

## 5. 議事録及び Implementing Arrangement



## 1) 事前調査団 I ・協議議事録



ORIGINAL COPY for: The Mission

MINUTES OF DISCUSSION

on

PANAY RIVER BASIN-WIDE FLOOD CONTROL PROJECT

1. At the request of the Government of the Philippines, a Contact Mission of the Japan International Cooperation Agency (JICA), visited the Philippines from October 25 to November 6, 1982, to formulate a study on the Panay River Basin-wide Flood Control Project (the Study). The Mission carried out field surveys of the project area and held series of discussions with officials of the Ministry of Public Works and Highways (MPWH), and other agencies concerned.

2. A final meeting was held on November 5, 1982, at the MPWH Office, Manila. A list of those who attended is shown in Annex I. Main issues discussed are as follows:

- a) Scope of Work: The Mission and the MPWH discussed and exchanged views on the scope of the study on the project and prepared draft of the scope of work, as shown in Annex II, for further consideration.
- b) The Authorities concerned for the Study shall be organized with MPWH as the lead agency, and NIA and NPC as the cooperating agencies. In addition, an advisory/steering committee shall be organized by MPWH to include other agencies involved in water resources development to oversee the effective execution of the Study.
- c) Topo and Hydro Surveys: The Mission requested MPWH to provide the following activities as the prior works for the smooth study implementation, since these activities are strongly affected by the climate situation:
  1. Cross-section Survey. The detailed content is shown in Annex III.
  2. Aerophotograph. The detailed content is shown in Annex IV.

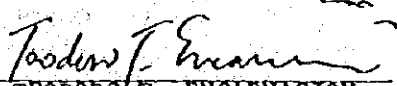
MPWH agrees to undertake the cross-section survey, but due to financial constraint on its budget, requested that the aerial photography be undertaken by the JICA. The Mission will recommend to the Government of Japan, that this activity be financed by the JICA.

- d) Hydrological Stations: The Mission strongly requests the establishment of rainfall and discharge gauging stations, one for each tributary of the Panay River, respectively, for use in the detailed study. MPWH explained that this is the responsibility of the National Water Resources Council (NWRC), and mentioned that it will make strong request with NWRC for the establishment of these hydrological stations.
- e) Provisions of vehicles: MPWH will provide three (3) vehicles at the project study site for use of the Japanese Study Team. Considering the situation that three (3) cars are not sufficient for the study activity, and that there are no available four-wheel drive vehicles in Roxas City, the Mission asked MPWH, on the possibility of providing more number of vehicles. MPWH explained their current situation, and strongly requested that additional vehicles be provided by JICA for the Study. The Mission stated that it will recommend to the Government of Japan, additional vehicles for the Study.
- f) Office and the Equipment: MPWH will provide an appropriate office space in the Capiz Engineering District Office in Roxas City for the Japanese Study Team. The Mission asked on the availability of the copy machine and other necessary equipment such as, micro-computer, drafting instrument and electric typewriter for use in the Study. MPWH explained that there is no copy machine and sufficient equipment for the Japanese Study Team, and requested that they be provided by JICA.
- g) Topographic Mapping: The Mission mentioned that it is necessary under the Study to conduct a topographic mapping of the flooded areas and potential dam and reservoir sites, with scale of 1/10,000, MPWH requested that these activities be undertaken by the JICA.

FOR: J I C A

FOR: M P W H

  
 SINICHI ISHIDA  
 Team Leader  
 JICA

  
 TEODORO T. ENCARNACION  
 Asst. Minister for Planning  
 MPWH

ANNEX I

LIST OF ATTENDANCE

1. Ministry of Public Works and Highways:

- Mr. Teodoro T. Encarnacion - Asst. Minister for Planning
- Mr. Antonio A. Alpasan - Project Manager, Project Management Office for Major Flood Control Projects (PMO-MFCP)
- Mr. Rogelio A. Flores - Asst. Project Manager, PMO-MFCP
- Mr. Takashi Inoue - Flood Control Consultant
- Mr. Exequiel T. Gumayan - Chief, Planning Service

2. JICA Contact Mission:

- Mr. Shinichi Ishida - Mission Leader
- Mr. Fumio Yoshino - Member
- Mr. Kensuke Watado - Member
- Mr. Kiyoshi Shioiri - Member
- Mr. Koichi Miyoshi - Coordinator

SCOPE OF WORK

for

THE PANAY RIVER BASIN-WIDE FLOOD CONTROL STUDY

I. OBJECTIVES OF THE STUDY

The objective of the Study is to formulate a comprehensive water resources development plan for the Panay River Basin, with particular emphasis on flood control, integrating all the development potentials in the Basin, through review of previous studies, field investigations and detailed study and analysis.

II. SCOPE OF THE STUDY

The Japanese Study Team will conduct the Study in close cooperation with the counterpart personnel. The Study will include the following:

General

- a) Review and evaluate all data and previous studies directly relevant to the Study and draw a program for further studies.
- b) Examine the existing and on-going development program directly relevant to the basin development and consider their effects to the Study.
- c) Develop suitable approach for flood control in the basin, considering local situation and condition, and establish the design criteria on the flood control measures.

Specific

Part A - Basic Study

- a) Conduct the zero-topo mapping, and if necessary, supervise the topographic survey which will be conducted by the MPWH.
- b) Collect and evaluate hydrological and hydraulic data and assess the on-going data collection system.
- c) Undertake surface and sub-surface geological survey, if necessary, including evaluation, analysis and interpretation of results.
- d) Examine flood damage in the river basin, and conduct a flood risk study for the preparation of a flood risk map.
- e) Examine the agricultural situation, determine the irrigable areas and identify major rehabilitation works for existing systems and new construction works for irrigation, if any.



- f) Examine the existing land use condition and define a future land use plan.
- g) Examine and assess the water necessities for the domestic and industrial uses.
- h) Conduct the overall water supply and demand balance in the basin, including trans-basin development schemes, if any.
- i) Identify potential dam and reservoir sites, and examine the situation of the population whose homes and other properties will be inundated by the dam construction.
- j) Identify the alternative development schemes for the river basin in the comprehensive approach with emphasis on flood control, including irrigation, hydro-power, and municipal water supply.

#### Part B - Comprehensive Water Resources Plan Study

- a) Compare the identified alternative development schemes based on the results of Part A study, considering technological, social, and financial aspects.
- b) Examine and clarify cost and benefit of the alternative schemes of development.
- c) Conduct economic evaluation of the alternative schemes and formulate the comprehensive plan for the basin development, including fundamental dimensions and technical description to facilitate further studies.
- d) Examine and formulate the implementation arrangement by suitable technology and method taking into account local condition such as, executing agency, financial viability, methods of construction, and availability of construction materials and equipment.
- e) Conduct a study on the environmental impact, if any, of the selected development scheme.
- f) Prepare the terms of reference on identified priority projects for further studies.

#### Part C - Transfer of Technology

- a) Transfer technological knowledge to Philippine counterpart personnel through the study, by way of in-service training locally and abroad.

- b) Conduct seminars on the water resources development using the Study as the subject matter.

### III. STUDY SCHEDULE

The Study will be executed in accordance with the attached tentative schedule (Appendix I).

### IV. REPORTS

The Japanese Study Team will prepare the following reports:

- a) Inception Report (30 copies) -

Inception report will be prepared within three (3) months after the commencement of the field work, covering major findings, method of approach, proposed plan of operation, evaluation of the existing data, etc.

- b) Discussion Note (30 copies) -

Discussion note will be prepared within six (6) months after the commencement of the study including the result of flood risks analysis and land use study.

- c) Part A Study Report (30 copies) -

Part A Study Report will be prepared within nine (9) months after the commencement of the study. The report will cover study and analysis of Part A and the detailed plan of operation of Part B Study.

- d) Interim-Report (30 copies) -

Interim-Report will be prepared within fourteen (14) months after the commencement of the study. The report will cover all studies and analysis carried out including alternative development schemes to be analyzed in detail.

- e) Draft Final Report -

Main Report	- 30 copies
Supporting Reports	- 10 copies
Compiled Data and Information	- 1 copy

Draft Final Report will be prepared within eighteen (18) months after the commencement of the study. The report will cover all studies and analysis with enough supporting data, including the alternative development schemes analyzed in detail. The authorities concerned shall submit their comments within forty-five (45) days after receipt of the Draft Report.

f) Final Report -

Main Report	- 50 copies
Supporting Report	- 50 copies
Compiled Data and Information	- 2 copies

Final Report will be finalized forty-five (45) days after receipt of comments from the authorities concerned on the Draft Report.

