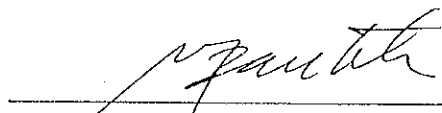



2. 実施細則 (I/A)

IMPLEMENTING ARRANGEMENT
ON
THE TECHNICAL COOPERATION
FOR
THE FEASIBILITY STUDY
ON
THE WESTERN LEGAZPI IRRIGATION AND RURAL DEVELOPMENT PROJECT
IN
THE REPUBLIC OF THE PHILIPPINES

AGREED UPON
BETWEEN
NATIONAL IRRIGATION ADMINISTRATION
AND
JAPAN INTERNATIONAL COOPERATION AGENCY

METRO MANILA, 27 MARCH, 1995


Mr. APOLONIO V. BAUTISTA
Administrator,
National Irrigation Administration


Mr. HIRONOBU YASUMURA
Leader,
Preparatory Study Team,
Japan International Cooperation Agency

I. INTRODUCTION

In response to the request of the Government of the Republic of the Philippines (hereinafter referred to as "GOP"), the Government of Japan (hereinafter referred to as "GOJ") has decided to conduct the Feasibility Study on the Western Legazpi Irrigation and Rural Development Project in the Republic of the Philippines (hereinafter referred to as "the Study"), and exchanged the Note Verbale with GOP concerning the implementation of the Study

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

On the part of GOP, National Irrigation Administration (hereinafter referred to as "NIA"), shall act as the counterpart agency to the Japanese study team and also as the coordinating body in relation with the Department of Agriculture and other governmental and non-governmental organizations concerned for the smooth implementation of the Study.

The present document constitutes the implementing arrangement between JICA and NIA under the above mentioned Note Verbale exchanged between two governments.

II. OBJECTIVES OF THE STUDY

The objectives of the Study are;

1. to conduct a feasibility study and formulate the irrigation and rural development project on the area west of and adjacent to Legazpi City, the capital of Albay Province, and
2. to carry out technology transfer to the Philippine counterpart personnel in the course of the Study.

III. STUDY AREA

The Study will be conducted within the mapped area of approximately 6,000ha. However, the final boundary of the Study area will be decided in the course of the Study.

IV. SCOPE OF THE STUDY

In order to achieve above objectives, the Study will consist of two works and will cover following items:

1. WORK I

Preparation of a topographic map covering the area of approximately 6,000ha (See the location map attached as APPENDIX I) at the scale of 1/4,000 based on aerial photography and ground control survey.

2. WORK II

(1) Phase I

- 1) To review other relevant existing projects and studies in the mapped area.
- 2) To collect and review relevant existing data and information and to carry out field survey and investigation in the mapped area on the following items ;

A. natural condition

- a) meteorology
- b) hydrology
- c) geology
- d) soil
- e) topography
- f) water resources
- g) water quality
- h) environment
- i) volcano-originated influence
- j) others

B. social and economic condition

- a) population
- b) household and farmers
- c) employment
- d) regional social-economy and household economy
- e) social infrastructure
- f) social organizations
- g) others

C. agriculture

- a) land use
- b) land tenure
- c) cultivation technique
- d) cropping pattern and yield
- e) production
- f) agricultural machinery
- g) water management

- h) livestock and poultry
 - i) others
 - D. agricultural infrastructure
 - a) irrigation and drainage facilities
 - b) farm roads
 - c) others
 - E. rural infrastructure
 - a) rural roads
 - b) water supply
 - c) electricity
 - d) others
 - F. agro-economy
 - a) farmers' economy
 - b) agricultural credit
 - c) processing
 - d) marketing and transportation system
 - e) others
 - G. agricultural supporting system
 - a) farmers' organization
 - b) supporting organization
 - c) extension service organization
 - d) others
 - H. other information related to the Project
 - a) administrative organizations related to the Project
 - b) environmental impacts
 - c) others
- 3) To analyze the collected data and information.
 - 4) To identify potentials, problems and constraints against the development in the mapped area.
 - 5) To decide the final boundary of the Study area where the irrigation and rural development project will be executed.
 - 6) To formulate the basic idea for the irrigation and rural development project in the Study area.

