

# 資 料

- 資料 1 調査団員名簿
- 資料 2 調査行程
- 資料 3 関係者(面会者)リスト
- 資料 4 討議議事録(現地調査時)
- 資料 5 討議議事録(基本設計概要説明時)
- 資料 6 事業事前計画表(基本設計時)
- 資料 7 ソフトコンポーネント計画書
- 資料 8 収集資料リスト
- 資料 9 添付図表
- 資料 10 基本設計図

# 資料 1

## 調査団員名簿

調査団員名簿

Member of the Study Team

フィリピン国「パンパンガ・アグノ河洪水予警報システム改善計画」基本設計調査

The Basic Design Study on  
the Project for Rehabilitation of Flood Forecasting and Warning System  
in the Pampanga and Agno River and Basins

1. 米林 徳人 (Mr. Norihito YONEBAYASHI)  
総括 (Leader)  
独立行政法人国際協力機構 無償資金協力部 業務第三グループ 水資源・環境チーム  
(Water Resources Development and Environmental Management Team, Project Management Group III, Grant Aid Management Department, JICA)
2. 奥田 真人 (Mr. Masato OKUDA)  
業務主任／洪水予警報システム計画  
(Chief Consultant／Flood Forecasting and Warning System Planner)  
日本工営株式会社  
(NIPPON KOEI Co., Ltd.)
3. 東 靖 (Mr. Yasushi AZUMA)  
電気通信／無線計画  
(Telecommunication／Wireless Radio System Planner)  
日本工営株式会社  
(NIPPON KOEI Co., Ltd.)
4. 森澤 國浩 (Mr. Kunihiro MORISAWA)  
洪水予警報施設計画  
(Flood Warning Facility Planner)  
日建システム株式会社  
(NIKKEN SYSTEM Co., Ltd.)
5. 森寄 成宏 (Mr. Narihiro MORISAKI)  
水文解析／河川状況  
(Hydrology／River Analyst)  
日本工営株式会社  
(NIPPON KOEI Co., Ltd.)
6. 西村 浩一 (Mr. Koichi NISHIMURA)  
調達計画／機材積算  
(Equipment Procurement Planner / Cost Estimator)  
日本工営株式会社  
(NIPPON KOEI Co., Ltd.)

資 料 2

調 查 行 程

## 現地調査日程

日順	月日	曜日	宿泊地	官団員		コンサルタント団員										
				JICA 米林	奥田	東	森岩	森澤	西村							
1	10月17日	火	マニラ						成田 (JL741/9:40)→ フィリピン(13:05)							
2	10月18日	水	マニラ						JICA表敬 PAGASA表敬、事務所 設営							
3	10月19日	木	マニラ						事務所設営 混信試験準備							
4	10月20日	金	マニラ						混信試験							
5	10月21日	土	マニラ						混信試験							
6	10月22日	日	マニラ						混信試験							
7	10月23日	月	マニラ						成田 (JL741/9:40)→フィリピン(13:05) JICA表敬		混信試験	成田 (JL741/9:40)→ フィリピン(13:05) JICA表敬				
8	10月24日	祭	マニラ						団内ミーティング・事務所設営							
9	10月25日	水	マニラ						PAGASA協議 (インセプションレポート)							
10	10月26日	木	マニラ						現地調査							
11	10月27日	金	マニラ						現地調査							
12	10月28日	土	マニラ						現地調査							
13	10月29日	日	マニラ	成田 (JL741/9:40)→ フィリピン(13:05) 調査団打合	資料整理 調査団打合	資料整理										
14	10月30日	月	マニラ	JICA表敬・打合 経済開発庁表敬	日本大使館表敬・打合 PAGASA協議	JICA表敬・打合 日本大使館表敬・打合 PAGASA協議	PAGASA協議									
15	10月31日	火	マニラ	現地視察(アグノ河流域)		防災関連機関調査 EIA調査	団内ミーティング(自然 条件調査)	混信試験、団内ミー ティング	混信試験、団内ミー ティング、現地調査結果とり まとめ							
16	11月1日	祭	マニラ	現地視察(ハンバンガ河流域)		NTC協議項目の検討 必要資料の検討	団内ミーティング(社会 条件調査)	混信試験、資料整理	NTC協議項目の検討、 資料整理							
17	11月2日	木	マニラ	天文庁表敬 合同運営維持管理委員会 (JOMC)協議			現地調査 (ハンバンガ流域)	回線検討	見積もり取得準備、資 料整理							
18	11月3日	金	マニラ	国家通信管理局(NTC)協議 PAGASAミニッツ協議			現地調査 (アグノ流域)	国家通信管理局(NTC) 協議、混信試験	国家通信管理局(NTC) 協議、見積もり取得準 備							
19	11月4日	土	マニラ	PAGASAミニッツ協議			資料整理(自然条件調 査、社会条件調査)	混信データのとりまとめ	資料整理							
20	11月5日	日	マニラ	ミニッツ署名			資料整理		ミニッツ署名							
21	11月6日	月	マニラ	JICA報告 JBIC協議	JICA報告	現地調査の準備	団内ミーティング(自然 条件、社会条件)	回線設計、団内ミー ティング	電設業者間取調査、団 内ミーティング							
22	11月7日	火	マニラ	PAGASA協議 マニラ (JL742/14:25) →成田 (19:45)	DPWH (Measure Flood Control Office) 打合 OCD調査・打合	現地調査	DPWH (Measure Flood Control Office) 打合 OCD調査・打合	OCD調査・打合 回線設計	現地調査							
23	11月8日	水	マニラ		DPWH (BOD) 打合 PAGASA 打合	現地調査	DPWH (BOD) 打合 PAGASA 打合	DPWH (BOD) 打合 PAGASA 打合 回線設計	現地調査							
24	11月9日	木	マニラ		NTC 打合	現地調査	現地再委託業務打合 せ(自然、社会条件調 査)	NTC 打合、混信デー タのとりまとめ	現地調査							
25	11月10日	金	マニラ		NPC 打合 団内ミーティング	OCD調査 NIA調査 NPC 打合 団内ミーティング	団内ミーティング	OCD調査 NIA調査 NPC 打合 団内ミーティング	OCD調査 NIA調査 NPC 打合 団内ミーティング							
26	11月11日	土	マニラ	団内ミーティングおよび資料整理・分析、												
27	11月12日	日	マニラ	資料整理												

日順	月日	曜日	宿泊地	官団員	コンサルタント団員				
				JICA 米林	奥田	東	森寄	森澤	西村
28	11月13日	月	マニラ		PAGASA協議 社会調査打合 徳永専門家打合 開発調査チーム打合	資料収集	PAGASA協議 社会調査打合 徳永専門家打合 開発調査チーム打合	回線設計のとりまとめ、 通信方式の検討	輸送業者2社に聞取調査
29	11月14日	火	マニラ		堂園専門家打合 DPWH打合 通信方式打合	通信方式打合	堂園専門家打合 DPWH打合	通信方式打合	通信方式打合 保険会社2社に聞取調査
30	11月15日	水	マニラ		維持管理情報の収集・ 検討	現地調査		マニラ(JL746/9:40)→ 成田(14:40)	保険会社2社に聞取調査 ケーブルメーカー調査
31	11月16日	木	マニラ		維持管理情報の収集・ 検討	現地調査			工事業者2社聞取り調査
32	11月17日	金	マニラ		団内ミーティング(観測 所配置) 施設設計(観測建屋)	鉄塔構造計算会社と協 議 団内打合せ	団内ミーティング(観測 所配置) 施設設計(観測建屋)		工事業者聞取り調査 PAGASAとの現地調達 品に関する打合せ
33	11月18日	土	マニラ		PAGASA協議(観測所 配置)	各観測現地調査データ の整理	PAGASA協議(観測所 配置)		資料整理・分析、
34	11月19日	日	マニラ		団内ミーティング(施設 設計、観測所配置)	団内ミーティング 各観測現地調査データ の整理	団内ミーティング(施設 設計、観測所配置)		団内ミーティングおよび 資料整理・分析、
35	11月20日	月	マニラ		災害情報の収集・検討	現地調査 (パンパンガ流域、追加水位・雨量観測所)			工事業者見積打診 電設業者見積打診
36	11月21日	火	マニラ		EFCOS調査・打合	EFCOS調査・打合 施工計画の検討	EFCOS調査・打合		電源設備メーカー聞取調 査・見積打診
37	11月22日	水	マニラ		NEDA打合 DPWH調査	DPWH調査	DPWH調査		電源設備メーカー聞取調 査・見積打診
38	11月23日	木	マニラ		OCD調査・打合	水位計設置の検討 新規雨量局位置検討	OCD(NDCC)打合 社会条件調査結果の 検討		保険会社聞取調査
39	11月24日	金	マニラ		基本情報の収集・検討	上記の無線回線の検 討	施設設計(観測建屋) 社会条件調査結果の 検討		市場調査、資料整理
40	11月25日	土	マニラ		PAGASA協議 団内ミーティング(社会 条件調査)	PAGASA打合	PAGASA協議 団内ミーティング(社会 条件調査)		PAGASA打合
41	11月26日	日	マニラ		資料整理		施設設計(観測建屋)		資料整理
42	11月27日	月	マニラ		DPWH打合 NIA打合 科学技術省大臣面会	積算資料の検討 局舎設計 科学技術省大臣面会	PAGASA協議(追加雨 量観測所) 科学技術省大臣面会		輸送業者聞取調査、 資料整理 科学技術省大臣面会
43	11月28日	火	マニラ		NTC打合 団内ミーティング		団内ミーティング(施設 設計) 調査結果検討(自然条 件調査)		団内ミーティング 資料整理
44	11月29日	水	マニラ		NPC協議 団内ミーティング PAGASA協議		PAGASA協議 調査結果検討(社会条 件調査)		PAGASA協議、水位計 メーカー聞取り調査・見積 打診
45	11月30日	木	マニラ		JICA報告 帰国準備		帰国準備		帰国準備
46	12月1日	祭	マニラ		マニラ(JL746/9:40)→ 成田(14:40)	資料整理	マニラ(JL746/9:40)→ 成田(14:40)		マニラ(JL746/9:40)→ 成田(14:40)
47	12月2日	土	マニラ			図面のCAD指示 図面リストの作成			
48	12月3日	日	マニラ			資料整理			
49	12月4日	月	マニラ			マイクロ波多重設計バ ラメータ作成と協議。 図面のCAD作成指示。			
50	12月5日	火	マニラ			JICA表敬 残務フォロー			
51	12月6日	水				マニラ(JL746/9:40)→ 成田(14:40)			

基本設計調査概要書説明 日程

日順	月日	曜日	宿泊地	官団員	コンサルタント団員	
				JICA 米林	奥田	東
1	3月13日	火	マニラ		成田 (JL741/9:40)→フィリピン(13:05) PAGASA表敬	
2	3月14日	水	マニラ	調査団打合	PGASA協議 (基本設計調査概要書説明) 調査団打合	
3	3月15日	木	マニラ	日本大使館表敬・打合 国家通信管理局(NTC)協議 科学技術省大臣(次官)表敬・協議		
4	3月16日	金	マニラ	PAGASA DG 表敬 パンパンガ関係機関との協議 パンパンガサブセンター候補地調査		
5	3月17日	土	マニラ	PAGASA協議		
6	3月18日	日	マニラ	ミニッツ作成・資料整理		
7	3月19日	月	マニラ	合同運営維持管理委員会協議 PAGASA協議 ミニッツ署名	合同運営維持管理委員会協議 DPWH協議 ミニッツ署名	合同運営維持管理委員会協議 PAGASA協議 ミニッツ署名
8	3月20日	火	マニラ	在フィ日本大使館報告 JBIC事務所報告	DPWH協議	サンラフェル無線中継局候補地調査 サンフェルナンドサブセンター候補地調査
9	3月21日	水	マニラ	マニラ (JL742/14:25)→成田 (19:45)		

## 資料 3

### 関係者(面会者)リスト



## 関係者リスト

### Person in Charge of the Project

(フィリピン側)

1. 経済開発省 (NEDA: National Economic and Development Authority )
  - 1) Mr. Roderick M PLANTA (Project Monitoring Staff)
  - 2) Mr. Jose S. MONTERO(Assistant Director, Project Monitoring Staff)
2. 科学技術省 (DOST: Department of Science and Technology)
  - 1) Ms. Estrella F. ALABASTRO. Secretary
  - 2) Mr. Graciano P. YUMUL, JR., D.Sc.Undersecretary
  - 3) Mr. Martin F. RELLIN, JR. Director
3. 気象天文庁 (PAGASA: Philippine Atmospheric, Geophysical and Astronomical Administration)
  - 1) Dr. Prisco D. Nilo Deputy Director, PAGASA
  - 2) Ms. Rosa T. PEREZ, Ph. D. Weather Service Chief, FFB
  - 3) Ms. Susan R. Espinueva Chief Engineer
  - 4) Mr. Armond P. Taruc Chief Engineer, HISS (PAMPANGA)
  - 5) Mr. Mario I. Dungca Chief Engineer, TSSS
4. 灌漑省 (NIA: National Irrigation Administration)
  - 1) Mr. Gregorio S. DUMANDAN, CESO V (Manager, Equipment Management Dep.)
5. 電気通信庁 (NTC: National Telecommunications Commission)
  - 1) Mr. Efren R. CABANLIG (Director, Radio Regulations and Licensing Dep.)
  - 2) Mr. Joselito C. LEYNES (Officer-In-Charge, Frequency Management Division)
6. 市民防衛局 (OCD: Office of Civil Defense )
  - 1) Ms. Engr. Agnes T. PALACIO (Chief Operations Division)
7. 公共事業道路省 (DPWH: Department of Public Works and Highways)
  - 1) Mr. Andy SOSA (Director Cluster ii Major Flood Control Project)
8. 国家電力公社 (NPC: National Power Corporation)
  - 1) Mr. Arex SALADA (Chief Dams Reservoir Division)
  - 2) Mr. O.A.A. PALADA (Chief, NPC FFWS)

