement, geological surveys shall be conducted in the course of the Study in principle.
 - 2) The Study Team shall collect such existing development plans as urban and rural development, industrial development and agricultural

development, and treat them as the upper level plan to estimate the future water demand. The result of the Study will be the water resources development and management plan to fulfill the water demand of the target year, and to propose necessary facilities and operation and maintenance plan for the effective utilization of the water resources.

3) NWRB shall be furnished the copy of all the data and information collected.

4) Formulation of the flood control plan for all the river basins shall be excluded from the scope of the Study, while flood control capacity can be taken into account upon consideration of multi-purpose dam planning with reference to existing study results.

5) The study work shall be conducted mainly in the Philippines instead of in Japan so as to promote effective technical transfer by on-the-job training, and to have the contents and the results of the Study understood and coordinated by the relevant organizations concerned of GOP as much as possible.

6) Among the proposed projects in the master plan, the Study Team shall set up implementing priority and identify the framework of the urgent projects. Feasibility study for those projects, however, are out of scope of the Study.

3. The Preparatory Team proposed and the Philippine side agreed that the target year of the master plan shall be 2025.

4. NEDA suggested that the Study Team is advised to work closely with regional offices of various agencies.

5. In reference to II and III of the draft Implementing Arrangement, NWRB requested and the Preparatory Team agreed that the term "water resources district" should be corrected as to be "water resources regions".

6. In reference to VI of the draft Implementing Arrangement, both sides

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agreed that the numbers of Progress and Interim Report shall be thirty copies instead of twenty copies written in the draft Implementing Arrangement.

7. In reference to VII (3) and (5) of the draft Implementing Arrangement, NWRB mentioned the difficulties for NWRB to provide suitable office space with necessary equipments and furniture, and appropriate numbers of vehicles for the Study Team. The Preparatory Team understood the situation and both sides agreed to look for office space in the National Irrigation Administration (NIA) complex with desks, chairs, telephones and air conditioner for the Study Team, and JICA will prepare fax machine, copy machine and vehicles for the members of the Study Team, while NWRB will provide the drivers if necessary.

8. Both sides agreed to establish a steering committee consisting of the representatives of the following member organization of the National Water Resources Board, under the chairmanship of NWRB for the smooth and effective implementation of the Study.

- National Water Resources Board (NWRB)
- Department of Public Works and Highways (DPWH)
- Department of Agriculture (DA)
- National Economic and Development Authority (NEDA)
- Department of Health (DOH)
- Department of Environment and Natural Resources (DENR)
- Department of Trade and Industry (DTI)
- Metropolitan Waterworks and Sewerage System (MWSS)
- National Irrigation Administration (NIA)
- Local Water Utilities Administration (LWUA)
- Department of Interior and Local Government (DILG)
- National Power Corporation (NPC)

NWRB shall coordinate the Steering Committee.

9. NWRB requested the Preparatory Team the following vehicles and equipment for the implementation of the Study:

- | | |
|-------------------------|---|
| - four wheel drive cars | 2 |
| - fax machine | 1 |

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· copy machine	1
· personal computers	2
· software	1

10. The Preparatory Team requested NWRB to provide at least one counterpart person for each member of the Study Team for the smooth implementation of the Study and the effective technology transfer. The Philippine side agreed that NWRB and related agencies shall provide enough number of counterpart personnel that may be needed in the Study.

11. NWRB requested the Preparatory Team to receive counterparts for technical training in Japan. The Preparatory Team promised to convey the request to JICA Headquarters.

12. NWRB requested the Preparatory Team to hold a technical seminar at the end of the Study. The Preparatory Team promised to consider the request and that the detail of the seminar shall be discussed in the course of the Study.

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ANNEX 1

ATTENDANTS LIST

1. Philippine Side

[National Water Resources Board (NWRB)]

Mr. Luis M. SOSA	Executive Director
Mr. Jorge M. ESTIOKO	Civil Engineer

[Department of Public Works and Highways (DPWH)]

Ms. Helen G. MARVILLA	Project Director
Mr. Kenichi MATSUI	JICA Expert

[National Economic and Development Authority (NEDA)]

Ms. Cristina SANTIAGO	Development Specialist II
Mr. Rufie GUINTO	Development Specialist

[Department of Health (DOH)]

Mr. Victor V. SABANDEJA	Division Chief
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[Department of Environment and Natural Resources (DENR)]

Mr. Jose D. MALVAS JR.	Bureau Director
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[Metropolitan Waterworks and Sewerage System (MWSS)]

Mr. Narciso M. MORALES	Division Manager
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[National Irrigation Administration (NIA)]

Mr. Rodolfo C. UNDAN	Administrator
Mr. Erdolfo B. DOMINGO	Principal Engineer A
Mr. Tatsuo HOKARI	JICA Expert

[Local Water Utilities Administration (LWUA)]

Mr. Roberto BINAG	Division Chief
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(13)

[Department of Interior and Local Government (DILG)]

Mr. Rogelio OCAMPO

Chief Planning Officer

[National Power Corporation (NPC)]

Mr. Emmanuel E. ANTIOLA

Principal Engineer A

2. Japanese Side

[Preparatory Study Team]