(2) Phase II

Based on the results of the Phase I study, the Phase II study will cover the following items;

- 1) Additional field survey, data collection and analysis of ;
 - a. hydrology and meteorology
 - b. geology
 - c. soil classification and land use
 - d. land tenure
 - e. cropping pattern and yield
 - f. water resources
 - g. irrigation and drainage
 - h. socio-economy and farmers' economy
 - i. social and farmers organizations
 - j. environment
 - k. others
- 2) Formulation of irrigation and rural development project in the Study area including ;
 - a. water resources development plan
 - b. water utilization and management plan
 - c. irrigation and drainage development plan
 - d. land use and cropping pattern development plan
 - e. crop diversification and animal husbandry development plan
 - f. post harvest and processing development plan
 - g. marketing and distribution development plan
 - h. extension service development plan
 - i. farmers' organization and supporting service development plan
 - j. rural infrastructure development plan
 - k. agricultural infrastructure development plan
 - l. others
- 3) Preliminary design of major structures
- 4) Preparation of operation and maintenance plan for major structures
- 5) Preparation of implementation schedule
- 6) Preparation of environmental conservation plan
- 7) Estimation of project costs and benefits
- 8) Overall evaluation of the project
- 9) Recommendations

V. STUDY SCHEDULE

The Study will be carried out in accordance with the attached tentative schedule.
(APPENDIX II)

VI. REPORTS

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

1. Inception Report

Fifteen (15) copies at the commencement of the Study.

2. Progress Report (1)

Fifteen (15) copies at the end of the Phase I field study in the Philippines.

3. Interim Report

Fifteen (15) copies at the commencement of the Phase II field study.

4. Progress Report (2)

Fifteen (15) copies at the end of the Phase II field study in the Philippines.

5. Draft Final Report

Fifteen (15) copies at the end of Phase II study. The GOP shall provide JICA with its comments on the Draft Final Report within one (1) month after receipt of the Draft Final Report.

6. Final Report

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

VII. UNDERTAKING OF THE GOP

In accordance with the Note Verbale exchanged between GOJ and GOP, GOP shall accord privileges, immunities and other assistance to the Japanese study team and, through the authorities concerned, take necessary measures to facilitate the smooth conduct of the Study.

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

2. NIA shall, at its own expense, provide the Japanese study team with the following, if necessary, in cooperation with other agencies concerned ;

- (1) available data and information related to the Study,
- (2) counterpart personnel,
- (3) suitable office space with necessary equipment (telephones, desks, chairs, photocopy machines, etc.) in Municipality of Daraga and Metro Manila,
- (4) necessary number of drivers, and
- (5) credentials or identification cards to the members of the Japanese study team.

3. NIA shall make necessary arrangements with other governmental and non-governmental organizations concerned for the following ;

- (1) to secure the safety of the Japanese study team,
- (2) to permit the members of the Japanese study team to enter, leave and sojourn in the Philippines for the duration of their assignment therein,
- (3) to exempt the members of the Japanese study team from taxes, duties, fees and any other charges on equipment, machinery and other materials brought into the Philippines for the conduct of the Study,
- (4) to exempt the members of the Japanese study team from income tax and charges of any kind imposed on or in connection with any emoluments or allowances paid to the members of the Japanese study team for their services in connection with the implementation of the Study,
- (5) to provide necessary facilities to the Japanese study team for the remittance as well as utilization of the funds introduced into the Philippines from Japan in connection with the implementation of the Study,
- (6) to secure permission for entry into private properties or restricted areas for the conduct of the Study,
- (7) to secure permission for the Japanese study team to take all data and documents (including photographs and maps) related to the Study out of the Philippines to Japan, and
- (8) to provide medical services as needed. Its expense will be chargeable on the members of the Japanese study team.