APPENDIX I

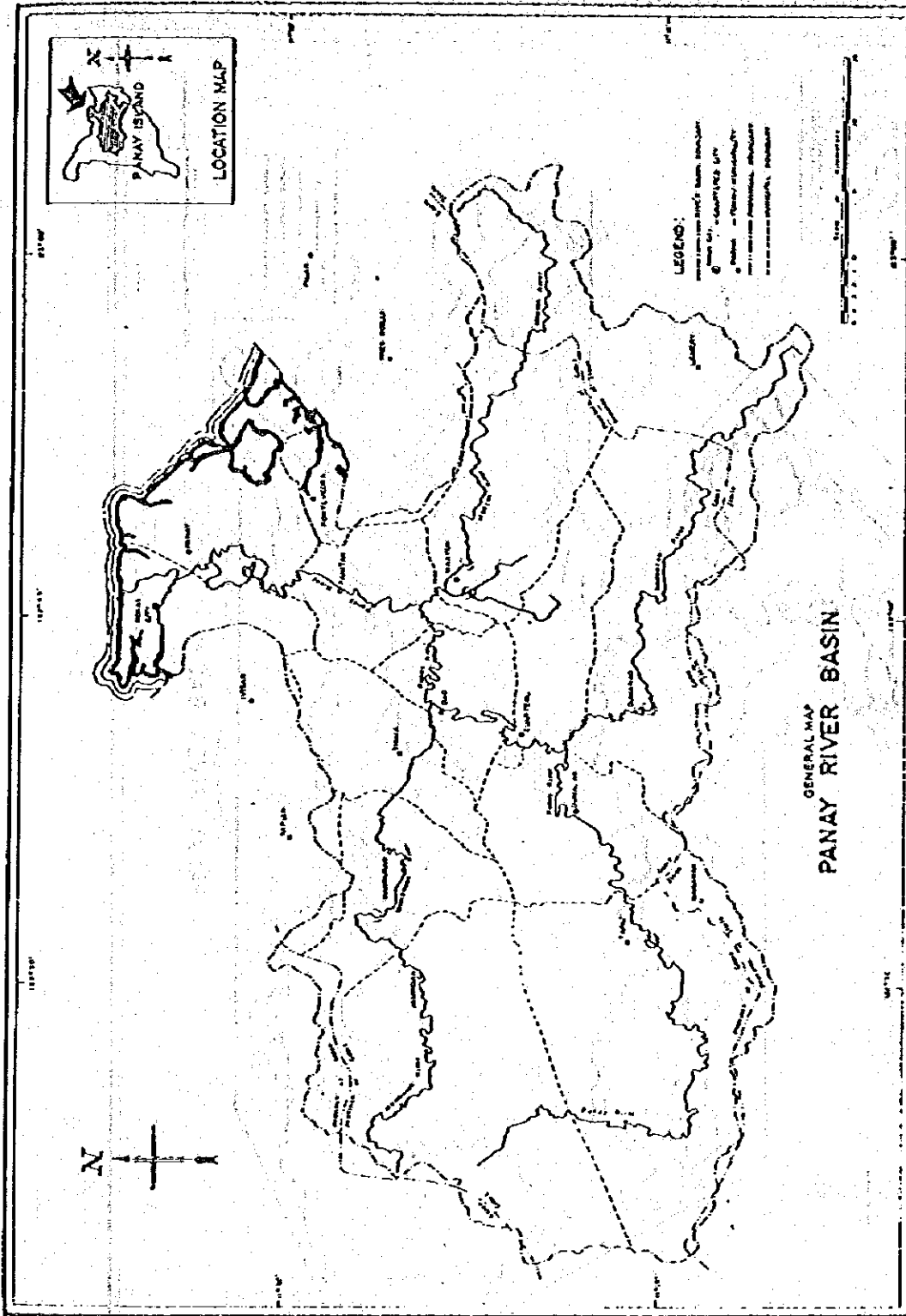
TENTATIVE SCHEDULE

	CY '82					CY '83					CY '84					CY '85																
	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	
1. Topo and Hydro Survey																																
2. Aero-Topo Mapping																																
3. Part A Study																																
4. Part B Study																																
5. Reporting																																

Inception Report

Discussion Notes

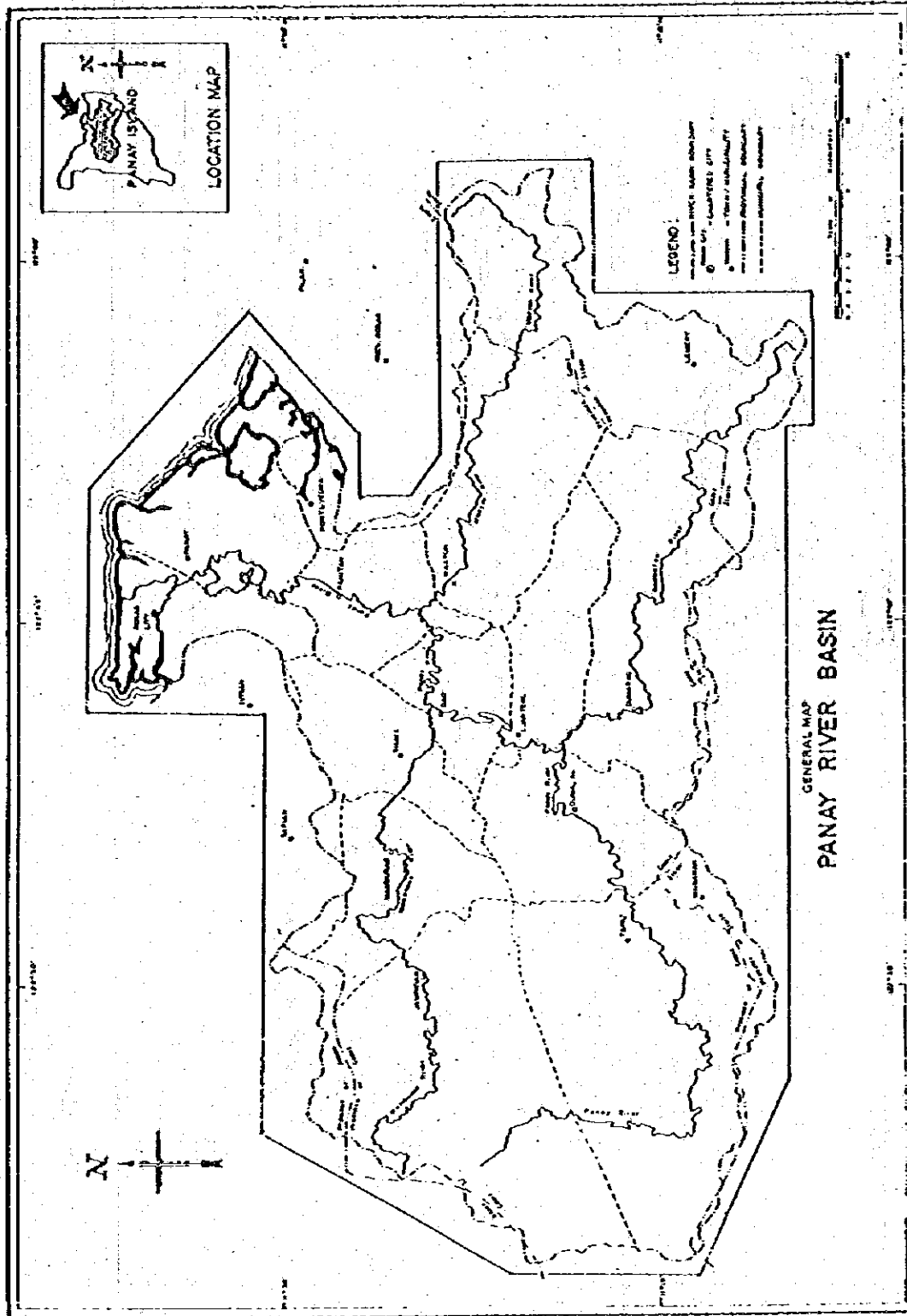
Part A Report Interim Report Draft Report Final Report



Profiles and Cross-Sections shall be undertaken at the following:

1. One (1) kilometer interval along the main Panay and Pontevedra river from its mouth and from the confluence with Panay river of the following tributary rivers namely: (1) Mambusao, (2) Bacbaran, (3) Maayon and other significant secondary tributaries; to the upper reaches to be decided on a later date.
2. In all existing and proposed bridge crossings;
3. At closer intervals along the rivers at the town proper in flood prone areas.

AEROPHOTOGRAPHY AREA COVERAGE



Aerophotography will be taken with the entire Panay River Basin with a Scale of 1:20,000.

## **2) Implementing Arrangement**





MINUTES OF MEETING

Date : December 17, 1982  
Time : 8:00 A.M.  
Place : Office of the Asst. Minister for Planning,  
MPWH Building, Port Area, Manila

ATTENDANCE:

I. JICA Preliminary Team

1. Mr. Fumio Yoshino - Team Leader
2. Mr. Koichi Miyoshi - JICA, Tokyo, Project Coordinator

II. Ministry of Public Works and Highways (MPWH)

1. Mr. Teodoro T. Encarnacion - Asst. Minister for Planning
2. Mr. Antonio A. Alpasan - Project Manager IV, PMO-Major  
Flood Control Projects (MFCP)
3. Mr. Rogelio A. Flores - Project Manager III, PMO-MFCP
4. Mr. Takashi Inoue - MPWH-JICA, Flood Control Consultant

The Japanese Preliminary Team and the Authorities Concerned held a final meeting on the Panay River Basin-wide Flood Control Study on 17 December 1982 at MPWH.

The documents for the Implementing Arrangement for the Study were discussed and some points were clarified and finally agreed upon as indicated in Appendix "A" (Implementing Arrangement).

One point discussed is:

With regards to Item IV.5, page 3, it is understood that the three (3) vehicles provided under the Re-Study, Mayon Volcano Sabo (Erosion) and Flood Control Project shall be utilized in the Panay Study. In addition, the Authorities Concerned, strongly requested that JICA provide additional appropriate number of vehicles for the smooth execution of the Study.

For the JICA:

*Fumio Yoshino*

FUMIO YOSHINO

Team Leader

Preliminary Survey Team

For the Authorities Concerned:

*Teodoro T. Encarnacion*

TEODORO T. ENCARNACION

Asst. Minister for Planning

MPWH

IMPLEMENTING ARRANGEMENT ON THE TECHNICAL COOPERATION  
BETWEEN THE JAPAN INTERNATIONAL COOPERATION AGENCY  
AND THE AUTHORITIES CONCERNED FOR PANAY RIVER BASIN-  
WIDE FLOOD CONTROL STUDY

AGREED

BETWEEN

JAPAN INTERNATIONAL COOPERATION AGENCY

AND

THE AUTHORITIES CONCERNED FOR THE STUDY

For JICA

*Fumio Yoshino*  
FUMIO YOSHINO

Team Leader  
Preliminary Survey Team

For the Authorities Concerned

*Teodoro T. Encarnacion*  
TEODORO T. ENCARNACION

Asst. Minister for Planning  
M P W H

17 December 1982

Manila - Philippines

IMPLEMENTING ARRANGEMENT ON THE TECHNICAL COOPERATION  
BETWEEN THE JAPAN INTERNATIONAL COOPERATION AGENCY  
AND THE AUTHORITIES CONCERNED FOR PANAY RIVER BASIN-  
WIDE FLOOD CONTROL STUDY

I. INTRODUCTION

In response to the request of the Government of the Republic of the Philippines, the Government of Japan decided to conduct a technical cooperation (the Cooperation) for Panay River Basin-wide Flood Control Study (the Study) in accordance with the relevant laws and regulations in force in Japan and exchanged the note verbal on the Study. The Japan International Cooperation Agency (JICA), the official agency responsible for the implementation of the technical program, dispatch a preliminary survey team (the Team) to the Philippines in December, 1982 to finalize the cooperation.

The Team held a series of discussions with the authorities concerned on Panay River Basin-Wide Flood Control Study (the Authorities Concerned) based on the result of the contact mission which visited the Philippines in October, 1982.

The Team and the Authorities Concerned reached the following agreement and understandings on the framework of the cooperation and the various arrangements to be made for the implementation of the Study.

II. MANAGEMENT AND ADMINISTRATION OF THE STUDY

1. JICA will carry out the work necessary for the execution of the Study.
2. The Japanese Study Team will conduct the Study in close cooperation with the Philippine counterpart personnel.

3. The Authorities Concerned will consist of the Ministry of Public Works and Highways (MPWH) as the lead agency and National Irrigation Administration and National Power Corporation as the cooperating agencies and act as coordinating body to other concerned governmental and non-governmental organizations for the smooth implementation of the Study.

In addition a steering committee shall be organized by MPWH to include other agencies involved in water resources development to oversee the effective execution of the Study.

4. The Authorities Concerned shall assign counterparts consisting of a Project Coordinator and necessary technical man who shall jointly manage the execution of the Study with the Japanese Study Team.