(日本側)

1. 在フィリピン日本大使館
  - 1) 杉山公使
  - 2) 坂井二等書記官
2. JBIC フィリピン事務所
  - 1) 渡辺氏
  - 2) 馬場氏

3. JICA フィリピン事務所

- 1) 松浦所長
- 2) 岩上次長
- 3) 鹿目所員
- 4) Ms. Mae Silvanette D. LEYSON (National Staff Program Assistant)
- 5) Ms. Minnie M. DACANAY (In-House Consultant, Planning & Coordination Section)

4. 専門家

- 1) 徳永専門家 (FCSEC: Flood Control and Sabo Engineering Center)
- 2) 光永専門家 (FCSEC: Flood Control and Sabo Engineering Center)
- 3) 堂園専門家 (DPWH: Department of Public Works and Highways)

5. 開発調査メンバー

- 1) 富田氏 (建設技研インターナショナル)
- 2) 近藤氏 (建設技研インターナショナル)

## 資料 4

### 討議議事録(現地調査時)

MINUTES OF DISCUSSIONS  
ON BASIC DESIGN STUDY  
ON "THE PROJECT FOR REHABILITATION OF FLOOD FORECASTING  
AND WARNING SYSTEM IN THE PAMPANGA AND AGNO RIVER AND BASINS"  
IN REPUBLIC OF THE PHILIPPINES


In response to a request from the Government of Republic of the Philippines (hereinafter referred to as "the Philippines"), the Government of Japan decided to conduct a Basic Design Study on the Project for Rehabilitation of Flood Forecasting and Warning System in the Pampanga and Agno River Basins (hereinafter referred to as "the Project") and entrusted the study to the Japan International Cooperation Agency (hereinafter referred to as "JICA").

JICA dispatched to the Philippines the Basic Study Team (hereinafter referred to as "the Team"), which is headed by Mr. Norihito YONEBAYASHI, Water Resources Development and Environmental Management Team, Grant Aid Management Department, JICA Headquarter, and is scheduled to stay in the country from October 17 to December 6, 2006.

The Team held discussions with the concerned officials of the Government of the Philippines and conducted a field survey at the study area.

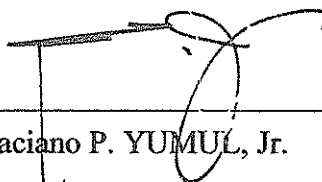
In the course of discussions and field survey, both parties confirmed the main items described in the attached sheets. The Team will proceed to further works and prepare the Basic Design Study Report.

Quezon City, November 5, 2006



---

Norihito YONEBAYASHI  
Leader  
Basic Design Study Team  
Japan International Cooperation Agency



---

Dr. Graciano P. YUMUL, Jr.  
Undersecretary  
Department of Science and Technology  
(DOST)  
Republic of the Philippines



---

Dr. Prisco D. NILO  
Officer in Charge  
Philippine Atmospheric, Geophysical and  
Astronomical Services Administration  
(PAGASA), DOST  
Republic of the Philippines

## ATTACHMENT

### 1. Name of the Project:

The Philippine side requested to change the name of the Project as "THE PROJECT FOR UPGRADING OF FLOOD FORECASTING AND WARNING SYSTEM IN THE PAMPANGA AND AGNO RIVER BASINS".

### 2. Objective of the Project:

The objective of the Project is to reduce the losses to life and property of the people through the provision of necessary, accurate and timely flood warning information by rehabilitating and upgrading the equipment and facilities of flood forecasting and warning system.

### 3. Project Sites and Area Covered by the Project:

The requested sites of the Project include Pampanga and Agno river basins, the location of which are shown in the attached Annex 1-1 and Annex 1-2. Details of each site and the Flood Forecasting and Warning System Network in the area are shown in the attached Annex 2-1 to 2-4.

### 4. Responsible and Implementing Agency:

#### 4-1) The Responsible Agency:

The Responsible Agency is the Department of Science and Technology (DOST)

#### 4-2) The Implementing Agency:

The Implementing Agency is the Philippine Atmospheric, Geophysical and Astronomical Services Administration (PAGASA), Department of Science and Technology

#### 4-3) Organization chart of Agencies:

The organization chart of DOST is shown in Annex 3-1 and PAGASA is shown in Annex 3-2.

### 5. Items requested by the Government of the Philippines:

The Philippine side requested components for the proposed Project as described in Annex 4. After discussions with the Team, the Philippine side agreed that the Team will assess the appropriateness of requests through further study and will propose the appropriate suggestions of the Project.

Both sides agreed that as a result of the further study, the Team and the Philippine side will draft appropriate revisions of the Project with priority. On this basis JICA will evaluate and finalize the requests, then recommend it to the Government of Japan.

Some equipment is requested by other agencies which are members of Joint Operation and Management Committee (JOMC).

The Team evaluates necessity of these equipment in terms of substantial relationship among the agencies and effective operation of flood control and mitigation of disasters.

### 6. Prioritization and Selection for the Project:

The Team explained that the budget for the Project would be considered by the Government of Japan by evaluating the result of the survey.

Both sides agreed that the contents of the Project would be prioritized and selected in accordance with the budget allocated for the Project as well as from the technical consideration.

7. Japan's Grant Aid Scheme:

7-1) The Philippine side understands the Japan's Grant Aid Scheme explained by the Team, as described in Annex 5-1.

7-2) The Philippine side will take the necessary measures and allocate necessary budget properly, as described in Annex 5-2, for smooth implementation of the Project, as a condition for the Japanese Grant Aid to be implemented.

7-3) The Team clarifies the necessary measures and budget to be taken by the Philippine side, besides the general measures described in Annex 5-2, by further study. If the measures will not be taken properly by the Philippine side, the Team explained that the Project would be reconsidered including cancellation by the Government of Japan.

8. Schedule of the Study:

8-1) The consultants will conduct further studies in the Philippines until December 6, 2006.

8-2) JICA will prepare the Draft Report in English and dispatch a mission in order to explain its contents around March 2007 at the earliest if some measures described in this document are addressed properly by the Philippine side.

8-3) In case that the contents of the report are accepted in principle by the Government of the Philippines, JICA will complete the final report and send it to the Government of the Philippines around March 2007 at the earliest.

8-4) The Philippine side understands that the implementation of Basic Design Study does not imply and commit the implementation of the Project.

9. Tax and Value Added Tax (VAT) :

The Team explained the reason of suspension of the Grant Aid and strongly requested that the Philippine side should take necessary measures to pay the Value Added Tax (VAT), custom duties and any other taxes and fiscal levy charges in the Philippines arising from the Project activities and they would be borne by beneficiary agencies in accordance with the implementation schedule.

The Philippine side understood the background of suspension and promised to take necessary measures for the payment of these taxes. The Philippine side also explained that budget of VAT exclusively for the Project in the Philippine fiscal year 2007 has already been secured. The amount is 21.2 million Philippine pesos, contents of which are described in Annex 6. In addition, the Philippine side promised to take necessary measures to put additional amount in time, if the allocated budget for VAT is inadequate. The budget for the Philippine fiscal year 2008 will be also arranged in accordance with the Project cost.

The Team explained that the Project would be reconsidered including cancellation by the Government of Japan if these tax-related payment issues would not be implemented properly and timely.

The Philippine side expressed confidence and optimism that this will be addressed accordingly.

10. Other Relevant Issues:

10-1) Priority of the Project:

The Philippine side explained that the Project has high priority in the Development Plan in terms of disaster mitigation, as embodied in the "Medium-Term Philippine Development Plan", "National Science and Technology Plan 2002-2020" and "The Four Point Action Plan of the National Disaster Coordinating Council (NDCC)".

10-2) Relevant Committee for the Project and its Policy:

• NDCC:

National Disaster Coordinating Council (NDCC) is the highest coordinating body of all activities related to disaster prevention, mitigation and preparedness. PAGASA is the agency to give the warning for typhoon, flood and other hydro-meteorological hazards. NDCC set up "The Four Point Action Plan" in which Upgrading the Forecasting Capability of PAGASA is the first of the four points. The function of NDCC and "The Four Point Action Plan" are shown in Annex 7.

• JOMC:

"Joint Operation and Management Committee (JOMC)" was constituted in 1991 and oversees proper operation and maintenance of all existing flood forecasting and warning systems. PAGASA is the lead agency in the organizational structure of JOMC, as described in Annex 8.

10-3) Operation and Maintenance of Facilities and Equipment:

The Team explained that capability of operation and maintenance is one of the conditions for approval of the Project. The Team will evaluate the present capability of PAGASA. If the Study indicates the necessity, the Team will propose necessary measures, allocation of additional budget and qualified personnel required for the proper and effective utilization of facilities and equipment.

The Philippine side explained the effort and progress made by PAGASA in terms of operation and maintenance of the facilities and equipment as in Annex 9.

The Philippine side promised to keep on allocating the budget continuously for the operation and maintenance.

The Philippine side also agreed to abide with the proposal of the Team as a result of the Study, in accordance with the implementation schedule of the Project. The Philippine side will officially inform the Government of Japan on the results.

The Team explained the necessity of preventive maintenance and periodic check-up of equipment and facilities. To this, the Philippine side had agreed and had expressed the same opinion.

10-4) Frequencies for Data Transmission:

The Team pointed out that there are significant interference and disturbance by other users in current frequency which prevent from sending the information accurately and timely. Since the objective of the Project is to secure accurate and timely data transmission, the Team will propose the appropriate frequency.

The Philippine side promised to secure the frequency according to the proposal of the Team and inform the result or progress to the Team before the Explanation Mission of Draft Basic Design Report.

The whole Project will be reconsidered including cancellation if these measures will not be undertaken since the appropriate frequency is most important and essential part of the Project in order to achieve the objectives of the Project.

In addition, the frequency affects the specification of all equipment.

#### 10-5) Flood Forecasting and Warning Model

The Philippine side requested for software and hardware for Inundation Modeling and Mapping as an important component of the Project. If the necessity is confirmed, this will be considered as a component of the Project.

#### 10-6) Appropriateness of Some Equipment:

The Team explained that some of the requested equipment should be excluded from the components which are recognized as consumables such as solar system and battery for the monitoring stations and they should be purchased by the Philippine side.

The Philippine side explained the necessity of these equipment and its particular purpose. During the passage of typhoon, the electric power failure occurs so often and long duration that the solar system and battery are essential to run the monitoring equipment in order to record the data without a gap. These solar and battery should last longer which should not be substituted by the regular ones. The Philippine side also strongly requested reconsideration to the Team.

The Team will inform the Japanese Government of the request. However if the request is not accepted, the Philippine side promised to procure or prepare them prior to the commencement of the Project with their own budget and officially inform the Japanese Government of the result.

The Team stressed that the whole Project would be reconsidered including cancellation if these measures will not be undertaken since the equipment for the monitoring stations are one of the major part of the Project and solar system and battery are essential to these equipment.

#### 10-7) Regional Sub-Center:

The Team recognized the importance of Regional Sub-Center in Pampanga area and will consider the equipment for the Center. However the Team explained that construction of Sub Center might be excluded from the components and proposed to be constructed or prepared by the Philippine side.

The Philippine side explained the necessity of the center and equipment which will be installed in the center. The Philippine side also requested reconsideration to the Team.

The Team will inform the Japanese Government of the request. However if the request is not accepted, the Philippine side promised to prepare the building including the acquisition of land by their own budget or inform the progress of it officially prior to the Explanation Mission of Draft Basic Design Report. The Team stressed that the relevant equipment will be excluded if these measures will not be undertaken.

In addition, the Team requested that for the effective operation of the Center, qualified personnel and maintenance cost should be allocated exclusively and the Philippine side agreed that.

#### 10-8) Technical Assistance:

The Philippine side requested the technical assistance on improving the existing flood forecasting model. The Team agreed to study its necessity and if it is confirmed, the implementation of the technical assistance as soft component program would be considered in the Project.

The Philippine side also requested the Expert on Inundation modeling and mapping since this will enhance the format and understanding of flood warning by the local communities.



10-9) Dissemination of Appropriate Forecasting and Warning Information:

The Team emphasized that objective of the Project is not only to collect the information but to give useful, accurate and timely warning information to the people in order to mitigate the disaster by using the equipment and facilities provided in the Project.

The Team strongly requested that the Philippine side should take all necessary measure to provide and disseminate the flood forecasting and warning information to the people in timely and accurate manner in close coordination with relevant agencies in order to get maximum benefit from the Project.

To achieve this purpose, the Philippine side also requested mobile flood warning dissemination equipment.

The Philippine side recognized the importance of proper dissemination referring to policy of the NDCC such as "Four Point Action Plan" and utilization of particular body such as Disaster Coordinating Council in all level from National, Regional, Provincial, Municipal and Barangay (the lowest administrative unit).

The Philippine side also explained the current system of dissemination shown in Annex 10.

10-10) Education Campaign on Disaster Prevention:

For getting the maximum benefit of the Project, it is important to educate the people on the appropriate action to be undertaken Before, During and After flood disasters.

The Philippine side explained the present situation and effort and promised to familiarize the public on the use of Flood Hazard map.

The Philippine side will submit the report of public information activities to the Team prior to the Explanation Mission of Draft Basic Design Report.