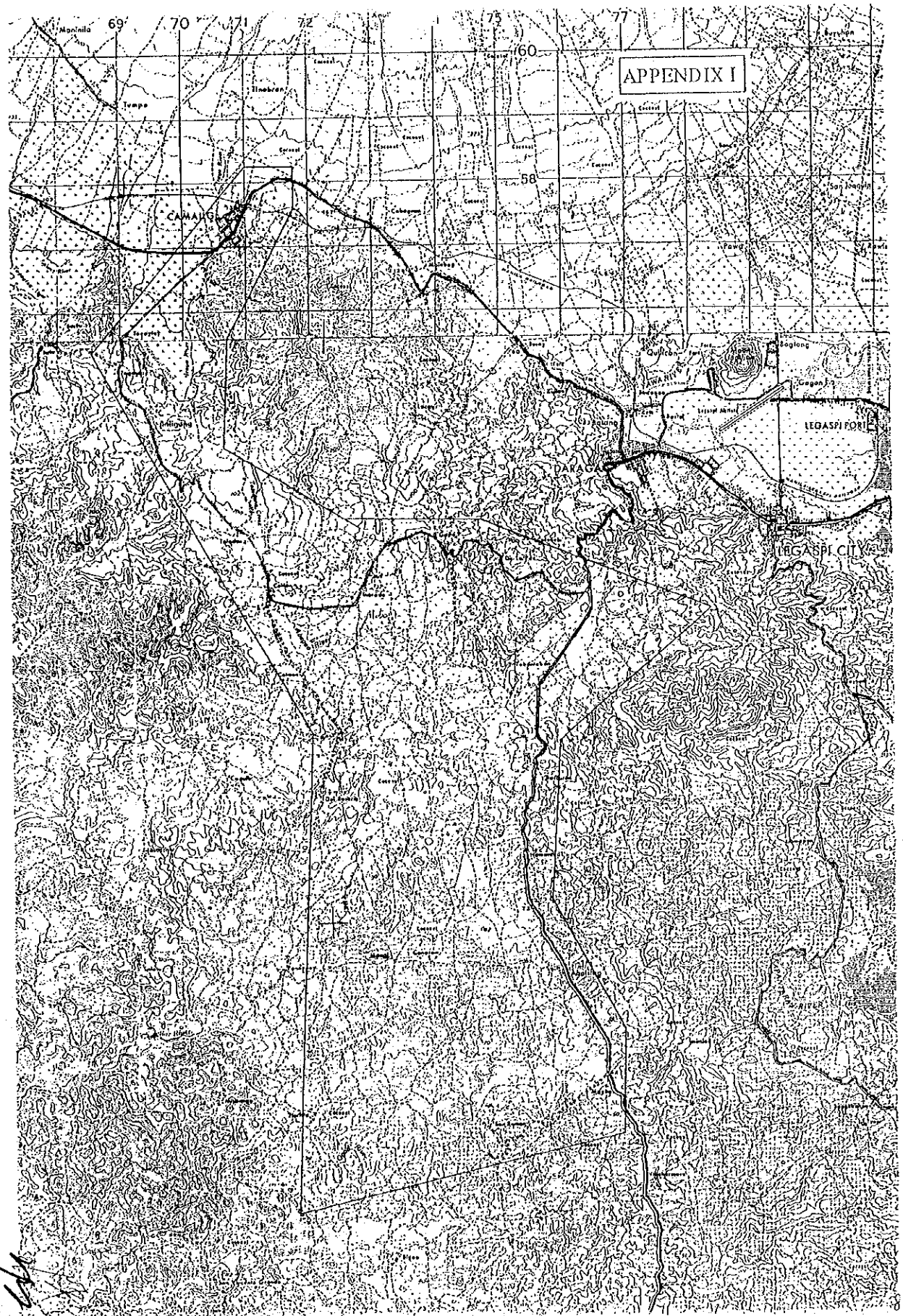
VIII. UNDERTAKING OF GOJ

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

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

IX. CONSULTATION



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




TENTATIVE SCHEDULE

Item	Month	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
WORK I	Aerial Photography																					
	Ground Control Survey																					
	Preparatory Work Mapping, Editing, Drawing																					
WORK II	Work in the Philippines																					
	Work in Japan																					
PHASE																						
Submission of Reports																						

(Remarks) IC/R : Inception Report P/R (1) : Progress Report (1)
 IT/R : Interim Report P/R (2) : Progress Report (2)
 DF/R : Draft Final Report F/R : Final Report

 Work in the Philippines
 Home Office Work in Japan

 Comments on DF/R by the Philippine side

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3. 協議議事録 (M/M)

MINUTES OF MEETING
ON
IMPLEMENTING ARRANGEMENT
FOR
THE FEASIBILITY STUDY
ON
THE WESTERN LEGAZPI IRRIGATION AND RURAL DEVELOPMENT PROJECT
IN
THE REPUBLIC OF THE PHILIPPINES

AGREED UPON
BETWEEN
NATIONAL IRRIGATION ADMINISTRATION
AND
JAPAN INTERNATIONAL COOPERATION AGENCY

METRO MANILA, 27 MARCH, 1995


Mr. APOLONIO V. BAUTISTA

Administrator,

National Irrigation Administration


Mr. HIRONOBU YASUMURA

Leader,

Preparatory Study Team,

Japan International Cooperation Agency

The preparatory study team (hereinafter referred to as "the Team") organized by the Japan International Cooperation Agency (hereinafter referred to as "JICA"), and headed by Mr. Hironobu YASUMURA, visited the Philippines from March 19 to March 29, 1995 for the purpose of discussing and confirming the Implementing Arrangement for the Feasibility Study on the Western Legazpi Irrigation and Rural Development Project in the Republic of the Philippines (hereinafter referred to as "the Study").