### III. IMPLEMENTATION OF THE STUDY

The Study shall be undertaken by the Japanese Study Team in close collaboration with the Authorities Concerned.

1. The Study shall be implemented in accordance with the work plan given in detail in the Scope of Work (APPENDIX I).
2. The Study shall be conducted in accordance with the Schedule (APPENDIX II) formulated on the basis of the Scope of Work.
3. During the execution of the Study, changes may be made in the text of the Scope of Work by mutual agreement considered useful by JICA and the Authorities Concerned in facilitating the work to be performed.

#### IV. RESPONSIBILITIES OF JICA

JICA, shall take the following necessary measures to conduct the cooperation

1. JICA shall, at its own expense, organize and dispatch Japanese consultants as the Japanese Study Team in accordance with the schedule mutually agreed upon by both JICA and the Authorities Concerned;
2. JICA shall, at its own expense, receive Philippine Government personnel connected with the Study, for technical training in Japan in accordance with the normal procedure under the Colombo Plan Technical Cooperation Scheme;
3. JICA shall, at its own expense, conduct an aerial photography with scale 1/20,000 covering the Panay river basin.
4. JICA shall, at its own expense, conduct a topographic mapping of the flooded areas and potential dam and reservoir sites with scale of 1/10,000;
5. JICA will provide appropriate number of vehicles for the execution of the Study;
6. JICA will provide a copy machine, micro-computer and other necessary equipment for use in the Study.

#### V. RESPONSIBILITIES OF THE GOVERNMENT OF THE PHILIPPINES

1. The Authorities Concerned shall provide the necessary counterpart personnel to the Japanese Study Team;

2. In accordance with the Note Verbale to be exchanged between the Government of the Philippines and the Government of Japan, the Authorities Concerned, shall be responsible for dealing with claims which may be brought by third parties against the members of the Japanese Study Team and shall hold them harmless in respect of claims or liabilities arising in the course of/or otherwise connected with the discharge of their duties in the implementation of the Study, except when such claims or liabilities arise from their gross negligence or wilful misconduct. Should any question arise in connection with the foregoing, both Governments shall immediately consult with each other.
3. The Authorities Concerned shall, at their own expense, provide the following:
  - a. Available data and information related to the Study;
  - b. Ground survey (profiles and cross-sections), the detail of which is shown in Appendix III;
  - c. Credentials or Identification (ID) cards to the members of the Japanese Study Team who shall be working in the Philippines for the execution of the Study;
  - d. Suitable office space with necessary office furniture for the Study in the Capiz Engineering District Office in Roxas City;
  - e. Drivers for the vehicles.
4. The Authorities Concerned shall make the necessary arrangement for the following:

- a. Permission for the entry into private properties and other areas necessary for the conduct of the Study;
  - b. Availability of medical facilities, when needed, but medical expenses shall be chargeable to JICA funds allotted for the Study.
5. The Authorities Concerned shall make the necessary arrangement with proper agencies concerned:
- a. To establish rainfall and discharge gauging stations, one for each tributary of the Panay River, respectively.
  - b. To ensure the safety of the Japanese Study Team;
  - c. To provide the necessary facilities to the Japanese Study Team for the remittance, as well as utilization of funds introduced into the Philippines from Japan, in connection with the implementation of the Study;
  - d. To exempt the Japanese Study Team from taxes, duties, fees, and other charges on machinery, equipment and other materials brought into the Philippines for the conduct of the Study;
  - e. To ensure clearance for the release of the aerial photographs needed in the Study;
  - f. To allow the Japanese Study Team to take all necessary data and documents related to the Study, including aerial photographs out of the Republic of the Philippines to Japan in accordance with security regulation;
  - g. To secure permission for the use of radio communication facilities, whenever necessary;

h. To recommend local firms for the charter of helicopter and airplanes whenever necessary.



SCOPE OF WORK  
FOR  
THE PANAY RIVER BASIN-WIDE FLOOD CONTROL STUDY

## I. OBJECTIVES OF THE STUDY

The objective of the Study is to formulate a comprehensive water resources development plan for the Panay River Basin, with particular emphasis on flood control, integrating all the development potentials in the Basin, through review of previous studies, field investigations and detailed study and analysis.

## II. SCOPE OF THE STUDY

The Japanese Study Team will conduct the Study in close cooperation with the counterpart personnel. The Study will include the following:

General

- a) Review and evaluate all data and previous studies directly relevant to the Study and draw a program for further studies.
- b) Examine the existing and on-going development program directly relevant to the basin development and consider their effects to the Study.
- c) Develop suitable approach for flood control in the basin, considering local situation and condition, and establish the design criteria on the flood control measures.

Specific

## Part A - Basic Study

- a) Conduct the aero-topo mapping, and if necessary, supervise the topographic survey which will be conducted by the MPWH.
- b) Collect and evaluate hydrological and hydraulic data and assess the on-going data collection system.
- c) Undertake surface and sub-surface geological survey, if necessary, including evaluation, analysis and interpretation of results.
- d) Examine flood damage in the river basin, and conduct a flood risk study for the preparation of a flood risk map.

- e) Examine the agricultural situation, determine the irrigable areas and identify major rehabilitation works for existing systems and new construction works for irrigation, if any.
- f) Examine the existing land use condition and define a future land use plan.
- g) Examine and assess the water necessities for the domestic and industrial uses.
- h) Conduct the overall water supply and demand balance in the basin, including trans-basin development schemes, if any.
- i) Identify potential dam and reservoir sites, and examine the situation of the population whose homes and other properties will be inundated by the dam construction.
- j) Identify the alternative development schemes for the river basin in the comprehensive approach with emphasis on flood control, including irrigation, hydro-power, and municipal water supply.

#### Part B - Comprehensive Water Resources Plan Study

- a) Compare the identified alternative development schemes based on the results of Part A study, considering technological, social, and financial aspects.
- b) Examine and clarify cost and benefit of the alternative schemes of development.
- c) Conduct economic evaluation of the alternative schemes and formulate the comprehensive plan for the basin development, including fundamental dimensions and technical description to facilitate further studies.
- d) Examine and formulate the implementation arrangement by suitable technology and method taking into account local condition such as, executing agency, financial viability, methods of construction, and availability of construction materials and equipment.
- e) Conduct a study on the environmental impact, if any, of the selected development scheme.
- f) Prepare the terms of reference on identified priority projects for further studies.

#### Part C - Transfer of Technology

- a) Transfer technological knowledge to Philippine counterpart personnel through the study, by way of in-service training locally and abroad.

- b) Conduct seminars on the water resources development using the Study as the subject matter.

### III. STUDY SCHEDULE

The Study will be executed in accordance with the attached tentative schedule (Appendix II).

### IV. REPORTS

The Japanese Study Team will prepare the following reports:

- a) Inception Report (30 copies) --

Inception report will be prepared within three (3) months after the commencement of the field work, covering major findings, method of approach, proposed plan of operation, evaluation of the existing data, etc.

- b) Discussion Note (30 copies) -

Discussion note will be prepared within six (6) months after the commencement of the study including the result of flood risks analysis and land use study.

- c) Part A Study Report (30 copies) -

Part A Study Report will be prepared within nine (9) months after the commencement of the study. The report will cover study and analysis of Part A and the detailed plan of operation of Part B Study.

- d) Interim-Report (30 copies) -

Interim-Report will be prepared within fourteen (14) months after the commencement of the study. The report will cover all studies and analysis carried out including alternative development schemes to be analyzed in detail.

- e) Draft Final Report -

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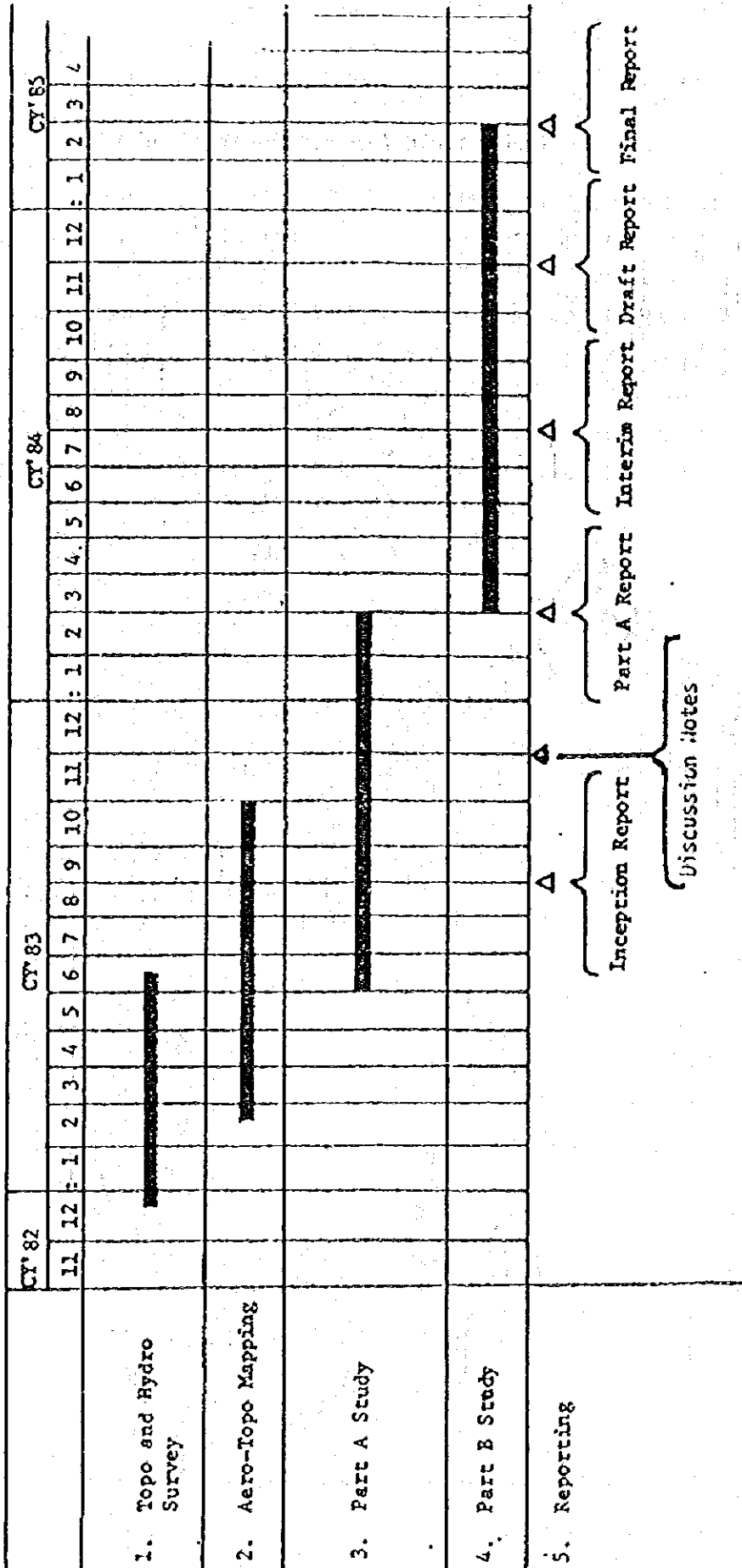
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f) Final Report -