Mr. Kazuyuki SAKANOI

Team Leader

Mr. Katsunori TAKAGI

Member

Mr. Hideki TANABE

Member

Mr. Kazuhiko HONDA

Member

Mr. Norikazu YAMAZAKI

Member

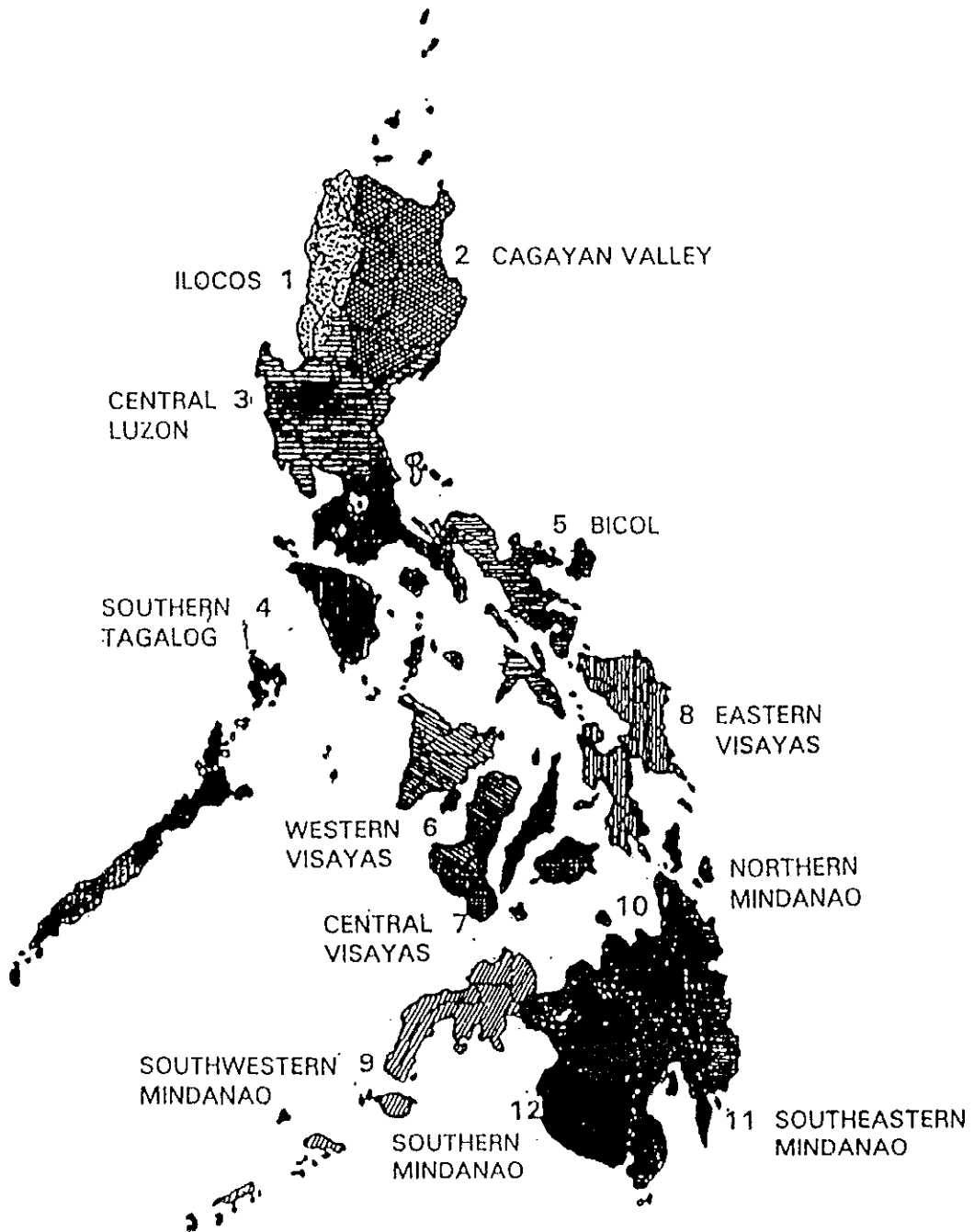
[JICA Philippine Office]