The Team had a series of discussions with the officials concerned of National Irrigation Administration (hereinafter referred to as "NIA") and other organizations on the Implementing Arrangement for the Study. The list of participants in the meetings is attached in the ANNEX.

As a result of the discussions, the Team and NIA agreed on the Implementing Arrangement for the Study.

The following are the main issues discussed and agreed upon by both sides in relation to the Implementing Arrangement for the Study.

1. NIA shall investigate, at its own expense, water discharge, rainfall and other relevant hydrological and meteorological items at the proposed sites, then summarize the data for the following period;
 - from May 1995 to the commencement of the Study
 - from the end of the first field survey to the commencement of the second field survey.
2. NIA shall make necessary arrangement/procedures to concerned government agencies and organizations for the preparation of a topographic map of the Study area on a request of the Japanese study team.
3. Photographing area covers approximately 11,000ha. (See location map attached as APPENDIX)
4. NIA shall prepare, at its own expense, the Project Description according to the Philippine laws and regulations and, if necessary, the Environmental Impact Statements. Japanese study team shall provide NIA with basic data and information on environmental issues in the course of the Study.
5. NIA shall make necessary arrangement for conducting farmers' household survey and other necessary survey in consultation with the Japanese study team.
6. NIA requested that the following equipment necessary for the Study be procured by JICA and be donated to NIA after the termination of the Study. The Team promised to convey its request to the Government of Japan.
 - vehicles (drivers for these vehicles will be provided by NIA at its own expense)
 - survey equipment for water discharge
 - rain gauge and other equipment for meteorological survey
 - other necessary equipment for the Study
7. NIA requested the counterpart training in Japan. The Team promised to convey its request to the Government of Japan.

LIST OF PARTICIPANTS

Philippine Side

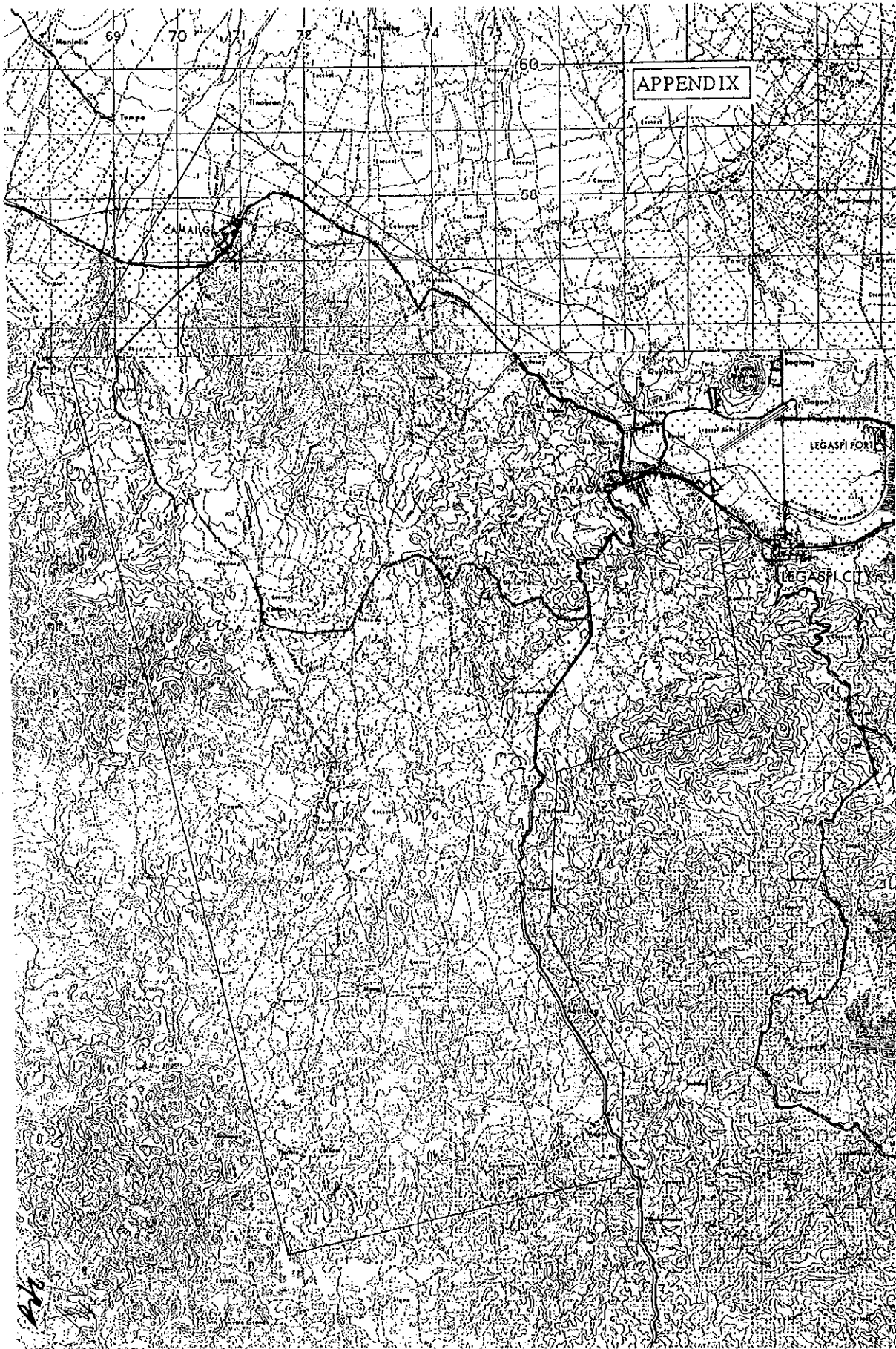
National Irrigation Administration, Project Development Department