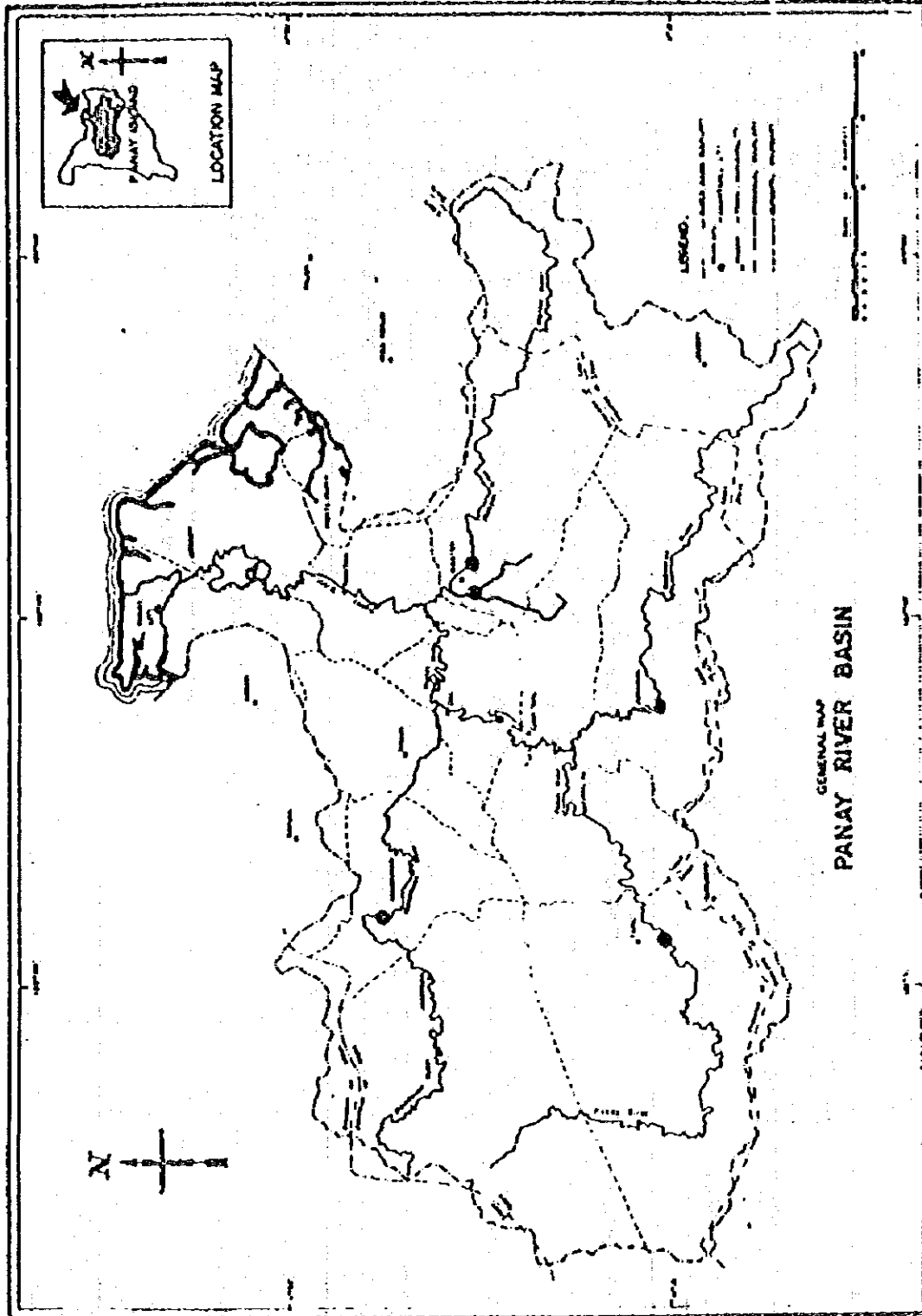
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Final Report will be finalized forty-five (45) days after receipt of comments from the authorities concerned on the Draft Report.

TENTATIVE SCHEDULE



TOPOGRAPHIC AND HYDROGRAPHIC SURVEY



Profiles and Cross-Sections shall be undertaken at the following:

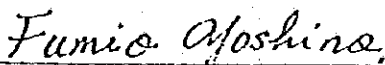
1. One (1) kilometer interval along the main Panay and Pontevedra river from its mouth and from the confluence with Panay river of the following tributary rivers namely: (1) Mambusao, (2) Badbaran, (3) Maayon and other significant secondary tributaries; to the upper reaches to be decided on a later date.
2. In all existing and proposed bridge crossings;
3. At closer intervals along the rivers at the town proper in flood prone areas.

MINUTES OF MEETING

The Joint Meeting was held on 16th December 1982, among the Authorities Concerned, the J-2, and the JICA Team on the processing of the topographic mapping for the Study of the Panay River Basin-Wide Flood Control Project, and reached the following agreement on the arrangement. The list of participants is shown in Appendix I:

1. Japanese Study Team which JICA will organize and dispatch based on the contract with the Japanese consulting firm, will conduct the topomapping in accordance with the Philippine security regulations.
2. The consulting firm mentioned above will bear the expenses for security officers such as air fare from MNL-Tokyo and return, hotel accomodation, insurance, miscellaneous and inland transportation whenever necessary.
3. The dispatch of security officer shall be conducted under the responsibility and regulations of the Philippine Government.

For JICA:



FUMIO YOSHINO

Team Leader

Preliminary Team

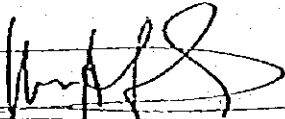
FOR J-2:



JESSIE JAMES CATRAL

Representative

For MPWH:



ROGELIO J. FLORES

MPWH Representative

APPENDIX I

LIST OF PARTICIPANTS

1. LTC JESSIE JAMES C CATRAL
2. ENGR ROGELIO FLORES
3. FUMIO YOSHINO
4. KOICHI MIYOSHI
5. CDR JUSTO P MANLONGAT
6. MAJ HUOY P TABANDA



## 6. 業務指示書(案)



**1) 本格調査業務指示書(案)**



## フィリピン共和国 パナイ河流域洪水防御基本計画調査業務指示書 (案)

### 1. 調査の目的

本調査は、パナイ河流域が持つ開発可能性を調査し、パナイ河流域の洪水防御対策を中心としたパナイ河流域の開発に資する基本計画を作成する。

調査は既往調査資料の収集と整理、現地調査詳細解析及び分析及び計画立案評価からなる。

### 2. 調査対象地域

フィリピン国パナイ島に北方に位置するパナイ河流域(流域面積:2,182Km<sup>2</sup>)を対象とする。

### 3. 調査業務の範囲

1) この調査に直接関連する全ての資料と既往の検討資料を収集検討し、将来計画を作成する。

また、流域開発に直接関係する既往あるいは作成中の計画を検討し、これらの結果を本調査に反映させる。

2) 洪水防御対策については、現地条件を十分勘案し計画規模および要防御地域の選定に十分な検討を行なう。

### 4. 調査業務の内容

乙は、フィリピン共和国側のカウンターパートの協力を得て下記の調査業務を実施する。

#### A 基礎調査

##### 1) 地形図の作成

フィリピン側で行なう航空写真撮影の結果を用い図化を行なう。図化の範囲は洪水の氾濫域と平地部を主体とし、700幅について行なう。またMPWHが行なう測量について、適切な助言と指導を行なう。

##### 2) 水文資料の収集と解析

雨量および流量等の水理・水文資料の収集と解析を行ない、また新たに観測する雨量・流量および潮位記録について解析を行なう。

##### 3) 地質調査等

ダム計画が組み込まれる場合、そのダムサイトについて地質調査を実施し地質の概要を把握する。また河床材料調査を実施する。

##### 4) 洪水氾濫分析

既往の洪水氾濫の実績を聞き込みによって調査し、被害の状況と想定氾濫地域を分析併せて、各地区毎のたん水深と被害額の関係を明らかにする。

5) 治水対策の検討

既往の洪水氾濫について対策による氾濫被害の軽減の検討を行なう。

検討にあたっては洪水流出の水位を高くしないことを基本とし、対策としては河道の拡巾、河床掘削、法線の整正、貯留域の保全等とする。

6) 農業の実態と将来計画の整理

農業の現況把握と及びかんがい可能地と増産の可能性を検討し、改修及び新設の将来計画について整理する。

7) 土地利用計画の整理

現況の土地利用状況の把握と将来計画を整理する。

8) 水需要の把握

生活用水・工業用水・水力発電の需要について調査する。

9) 流域での水利用の需給バランスの把握

流域内の水利用について需給バランスの状況を整理する。その場合新たな開発計画があればそれを考慮して整理する。

10) ダムサイトの選定

ダムサイトの適地を選定し、ダム規模および水没補償（家屋・土地）の状況を整理する。

11) 開発計画の作成

治水、農業の増産、水力発電、都市用水の供給等の対策を広く検討した開発計画の代替案を作成する。

B. 全体計画調査

1) 代替案の比較と費用便益分析

A-11)で作成した開発計画について技術条件およびフィリピンの社会・経済条件から比較検討を行なう。また費用と便益の分析を行なう。

2) 全体計画の作成

流域開発全体計画を作成する。ここには課題と問題点を明らかにする。なお将来の作業に引継げるよう全ての内容について諸元及び手法の記載を行なっておく。

3) 実施計画

適正な技術と方法による実施計画を政府機関、財政状況、建設方法等を検討し策定する。

4) 環境影響評価

流域開発計画に対して環境影響評価を行なう。

5) 最優先事業の Terms of Reference の作成

選定された最優先事業について引き続き調査のためその Terms of Reference を作成する。

C. フィリピン国技術者に対する技術的知識の伝達

1) 現地作業を通じ、フィリピン側カウンターパートに対し技術の伝達を図る。

2) 現地でセミナーを開催する。セミナーは洪水対策を主テーマに行なう。

5. 調査業務の工程

調査は昭和 58 年 4 月より昭和 60 年 3 月までの 2 ケ年を目途とする。

6. 成 果 品

乙は次の報告書を作成する。

1) イン<sup>セ</sup>プションレポート (40 部 ; 内フィリピン提出分 30 部)