Mr. Hisakatsu OKUDA

Assistant Representative

ANNEX 2

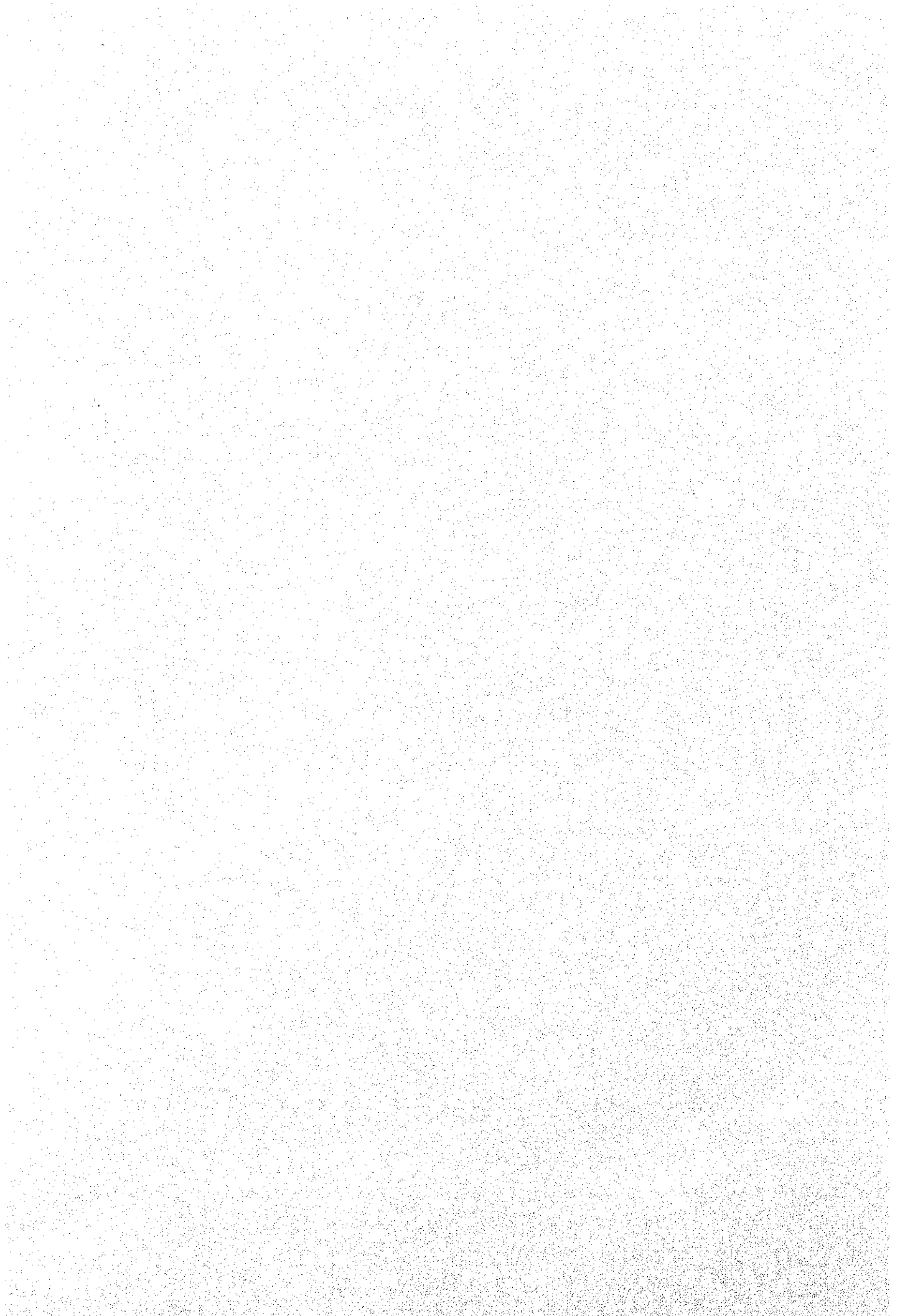
STUDY AREA



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5. 主要面会者リスト



5. 主要面会者リスト

・氏名(敬称略) ; 役職 ; 電話等
・下線はステアリングコミッティー(9/24)参加者

【日本大使館】

Embassy of Japan 375 Sen. Gil J. Puyat Ave. Makati City

廣川 誠一; 一等書記官; 895-9050; fax 895-9040

【国際協力事業団フィリピン事務所】

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後藤 洋; 所長
カ石 寿郎; 次長; 893-30-81; fax 816-42-22

【海外経済協力基金マニラ駐在員事務所】

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Lope R. VILLENAS; Program Evaluation and Coordination Section
Jorge M. ESTIOKO; Water resources Assessment section; Water Resources Assessment Section

【Department of Public Works and Highways (DPWH)】

Bonifacio Dr., Port Area, City of Manila

Teodoro ENCARNACION; Under Secretary; 527-89-21
Mannuel S. ALCONIS; Chief, Project Evaluation Division; 527-89-21
Helen G. MARVILLA; OIC, Project Director; 527-26-23; 527-89-21
長井 義樹; JICA Expert for SABO Engineering; 527-89-21
Kenichi MATSUJ; JICA Expert for Rivers; 527-20-04; fax. 527-41-21

【Metropolitan Waterworks and Sewerage System (MWSS)】

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Angel LAZARO III; Administrator; 920-55-21; fax 632-927-4116
Rogelio P. ASTUDILLO; Water Utilities Mgt. Chief, Alat-Lamesa Optm. & Maint. Sec. Water Sources Division/WSTD

Narciso M. MORALES; Division Manager, Planning Division; 920-5521
渡辺 純也; JICA Expert, Non-revenue Water Reduction; 920-55-21; fax 632-927-4116
Hiroaki SUMITOMO; JICA Expert, Non-revenue Water Reduction; 920-55-21; fax 632-927-4116

【Local Water Utilities Administration (LWUA)】
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Ceferino C. AGUINALDO JR.; Project Manager; t; 920-55-81; fax 920-54-49
Roberto BINAG; Chief, Tech. Research and Devt. Div.; 921-50-73
Hiroshi KUBOTA; JICA Expert; 920-55-81; fax 920-54-49

【LWUA Metro Cebu Water District (MCWD)】
LWUA Building Kalipunan Rd. Balara, Diliman, Quezon City

Armand H. PAREDES; Assist. Gen. Manager for Technical services
Alex TOLENTINO; Manager, Env't. and Water Resource Dept.
Manuel V. AMORES; Chief Resident Engineer; 73114; fax 73114

【National Economic Development Authority (NEDA)】
3rd Floor, NEDA sa Pasig Bldg., Ambaer Ave. Pasig MM.

Cristina SANTIAGO; Japan Grant Assistance Desk Officer, Economic Development Specialist II; 631-21-92; fax 632-631-2188
Rufie C. GUINTO, MPhil; Project Evaluation Staff, Water Sector, Sr. Economic Specialist; 631-21-92; E-mail:rsr@nedamis.neda.gov.ph

【National Power Corporation (NPC)】
Aghanm Rd. Cor. Queson Ave. Diliman; Queson City

Jorge H. LUCAS; Office-in-Charge, Power Resources Plan.Div., Operations Planning and Protection Dept.; 922-0587
Fidel D. DAGSAAN; Office-in-Charge, Power Resources Plan.Div., Operations Planning and Protection Dept.; 922-0587
Mario F. LONGALONG; Office-in-Charge, Power Resources Plan.Div., Operations Planning and Protection Dept.; 922-0587
Emmanuel E. ANTIOLA; Principal Engineer A, Civil Plan. Dept.; 21-3541
Teodulo V. LARGO; Chief Administrative Services (Angat Dam)
Onofre PONCE; Pollution Control Officer (Angat Dam)
Cenon P. CRUZ; Assistant Plant Manager (Angat Dam)