Mr. Edilberto B. Punzal	Manager
Mr. Abelardo Y. Armentia	Officer in Charge Plan Formulation Division
Mr. Epifanio C. Gacusan Sr.	Division Manager Land Resources Use and Economics Division
Mr. Jovito A. Navarro	Officer in Charge Water Resources Utilization Division
Mr. Rogelio P. de la Rosa	Division Manager Project Investigation Division
Mr. Romulo A. Ramirez	Principal Engineer A Irrigation Works Section Plan Formulation Division
Mr. Rogelio T. Aguinaldo	Principal Engineer A Agricultural Land Use Section Land Resources Use and Economics Division
Mr. Milo M. Landicho	Principal Engineer A Surface Water Utilization Section Water Resource Utilization Division
Mr. Wilfredo D. Silva	Principal Engineer A Project Identification Section Project Investigation Division
Mr. Takeshi Ishida	Colombo Plan Expert

Japanese Side

Preparatory Study Team

Mr. Hironobu YASUMURA	Leader
Mr. Osamu YASUDA	Member
Mr. Hiroki SUGA	Member
Mr. Noboru MOCHIZUKI	Member
Mr. Kenichi MATSUMOTO	Member



4. Answer to Questionnaire

*THE FEASIBILITY STUDY
ON
THE WESTERN LEGAZPI IRRIGATION AND RURAL
DEVELOPMENT PROJECT*

*ANSWERS
TO
QUESTIONNAIRE*

MARCH 1995

NATIONAL IRRIGATION ADMINISTRATION (NIA)

ANSWERS TO QUESTIONNAIRE
FOR
THE FEASIBILITY STUDY
ON
THE WESTERN LAGAZPI IRRIGATION AND RURAL DEVELOPMENT PROJECT

1. BACKGROUND

QUESTION: If there are any upper plan to the Western Legazpi Irrigation and Rural Development Project (hereinafter referred to as "the Project", please explain the outline and how it is related to the Project.

ANSWER: NIA's basic policies and targets on irrigation development are described in its Corporate Plan which is a long term development plan covering 10 year period and has been updated every year. The latest version of the Corporate Plan covers the period 1994-2003. The NIA's policies are indicated in the Corporate Plan as follows:

- (1) Support national food production program, particularly self-sufficiency in rice
- (2) Promote economic development in the rural areas
- (3) Contribute to equitable distribution of income particularly in rural areas
- (4) Support the CARP- IC Programs

The Project is included in the Corporate Plan as one of the foreign assisted projects. The Project is expected to be formulated in line with the NIA's basic policies which have been supported by the related agencies in agricultural sector such as DA and DAR.