10-11) Utilization of the Existing Equipment and Facilities:

Since the existing equipment and facilities, which were provided through Japanese ODA i.e. Grant Aid, Technical assistance and Loan Scheme, have been well maintained and still in good condition, The Team requested that if the Project is approved, these should not be thrown away but be utilized or transferred to the place in need such as another monitoring station, training facility for the staff or student for further usage.

The Philippine side agreed to the request and will officially inform the Japanese Government on the usage.

10-12) Environmental Impact Assessment (EIA) or Corresponding Equivalent Document:

The Philippine side agreed to complete the EIA or the corresponding equivalent document (e.g. Certificate of Non-Coverage) and get approval before the completion of the Explanation Mission of Draft Basic Design Report at the latest according to the relevant Philippines laws, regulations and guidelines, if it is required for the Project.

The Philippine side also agreed to submit the official letter which shows the completion of EIA or equivalent document.

10-13) Land Acquisition for the Project Facilities:

If it is required, the Philippine side will coordinate with proper and relevant Government Authorities / private sector to secure the land of the proposed facilities such as monitoring stations before the Explanation Mission of Draft Basic Design Report. The Philippine side also agreed to submit the official letter which shows the completion of land acquisition.

10-14) Relevant Permission for the Project:

The Philippine side will expedite necessary procedure before the Explanation Mission of Draft Basic Design Report, if the official approval or permission is required for the components of the Project such as construction of the facility on Government or private property. The Philippine side also agreed to submit the official letter which shows the approval.

10-15) Arrangements for the Study:

As a response to the request by the Team, the Philippine side agreed to arrange counterpart personnel for the study and to provide promptly all the data and information relevant to the Project for the smooth implementation of the study.

10-16) Safety and Security:

The Team explained that security measures are indispensable for effective study. The Philippine side agreed to take the necessary measures to secure the safety of the members of the Team.

10-17) Lesson Learnt by the Past Cooperation by Japanese ODA:

The Team requested to the Philippine side that the outcome of technical transfer and the Grant Aid implemented in the past should be utilized to improve the living condition of the Filipino people.

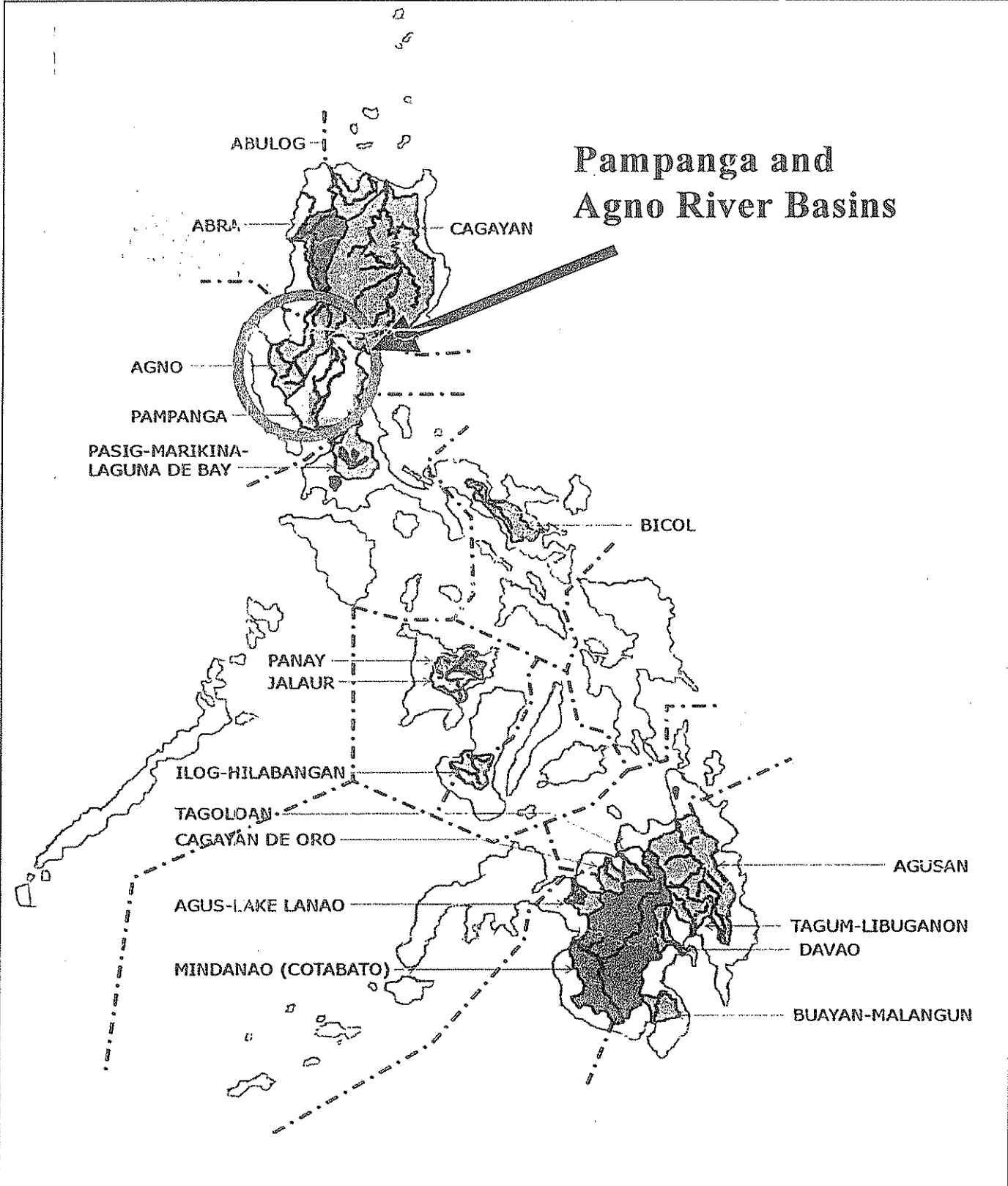
The Philippine side agreed and promised to utilize the lesson learnt from the past cooperation.

End

# ANNEX LIST

- Annex 1-1 : Location of Project Sites  
Annex 1-2 : Location of Pampanga and Agno River Basins
- Annex 2-1 : Flood Forecasting and Warning System Network  
Annex 2-2 : Pampanga System Network  
Annex 2-3 : Agno System Network  
Annex 2-4 : Current Frequency of Pampanga and Agno System Network
- Annex 3-1 : Organization Chart of Department of Science and Technology (DOST)  
Annex 3-2 : Organization Chart of Philippine Atmospheric, Geophysical and Astronomical Services Administration (PAGASA)
- Annex 4 : Items Requested by the Government of the Philippines
- Annex 5-1 : The Japan's Grant Aid Scheme  
Annex 5-2 : Major Undertakings to be taken by Each Government
- Annex 6 : Contents of Value Added Tax (VAT)
- Annex 7 :  
• The function of National Disaster Coordinating Council (NDCC)  
• "The Four Point Action Plan"
- Annex 8 :  
• Organizational structure of Joint Operation and Management Committee (JOMC)  
• Composition of JOMC and Role of PAGASA
- Annex 9 : Situation of Operation and Maintenance
- Annex 10 :  
• Information Transmission and Dissemination Scheme  
• Example of Allied Agno Flood Bulletins Dissemination Network

Location of Project Sites



Location of the Pampanga and Agno Area in Philippines

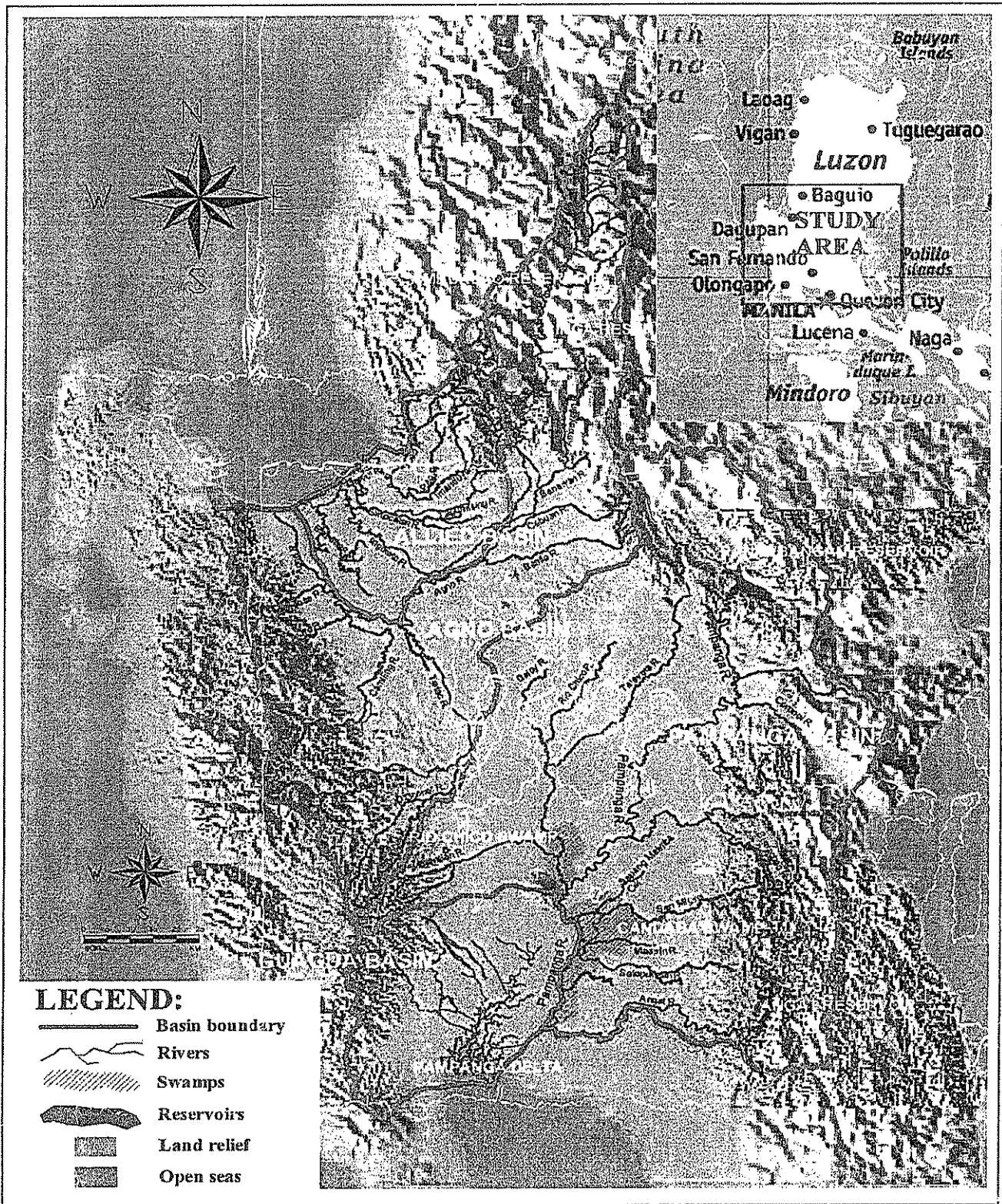
*m*

8

*huni*

└

Location of Pampanga and Agno River Basins



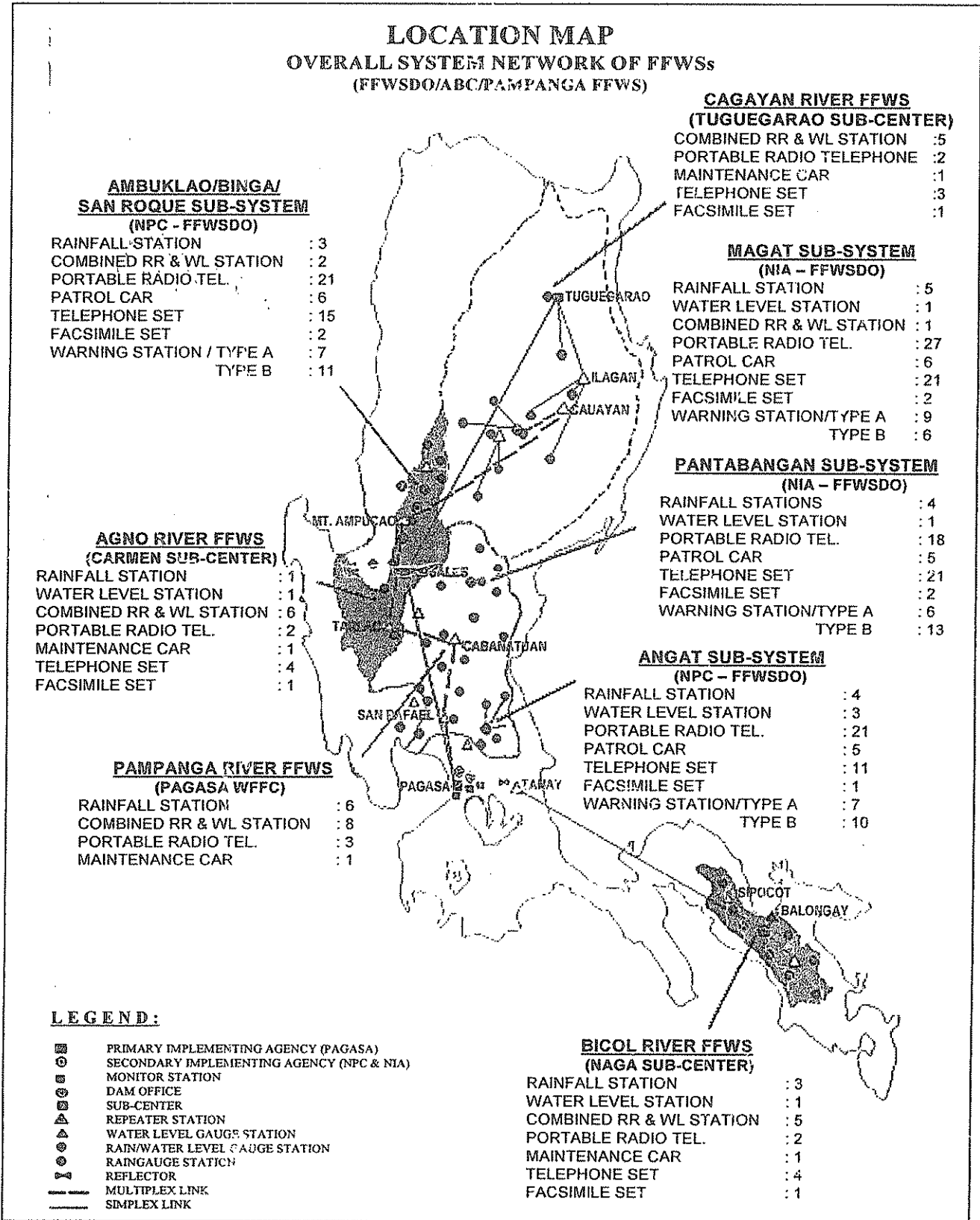
Location of the Pampanga and Agno River Basins