【Department of Health (DOH)】

Victor V. SABANDEJA; Chief, Environmental Sanitation Division; 743-8301

【Department of Environment and Natural Resources (DENR)】

Jose D. MALVAS JR.; Director, Forest Management Bureau; 920-0374

【National Irrigation Administration (NIA)】
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Rodolfo C. UNDAN, Ph.D.; Administrator; 926-45-10; fax.632-926-28-46

Eduardo P. CORSIGA; Deputy Administrator

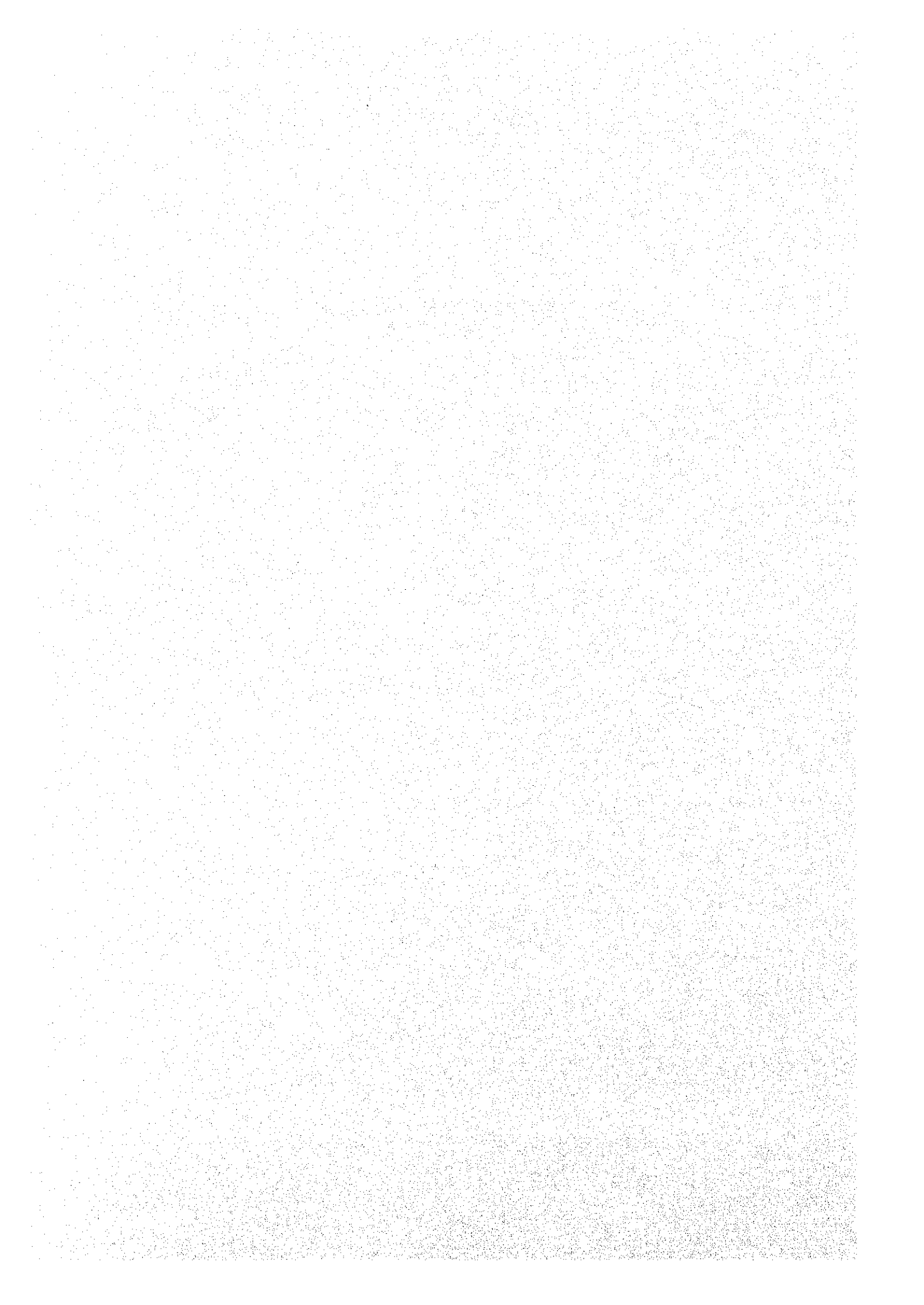
Erdolfo B. DOMINGO; Principal Engineer A; 926-56-46