2. OUTLINE OF THE PROJECT

QUESTION: Please explain the following items concerning the Project :

- (1) *outline of the Project*
- (2) *purpose and target of the Project*
- (3) *relation between the national agricultural policy or program and the Project*

ANSWER: Outline of the Project

The Project intends to improve the regional economy through increasing agricultural production in the existing rainfed fields of about 3,500 ha located in the west of Legazpi city, capital of Albay Province. The Project will consist of construction of irrigation and drainage system and up-grading rural infrastructure related to agricultural activities. The Study area is mainly composed of Camalig and Daraga Municipalities and river basins of Igban and those concerned for the Project area.

Purpose and target of the Project

The Project aims to increase the rice and high valued cash crops through introduction of adequate crop diversification program, ensuring of stable water supply throughout the year by providing a new irrigation and drainage system and up-grading of rural infrastructure by improvement and/or construction of O&M / rural roads and host harvest facilities. Institutional strengthening such as farmer training and extension and applied research and technology packing will also be included in the Project.

Relation between the national agricultural policy or program and the Project

The agricultural sector still remains as a major pillar of the Philippine economy. It accounts for about 23% of the GDP, more than 21% of export earnings and about 50% of the total employment. About 55% of the population reside in the rural areas and are dependent, either directly or indirectly, on agriculture for their main source of livelihood. However, majority of the rural residents, especially the small farmers, remain under poverty. The rural area has a higher incidence of poverty (53%) compared with the urban areas (32%). The rural-urban inequality has worsen over time as the ratio of average rural family income to average urban family income has

declined from 0.67 in 1975 to 0.46 in 1985. In recent years, more than 80% farm families are classified as belonging to the lower 30% income bracket.

In view of these, the Philippine Agricultural Development Plan 1991 - 1995 is designed to increase the agricultural GVA by an average rate of 4.27% per year in real terms through the following major strategies:

- (1) Institutionalization of small farmer participation in policy making, planning, implementation, monitoring and evaluation of government programs,
- (2) Increase in government investments in basic infrastructure, especially irrigation and drainage, farm-to-market roads, farm mechanization, and power and communication infrastructure,
- (3) Enhancement of research and extension works to improve the agricultural production,
- (4) Reduction of government interventions in the production, marketing, and processing of agricultural inputs and outputs,
- (5) Improvement of rural credit systems, and
- (6) Reforms in marketing and transportation for the agricultural products.

In consonance with the targets and strategies adopted in the MTPDP, the Department of Agriculture (DA) emphasizes to increase the productivity and real income of small farmers, especially in poverty-stricken areas.

The Region V so-called Bicol Region including Albay Province which is agriculture-based is characterized as the second poorest in the Philippines in terms of family income, and the proportion of families below the poverty level of the Region is ranked the highest in the country. Therefore, the overall development strategies of the Region have been geared to the increase of rural employment and family income primarily from the agricultural sector. Project has therefore been accorded the highest priority, taking the above-mentioned government policy into consideration.

3. IMPLEMENTATION OF THE PROJECT

QUESTION: 3-1 Please explain the following items concerning the implementation of Project :

- (1) Project fund and budget
- (2) Implementing organization
- (3) Managing body organization
- (4) Implementing plan and schedule

ANSWER:

Project fund and budget

The Project costs will be estimated as a result of the feasibility study, and after the completion of the study, if the Project is verified to be feasible, the implementation fund will be budgeted in consultation with DBM and NEDA.

Implementing organization

The Project may include several components such as irrigation development, rural infrastructure and farm-to-market road. Therefore, various government organizations will be involved in the implementation of the Project. NIA will take responsibility for the implementation as a lead implementing agency. Other government agencies which also take a part in the implementation of the Project will be Department of Agriculture (DA), Department of Public Works and Highway (DPWH), Department of Environment and Natural Resources (DENR), Department of Agrarian Reform (DAR), Provincial Government of Albay and the concerned municipal government.

Managing body organization

NIA will be responsible for the overall implementation of the Project, ensuring the close coordination among the related agencies. In order to realize smooth project implementation, a Steering Committee comprising various government agencies will be established prior to the project implementation. The Steering Committee will be chaired by NIA representative.