cy

luni

↑

Flood Forecasting and Warning System Network



Overall System Network of the Existing FFWS and FFWSDO

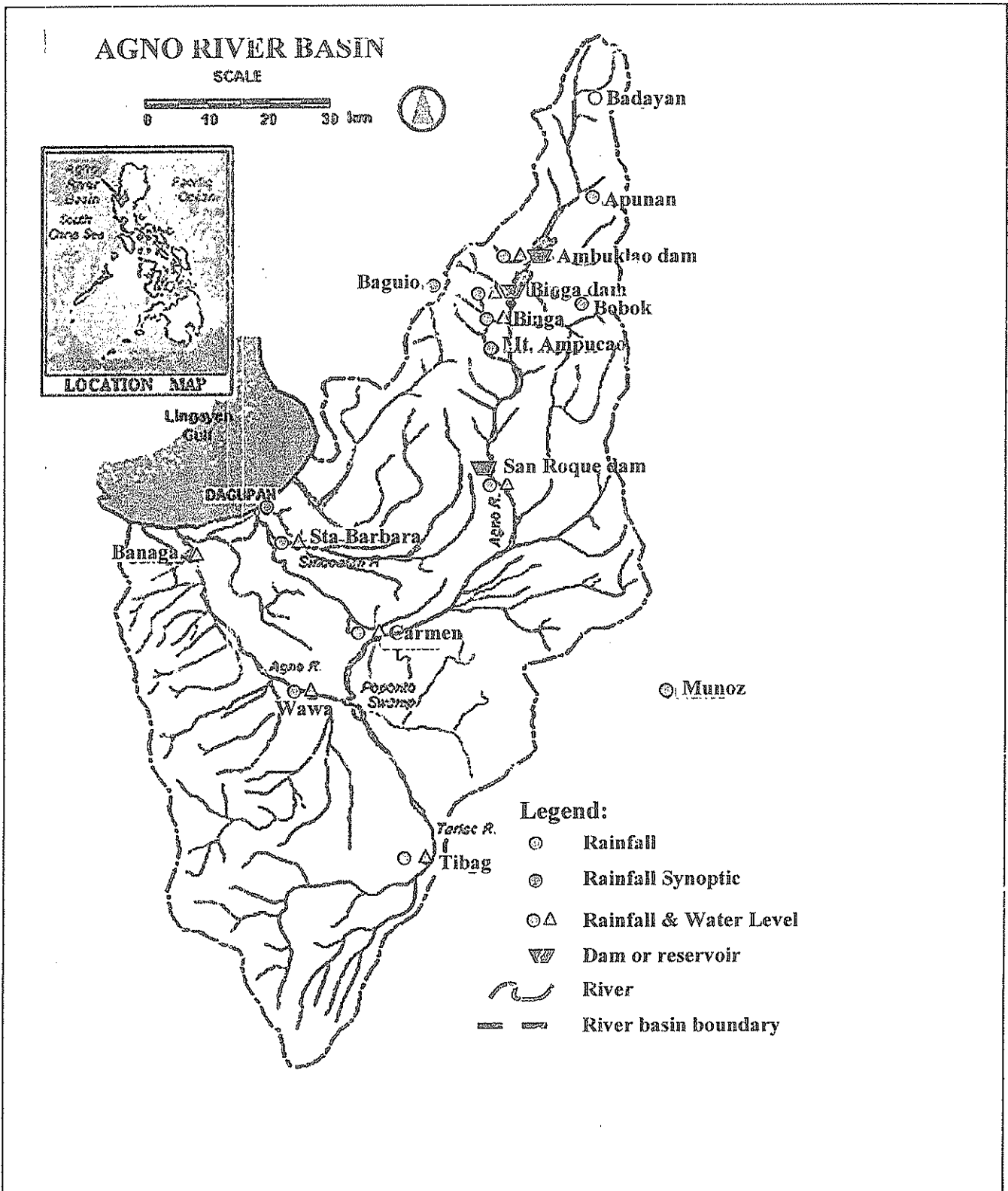
my

luna

F



Agno System Network



System Network of the Agno River Basin

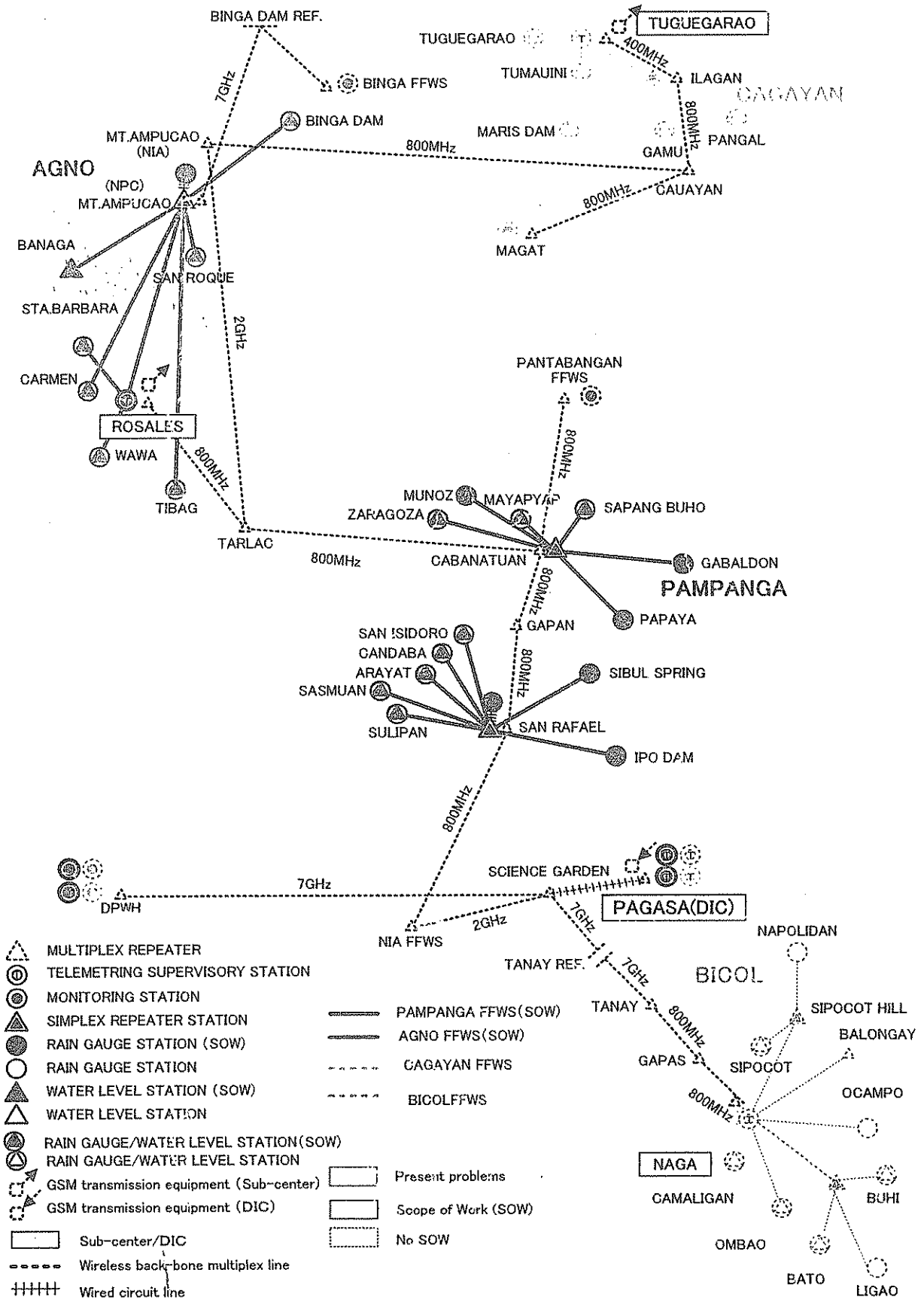
*M*

*luna*

└



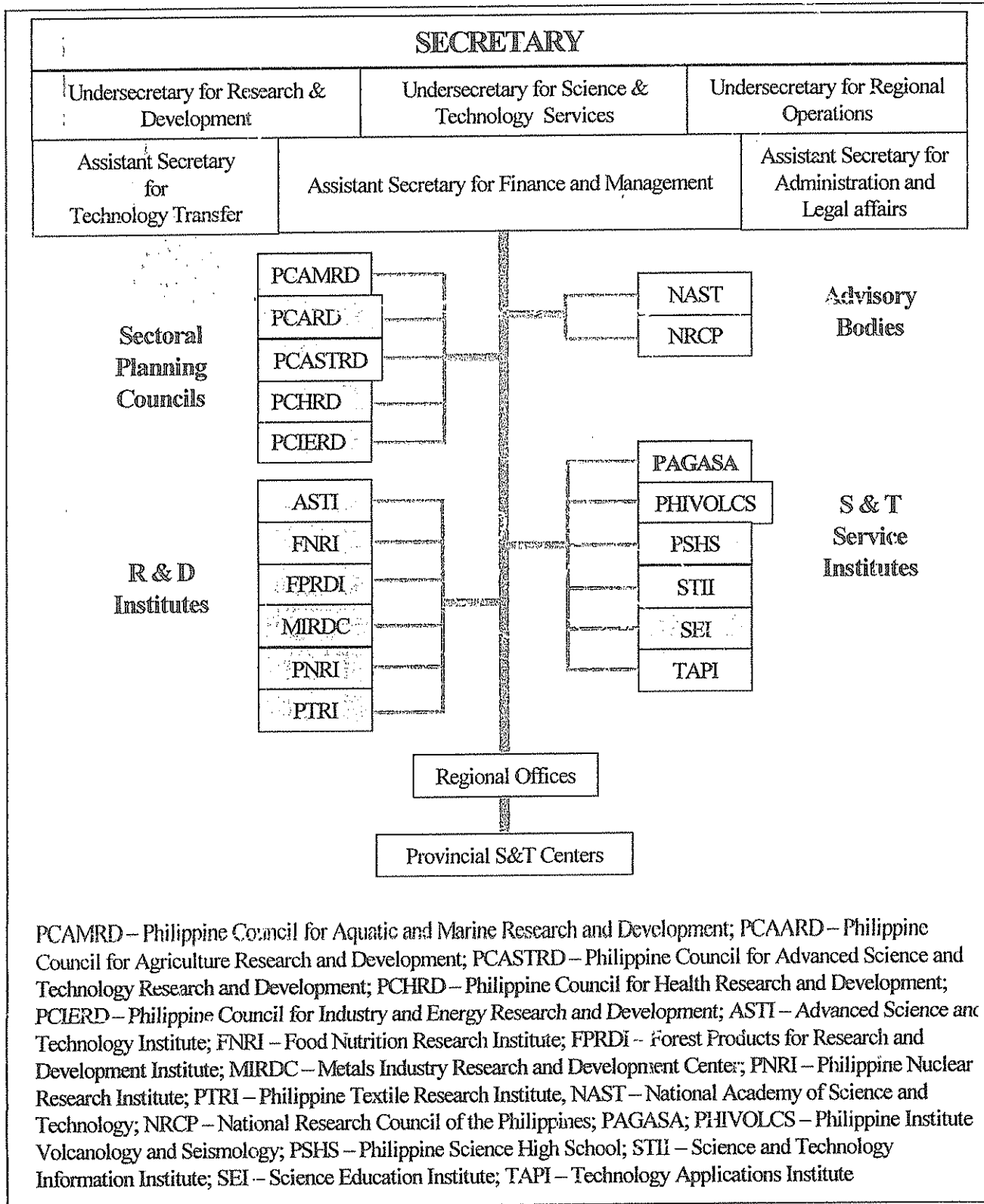
Current Frequency of Pampanga and Agno System Network



CH

*Handwritten signature*

Organization Chart of Department of Science and Technology (DOST)