Tatsuo HOKARI; JICA Expert, Sr. Irrigation and Drainage Eng. ; 928-4130

【Department of Interior and Local Government (DILG)】

Rogelio OCAMPO; Chief, Planning Officer; 928-63-57

6. 現地調査経費積算資料



6. 現地調査経費積算資料

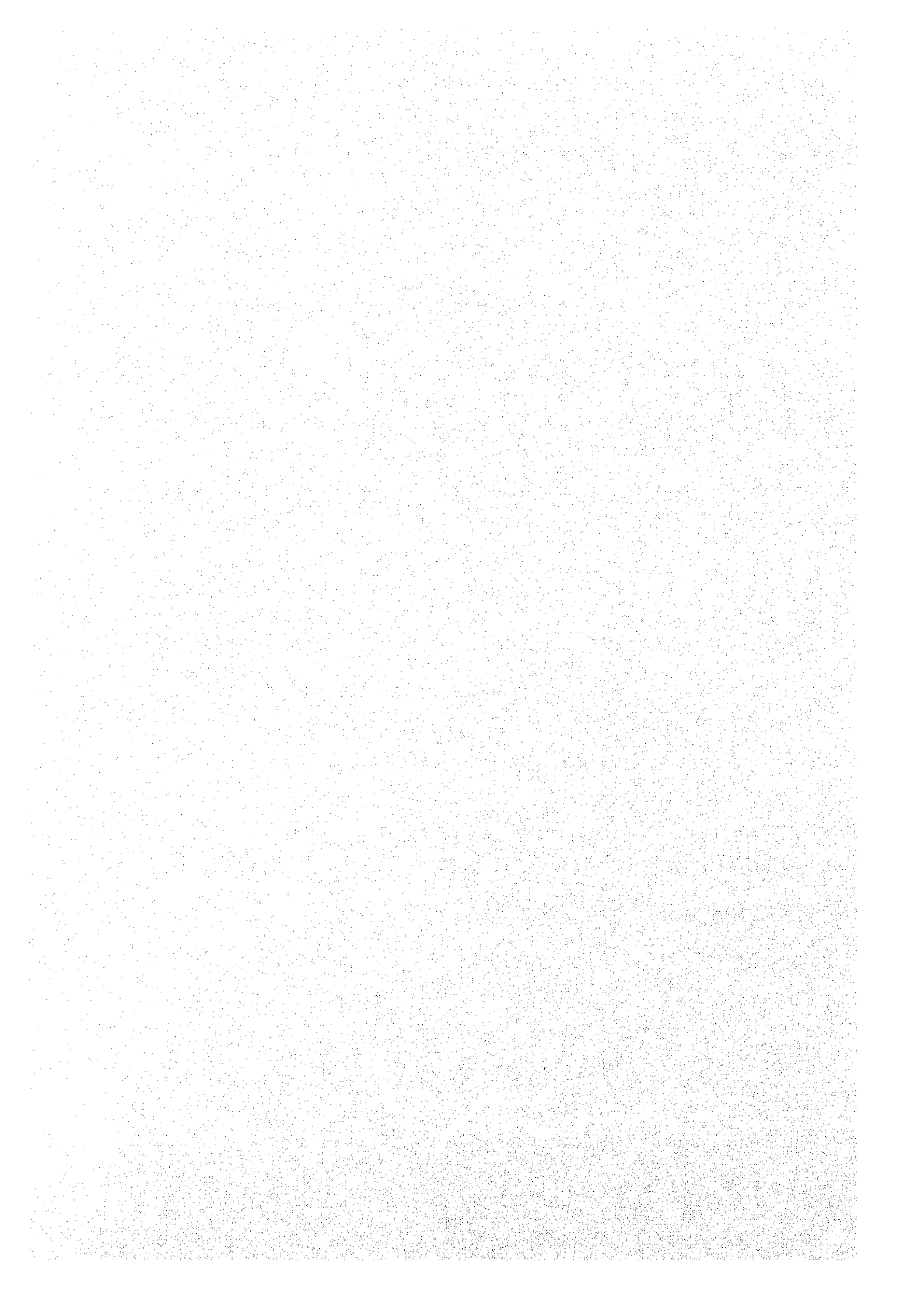
フィリピン政府のカウンターパート機関であるNWRBからは下表のような機器材供与の要望があった。

Equipment / Machinery	Type	Quantity	Price	Total
1. Personal Computer (w/complete accessories)	COMPAQ or ACER (equipped w/Pentium processor)	2	P80,000	P160,000
2. Fax Machine	Heavy Duty	1	P20,000	P20,000
3. Computer Software	1) Spreadsheet	1	P8,000	P8,000
	2) Word Processor (latest version)	1	P5,000	P5,000
	3) Water Balance*	1		
	4) Reservoir Operation Studies*	1		
4. Copy Machine	Heavy Duty	1	P50,000	P50,000
5. Four-wheel Drive Cars	Toyota Land Cruiser or Nissan Patrol	2	P1,000,000	P2,000,000
				P2,243,000

1\$=P26.0

※NWRBからの要望通りのコンピュータソフトは市販されていない。1)のスペッドシートで対応可能と考えられる。

7. 収集資料リスト



7. 資料収集リスト

(1) 収集項目

以下の枠内の項目についてquestionnaireを作成し、先方政府に資料収集の協力を要請するとともに、事前調査団が収集した資料をとりまとめ、整理した。

A: フィリピン国全国総合水資源開発計画調査について

- (1) 調査要請の背景
- (2) 調査に関連する上位施策および他の計画
- (3) 調査に関連する他の進行中および計画中の事業

B: 調査を遂行する機関について

- (1) 水資源開発に係る機関とその役割、及び法制度
- (2) カウンターパート機関の概要
- (3) フィリピンのコンサルタントのリスト:

C: 社会環境について

- (1) 社会・経済統計 — フィリピンの人口分布、人口増加率、経済成長率など
- (2) 土地利用 — 現在の土地利用状況と近年の変化
- (3) 水利用 — 産業別の水利用状況と未来予測
- (4) 水資源開発に係る施設等
- (5) 関連する人権・環境団体の概要と活動

D: 自然環境について

- (1) 水文・気象データ — データリスト等
- (2) 地図・地形図
- (3) 地質データ — 入手可能な地質図等
- (4) 生物 — 稀少生物の生息範囲、社会的な関心事項等

E: その他

(2) 収集状況

①カウンターパート機関であるNWRB から（事前に送付した）questionnaire に基づいて集約された資料が提供された。

②環境アセスメント関連の資料など、不足していると思われる事項についても、管轄する省庁から直接、最新のものを入手することができた。

③本格調査時に必要となると考えられる水文データ、気象データ、地図などは、利用可能な資料名・内容などについて確認し、入手先についても確認した。

(3) 各省庁の協力体制

関係各機関は、本調査を遂行するにあたり、必要となるデータを提供することに全面的に同意している。

(4) 本格調査期間中の資料収集時の留意点

直接のカウンターパートである、NWRBを通して関係機関に資料を請求することが望まれる。

NEDA、NWRB、など主要機関には図書館および、書籍販売コーナーがある。地質図、地形図などについても担当機関が販売している。

フィリピン国全国総合水資源開発計画調査収集資料

(資料番号；名称；資料内容について直接担当する機関名；今回の入手方法；資料の概要等)