Implementing plan and schedule

The implementation plan and schedule will largely depend on the type and scale of the Project which will be determined through the feasibility study. In general, construction works will be executed with full use of international and/or local contractors under the supervision of NIA and other related agencies. Construction works will be monitored by the Project Steering Committee. Construction period will be five years after the pre-construction activities including detailed design of 2 years.

QUESTION: 3-2 After finishing the study, how do you utilize the results of the Study ?

ANSWER: The feasibility study will be fully utilized for early implementation of the Project, if the development plan is well formulated showing high economic viability. It is expected that the feasibility study will be made jointly by the JICA Study Team and representatives from NIA and other related agencies.

4. OUTLINE OF NATURAL, SOCIO-ECONOMIC, AGRICULTURAL AND RURAL CONDITIONS

QUESTION: 4-1 Please fill the attached form 1

ANSWER: Please see the filled-out form and the tables attached to this answers. Please understand our difficulties to fill out all the forms. Most of agricultural information (Table 3 through 22) will be obtained from Municipal Agricultural Officers of the concerned municipalities (Camalig and Doraga). All these required data will be obtained more in detail through the feasibility study.

QUESTION: 4-2 Please describe following items concerning the general condition of water in the Study area.

- (1) Outline of irrigation system*
- (2) Outline of the drainage system*
- (3) Rule of water use for irrigation (habitual water use or rural tradition on water usage right)*
- (4) Organization and their responsibility of the water management*

ANSWER: Outline of irrigation system

There is no existing irrigation system in the Study area. The diversion dam was constructed in the Igban river in late 1980 for irrigation purpose; however, the irrigation system was not properly completed due to the lack of construction fund. (The intake structure was completed, but the structure to raise water level for diversion remains unconstructed; canal system was constructed only for 2 km and the rest of the system has not been constructed.) Construction of the irrigation system was initiated by the request from the beneficiaries but as mentioned above, the system is still incomplete; local farmers are therefore anxious to resume the construction as early as possible.

Outline of drainage system

There is no artificial drainage system in the Study area. Natural drainage system is properly functioning.

Rule of water use for irrigation

Water right of river in the Philippines is registered and controlled by the Central Government through the National Water resources Board (NWBB).

Organization and their responsibility of the water management

Irrigator's Association (IA) is responsible for water management and established in every irrigation system. In the Project area, IA will be established under the guidance of NIA prior to the commencement of the construction works. It is widely recognized that beneficiary participation approach has enhanced the IA's activities, and therefore, recommended that the feasibility study should include the public

consultation with prospective beneficiaries, so that the project will be properly operated and maintained by themselves through the activities of IA.

QUESTION: 4-3 Please describe following items concerning water resources

- (1) Runoff analysis of the Igban river (or Irraya river, Quirangay river)
- (2) Available development water for irrigation

ANSWER: Runoff analysis of the Igban river

No discharge records are available for the Igban river. The Irraya and Nasisi rivers which run near the Igban river have discharge measurement records as follows :

Irraya River (Catchment area : 217 km² at Obaliw, Oas)

Annual runoff : 251.7 MCM, Specific discharge : 0.03677 m³/sec/km²

Monthly runoff (m³/sec)

Jan	Feb	Mar	Apr	May	Jun	Jul
6.67	6.09	5.59	4.95	5.14	6.83	7.59
Aug	Sept	Oct	Nov	Dec	Mean	
8.34	9.45	9.48	11.91	13.69	7.98	

Nasisi River (Catchment area : 39 km² at Nasisi, Ligao)

Annual runoff : 64.02 MCM, Specific discharge : 0.05205 m³/sec/km²

Monthly runoff (m³/sec)

Jan	Feb	Mar	Apr	May	Jun	Jul
2.64	1.96	1.87	1.75	1.70	1.72	1.53
Aug	Sept	Oct	Nov	Dec	Mean	
1.68	1.73	1.98	2.73	3.10	2.03	

The catchment area of the Igban river is around 20 km² at the existing diversion dam (Camalig). Based on the above records on the Irraya and Nasisi rivers, annual runoff of the Igban river is estimated to be around 30 MCM with monthly mean runoff of approximately 1.0 m³/sec.

ANSWER: Available development water for irrigation

The runoff Igban river in the dry season may not be able to support all the irrigation demand in the Study area of about 3,500 ha. Therefore, some additional works may be required which would be construction of small impounding reservoirs, canal lining to minimize the water conveyance losses and tapping other rivers flowing into the Study area. Possibility of ground water exploitation should also be studied.