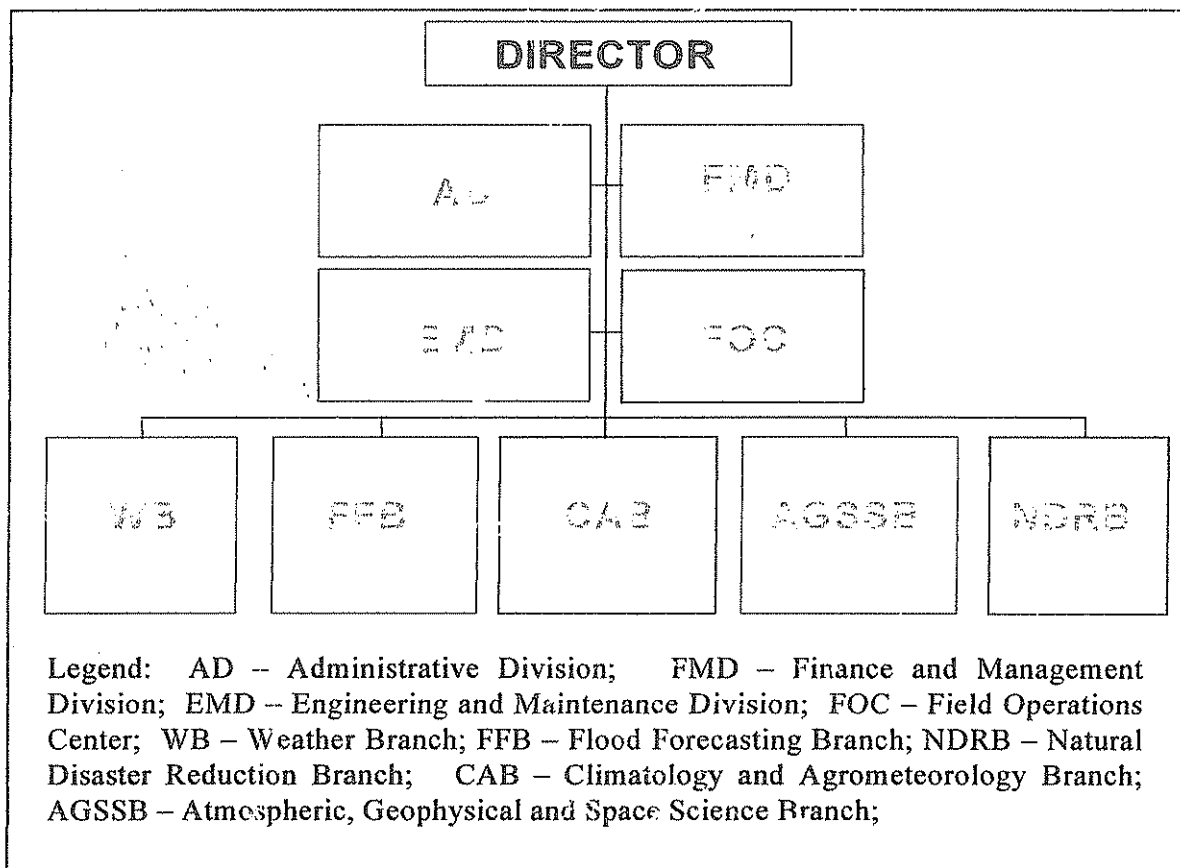


Organization Structure of the DOST

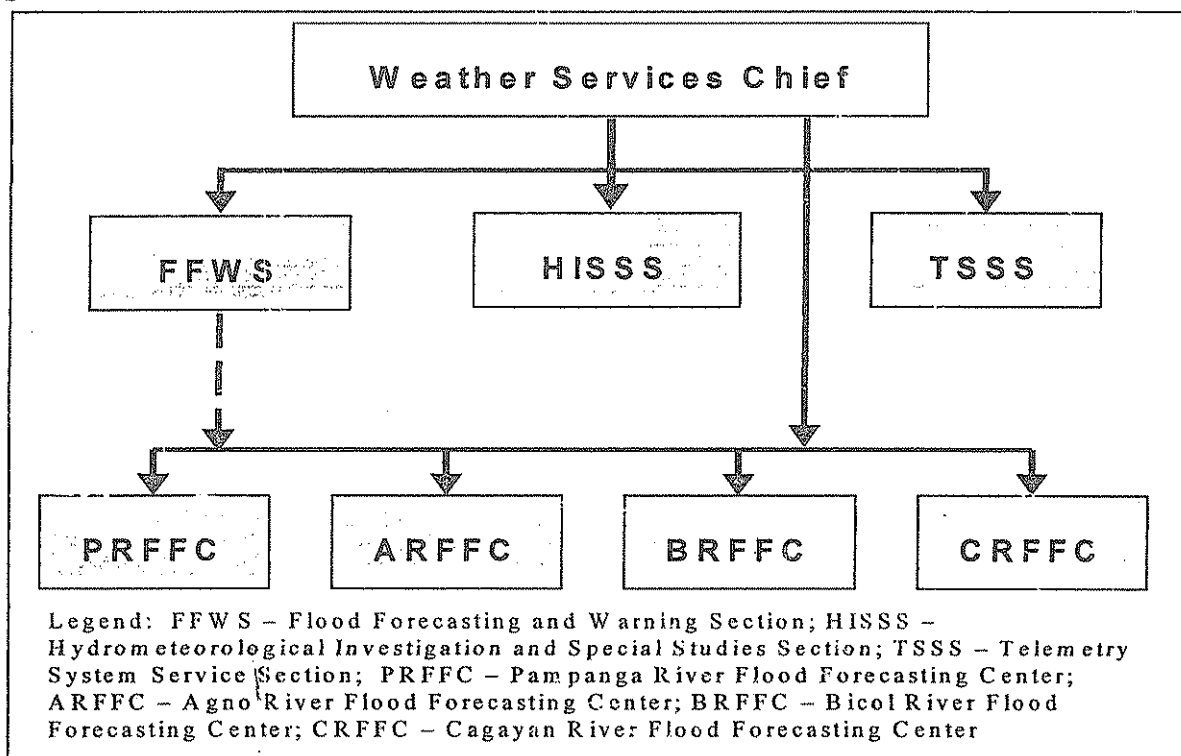
M

*Handwritten signature and mark*

**Organization Chart of Philippine Atmospheric, Geophysical and Astronomical Services Administration (PAGASA)**



**Organizational Chart of FFB and FFWC**



*my*

*mapa*



## Items Requested by the Government of the Philippines

## 1. Basic system

Water level telemetering station	Water level sensor Rain fall gauge Telemetering equipment Antenna Power system Gauging house	Pressure type Bucket type, If necessary 150MHz Solar Panel, Battery
Rain fall telemetering station	Rain fall gauge Telemetering equipment Antenna Power system Gauging house	Bucket type 150MHz Solar Panel, Battery
Rain fall gauging equipment	Rain fall gauge Transmitting equipment Power equipment	Bucket type GSM mobile transmitting UPS
Repeater station	repeater equipment Antenna	150MHz V-V repeater system 150MHz
Sub center	Telemetering control system Transmitting equipment Supervising system Antenna Power system Sub center house Mobile flood warning Patrol car	GSM mobile transmitting 150MHz Generator, Battery system
DIC	Supervising system Power system	Battery system
DPWH OCD	Monitoring system Monitoring system	Pampanga/Agno basin Pampanga/Agno basin

## 2. Optional Transmitting system (Sub center - Repeaterstation - DIC - NPC-NIA - DPWH - OCD)

## 2.1 Option1 : 7.5GHz Transmitting system

Antenna	7.5GHz
Antenna tower	If necessary
Transmitting equipment	
Power System	If necessary

## 2.2 Option2 : 1.4GHz Transmitting system

Transmitting equipment	1.4GHz
Power System	If necessary

## 2.3 Option3 : 400MHz Transmitting system

Antenna	400MHz
Transmitting equipment	
Power System	If necessary

Mr

Luis

F

2.4 Option4 : NPC Backbone use (7.5MHz Transmitting system)

Antenna	7.5GHz
Antenna tower	If necessary
Transmitting equipment	
Power System	If necessary

2.5 Option5 : High frequency Transmitting system

Antenna	High Frequency (12GHz, 18GHz, etc)
Antenna tower	If necessary
Transmitting equipment	
Power system:	Generator, Battery system
Repeater station house	If necessary

3.Others

3.1 Pantabangan Dam Warning and superviosly system

Water level telemetering station	Water level sensor	Pressure type
	Telemetering equipment	
	Antenna	150MHz
	Power system	
	Gauging house	

Rainfall telemetering station	Rain fall gauge	Bucket type
	Telemetering equipment	
	Antenna	150MHz
	Power system	
	Gauging house	

Warning station	Warning equipment	Bucket type
	Telemetering equipment	
	Antenna	150MHz
	Power system	
	Warning house	

Pantabangan Dam	Monitoring system	Pampanga basin
	Telemetering control system	
	Master station system	
	Antenna	150MHz

*mf*

*luna*

*7*

## The Japan's Grant Aid Scheme

The Grant Aid Program provides a recipient country with non-reimbursable funds to procure the facilities, equipment and services (engineering services and transportation of the products, etc.) for economic and social development of the country under principles in accordance with the relevant laws and regulations of Japan. Grant Aid is not supplied through the donation of materials as such.

### (1) Grant Aid Procedure

Japan's Grant Aid Program is executed through the following procedures.

- |                                 |  |
|---------------------------------|--|
| Application                     | (Request made by a recipient country)  |
| Study                           | (Basic Design Study conducted by JICA)   |
| Appraisal & Approval            | (Appraisal by the Government of Japan and Approval by Cabinet)                   |
| Determination of Implementation | (The Notes exchanged between the Governments of Japan and the recipient country) |

Firstly, the application or request for a Grant Aid project submitted by a recipient country is examined by the Government of Japan (Ministry of Foreign Affairs) to determine whether or not it is eligible for Grant Aid. If the request is deemed appropriate, the Government of Japan assigns JICA to conduct a study on the request. If necessary, JICA send a Preliminary Study Mission to the recipient country to confirm the contents of the request.

Secondly, JICA conducts the study (Basic Design Study), using Japanese consulting firms.

Thirdly, the Government of Japan appraises the project to see whether or not it is suitable for Japan's Grant Aid Program, based on the Basic Design Study report prepared by JICA, and the results are then submitted to the Cabinet for approval.

Fourthly, the project, once approved by the Cabinet, becomes official with the Exchange of Notes signed by the Governments of Japan and the recipient country.

Finally, for the implementation of the project, JICA assists the recipient country in such matters as preparing tenders, contracts and so on.

### (2) Basic Design Study

#### 1) Contents of the Study

The aim of the Basic Design Study (hereinafter referred to as "the Study"), conducted by JICA on a requested project (hereinafter referred to as "the Project"), is to provide a basic document necessary for the appraisal of the Project by the Government of Japan. The contents of the Study are as follows:

- a) confirmation of the background, objectives and benefits of the Project and also institutional capacity of agencies concerned of the recipient country necessary for the Project's implementation;
- b) evaluation of the appropriateness of the Project to be implemented under the Grant Aid Scheme from the technical, social and economic points of view;
- c) confirmation of items agreed on by both parties concerning the basic concept of the Project;
- d) preparation of a basic design of the Project; and
- e) estimation of costs of the Project.

mp

unni

└

The contents of the original request are not necessarily approved in their initial form as the contents of the Grant Aid project. The Basic Design of the Project is confirmed considering the guidelines of Japan's Grant Aid Scheme.

The Government of Japan requests the Government of the recipient country to take whatever measures are necessary to ensure its self-reliance in the implementation of the Project. Such measures must be guaranteed even though they may fall outside of the jurisdiction of the organization in the recipient country actually implementing the Project. Therefore, the implementation of the Project is confirmed by all relevant organizations of the recipient country through the Minutes of Discussions.

## 2) Selection of Consultants

For smooth implementation of the Study, JICA uses a registered consulting firm selected through its own procedure (competitive proposal). The selected firm participates in the Study and prepares for a report based upon the terms of reference set by JICA.

At the beginning of implementation after the Exchange of Notes, for the services of the Detailed Design and Construction Supervision of the Project, JICA recommends the same consulting firm which participated in the Study to the recipient country in order to maintain the technical consistency.

## (3) Japan's Grant Aid Scheme

### 1) Exchange of Notes (E/N)

Japan's Grant Aid is extended in accordance with the Notes exchanged by the two Governments concerned, in which the objectives of the project, period of execution, conditions and amount of the Grant Aid, etc., are confirmed.

### 2) "The period of the Grant" means the one fiscal year which the Cabinet approves the project for.

Within the fiscal year, all procedure such as exchanging of the Notes, concluding contracts with consulting firms and contractors and final payment to them must be completed.

However, in case of delays in delivery, installation or construction due to unforeseen factors such as weather, the period of the Grant Aid can be further extended for a maximum of one fiscal year at most by mutual agreement between the two Governments.

### 3) Under the Grant, in principle, Japanese products and services including transport or those of the recipient country are to be purchased.

When the two Governments deem it necessary, the Grant Aid may be used for the purchase of the products or services of a third country.

However, the prime contractors, namely consulting, constructing and procurement firms, are limited to "Japanese nationals". (The term "Japanese nationals" means persons of Japanese nationality or Japanese corporations controlled by persons of Japanese nationality.)

### 4) Necessity of "Verification"

The Government of the recipient country or its designated authority will conclude contracts denominated in Japanese yen with Japanese nationals. Those contracts shall be verified by the Government of Japan. This "Verification" is deemed necessary to secure accountability to Japanese taxpayers.

*My*

*lumi*



## 5) Undertakings required to the Government of the recipient country

In the implementation of the Grant Aid project, the recipient country is required to undertake such necessary measures as the following:

- a) to secure land necessary for the sites of the Project and to clear, level and reclaim the land prior to commencement of the construction;
- b) to provide facilities for distribution of electricity, water supply and drainage and other incidental facilities in and around the sites;
- c) to ensure all expenses and prompt execution for unloading and customs clearance at ports of disembarkation in the recipient country and internal transportation therein of the products purchased under the Grant Aid;
- d) to exempt Japanese nationals from customs duties, internal taxes and other fiscal levies which may be imposed in the recipient country with respect to the supply of the products and services under the verified contracts;
- e) to accord Japanese nationals whose services may be required in connection with the supply of the products and services under the verified contracts such as facilities as may be necessary for their entry into the recipient country and stay therein for the performance of their work;

## 6) "Proper Use"

The recipient country is required to operate and maintain the facilities constructed and equipment purchased under the Grant Aid properly and effectively and to assign the necessary staff for operation and maintenance as well as to bear all the expenses other than those covered by the Grant Aid.