A: フィリピン国全国総合水資源開発計画調査（以下「調査」）について

(1) 調査要請の背景

- A-(1)-1: Memorandum Order (MO) #243, MO #244 [A-(1)-2]; GOP; NWRB提供; 大統領令 #243, #244 水不足が極めて深刻な課題であることを認識するとともに、Water Resources Management Cruster (事務局はNational Water Resouces Board《NWRB》)を設置し、関係各省に最新の資料の提出を求め、さらにWater Summit (9DEC1994)において採択された"WATER SUMMIT ACTION PLAN" (#244 に添付)を認可し、これを強力に推進するように求めている。この他、Water Crisis Act of 1995; GOP も本調査を日本政府に要請する背景なった(NWRBのコメント)。
- A-(1)-2: Waterborne disease outbreaks report [A-(1)-4]; Department of Health (DOH); NWRB提供
- A-(1)-3: PHILIPPINE DAILY INQUIRER "Water crisis grabs FVR's attention"; NWRB 提供; 「水不足が政治的に最も優先されるべき課題である」との声明 (同じ報道がThe Philippine JOURNAL にも掲載された)。

(2) 調査に関連する上位施策および他の計画

- A-(2)-1: Integrated Plan on Action on the Arrangement of the Water Summit [A-(2)]; GOP; NWRB提供
- A-(2)-2: Medium - Term Public Investment Program 1988-1992 (JUN 1988); National Economic Development Authority (NEDA); NEDA図書館にて購入; NEDAによる中期公共投資計画 (1988 - 1992)
- A-(2)-3: フィリピン中期開発計画 1993-1998 (FEB1993); National Economic Development Authority (NEDA)・JICA フィリピン事務所仮和訳; JICA提供; NEDAによるフィリピン中期開発計画 (A-(2)-2の続き)
- A-(2)-4: Frame Work Plan, Cebu River Basins, Central Visayas (DEC 1982); National Water Resources Council (NWRB); NWRB提供、他はNWRBの図書館で購入可能; 国連開発計画による全国開発マスタープラン (全41巻) の1部。社会開発指標にその重点がおかれており、水資源開発施設についてのページ数は僅少。
- A-(2)-5: Frame Work Plan, Laguna Lake Basins, Southern Tagalog (JUN 1983); National Water Resources Council (NWRB); NWRB提供、他はNWRBの図書館で購入可能; 国連開発計画による全国開発マスタープラン (全41巻) の1部。社会開発指標にその重点がおかれており、水資源開発施設についてのページ数は僅少。
- A-(2)-6: Philippines Country Paper (MAY 1996); Asian Development Bank; アジア太平洋地区の水資源開発における方針について
- A-(2)-7: Action Plan for Reforms relating to the National Water resources Board (DEC1995); World Bank; 松井専門家 (JICA Expert for DPWH) 提供資料; NWRBの強化に関する実行計画。全国水資源総合開発マスタープランの実施にも触れている。
- A-(2)-8: Study on Water Supply and Sewerage Master Plan of Metro Manila, Final Report Vol. 1 (Summary Report, FEB1996); MWSS-JICA; MWSSのPlannining Division Manager, Mr. Morales 提供資料; MWSSによるマニラ首都圏の上水・下水の2015年までのマスタープラン。

(3)調査に関連する他の進行中および計画中の事業

- A-(3)-1: On-going and proposed projects by MWSS [A-(3)-1]; MWSS; NWRB提供; MWSSの将来計画
- A-(3)-2: On-going and proposed projects by LWUA [A-(3)-2]; LWUA; NWRB提供; LWUAの将来計画
- A-(3)-3: On-going and proposed projects by NIA [A-(3)-3]; NIA; NWRB提供; NIAの将来計画
- A-(3)-4: On-going and proposed projects by NPC [A-(3)-4]; NPC; NWRB、NPC提供; NPCの将来計画
- A-(3)-5: Survey/Inventory on Water Impounding Reservoirs (1978); NWRC; NWRB図書館で購入; 全国の貯水池として利用可能なダムサイト一覧
- A-(3)-6: Philippine Power System Development Map; National Power Corporation (NPC) ; NPC提供; 全土の現存・建設中・計画中の発電施設図、形式別の発電量の推移、貸借対照表、財務指標、経済指標などのグラフ
- A-(3)-7: Metro Cebu Water District Program 2 Improvements (MAR1995); LWUA-Cebu Consultants; LWUA Cebu 提供;

B: 調査を遂行する機関について

(1) 水資源開発に関係する法制度・行政機構

- B -(1)-1: Water Code of Philippines [B-(1)-1]; NWRB; NWRB提供; 水利用、水資源の分配等はこの法規集に則り執り行われる。
- B -(1)-2: THE WATER RESOURCES MANAGEMENT SYSTEM Organizational Relationships, Existing situation; GOP; NWRB提供; 大統領以下の各省庁の関係図
- B -(1)-3: Organization chart; GOP; NWRB提供; 主な省庁の組織図 (NWRB, MWSS, DA-Bureau of Soils and Water Management, DENR-Environmental Management Bureau, National Power Corporation, NIA, DENR)
- B -(1)-4: Philippine Environmental Law Vol.II Comments and Materials (1983); Ministry of Human Settlements, The National Environmental Protection Council; Department of Environment and Natural Resources (DENR)にて購入; フィリピンの環境影響評価システム、有害物質、廃棄物処理、人口、教育・文化、海岸等にかかる法令集
- B -(1)-5: Philippine Environmental Law Vol.III Comments and Materials (1984); Ministry of Human Settlements, DENRにて購入; 鉱業、エネルギー、森林・土壌保全、放射能、治水・排水、自然災害についての法令集
- B -(1)-6: DENR Administrative Order No. 21, Series of 1992, Amending the Revised Rules and Regulations Implementing Presidential Decree 1586 (Environmental Impact Statement System); Environmental Management Bureau, DENR; DENR提供; 平成8年10月現在、この大統領令修正案に法り、環境影響評価が実施されている。