現地調査開始後 3 ヶ月以内に提出する。

同レポートは主要観察事項、調査のアプローチの方法、既存資料についての評価および作業計画について記載する。

2) ディスカッションノート (40 部 ; 内フィリピン提出分 30 部)

現地調査開始後 6 ヶ月以内に提出する。

同ノートには洪水解析と土地利用調査の結果を記載する。

3) 基礎調査 (Part A) レポート (40 部 ; 内フィリピン提出分 30 部)

現地調査開始後 9 ヶ月以内に提出する。

同レポートには基礎調査結果と全体計画作成の作業計画を記載する。

4) インテリムレポート (40 部 ; 内フィリピン提出分 30 部)

現地調査開始後 14 ヶ月以内に提出する。

同レポートには比較検討された開発計画代替案についての調査解析経過を記載する。

5) ドラフトファイナルレポート

Main Report 50 部 ; うちフィリピン提出分 40 部

Suppo<sup>V</sup>lting Report 20 部 " 10 部

基礎 data 2 部 " 1 部

現地調査開始後 18 ヶ月以内に提出する。

同レポートは本業務報告書調査内容にかかる調査分析について十分なサポーティング資料により記載されていなければならない。又同レポートは分析した代替案についての説明を含む。

6) ファイナルレポート

Main Report	70 部	；	うちフィリピン提出分	50 部
Supporting Report	70 部		#	50 部
基礎 data	3 部		#	2 部

同レポートはドラフトレポートについてフィリピン側コメントを得て45日後に作成する。



## 2) 地形図作成業務指示書 (案)



# フィリピン共和国パナイ河流域洪水防御基本計画 地形図作成調査業務指示書

## 第1. 指示書の適用

本指示書は国際協力事業団（以下「事業団」という）が実施するフィリピン共和国パナイ河流域治水基本計画地形図作成調査のうち、民間コンサルタント等（以下「コンサルタント」という）に実施させる調査業務に関する内容を示すものであり、コンサルタントはこの業務指示書（以下「指示書」という）および説明会において貸与される主料にもとづき、本件調査にかかるプロポーザル等を事業団に提出するものとする。

## 第2. 調査の目的・内容に関する事項

### 1. 調査の背景

調査対象地区のパナイ河流域はほぼ毎年莫大な洪水被害を受けているが現在洪水防御施設は無い状況にある。このような状況に鑑み、フィリピン政府は、河川しゅんせつ計画の中で治水にかかる計画確認を行った。しかし、パナイ河流域については、現在まで流域を対象とした開発計画が無く、これが洪水防御計画をさらに詳細に立案策定し、実施していくにあたり支障となっている。フィリピン政府はこのような状況を踏まえ、洪水防御を中心とした流域の開発基本計画の策定にせまられており、本件調査の実施を我が国に協力を要請したものである。

### 2. 調査の目的

パナイ河流域治水基本計画調査の実施に必要とされる地形図の作成を実施する。

なお本件調査には、アスエかんがい計画調査に必要とされる地形図作成のための対空標識設置及び航空写真撮影を含むものとする。

### 3. 調査対象地域

パナイ河流域及びアスエ地区

### 4. 調査の範囲

本件調査は、航空写真撮影、標定測量、及び地形図作成の作業をパナイ河洪水防御基本計画調査団（以下「本格調査団」という）（別途選定、契約予定）と連れいして、行うものとする。

## 5. 調査の内容

### 1) 航空写真撮影

- (1) 測量用空中写真を撮影する作業とし、後続作業に必要な写真処理工程まで含めるものとする。
- (2) 本作業はフィリピン民間測量会社に外注するものとし、コンサルタントはこれを指導監督するものとする。
- (3) 撮影縮尺は1/20,000、撮影面積は約2300Km<sup>2</sup>とする。概略は別添1に示すとおり。
- (4) 撮影の仕様は「海外測量作業規程」に準ずる。

### 2) 標定点測量

- (1) 標定点測量は対空標識設置、標定点測量、水準測量、現地調査からなり、うち前記3つの作業はフィリピン民間測量会社に外注し、コンサルタントはこれを指導・監督するものとする。なお、仕様は「海外測量作業規程」に準ずる。

#### (2) 対空標識設置

空中三角測量及び図化作業に必要な対空標識を設置する。

#### (3) 標定点測量

既設の国家基準点に基づき、空中三角測量・図化作業に必要な標定点の位置を測定する。精度は標定点測量B級とする。

#### (4) 水準測量

既設の国家水準点に基づき、空中三角測量・図化作業に必要な標高点を測量する。

#### (5) 現地調査

地形図作成に必要とされる各種表現事項名称等につき調査しこれを整理する。

### 3) 地形図作成

#### (1) 空中三角測量を実施する。

#### (2) 地形図図化を実施する。

##### イ パナイ河氾濫原

面積	約700Km <sup>2</sup>
縮尺	1/10,000
等高線間隔	2m(間曲1m)

##### ロ ダム貯水池計画対象地区

面積	合計約54Km <sup>2</sup> (詳細下記)
縮尺	1/10,000
等高線間隔	5m

Mambusao dam 約43Km<sup>2</sup>

Panay dam 約 26Km<sup>2</sup>

Badbaran dam 約 15Km<sup>2</sup>

なお、このダム貯水池の図化は本格調査団の調査結果に基づき実施を検討するものであり、本件作業においては航空写真撮影とこれに付随するものを対象作業とし、それ以外は本件調査より除く。

ハ マヨン貯水池計画対象地区（カティパヤン川上流域）

面積 約 55Km<sup>2</sup>

縮尺 1/4,000

等高線間隔 5m（間曲 25m）

ニ アスエかんがい地区

面積 約 70Km<sup>2</sup>

縮尺 1/4,000

等高線間隔 2m（間曲 1m）

なお、ハ、ニの図化は別途アスエかんがい計画調査において実施するものであり、本件作業においては航空写真撮影とこれに付随するものを対象作業とし、それ以外は本件調査より除く。

(3) 地形図検定を受けるものとする。

イ 国内地形図検定

ロ フィリピン共和国セキュリティーオフィサーによる作業検定

国内図化作業に伴うフィリピン共和国セキュリティーオフィサーの監督にかかる  
拓へい及び手配をコンサルタントの責任において実施する。

(4) 地形図の精度は、「海外測量作業規程」のB級とする。

4) フィリピン国実施の河川測量を指導する。（詳細別添Ⅱ）

第3. 成 果 品

1. 航空写真撮影

- |                     |      |              |
|---------------------|------|--------------|
| (1) 撮影フィルム 1/20,000 | 一式   | } フィリピン政府に帰属 |
| (2) ポジフィルム          | 一式   |              |
| (3) 密着写真            | 2セット |              |
| (4) 2倍伸し写真          | 一式   |              |
| (5) 撮影標定図           | 一式   |              |

## 2. 標定点測量

- (1) 標定点(多角)測量成果 一式
- (2) 水準測量成果 一式
- (3) 現地調査成果 一式

## 3. 地形図作成

- (1) 1/10,000 地形図原図 1部
- (2) 画と図 各10部
- (3) 空中三角測量成果 一式
- (4) 地形図検定書 一式

## 4. 河川測量指導報告書

本報告書は指導内容及びフィリピン例実施の河川測量結果の評価を記載する。

## 7. 海外援助状況





Main Sources of ODA Assistance to the Philippines  
(1974 - 1981) (Fiscal Years)  
(US\$ Mn)

	1974	1975	1976	1977	1978	1979	1980	1981		
Projects	Amount	Projects	Amount	Projects	Amount	Projects	Amount	Projects		
	Amount		Amount		Amount		Amount	Amount		
IBRD <sup>a/</sup>	6	165.1	8	268.0	9	438.0 <sup>b/</sup>	8	412.0	4	433.0
ADB <sup>c/</sup>	3	57.1	4	116.2	5	119.5	5	178.3	5	215.5
OECD (Japan) <sup>c/</sup>	6	38.9	4	65.7	11	202.7	11	171.0	7	198.5
USAID <sup>d/</sup>	2	32.0	4	52.0	17	52.7	6	34.1	5	18.9

/ FY 1 July - 30 June

/ Large increase in 1978 was due to two large projects, namely Magat Multi-purpose Project and Second Manila Water Supply Project.