## 7) "Re-export"

The products purchased under the Grant Aid shall not be re-exported from the recipient country.


## 8) Banking Arrangement (B/A)

- a) The Government of the recipient country or its designated authority should open an account in the name of the Government of the recipient country in a bank in Japan (hereinafter referred to as "the Bank"). The Government of Japan will execute the Grant Aid by making payments in Japanese yen to cover the obligations incurred by the Government of the recipient country or its designated authority under the verified contracts.
- b) The payments will be made when payment requests are presented by the Bank to the Government of Japan under an Authorization to Pay (A/P) issued by the Government of recipient country or its designated authority.

## 9) Authorization to Pay (A/P)

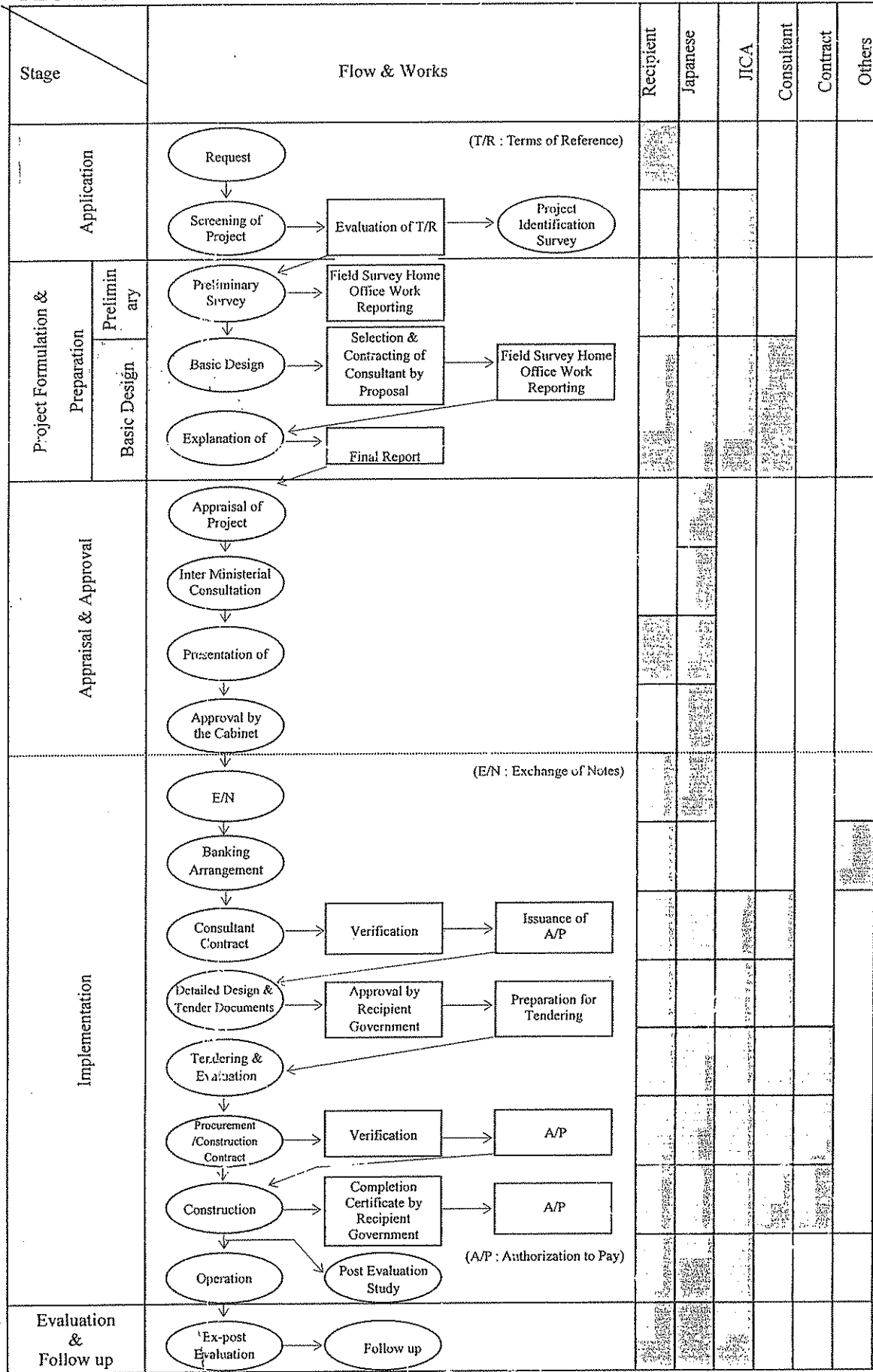
The Government of the recipient country should bear an advising commission of an Authorization to Pay and payment commissions to the Bank.

*m*

*Weyman* 



# FLOW CHART OF JAPAN'S GRANT AID PROCEDURES



*M*

*anti*

7

## Major Undertakings to be taken by Each Government

No.	Items	To be covered by Grant Aid	To be covered by Recipient Side
1	To secure land		●
2	To Clear, level and reclaim the site when needed		●
3	To construct gates and fences in and around the site		●
4	To construct the parking lot		●
5	To construct roads		
	1) Within the site		●
	2) Outside the site		●
6	To construct the buildings	●	
7	To provide facilities for the distribution of electricity, water supply, drainage and other incidental facilities		
	1) Electricity		
	a. The distributing line to the site		●
	b. The drop wiring and internal wiring within the site	●	
	c. The main circuit breaker and transformer	●	
	2) Water supply		
	a. The city water distribution main to the site		—
	b. The supply system within the site (receiving and elevated tanks)	●	
	3) Drainage		
	a. The city drainage main (for storm, sewer and others) to the site		●
	b. The drainage system (for toilet sewer, ordinary waste, storm drainage and others) within the site	●	
	4) Gas supply		
	a. The city gas main to the site		●
	b. The gas supply system within the site	●	
	5) Telephone system		
	a. The telephone trunk line to the main distribution frame/panel (MDF) of the building		●
	b. The MDF and the extension after the frame/panel	●	
	6) Furniture and Equipment		
	a. General furniture		●
	b. Project Equipment	●	
8	To bear the following commissions to a bank in Japan for the banking services based upon the B/A		
	1) Advising commission of A/P		●
	2) Payment commission		●

MP

Lunes


7

9	To ensure unloading and customs clearance at port of disembarkation in recipient country		
	1) Marine (Air) transportation of the products from Japan to the recipient country	●	
	2) Tax exemption and custom clearance of the products at the port of disembarkation		●
	3) Internal transportation from port of disembarkation to the project site	●	
10	To accord Japanese nationals whose services may be required in connection with the supply of the products and the services under the verified contract such facilities as may be necessary for their entry into the recipient country and stay therein for the performance of their work.		●
11	To exempt Japanese nationals from customs duties, internal taxes and other fiscal levies which may be imposed in the recipient country with respect to the supply of the products and services under the verified contract.		●
12	To maintain and use properly and effectively the facilities constructed and equipment provided under the Grant		●
13	To bear all the expenses , other than those to be borne by the Grant, necessary for construction of the facilities as well as for the transportation and installation of the equipment		●

(B/A: Banking Arrangement)

(A/P: Authorization to Pay)

*my*

*unes* 



**REPUBLIC OF THE PHILIPPINES**  
**Department of Budget and Management**  
**Malacañang, Manila**

July 31, 2006

**HON. ESTRELLA F. ALABASTRO**  
 Secretary  
 Department of Science and Technology  
 Bicutan, Taguig, Metro Manila

Madam:

We wish to inform you that the FY 2007 recommended budget for your department, including attached agencies, amounts to P3,078,513,000 summarized as follows:

PARTICULARS	(In Thousand Pesos)			
	PS	MOOE	CO	TOTAL
<b>Regular</b>				
Program	1,171,563	1,573,159	65,397	2,810,119
Locally Funded Projects		7,700	151,300	159,000
Foreign Assisted Projects (Grants)		21,200		21,200
<b>Sub-total</b>	1,171,563	1,602,059	216,697	2,990,319
<b>Automatic Appropriations</b>				
Retirement and Life Insurance Premiums	88,194			88,194
<b>TOTAL</b>	<b>1,259,757</b>	<b>1,602,059</b>	<b>216,697</b>	<b>3,078,513</b>

Details by agency are hereto attached as Annex "A".

3,078,513

The highlights of our recommendation include the following:

1. Provision have been made for all on-going programs and projects, inclusive of inflation adjustments, where applicable. However, requirements for Terminal Leave Benefits for retirees have been incorporated in a separate special purpose fund.

My

24 -

hnp

7

I. PHILIPPINE ATMOSPHERIC, GEOPHYSICAL AND ASTRONOMICAL SERVICES ADMINISTRATION


Proposed New Appropriations Language

For general administration and support, support to operations, and operations, as indicated hereunder.....P 340,716,000

New Appropriations, by Program/Project

	Current Operating Expenditures			Total
	Personal Services	Maintenance and Other Operating Expenses	Capital Outlays	
<b>A. PROGRAMS</b>				
<b>I. General Administration and Support</b>				
a. General Administration and Support Services	P 52,802,000	P 22,569,000		P 75,371,000
Sub-total, General Administration and Support	52,802,000	22,569,000		75,371,000
<b>II. Support to Operations</b>				
a. Climate Data Management, AGROMETEOROLOGICAL and Weather Modification Research and Development	16,175,000	2,904,000		19,079,000
b. Training Activities in Atmospheric-Geophysical and Allied Sciences	7,094,000	2,860,000		9,954,000
c. Provision of Support Services	8,192,000	4,038,000		12,230,000
d. Installation, Repair and Maintenance of Telemetering Multiplex System for Flood Forecasting and Warning Covering Pampanga, Agno, Bicol and Cagayan River Basin	5,488,000	1,996,000		7,484,000
Sub-total, Support to Operations	36,949,000	11,798,000		48,747,000
<b>III. Operations</b>				
a. Weather and Flood Forecasting and Geophysical and Astronomical Services	38,529,000	22,138,000	4,000,000	64,667,000
b. Observation and Acquisition of Data for Atmospheric-Geophysical and Allied Sciences	74,636,000	20,834,000		95,470,000
c. Research on Atmospheric, Geophysical and Allied Sciences	20,045,000	10,216,000		30,261,000
Sub-total, Operations	133,210,000	53,188,000	4,000,000	190,398,000
<b>Total, Programs</b>	<b>222,961,000</b>	<b>87,555,000</b>	<b>4,000,000</b>	<b>314,516,000</b>

*my*

*my* 

B. PROJECT(S)

I. Locally-Funded Project(s)

- a. Continuation of the Construction of the PAGASA Central Office Building and Site/ Land Development at Science Garden Complex

	5,000,000	5,000,000
	5,000,000	5,000,000

Sub-total, Locally-Funded Project(s)

II. Foreign-Assisted Project(s)

- d. Rehabilitation of the Flood Forecasting and Warning System in Panganga

	21,200,000	21,200,000
	21,200,000	21,200,000

Peso Counterpart

	21,200,000	21,200,000
	21,200,000	21,200,000

Sub-total, Foreign-Assisted Project(s)

	21,200,000	21,200,000
	21,200,000	21,200,000

Total, Projects

	21,200,000	5,000,000	26,200,000
	21,200,000	5,000,000	26,200,000

TOTAL NEW APPROPRIATIONS

	P 222,961,000	P 108,755,000	P 9,000,000	P 340,716,000
	P 222,961,000	P 108,755,000	P 9,000,000	P 340,716,000

Special Provision(s)

1. Appropriations for Programs and Specific Activities. The amounts appropriated herein for the programs of the agency shall be used specifically for the following activities in the indicated amounts and conditions:

Programs and Activities

	Current Operating Expenditures			Total
	Personal Services	Maintenance and Other Operating Expenses	Capital Outlays	
I. General Administration and Support				
a. General Administration and Support Services	P 52,802,000	P 22,569,000		P 75,371,000
1. General Management and Supervision	24,802,000	13,267,000		38,069,000
2. Engineering and maintenance services	12,000,000	9,141,000		21,141,000
3. Construction/Repair/ Rehabilitation of typhoon damaged weather stations and facilities		161,000		161,000
4. Magna Carta for Science and Technology Personnel	16,000,000			16,000,000
Sub-total, General Administration and Support	52,802,000	22,569,000		75,371,000

*mg*

*luna*

Mr. Juan Mata

**PAGASA**  
**COMPUTATION FOR VAT DUTIES AND TAXES**

1. Strengthening of Flood Forecasting and Warning System in the Pampanga and Agno River Basins

Equipment Cost					
¥ 345,000,000.00 x 0.4 x 0.2	=	P 27,600,000.00	=	Taxes	- 20%
Labor and Interest Cost					
¥ 530,000,000.00 x 0.4 x 0.1	=	<u>P 21,200,000.00</u>	=	VAT	- 10%
		<u>P 48,800,000.00</u>			
VAT	=	P 21,200,000.00			
Duties & Taxes	=	<u>P 27,600,000.00</u>			
		<u><u>P 48,800,000.00</u></u>			

2. Enabling Communities for the Adoption of Disaster Mitigation and Preparedness Measures in Areas Prone to Floods and Rain-Induced Landslides

Equipment Cost					
¥ 925,500,000.00 x 0.5 X 0.2	=	P 92,550,000.00	=	Taxes	- 20%
¥ 925,500,000.00 x 0.5 x 0.1		<u>P 46,275,000.00</u>	=	VAT	- 10%
		<u><u>P 138,825,000.00</u></u>			

*mf*

*unns*

## The Function of National Disaster Coordinating Council (NDCC)

### National Disaster Coordinating Council

The establishment of the National Disaster Coordinating Council is embodied in Sec. 2 of PD 1566. The Secretary of National Defense heads the NDCC with the heads of 18 departments/ agencies as members. These include the Chief of Staff, Armed Forces of the Philippines; Secretary-General, Philippine National Red Cross; Philippine Information Agency; Executive Secretary and the Administrator, Office of Civil Defense who is the Executive Officer of the Council.