(2) カウンターパート機関の概要

- B -(2)-1: Basic Information [B-(2)]; NWRB; NWRB提供; NWRB の概要
- B -(2)-2: National Economic and Development Authority についてのパンフレット; NEDA; NEDA提供; 機能と組織図等
- B -(2)-3: National Water Resources Board Annual Report '95; NWRB; NWRB提供; NWRB の年間報告(1995)、1996年の目標など
- B -(2)-4: NWRB News Bulletin (MAY-JUNE1996)、(JUL-AUG 1996); NWRB; NWRB提供; NWRB の定期刊行物
- B -(2)-5: THE ENVIRONMENTAL MANAGEMENT BUREAU; DENR; DENR図書館にて複写; 環境影響評価を司る機関であるDENRのEnvironmental Management Bureau (EMB) の概要説明

(3) フィリピンのコンサルタントのリスト:

B-(3)-1: Council of Engineering Consultants of the Philippines (CECOPHIL) directory; NEDA infrastructure division; 存在確認のみ

C: 社会環境について

(1) 社会・経済統計 — フィリピンの人口分布、人口増加率、経済成長率など

C-(1)-1: Population, Land Area and Density by City; 1970, 1980, 1990 [C-(1)]; National Statistical Office (NSO); NWRB提供; 各地方の市ごとの人口、人口密度、増減

C-(1)-2: Philippine Development Report, 1987 - 1992 (1993); National Economic Development Authority (NEDA); NEDA図書館にて購入; 1987~1992の経済成長の概要のレポート、各産業、教育、厚生、住居、福祉、インフラ、財政等

C-(1)-3: The President's 1994 Socio-Economic Report (MAR1995); GOP; NEDA図書館にて購入; 大統領の1994年の社会・経済報告書。水資源、環境保全などについての記述あり

C-(1)-4: The President's 1994 Socio-Economic Report (MAR1996); GOP; NEDA図書館にて購入; 大統領の1995年の社会・経済報告書。水資源、環境保全などについての記述あり

(2) 土地利用 — 現在の土地利用状況と近年の変化

C-(2)-1: Agricultural Lands Converted to MOH- agricultural purposes (1995); Bureau of Agricultural Statistics; NWRB提供; 農地から他への転換、灌漑面積の変化、森林の使用状況

(3) 水利用 — 産業別の水利用状況と未来予測

C-(3)-1: Summary of Water Rights Grants by Region [C-(3)]; NWRB; NWRB提供; 各水資源区の流水、地下水の産業別の水使用状況

C-(3)-2: Philippines Water Resources (DEC 1976); NWRC (National Water Resources Council, NWRBの前身); NWRB図書館にて購入; フィリピンにおける水資源の概要、水利用、気候、降雨量、観測体制等

(4) 水資源開発に係る個別の計画・施設等

C-(4)-1: The Angat Hydroelectric Plant; National Power Corporation (NPC); NPC提供; Angatダムの諸元

C-(4)-2: Mananga water resources development project by LWUA Metro Cebu Water District (MCWD); MCWD提供; マナンガ・フェーズ1のプロジェクト概要

C-(4)-3: Bohol-Cebu Water Supply Project (executive summary); by LWUA Metro Cebu Water District (MCWD), Anglo-Philippine/Brown & Root/Itochu Alliance; MCWD提供; セブへの海峡間導水計画のプロジェクト概要。これについて「B-(2)-4: NWRB News Bulletin (JUL-AUG 1996)のpp.1618に記載あり」

A-(3)-1, A-(3)-2, A-(3)-3, A-(3)-4 参照

(5) 関連する人権・環境団体の概要と活動

C-(5)-1: list of Environment and Development NGOs in Manila [C-(5)]; DENR; NWRB提供; マニラ首都圏における環境団体の名称、コンタクトパーソン、住所、電話番号

D: 自然環境について

(1) 水文・気象データ — データリスト等

D-(1)-1: Damages caused by major natural disasters; National Disasters Coordinating Council (NDCC); NWRB提供; 1980年以降の洪水や伝染病などの自然災害とその被害一覧表

- D-(1)-2: Principal River Basins of the Philippines (OCT 1976) ; NWRC; NWRB図書館にて購入; フィリピン全土の各水資源管理区における河川および流域面積等
- D-(1)-3: Philippine Water Resources Summary Data Vol. I Streamflow and Lake or River Stage (JAN 1980) ; NWRC; NWRB図書館にて購入; フィリピン全土の各水資源管理区における1950's~1970の流量観測データ
- D-(1)-4: Philippine Water Resources Summary Data Vol. II Streamflow and Lake or River Stage (JUN 1991) ; Department of Public Works and Highways (DPWH), Bureau of Research and Standards; Bureau of Research and Standards 図書館にて購入; フィリピン全土の各水資源管理区における1971~late1970'sの流量観測データ
- D-(1)-5: Philippine Water Resources Summary Data 1980 - 1983 (FEB 1993) ; Department of Public Works and Highways (DPWH), Bureau of Research and Standards; Bureau of Research and Standards 図書館にて購入; フィリピン全土の各水資源管理区における1980 - 1983の流量観測データ
- D-(1)-6: Water Availability in Philippine Rivers (FEB 1977) ; NWRC; NWRB図書館にて購入; フィリピン全土の各水資源管理区の各河川における流況曲線等
- D-(1)-7: Station Profile (SEP 1996) ; PAGASA; PAGASA図書館にて購入; 各水資源区における気象観測所の緯度、経度、標高、観測年等
- D-(1)-8: LIST OF EXISTING STATIONS REGIONS 1 to 12 (SEP 1996) ; PAGASA; PAGASA提供; 各水資源区における観測所と観測年一覧表
- D-(1)-9: Groundwater of the Philippines (1980); NWRC; NWRB図書館にて購入; 全土の地下水資源について
- D-(1)-10: Rainfall and Tropical Cyclone Climatological Normals of the Philippines 1961-1990; PAGASA; PAGASA図書館にて購入; フィリピンにおける降水量、台風、洪水時の氾濫域の図集
- C -(3)-2: Philippines Water Resources (DEC 1976) ; NWRC; NWRB図書館にて購入; フィリピンにおける水資源の概要、水利用、気候、降雨量、観測体制等