/ FY 1 January - 31 December

/ FY 1 October - 30 September

我が国の経済技術協力実施状況

- 有償資金協力
- 無償資金協力
- 無償+プロジェクト方式技術協力
- プロジェクト方式技術協力
- 開発調査

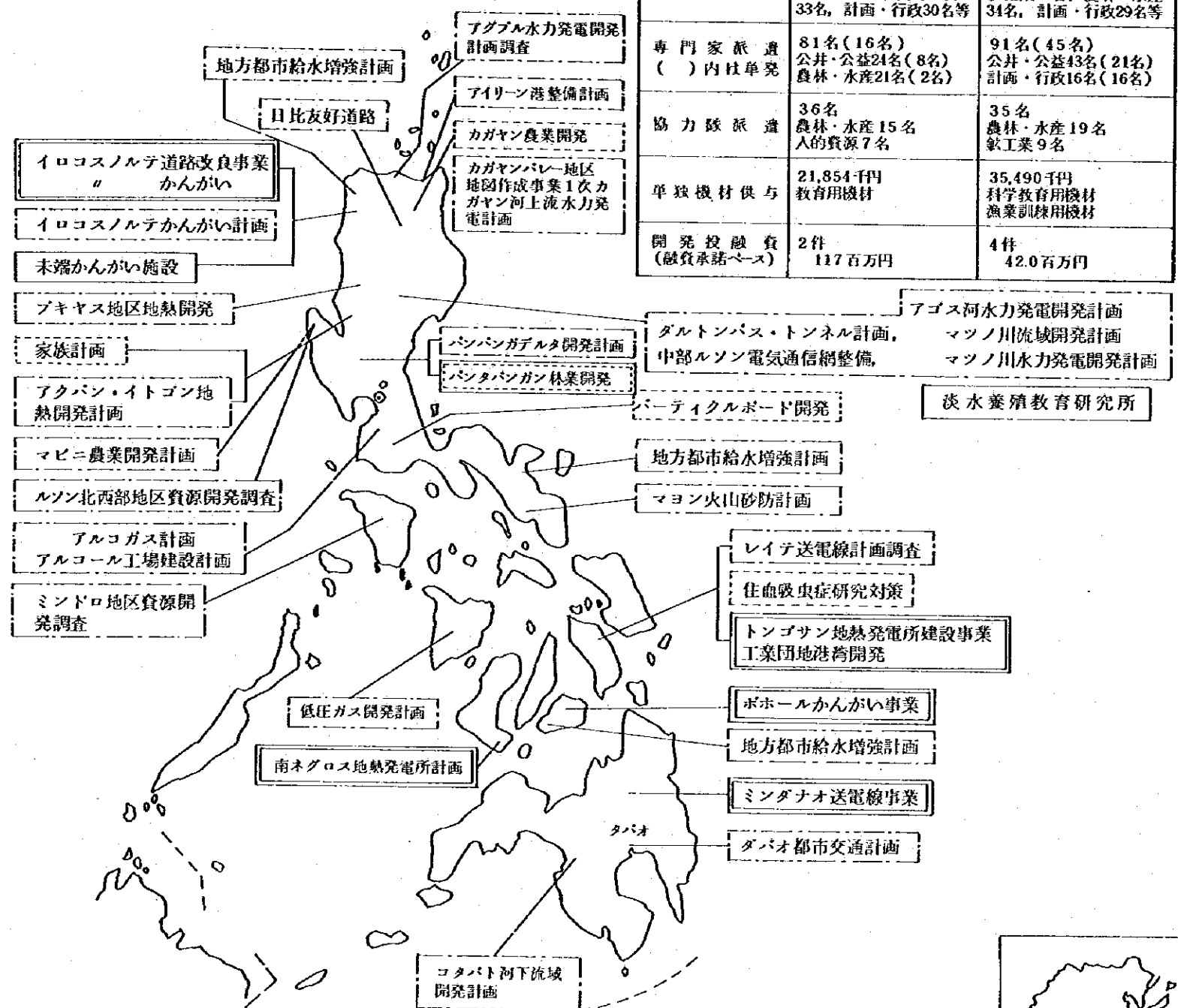
マニラ又はケソン周辺プロジェクト

- |   |   |
|---|---|
| メトロマニラ車輛検査基地建設事業<br>C-4道路改良事業<br>メトロマニラ都市交通改善事業<br>地方通信施設拡充事業             | 窯業開発センター<br>道路交通訓練センター<br>金属鍛造技術センター<br>家族計画<br>電気通信訓練センター<br>熱帯医学研究所 |
| 工科大学職業訓練センター<br>社会科学センター<br>鉱物分析センター<br>東南アジア文和機構地域センター<br>パンパンガ河流域警報システム | 海洋資源探査船計画<br>マニラ首都圏北部地区幹線道路計画<br>マニラ首都圏都市交通計画<br>マニラ首都圏南部地区幹線道路網計画    |

広域プロジェクト等

- |  |  |
|--|--|
| 地方上水道整備事業(II)<br>郵便処理施設拡充事業<br>情報教育全国普及事業<br>港湾荷役設備拡充事業<4港><br>輸産業近代化事業<br>地方通信施設拡充事業<ルソン北部> | 南部ルソン電気通信網整備計画<br>かんがいシステム維持管理強化計画<br>水産物流通システム整備計画<br>ビサヤス地域電力系統拡張及び建設計画調査<br>ルソン島超高压送電システム開発計画 |
| 食糧増産援助 1件<br>文化無償 3件<br>・考古学人数研究機材<br>・国立図書館・移動図書館<br>・文化センター音響機材                            |  |

我が国経済・技術協力実施状況図



形数	年度	昭和55年度	昭和56年度
研修員受入		190名 公井、公益事業47名、 鉱工業33名、農林・水産 33名、計画・行政30名等	222名 公井・公益事業70名、 鉱工業39名、農林・水産 34名、計画・行政29名等
専門家派遣 ( )内は単発		81名(16名) 公井・公益24名(8名) 農林・水産21名(2名)	91名(45名) 公井・公益43名(21名) 計画・行政16名(16名)
協力隊派遣		36名 農林・水産15名 人的資源7名	35名 農林・水産19名 鉱工業9名
単独機材供与		21,854千円 教育用機材	35,490千円 科学教育用機材 漁業訓練用機材
開発投融資 (融資承諾ベース)		2件 117百万円	4件 42.0百万円

0 200 400 km





ORCA Program (Philippines)

Tenth-Year Credit 1982		Proposed Eleventh-Year Credit 1983	
Projects	Amount (\$mn)	Projects	Amount (\$mn)
Road Transmission (Geothermal, Tongonan, Leyce)	135.5	Industrial Tree Plantation	33.5
Agro Industry Technology Transfer Project	20.9	Tongonan Geothermal II	61.2
Metro Manila Traffic Engineering	16.1	Laog-Allucapan (Ilocos Norte) Rd. Impvt. II	21.7
Fisheries Ports (Cadiz, Cebu, Tacloban, Cagayan de Oro and Davao)	15.2	West Leyce Road Improvement Stage 1.	22.4
Rural Power Development (15 minihydro, 11 dendro-thermal in Bicol, Cagayan de Oro and Iloilo)	2.8	Manila Radial Road No. 10 and related roads	6.0
Philippine National Railway (North Main Line Rehab)	2.0	Nationwide Flood Control Dredging Proj	11.7
Lower Agusan Development Project	1.4	Kohol Irrigation Proj. I	15.6
Flood Forecasting and Warning System Project	15.1	Port Irene Dev'pt Proj (detailed eng. design)	1.3
TOTAL (8 Projects)	209.0	Malilipot (Albay) & San Fernando (LA Union) EPZ (detailed eng. design)	1.9
(CONVERSION \$239-\$1)		Provincial Water Supply (Lungs Viñar, Ilocos Norte), (Legaspi, Davao, Nicosol), (Tagbilaran, Bohol) (detailed eng. design)	0.6
		Rural Telecoms Dev (Reg I & II - Phase II)	50.0
		Rural Telecoms Dev (Reg III & IV - det. Eng)	0.8
		ENR Southern Luzon (Stage II)	40.2
		Rail Car Maintenance Depot	18.4
		Export Ind. Modernization II	35.0
		Bacon-Manito Geothermal Develop I	56.9
		TOTAL (18 Projects)	\$367.2mn
			\$2242.4mn
		TOTAL	\$650.0mn

World Bank's Lending Program 1982-84 (Fiscal Years)<sup>a/</sup>

Projects	FY1982 Amount (\$ mn)	Projects	FY1983 Amount (\$ mn)	Projects	FY1984 Amount (\$ mn)
1) Agricultural Support Services	45.0	1) Coal Engineering	30.0	1) Rural Electrification II	60.0
2) National Fisheries Development	19.0	2) Communal Irrigation	70.0	2) Telecommunication	100.0
3) Urban Engineering	8.0	3) Geothermal Exploration	120.0	3) Land Bank II	50.0
4) Textile Sector Loan	160.0	4) DBP Commercial Crops PR	80.0	4) DFC II - Apex (Industrial Finance)	200.0
5) Education VIII (Skills Training)	24.0	5) Rural Water Supply	35.0	5) DBP	100.0
6) Structural Adjustment II	250.0	6) Land Settlement II	70.0	6) Rainfed Agriculture II (Zamboanga)	60.0
7) Small and Medium Ind. III	145.0	7) Regional Development (Region VII Central Visayas)	80.0	7) Provincial Water Supply II	100.0
		8) Urban IV (Regional Cities)	90.0	8) Urban V	90.0
<b>TOTAL (7 projects)</b>	<b>651.0</b>	<b>TOTAL (8 projects)</b>	<b>575.0</b>	<b>TOTAL (8 projects)</b>	<b>760.0</b>

<sup>a/</sup> Fiscal Year - 1 July-30 June.

Summary of ADB Lending Operations in the Philippines, 1969-1981

Project	Loan No.	Total Cost Excluding Interest	Amount of Loan (\$ million)	Foreign Exchange Component (\$ million)	I D C Included In Loan (\$ million)	Local Currency Financing (\$ million)	Co-financial (\$ million)	Date of Approval
First TPCP	9-PHI	5.00	5.00	5.00	-	-	-	04 Mar 1969
Cotabato Irrigation <sup>a/</sup>	11-PHI	4.58	2.50	2.50	-	-	-	10 Nov 1969
Second TPCP	51-PHI	15.00	15.00	15.00	-	-	-	17 Dec 1970
Cotabato-Cebu Santos Road	56-PHI	16.90	10.60	9.88	.72	-	8.25	23 Dec 1970
Avoceta Port <sup>b/</sup>	61, 62-PHI	7.22	5.30	4.95	.35	-	(OPIC)	04 Mar 1971
First Mindanao Power	77-PHI	37.82	23.40	20.28	3.12	-	-	02 Nov 1971
Second Mindanao Power	96-PHI	34.00	21.00	18.00	3.00	-	-	13 Jul 1972
Talasa-Davao Road	106-PHI	35.35	22.25	19.42	2.83	-	-	09 Nov 1972
Cotabato Port	126-PHI	9.90	6.60	5.62	.98	-	-	03 Apr 1973
Agua Mazar Integrated Agriculture <sup>c/</sup>	134, 135-PHI	16.50	9.60	8.64	.76	-	-	28 June 1973
Zafra-Lita, Rosa Road	136-PHI	6.15	3.60	3.17	.43	-	-	28 Jun 1973
Javao del Norte Irrigation	152-PHI	7.20	4.20	3.50	.70	-	-	22 Nov 1973
Manila International Airport	164-PHI	47.60	29.60	24.00	1.60	-	-	11 Dec 1973
Third TPCP	175-PHI	25.00	25.00	25.00	-	-	-	21 Dec 1973
Third Manila Water Supply	190-PHI	1.29	1.00	1.00	-	-	65.00 (IMRD)	28 Aug 1974
Third Mindanao Power	196-PHI	13.20	5.80	5.80	-	-	-	07 Nov 1974
Agua del Sur Irrigation <sup>c/</sup>	210-PHI	74.60	22.70	29.42	3.85 <sup>d/</sup>	-	9.60 (Japan Manila)	17 Dec 1974
Supplementary - 1st and 2nd Mindanao Power	223-PHI	24.00	13.50	6.60	2.90	3.90	-	26 Jun 1975
Abanog River Irrigation <sup>b/</sup>	225-PHI	1.33	.50	.60	-	-	-	14 Aug 1975
Mindanao Secondary and Feeder Roads <sup>b/</sup>	227-PHI	45.22	23.50	22.72	4.88	-	-	09 Dec 1975
Laguna de Bay Development <sup>b/</sup>	246-PHI	25.00	25.00	25.00	-	-	-	09 Dec 1975
First DCP	267-PHI	35.37	16.80	10.50	2.70	3.60	-	16 Dec 1975
Provincial Cities Water Supply	251-PHI	37.33	24.20	20.42	3.78	-	-	25 Mar 1976
Philippine National Railway	257-PHI	25.00	25.00	25.00	-	-	-	25 Jun 1976
Fourth TPCP	268-PHI	40.90	15.00	15.00	-	-	-	07 Dec 1976
Second Davao del Norte Irrigation	265-PHI	118.10	52.00 <sup>e/</sup>	53.00	10.00 <sup>e/</sup>	-	10.00 (Gulf for La Yrao Bah, Germany and KTC)	21 Dec 1976
Third Mindanao Power	291-PHI	43.90	22.00	14.50	5.50	2.50	-	01 Sep 1977
Agua River Irrigation <sup>b/</sup>	305-PHI	26.00	16.00	12.97	2.57	4.46	-	01 Sep 1977
Engineering Education and Improvement <sup>c/</sup>	306-PHI	80.85	45.00	36.80	6.35	4.00	-	29 Sep 1977
Second DCP	308-PHI	35.00	35.00	35.00	-	-	-	29 Nov 1977
First Mindanao Power	311-PHI	50.80	25.29	25.29	3.84	-	-	09 Dec 1977
First River Irrigation <sup>c/</sup>	326-PHI	47.20	23.50	14.70	4.80	4.00	-	11 Mar 1978
Second Agusan Irrigation <sup>c/</sup>	302-PHI	31.00	14.00	14.00	-	-	-	31 Oct 1978
Agua de Bay Fish Pen Development	371-PHI	23.06	9.00	11.00	-	2.50	4.50 (OPIC)	01 Dec 1978
Mindanao Secondary and Feeder Roads <sup>b/</sup>	379-PHI	37.90	24.00	16.50	3.00	4.00	-	12 Dec 1978