It is through the NDCC member-agencies that disaster preparedness, prevention, mitigation and response carry out its corresponding tasks and responsibilities under the NDCC system.

The NDCC, unlike other department coordinating bodies, does not have its own regular budget to disburse. It operates through the member-agencies and its local networks, which are the regional and local disaster coordinating councils.

The members of the Council are the following:

Secretary, DND Chairman  
 Presidential Executive Secretary Member  
 Secretary, DILG Member  
 Secretary, DBM Member  
 Secretary, DPWH Member  
 Secretary, DOST, Member  
 Secretary, DOJ Member  
 Secretary, DOTC Member  
 Secretary, DOH Member  
 Secretary, DSWD Member  
 Secretary, DA Member  
 Secretary, DepEd Member  
 Secretary, DOF Member  
 Secretary, DOLE Member  
 Secretary, DTI Member  
 Secretary, DENR Member  
 Chief of Staff, AFP Member  
 Secretary-General, PNRC Member  
 Director, PIA Member  
 Administrator, OCD Member & Executive Officer



### NDCC Functions

At the national level, the NDCC serves as the President's adviser on disaster preparedness programs, disaster operations and rehabilitation efforts undertaken by the government and the private sector. It acts as the top coordinator of all disaster management and the highest allocator of resources in the country to support the efforts of the lower DCC level. In the discharge of its functions, the NDCC utilizes the facilities and services of the Office of Civil Defense as its operating arm.



### Tasks of NDCC Chairman and Member-Agencies

The Chairman and members of the Council have the following tasks, namely:

- a. Chairman - Convenes the Council as often as necessary and calls on all other departments/bureaus/agencies, other instrumentalities of the government and the private sector for assistance when the need arises.
- b. Administrator, Office of Civil Defense - Coordinates the activities, functions of the various agencies and instrumentalities of the government, private institutions and civic organizations to implement the policies and programs of the NDCC; disseminates materials relative to disaster prevention, control and

my

||

unus

└





REPUBLIC OF THE PHILIPPINES  
**NATIONAL DISASTER COORDINATING COUNCIL**

National Disaster Management Center, Camp General Emilio Aguinaldo, Quezon City, Philippines

17 January 2004

**MEMORANDUM**

**FOR :** NATIONAL DISASTER COORDINATING COUNCIL MEMBERS

**FROM:** AVELINO J. CRUZ, JR  
 NDCC, Chairman

**RE :** FOUR POINT ACTION PLAN FOR DISASTER PREPAREDNESS

In view of the recent spate of natural calamities that visited not only the Philippines but also our neighbors and the need for increased public awareness and involvement in measures being put in place by the government for disaster preparedness, Her Excellency, President Gloria Macapagal-Arroyo, has approved the immediate implementation of the following Four Point Action Plan for Disaster Preparedness:

**1. UPGRADING PAGASA & PHILVOLCS FORECASTING CAPABILITY**

- Forecasting capabilities of the PAGASA and PHILVOLCS will be upgraded through improved equipment and staff development utilizing government resources and, if possible, foreign grants. Capability upgrade to focus on improved forecasting of natural hazards, such as typhoons, earthquakes, volcanic eruptions and tsunamis.
- Linkages and networking with foreign forecasting institutions covering the Pacific Rim and South China Sea (e.g. Hawaii, Japan, China) have to be established and strengthened to be able to source different forecasts from different places tracking the same natural hazard. Effort should be exerted to make tracking and forecasting a regional, not only a domestic, concern.
- Completion of studies identifying places prone to geo-hazards (e.g. geo-hazard maps) and identification of potential risks for reference in land-use plans and disaster management plans.
- Compilation and analysis of databases on natural hazards to identify trends and varying levels of impact of natural hazards in different places.
- Establishment of a rapid media-link system for real-time dissemination of information from the monitoring agencies to the media particularly during on-going disaster management operations.



*my*

*unis*

2. PUBLIC INFORMATION CAMPAIGN  
ON DISASTER PREPAREDNESS

- A Strategic Communications Plan to be prepared and implemented focusing on preparedness against natural hazards such as: (1) Typhoons that cause flooding and landslides; (2) Earthquakes that cause collapsed buildings, homes and structures; (3) Volcanic eruptions that cause pyroclastic flows, ash fall, lahar and lava flows; and (4) Tsunamis that cause widespread destruction of coastal areas.
- Message delivery mechanisms to include primers, comics, posters, pamphlets, TV & Radio ads, print ads, messages in movie houses and inclusion of disaster preparedness in school curricula. Target venues to include schools, workplaces, government offices and buildings, churches, malls, and community organizations.
- Message themes to include "Detect, React & Evacuate" "Be Prepared. Don't Panic." Information campaign to be done annually during the dry season from January to May in preparation for the onset of the wet season when most weather related hazards occur.

3. CAPACITY BUILDING FOR LOCAL GOVERNMENT UNITS  
IN IDENTIFIED VULNERABLE AREAS

- Create a disaster-aware culture of preparedness among the identified vulnerable communities by providing technical assistance in education and information programs with emphasis on mitigation and preparedness for typhoon, earthquake, volcano and tsunami related hazards through seminars and workshops for local government units (LGUs) to conclude with a dry-run of established operating procedures.
- Manual of Operations in disaster management to be cascaded to other LGUs in less vulnerable areas in nationwide seminars to be conducted during the Disaster Preparedness Week in April.

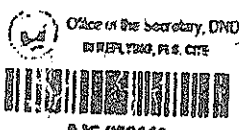
4. MECHANISMS FOR GOVERNMENT & PRIVATE SECTOR  
PARTNERSHIP IN RELIEF & REHABILITATION

- The Manual of Operations for Search & Rescue and Relief & Rehabilitation (e.g. constructing 40,000 houses) must be updated and standardized to emphasize, among others: (1) synergy of government, private sector and community participation; (2) logistics management; (3) effective communications; (4) information management; and (5) effective interface of local and national level efforts.

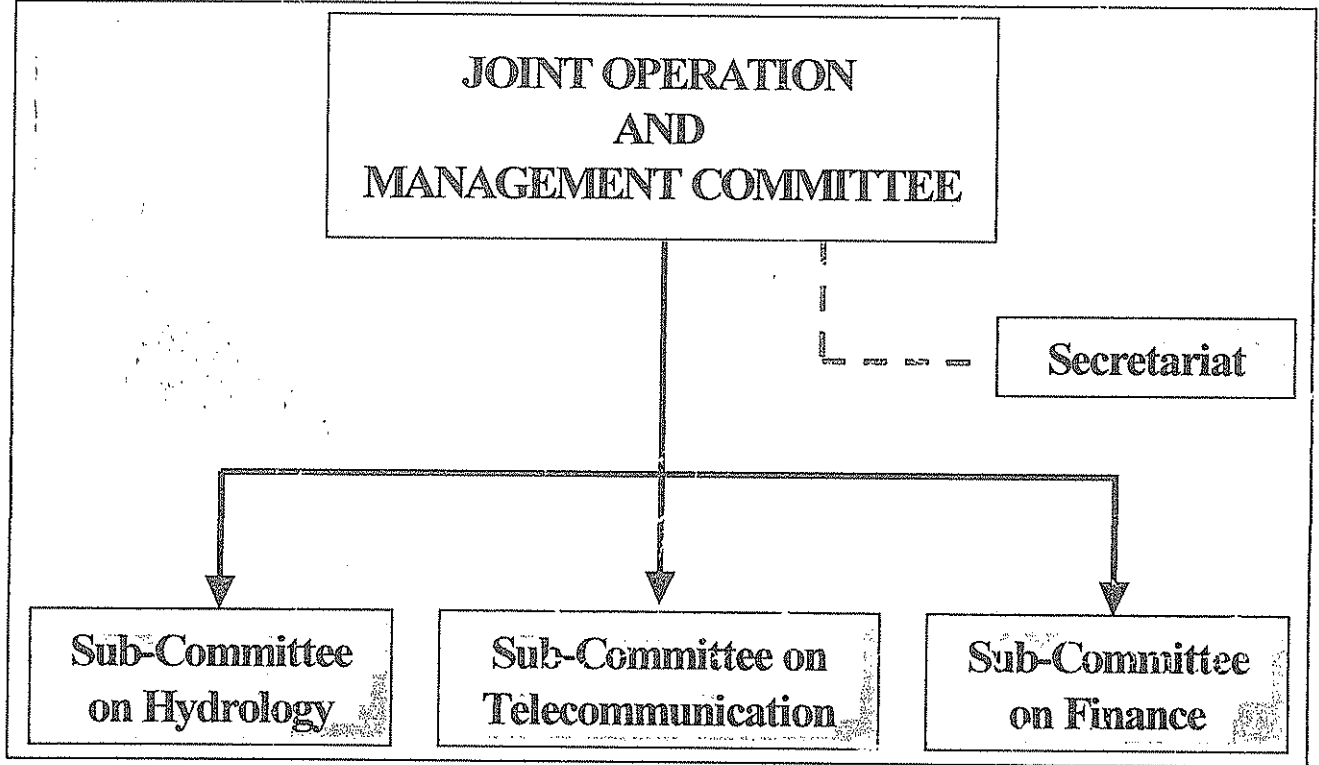
Specific tasks and assignments for the implementation of the foregoing action plan shall be discussed during the coordinating meeting to be held on 18 January 2005 at 6:00 p.m. at the Conference Room, National Disaster Management Center, Camp General Emilio Aguinaldo, Quezon City.

*Avelino J. Cruz, Jr.*

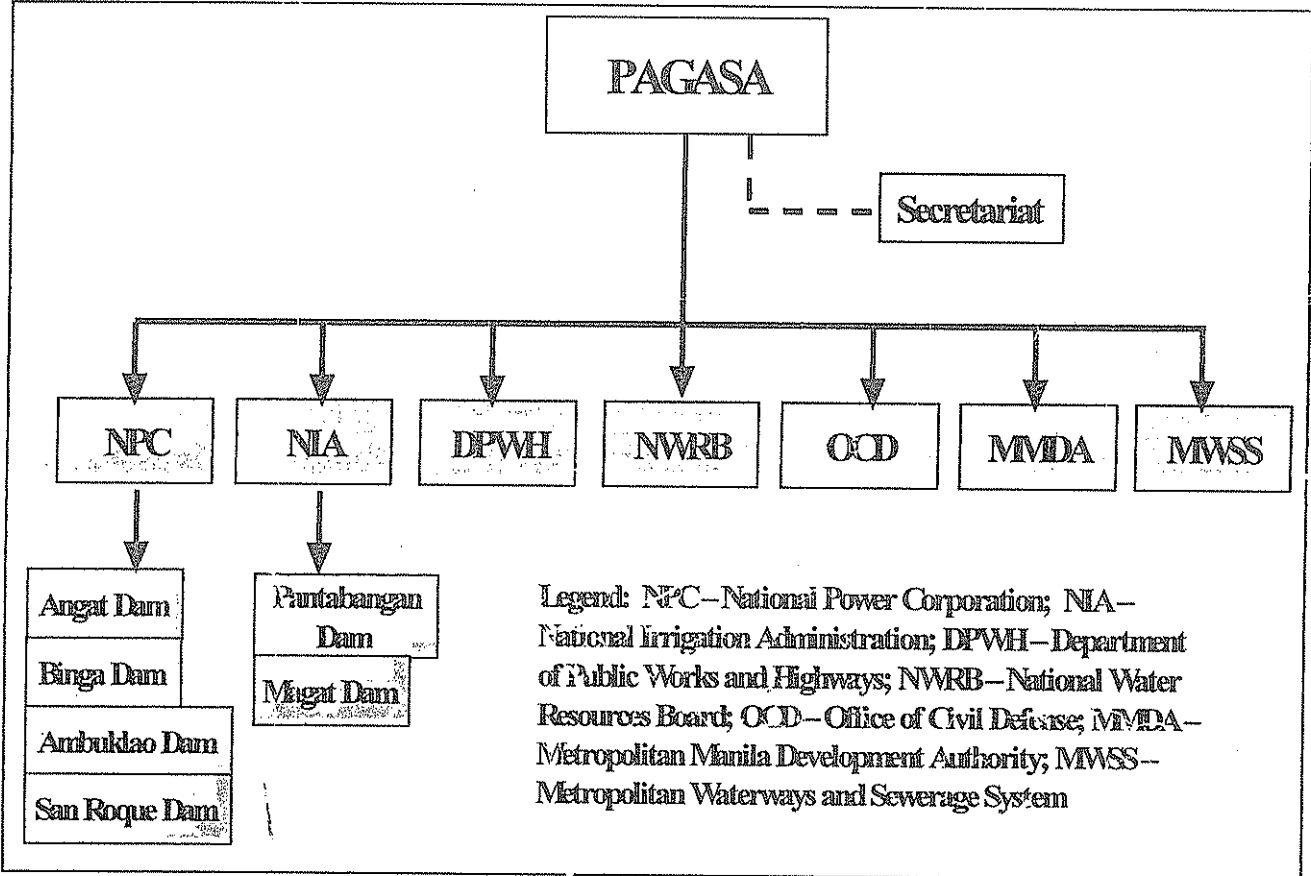
AVELINO J. CRUZ, JR.  
NECC, Chairman



Organization Structure of Joint Operation and Management Committee (JOMC)



Composition of JOMC and Role of PAGASA



*m*

*unns* *F*

## Situation of Operation and Maintenance

### 1. Improvement Programs implemented by PAGASA

The Preparatory JICA Mission that was dispatched in November 2003 conducted an assessment of the status of the flood forecasting and warning system in the Pampanga and Agno river basins. The Mission was able to identify the problems, gaps and needs of PAGASA in terms of PAGASA's capacity for O&M, interference on the frequency of the trunkline, etc. As a result of the Mission's findings, a Technical Cooperation Project (TCP) was implemented for PAGASA to exert its own efforts to improve the FFWS. The following measures have been undertaken to strengthen the flood forecasting and warning administration.