(2) 地図・地形図

- D-(2)-1: List of aerial photographs and available remote sensing data [D-(1)-3]; National Mapping Resources Information Authority (NAMRIA); NWRB提供; 利用可能な航空写真・衛星写真一覧
- D-(2)-2: CEBU-CITY topographic map (1:250,000); NAMRIA; NAMRIAにて購入; Cebu, Bohol を含む地形図
- D-(2)-3: Index of Topographic Maps (1:4,000,000); NAMRIA; NAMRIAにて購入; フィリピン全土の入手可能な 1:50,000 および1:250,000 の地形図のインデックス
- D-(2)-4: Administration Map, Province of Bulacan OCT 1990 (1:1,500,000), NAMRIA; NAMRIAにて購入; Umiray 流域間導水計画の範囲含む
- D-(2)-5: Administration Map, Province of Rizal APR 1991 (1:100,000), NAMRIA; NAMRIAにて購入; マニラ都市区東部の水源地帯含む
- D-(2)-6: Road Map of the Philippines (1:1000,000); 1985, National Book Store; National Book Storeにて購入; フィリピン全土の河川、道路、概略の地形を含む
- D-(2)-7: Metro-Manila Street Map (1:20,000); 1993, National Book Store; National Book Storeにて購入; メトロマニラの河川、道路、概略の地形を含む
- D-(2)-8: Metro Cebu 鳥瞰図 (絵) (1:1000,000); セブ市内にて購入; セブ市、マングラウェ市、マクタン島含む (2枚あり)
- D-(2)-9: Key Plan, OCT 1988 (1:50,000); LWUA-Metropolitan Cebu Water District 提供; セブ都市圏へ水道水を供給するためのプロジェクト含む
- D-(2)-10: Map of Mindanao (縮尺不明); 1996, Island Vievo Promotions作成; 行政区域図 (Region IX-A - XII)

- D-(2)-11: Province of Cebu (縮尺不明); 1993, Phil. Islander Promotions; Mactan 島を含む Cebu 全島の名所・史跡等
- D-(2)-12: Map of Panai (縮尺不明); 1990, Island Vievo Promotions; 行政区域図 各市町村名、その面積、人口予測 (1993)
- D-(2)-13: Map of Bohol (縮尺不明); 1996, New Luzvimin Promotions; 地形図、各市町村名・人口予測 (1990-1995)
- D-(2)-14: Republic of the Philippines (1:5,562,432); 1993, Hear Enterprise Co.; National Bookstore にて購入; フィリピン全土の行政区域図 (size A-4)

(3) 地質データ —入手可能な地質図等

- D-(3)-1: Geological Map of the Philippines (1:2,500,000); Mines and Geosciences Bureau (MGB); MGBにて購入; 全フィリピンの地質図
- D-(3)-2: Index of Geological Map of the Philippines; Mines and Geosciences Bureau (MGB); MGB提供; 全フィリピンの入手可能な地質図のインデックス

(4) 生物 —稀少生物の生息範囲、社会的な関心事項等

- D-(4)-1: Map showing the location of game refuge and bird sanctuaries and national parks; Forest Management Bureau (FMB); NWRB提供; 動物、鳥類保護区、国立公園位置図
- D-(4)-2: Fisheries Statistics of the Philippines (1987); Bureau of Fisheries and Aquatic Resources; Bureau of Fisheries and Aquatic Resources 提供; フィリピンにおける淡水・海水産魚に関する統計資料

E: その他

- E-1: NWRBの販売資料リスト
- E-2: Philippine Statistical Yearbook (1995); National Statistical Coordination Board (NSCB); 所在確認のみ。NSCBにて購入可; 人口、自然資源、農業、健康状態などから通商まで多岐にわたる統計資料
- E-3: Social Development in the Philippines: Vision, Challenges and Imperatives (JUN 1995); NEDA; NEDA図書館にて購入; NEDAによる、フィリピンの社会開発に斯かる課題、将来の見通しと挑戦
- E-4: Philippine DEVELOPMENT May-June 1996; NEDA; NEDA図書館にて購入; 西暦2000年以後の安定成長についての特集
- E-5: Implementing Rules and Regulations of Clause (g) NEDA Board Resolution No.4, Series of 1994 (AUG 1995); Department of Interior and Local Government (DILG); 鈴木専門家 (JICA Expert for DILG) 提供; 地方分権化に伴う、MWSS, LWUA, DILG などの水供給に関する役割の再設定について
- E-6: Handbook on Government Contracts (1985); NEDA; NEDA 図書館にて購入; 政府との契約についての手引書
- E-7: Regional Project Monitoring and Evaluation System (RPMES) Operations Manual (1984); NEDA; NEDA 図書館にて購入; 地方における事業の成功度等の、評価の手引
- E-8: 水資源管理についてのJICA宛の国際会議 (於マニラ) への招待状 (新聞に関連記事)