Project	Loan No.	Total Cost Including Interest During Construction (\$ million)	Amount Of Loan (\$ million)	Foreign Exchange Component (\$ million)	I D C Included To Date (\$ million)	Local Financing (\$ million)	Co-financing (\$ million)	Date of Approval
Philippine Investors System Organization	405-PHI	15.00	15.00	15.00	-	-	-	12 Jul 1979
Third Mindanao Irrigation Study	407-PHI	2.30	1.70	1.70	-	-	-	26 Jul 1979
Beafile Port	412-PHI	79.60	27.00	39.00	-	12.25	12.25	27 Sep 1979
Northern Palawan Fisheries Development	413-PHI	27.50	18.00	13.80	3.00	1.20	(USA)	27 Sep 1979
Bigot River Basin Irrigation Development	417-PHI	32.70	41.00	28.00	6.00	10.00	5.8 (ZEC)	25 Oct 1979
Palawan Coal Development	423-PHI	22.00	14.00	24.00	-	-	-	19 Mar 1979
Sixth Mindanao Power	427-PHI	225.10	60.70	108.20	11.80	-	38.5 (Australia France)	27 Nov 1979
Fitch POCF	442-PHI	30.00	30.00	30.00	-	-	-	17 Dec 1979
Dukidnon Irrigation	406-PHI	39.40	15.00	15.00	-	3.40	3.50 (OPFEC)	26 Jul 1979
Manila Sewerage	437-PHI	117.40	42.80	86.20	-	5.0	63.0 (SAB)	24 Jun 1980
Second Road Improvement	477-PHI	46.00	30.00	21.50	3.5	-	-	30 Oct 1980
Nezros and Mindanao River Transmission	482-PHI	113.70	60.50	60.50	-	-	-	18 Nov 1980
Second PISO	487-PHI	25.00	25.00	25.00	-	-	-	27 Nov 1980
Second Laguna de Bay Irrigation	466-PHI	50.80	20.00	25.80	-	1.7	7.5 (OPFC)	25 Sep 1980
Palawan Integrated Area Development Project	528-PHI	85.00	47.00	36.55	-	15.00	7.00 (ZEC)	29 Sep 1981
Technical and Vocational Education Project	531-PHI	38.50	27.00	24.50	3.50	2.50	-	08 Oct 1981
Rural Electrification Project	542-PHI	218.66	87.50	102.88	-	10.00	25.03 (OPFC Norway)	17 Nov 1981
Water Supply Sector Project	545-PHI	70.28	46.00	41.15	7.00	5.00	-	25 Nov 1981
Smallholder Livestock Development Project	548-PHI	22.20	8.00	12.00	-	2.00	8.00 (ZPAD)	25 Nov 1981
		2,798.09	1,346.85	1,449.66	100.79	80.76	287.93	
		(A)	(B)	(C)	(D)	(E)	(F)	
Total Excluding DFI Loans		2,598.09	1,166.85	1,249.48	100.79	80.76	287.93	
		(G)	(H)	(I)	(J)	(K)	(L)	

- Notes:
- a/ NTC to finance \$1.0 million in interest during construction
  - b/ \$100,000 financed by T.A. grant
  - c/ ADF financing
  - d/ OCR and ADF financing
  - e/ NTC to finance \$1.5 million interest during construction
  - f/ \$150,000 financed by T.A. grant
  - g/ Includes \$0.5 million from previous T.A. loan
  - h/ Includes \$0.1 million local currency financing

- Notes:
- (1) Per cent of total project costs financed by bank (exclusive of DFI loans) (H/G) 44.10 per cent
  - (2) Per cent of total foreign exchange investments costs financed by bank (exclusive of DFI loans) (H-(I+E) I) 77.23 per cent
  - (3) Per cent of total foreign exchange costs, inclusive of interest during construction and DFI loans financed by the bank ( (H-E)/(G+E) 32.5 million) (refer footnotes a/ and g/ above) 81.51 per cent
  - (4) Per cent of total local currency costs financed by bank (exclusive of DFI loans) (L/(G- (I+D)+J) 5 million) 6.50 per cent

USAID Program FY 1982<sup>a/</sup>  
(Philippines)

Projects	Amount (\$ mn)
<u>Agriculture, Rural Development and Nutrition</u>	<u>15.74</u>
1) Integrated Agr. Production and Marketing	1.00
2) Fresh water Fisheries	0.20
3) PVO <sup>b/</sup> Co-financing	0.79
4) Farm System Development - E. Visayas	9.36
5) Local Resource Management	8.89
6) Material Resource Management	4.50
<u>Population</u>	<u>16.70</u>
Population Planning III	16.70
<u>Health</u>	<u>4.60</u>
1) Barangay Water Supply II	2.60
2) PVO Co-financing	0.30
3) Population Planning III	1.70
<u>Education and Human Resources</u>	<u>1.09</u>
1) Agricultural Education Outreach	0.79
2) PVO Co-financing	0.30
<u>Selected Development Activities</u>	<u>0.80</u>
PVO Co-financing	0.80
Subtotal Development Assistant	<u>38.93</u>
<u>Economic Support Fund (ESF)</u>	<u>50.00</u>
<u>PL 480 Title II</u>	<u>19.20</u>
TOTAL Economic Assistance	<u>108.13</u>

a/ Fiscal Year - 1 October-31 September

b/ PVO - Private Voluntary Organization

USAID Proposed ODA to the Philippines (Excluding Economic Support Fund)  
(FY, \$ mn)

<u>1982</u>	<u>1983</u>	<u>1984</u>	<u>1985</u>	<u>1986</u>	<u>1987</u>
58.0	53.0	54.0	54.5	59.9	63.9



Philippines  
UNDP Third Program Cycle, 1982-1984<sup>1/</sup>  
 (US\$ Mn)

Sector	1982	1983	1984	1985	1986	Total
1. Agriculture and Natural Resources	1.8	2.6	2.7	2.7	2.3	12.1
2. Industry, Energy, Science and Technology	2.8	1.7	2.1	2.2	2.1	11.0
3. Human Resources Development	0.5	0.3	0.5	0.5	0.7	2.5
4. Infrastructure Development	0.7	0.9	0.7	0.6	0.7	3.6
5. General and Regional Development	0.9	0.5	0.9	0.9	1.1	4.3
Spill-Over Reserve	3.1	-	-	-	-	3.1
	-	-	-	-	-	9.2
<b>TOTAL</b>	<u>9.8</u>	<u>6.0</u>	<u>6.9</u>	<u>6.9</u>	<u>6.9</u>	<u>46.0</u>

<sup>1/</sup> Calendar years.

## 8 フィリピン基礎情報



PHILIPPINES

SOCIAL INDICATORS DATA SHEET

	1960 <sup>a/</sup>	1970 <sup>a/</sup>	Most Recent <sup>a/</sup> Estimate
Land Area ('000 sq.km.)			
Total	300.0		
Agricultural	90.8		
GNP Per Capita (US\$)	150.0	240.0	600.0
Energy Consumption Per Capita (kilograms of coal equivalent)	159.1	292.9	355.9
Population and Vital Statistics			
Total population, mid-year (millions)	27.4	36.9	46.7
Urban Population (per cent of total)	30.3	32.9	35.9
Population Density			
Per sq. km.	91.0	122.3	155.8
Per sq.km.agricultural land	360.0	472.0	502.6
Population Age Structure (per cent)			
0 - 14 years	44.6	45.5	44.3
15-64 years	52.4	51.6	52.6
65 years and above	3.0	2.9	3.1
Population Growth Rate (per cent)			
Total	2.7	3.0	2.6
Urban	3.8	3.8	3.6
Crude Birth Rate (per thousand)	45.7	39.2	34.4
Crude Death Rate (per thousand)	15.6	10.8	8.2
Gross Reproduction Rate	3.3	2.8	2.3
Family Planning			
Acceptors, annual (thousands)	-	191.7	650.0
Users (per cent of married women)	-	2.0	37.0
Food and Nutrition			
Index of food production			
Per capita (1969 - 71 = 100)	102.0	101.1	114.0
Per Capita supply of			
Calories (per cent of requirements)	97.0	102.5	107.7
Proteins (grams per day)	45.0	50.0	53.0
of which animal and pulse	17.0	20.0	21.0
Child (ages 1-4) Mortality Rate	15.6	9.6	6.3

<sup>a/</sup> Unless otherwise noted, data for 1960 refer to any year between 1959 and 1961; for 1970, between 1969 and 1971; and for Most Recent Estimate, between 1976 and 1979.

- Not available.

	1960 <sup>a/</sup>	1970 <sup>a/</sup>	Most Recent a/ Estimate
<b>Health</b>			
Life expectancy at birth (years)	51.0	57.3	61.6
Infant mortality rate (per thousand)	98.0	80.0	65.0
Access to safe water(% of population)			
Total	-	36.0	43.0
Urban	-	-	66.0
Rural	-	-	33.0
Access to excreta disposal (% of population)			
Total	-	57.0	59.0
Urban	-	-	76.0
Rural	-	-	44.0
Population per Physician	-	-	2,758.0
Population per Nursing Person	-	3,840.0	3,115.3
Population per Hospital Bed			
Total	1,134.1	821.8	558.0
Urban	536.2	392.7	-
Rural	-	-	-
Admissions per Hospital Bed	-	30.0	-
<b>Housing</b>			
Average size of household			
Total	5.8	5.9	-
Urban	-	6.2	-
Rural	-	-	-
Average number of persons per room			
Total	-	2.3	-
Urban	-	2.1	-
Rural	-	2.4	-
Access to Electricity (% of dwellings)			
Total	16.5	23.2	36.0
Urban	-	60.4	82.0
Rural	-	6.8	10.0

a/ Unless otherwise noted, data for 1960 refer to any year between 1959 and 1961; for 1970, between 1969 and 1971; and for Most Recent Estimate, between 1976 and 1979.