- 1) Adopting the SMS as a temporary measure to address the interference problem
- 2) Setting up the community based flood forecasting and warning system in Bulacan province and the allied rivers of Agno river basin
- 3) Piloting the use of locally fabricated pressure type water level sensor – with financial support from the DOST
- 4) Use of indigenous materials for hydrographic survey of rivers
- 5) Regular conduct of preventive and corrective maintenance of FFWS facilities
- 6) Regular conduct of cleaning and declogging of FFWS monitoring stations
- 7) Conduct of JOMC meetings with the government agencies involved in flood forecasting and warning activities.

### 2. Budget allocation

Annual Budget of PAGASA

Budget (thousand PhP)	2001	2002	2003	2004	2005
	117,008,000.00	103,468,000.00	87,555,000.00	87,555,000.00	86,324,540.00

- Note:
- 1) The amount in the chart is mainly for salary of personnel and budget for O&M. Decreasing of the budget is due to the retirement of personnel. Under the Policy of "Rationalization" of Government Agency, Streamline of personnel is addressed for the efficiency of management.
  - 2) Additional budget allocated is not reflected in the chart.

### 3. Staff Number, Role

Manpower Complement of PAGASA in 2005

Office/Division/Branch	Number
Office of the Director	45
Administrative Division	73
Finance and Management Division	34
Engineering and Maintenance Division	74
Weather Branch	102
Flood Forecasting Branch	83
Climatology and Agrometeorology Branch	94
Atmospheric, Geophysical and Space Science Branch	96
Natural Disaster Reduction Branch	42
Field Operations Center	479
<b>Total</b>	<b>1,122</b>

**Manpower Complement of FFB in 2006**

Section Unit	Number
Office of the Weather Services Chief	7
Flood Forecasting and Warning Section (FFWS)	19
Hydrometeorological Investigation & Special Studies Section (HISSS)	11
Telemetry System Service Section (TSSS)	10
Pampanga River Flood Forecasting Center (PRFFC)	6
Agno River Flood Forecasting Center (ARFFC)	9
Bicol River Flood Forecasting Center (BRFFC)	8
Cagayan River Flood Forecasting Center (CRFFC)	4
<b>Total</b>	<b>74</b>


**4. Effort, effect of own activity**

- a) In order to temporarily address the interference problem, PAGASA has employed the use of use of SMS as back-up to the existing multiplex system in the rainfall and water level data transmission from the field centers to the Main Operation Center. It was first established in Agno River Basin in February 2005 and in Bicol and Cagayan river basins in the early 2006.
- b) In order to ensure the sustainability of the FFWS operation in the monitored river basins, PAGASA resorted to the use of fabricated water level in some gauging stations in the PABC, which is considerably more economical than the imported water level equipment.
- c) Establishment of the Community-based Flood Mitigation Management Program (CBFMMP) for the Province of Bulacan  
The CBFMMP is being carried out in a locality/sub-basin area of the Province of Bulacan in the Pampanga River Basin. The CBFMMP is composed of a network of rainfall and water level monitoring stations, which are located strategically within the subject area. To complement the system, a set of communication equipment is also provided for the data and information transfer between the monitoring stations, the provincial, municipal/barangay disaster action teams and the Pampanga River Flood Forecasting Center (PRFFC).
- d) Post-flood Survey and Investigation  
Post-flood survey and investigation are being carried out to assess the extent of damages caused by a certain flood event, especially for those events that resulted to the loss of lives and considerable damage to properties.

It is also during the post-flood survey that PAGASA evaluate the flow of information, taking into account the actions undertaken by the locality based on the flood warnings issued by the PAGASA. It is worth noting that during the December 2004 spilling operation of Magat, San Roque and Angat dams, a zero casualty was achieved due to the early warnings issued by the PAGASA.

- e) Public Information Drive  
In order to increase the level of awareness of the locality to the flood warnings and other relevant information issued by the Agency, PAGASA conducts Public Information Drive (PID).

*mg*

*luna* 

In CY 2004, extensive PID was conducted in the Province of Bulacan through the initiative of the Provincial Disaster Coordinating Council (PDCC) and with the active participation of the municipal and barangay disaster coordinating councils. With the renewed awareness, the people in the flood prone areas responded appropriately with the flood warnings issued by PAGASA during the flood occurrences in CY 2004, which has resulted in a reduced damage in the Province of Bulacan. The Provincial Governor recognized the efforts of PAGASA. A Plaque of Appreciation was presented in recognition of PAGASA's timely and effective flood warnings in the said province.

Another form of increasing public awareness, station signboards were also installed in the telemetered rainfall and water level stations. The installed signboards also help minimize vandalism and provide the locality that a flood forecasting and warning equipment is operational within the area. In CY 2005, this program was started in the Pampanga River Basin and will also be implemented in other monitored river basins.

f) Discharge Measurements using Bamboo Floats

In order to enhance the Discharge Measurement activities of PAGASA, a program to design floats utilizing the locally available material – "Bamboo" has been carried out in CY 2005. The fabricated floats have been piloted in the Pampanga River Basin at various river stages. Bamboo floats are relatively cheaper and reusable as compared to the imported floats being used by the PAGASA.

Continuous manufacturing of the floats is being carried out to be used not only by PRFFC but also to the other river basins.

g) Installation of Flood markers

To augment the activity of enhancing the flood monitoring system in the monitored river basins, installation of flood markers has been undertaken by PAGASA. Flood markers are usually painted on stable structures and this can provide valuable information in mapping out the extent or limits of inundation as well as the depths of flooding in affected areas.

In CY 2005, the Agno River Flood Forecasting Center (ARFFC) installed 120 flood markers covering 22 municipalities in the flood-prone areas of the Agno and allied river basins. Likewise, the PRFFC installed numerous flood markers within the Pampanga River Basin. For the Bicol and Cagayan, the installation of flood markers will be carried out in CY 2006.

47

luna

7

The Community Based Flood Forecasting and Warning System in the Allied Rivers of Agno River Basin by Technical Cooperation

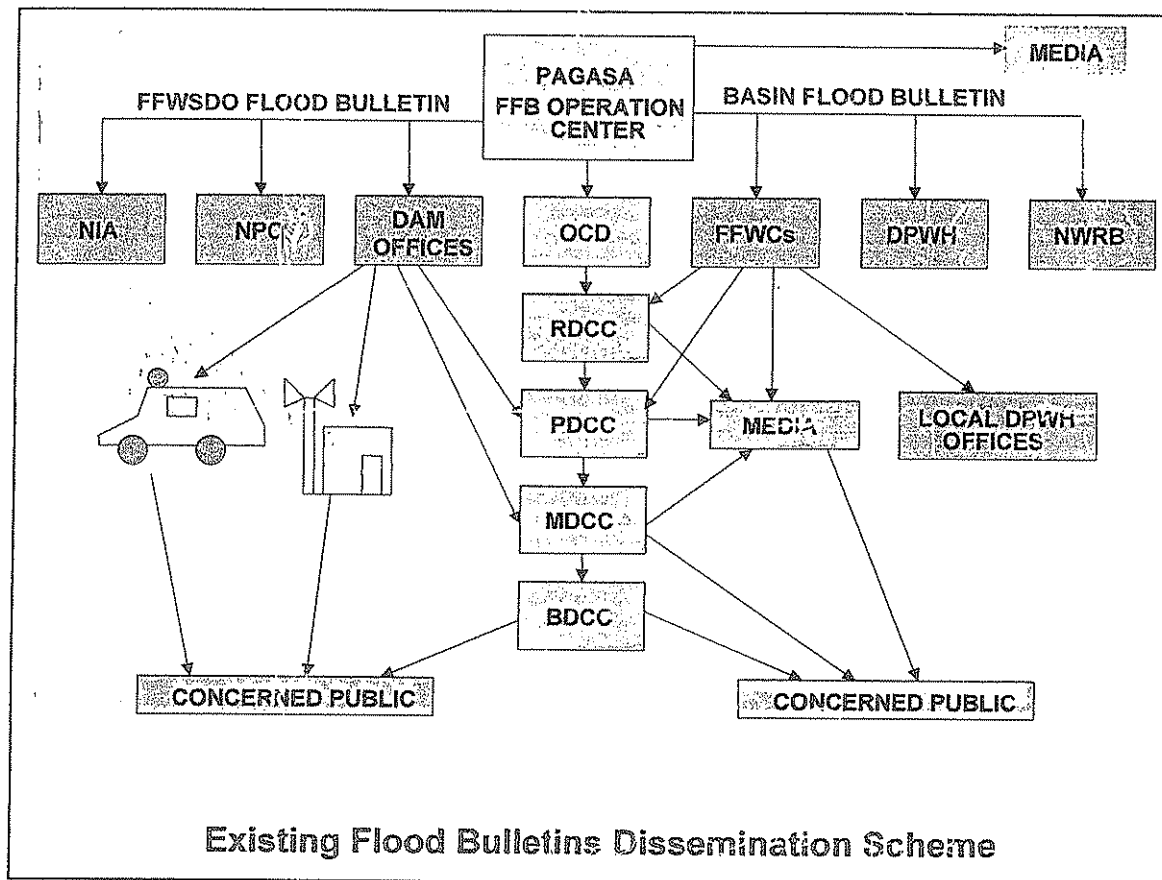


*cy*

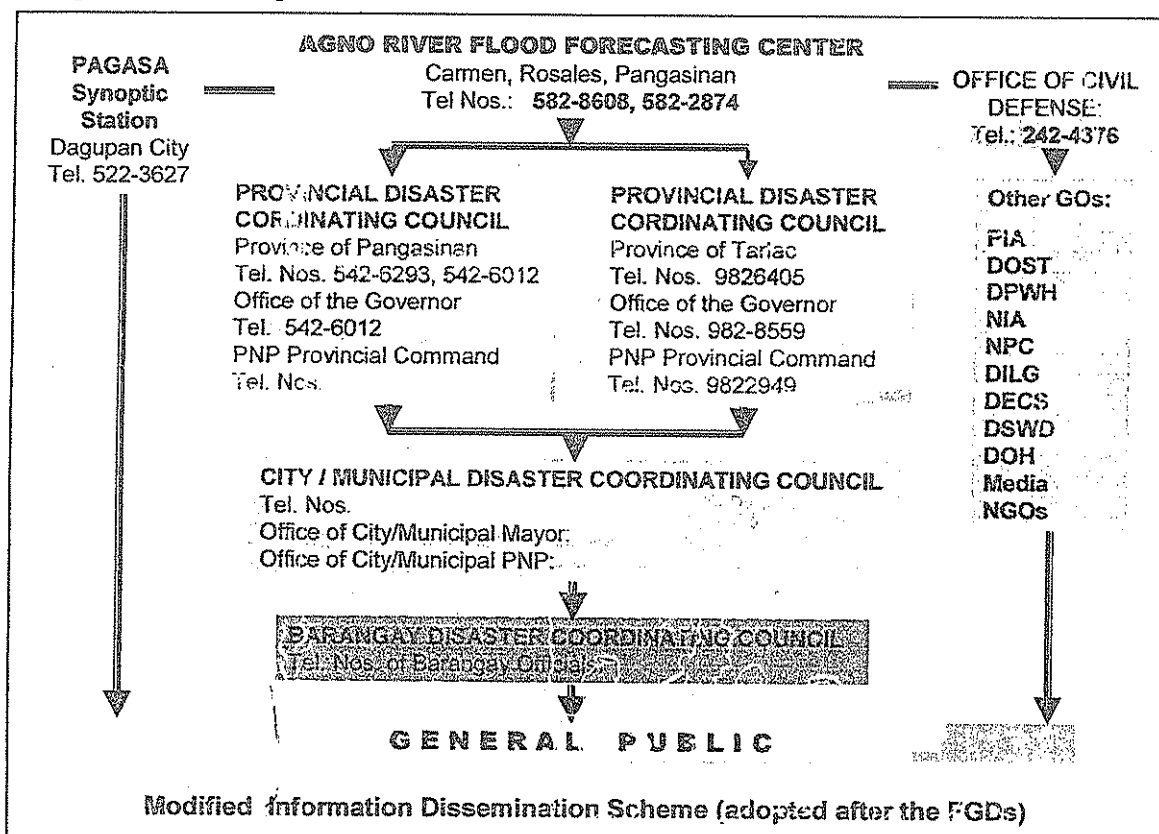
*hans*

*7*

Information Transmission and Dissemination Scheme



Example of Allied Agno Flood Bulletins Dissemination Network



*mp*

*unsh* *TD*