- Not available.

	1960 <sup>a/</sup>	1970 <sup>a/</sup>	Most Recent a/ Estimate
<b>Education</b>			
<b>Adjusted Enrolment Ratios</b>			
Primary : Total	95.0	114.0	105.0
Male	98.0	115.0	102.0
Female	93.0	113.0	107.0
Secondary : Total	26.0	50.0	56.0
Male	28.0	59.0	65.0
Female	25.0	42.0	47.0
Vocational (% of secondary)	15.0	-	34.0
<b>Pupil-Teacher Ratio</b>			
Primary	36.0	29.0	31.0
Secondary	27.0	33.0	36.0
Adult Literacy Rate (per cent)	71.9	82.6	88.4
<b>Consumption</b>			
Passenger cars per thousand population	3.0	7.6	8.9
Radio receivers per thousand population	21.9	46.6	43.5
TV receivers per thousand population	1.4	10.9	19.1
Newspaper ("Daily General Interest") Circulation per thousand population	17.0	13.6	21.2
Cinema Annual attendance per capita	0.6	-	7.6
<b>Employment</b>			
Total Labor Force (thousands)	10,893.2	13,478.1	16,608.5
Female (per cent)	34.4	33.1	32.3
Agriculture (per cent)	61.0	53.0	46.7
Industry (per cent)	15.2	16.0	16.9
<b>Participation Rate (per cent)</b>			
Total	39.8	36.6	35.5
Male	52.1	48.6	47.6
Female	27.4	24.4	23.2
<b>Economic Dependency Ratio</b>			

a/ Unless otherwise noted, data for 1960 refer to any year between 1959 and 1961; for 1970, between 1969 and 1971; and for Most Recent Estimate between 1976 and 1979.

Not available.

	<u>a/</u> 1960	<u>a/</u> 1970	Most Recent <u>a/</u> Estimate
<b>Income Distribution</b>			
Per cent of Private Income Received by			
Highest 5 per cent of households	-	25.1	-
Highest 20 per cent of households	-	54.0	-
Lowest 20 per cent of households	-	5.3	-
Lowest 40 per cent of households	-	14.2	-
<b>Poverty Target Groups</b>			
Estimated absolute poverty income level (US\$ per capita)			
Urban	-	-	260.0 <sup>b/</sup>
Rural	-	-	195.0 <sup>b/</sup>
Estimated population below absolute poverty income level (per cent)			
Urban	-	-	32.0 <sup>b/</sup>
Rural	-	-	41.0 <sup>b/</sup>

a/ Unless otherwise noted, data for 1960 refer to any year between 1959 and 1961; for 1970, between 1969 and 1971; and for Most Recent Estimate, between 1976 and 1979.

b/ 1980.

- Not available.

Source: IBRD Report No.P-3150-PH, Report and Recommendation of the President of the IBRD to the Executive Directors on a Proposed Loan to the Republic of the Philippines for an Urban Engineering Project, 17 November 1981.

**BASIC DATA**  
(As of May 1982)

Area	Population	Density
300,000 km <sup>2</sup>	49.53 million (mid-1981) Rate of growth: 2.6% (1972-81)	165 persons/km <sup>2</sup>

**Social/Development Indicators**

Life expectancy at birth (year)	64 (1980)
Access to safe water in urban areas (% of population)	66 (1977)
Access to safe water in rural areas (% of population)	33 (1977)
Primary school enrollment (%) <sup>a/</sup>	105 (1977)
Adult literacy ratio (%)	88 (1976)
Calories intake per day per capita (Cal)	2,342 (1979)
Protein intake per day per capita (Gram)	53 (1979)
Persons per physician	1,136 (1979)
Energy consumption per capita (kg.coal equivalent)	321 (1978-80 Average)

**Income distribution**

% of Households	% of Income (1975)	% of Income (1st Qtr. 1979)
Highest 10%	39	42
Highest 20%	53	58
Lowest 20%	6	3
Lowest 10%	2	1

	1978	1979	1980	1981
Labor Force ('000) <sup>b/</sup>	17,363	18,440	18,543	...
Employed	16,668	17,795	17,746	...
Agriculture	8,807	8,969	9,441	...
Manufacturing	1,916)	8,826	8,305	...
	5,945)			

**Gross National Product (GNP)**

GNP at current market prices (P Mn)	178,067	218,263	264,265	313,563
GNP at 1972 constant prices (P Mn)	83,070	88,128	92,930	97,446
Growth rate (%)	6.8	6.1	4.4	3.8
Per capita GNP (US\$) <sup>c/</sup>	570	640	710	...

**GDP (at 1972 market prices)**

by industry	100.0	100.0	100.0	100.0*
Agriculture, forestry & fishery	26.1	25.8	25.5	25.4
Mining & manufacturing	27.7	27.9	28.0	28.0
Construction	7.1	7.2	7.5	7.6
Electricity & water supply	0.9	1.0	1.0	1.0
Transportation & communications	5.4	5.3	5.2	5.2
Commerce	20.0	20.6	20.6	20.6
Other services	12.4	12.2	12.2	12.2

<sup>a/</sup> Total number of pupils enrolled in the first six grades regardless of age divided by 7-12 years old base population. Since all 7-12 year olds are in school plus some six year and 12 year olds, the numerator exceeds the 7-12 base population.

<sup>b/</sup> Labour force refers to population 15 years old and over. Annual figures relate to May of each year except for the 1980 figures which refer to the third quarter.

<sup>c/</sup> World Bank estimates using 1978-1980 as base period.

\* Preliminary



	1978	1979	1980	1981
<b>GDP (at 1972 market prices)</b>				
by expenditure (%)	100.0	100.0	100.0	100.0*
Private consumption	65.1	64.2	63.8	63.7
Government consumption	9.4	9.1	9.0	9.0
Gross capital formation	27.8	28.5	28.7	28.0
Net exports of goods & services	-2.9	-4.1	-2.4	-1.7
Statistical discrepancies	0.2	1.9	0.8	0.8
Net factor income from the rest of the world	0.4	0.4	0.1	0.2
<b>Savings Ratio</b>				
Domestic savings as % of GDP, market prices	24.2	24.9	24.7	24.4
Domestic savings as % of gross domestic investmetn	83.8	83.6	81.5	82.2
<b>Production Indexes</b>				
Agriculture (1978 = 100)	100.0	99.4	109.1	...
Growth rate (%)	...	-0.6	9.8	...
Manufacturing (1972=100)	126.4	131.8	137.8	...
Growth rate (%)	5.0	4.3	4.6	...
Electricity (1978 = 100)	100.0	110.1	120.8	130.0*
Growth rate (%)	...	10.1	9.7	7.9
<b>Price Indexes <sup>a/</sup></b>				
Wholesale (Metro Manila, 1978 = 100)	100.0	119.0	140.8	156.7
Annual increase (%)	...	19.0	18.3	13.4
Consumer (Metro Manila, 1972 = 100)	202.9	241.1	284.1	317.7
Annual increase (%)	7.6	18.8	17.8	11.8
<b>Money and Credit</b>				
Money supply (P Mn)	16,946	18,844	22,537	23,332
Annual change (%)	13.4	11.2	19.6	3.5
Commercial banks				
Time & savings deposits (P Mn)	34,051	44,601	59,838	77,821
Loans & discounts (P Mn)	48,897	62,877	77,439	87,882
<b>Government Finance <sup>c/</sup> (P Mn)</b>				
Current revenue	23,970	29,980	34,223	35,833
Current expenditure	17,519	20,158	23,360	27,960
Current account surplus	6,451	9,822	10,863	7,873
Capital expenditures	8,577	11,492	15,298	19,250
Budget surplus (deficit)	(2,126)	(1,670)	(4,435)	(11,377)
Financing account				
Gross borrowings	5,115	5,003	5,317	16,715
Debt amortization	1,010	1,010	1,266	1,682
Net borrowings	4,105	3,993	4,051	15,033

a/ For 1981 all figures are preliminary.

b/ Narrowly defined money supply.

c/ Obligation basis. Preliminary.

	1978	1979	1980	1981 (I-III qtr.)
<b>Balance of Payments (US\$Mn)</b>				
Exports (f.o.b.)	3,425	4,601	5,788	4,362
Imports (f.o.b.)	-4,732	-6,142	-7,727	-6,007
Trade balance	-1,307	-1,541	-1,939	-1,645
Services (net)	-178	-390	-546	-288
Transfers (net)	312	355	434	346
Current balance	-1,173	-1,576	-2,051	-1,587
Capital flows	1,230	1,200	1,861	1,224
Private long-term capital	381	262	541	647
Government capital	709	842	1,064	-1
Private short-term capital	140	96	256	578
Net errors & omissions	-143	-263	-348	-287
Monetization of gold	32	41	128	263
Valuation changes in reserves	-	-	-	136
Overall balance	-54	-598	-410	-387
<b>Leading Export Commodities (%)</b>				
Coconut oil	18.1	16.1	9.6	9.4
Copper concentrates	7.3	9.6	9.4	7.2
Logs & lumber	6.7	7.5	4.7	3.5
Sugar (centrifugal)	5.8	4.6	10.8	9.7
Copra	4.0	1.9	0.8	0.5
<b>Leading Import Commodities (%)</b>				
Petroleum, petroleum products & related materials	20.6	21.6	27.8	31.3
Machinery other than electric	15.1	14.8	12.8	11.6
Transport equipment	8.1	8.6	6.8	6.0
Base metals	8.0	8.9	6.5	5.0
Electric machinery	4.2	3.6	4.0	4.8
<b>Terms of Trade (1972 = 100)</b>	78.8	87.4	68.6	58.3
<b>Exchange Rate (P/\$)<sup>a/</sup></b>	7.3750	7.4150	7.6000	8.2000
<b>International Reserves</b>				
Total (end of year, US\$ Mn)	1,881	2,416	3,140	2,574
Ratio to merchandise imports (mos.)	4.8	4.7	4.9	3.9
<b>External Public Debt (US\$ Mn)</b>				
Outstanding (including disbursed, end year)	7,744.7	8,729.1	10,532.5	...
Outstanding (disbursed only, end year)	4,167.0	5,143.2	6,402.2	...
Service Payments (during year)	641.3	808.1	561.7	...
Debt Service Ratio (%) <sup>by</sup>	13.2	13.1	7.1	...

a/ End of period market exchange rate.

b/ Lower figure in 1980 due to smaller principal repayment in that year.

\* Preliminary





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