QUESTION: 4-4 Please describe following items concerning water requirement

- (1) Gross water requirement
- (2) Net water requirement
- (3) Maximum water requirement
- (4) Seasonal pattern of water requirement
- (5) Water requirement rate

ANSWER:

Irrigation water requirement will be studied during the feasibility study on the basis of the proposed cropping pattern and meteorological data in the Study area.

The following is a general information on the diversion water requirement for double cropping of paddy in Albay Province which has been given in Annex B-3 (page B3-14) of the Master Plan Study on the Small Scale Irrigation Development Project (SSIDP) executed by JICA in 1991/1992.

Diversion Water Requirement (l/sec/ha)

Jan	Feb	Mar	Apr	May	Jun	Jul
0.8	0.3	0.0	0.0	1.4	0.3	0.1
Aug	Sept	Oct	Nov	Dec		
0.1	0.0	0.9	0.0	0.0		

NIA's guideline recommends that an overall irrigation efficiency of 64% (80% for conveyance and 80% for application) should be applied to planning of irrigation projects in the Philippines.

QUESTION: 4-5 Please describe an outline of the support system for agriculture

ANSWER: Municipal government office is responsible for the provision of agricultural support services under technical assistance of the Department of Agriculture (DA) through its provincial and regional offices. Farm input supplies are largely privatized. Agricultural research is carried out by DA's Regional Research Stations, University of the Philippines and Bicol University. Bureau of Plant Industry (BPI) of DA is responsible for the production and distribution of certified seeds. Activities of farmers' cooperatives are largely assisted by municipal government offices and Cooperative Development Authority (CDA). Rural credit facilities are provided by Land Bank through the arrangement of municipal government office.

QUESTION: 4-6 Please describe administrative borderline of municipalities in the Project area

ANSWER: please see the attached map.
The exact boundaries between municipalities will have to be confirmed during the course of the survey for mapping.

QUESTION: 4-7 Please describe the present condition of the Study area in terms of volcanic ash sediments, debris flow and lahar.

ANSWER: No debris flows, volcanic ash sediment and lahar have taken place in the Igban river and neighbouring rivers.

5. AVAILABILITY OF DATA AND LOCAL CONSULTANT SERVICES

QUESTION: 5-1 Please fill the attached form 2

ANSWER: Please see the filled-out form

QUESTION: 5-2 Please submit following data

- (1) Amount and quality of water flow of Igban river (or Iraya river, Quirangay river)
- (2) Daily and monthly rainfall of the Project area
- (3) Soil test and geological survey of the Project area
- (4) Organisation chart of the authorities concerned of the Project, and explanation of its role and how it is related.
- (5) Description of the national plans, and present conditions regarding post harvest and agricultural marketing in the area.
- (6) Ground water of the Project area
- (7) Salinity in irrigation
- (8) Present condition of the diversion dam which has been left unused.

ANSWER: Amount and quality of water flow of Igban river (or Iraya river, Quirangay river)

Please refer to the answer to Question 4-3.

There is no information on water quality of the Igban river; therefore, the Igban river water should be tested during the feasibility study in order to confirm its suitability for irrigation purpose. However, the Igban river water has been utilized for domestic purpose by local inhabitant and shown to be good.

Daily and monthly rainfall of the Project area

Please refer to the filled-out form-1 (Table--1)

Soil test and geological survey of the Project area

There is no detailed soil and geological survey data. Available information however will be submitted separately from this answer.

Organisation chart of the authorities concerned of the Project, and explanation of its role and how it is related.

Please see the attached sheets (organizational set-up of the concerned government offices). General description of each organisations given in the recent feasibility study report on the "Upland Irrigation and Rural Development Project in Southern Luzon" prepared by JICA Study Team in March 1995. During the feasibility study, detailed discussions will be needed for the establishment of institutional set-up among the concerned agencies. However, in principle, same institutional approaches applied to the Southern Luzon Project will be adopted in the Study.

Description of the national plans, and present conditions regarding post harvest and agricultural marketing in the area

In general, post harvest facilities will be needed to meet the increased crop production by the Project. It is expected that the post harvest facilities will be studied as one of the project components. Agricultural marketing system in the Philippines is complicated and largely controlled by middlemen, resulting in low income of the farm producers. Bargaining power of the cooperatives should be strengthened through institutional development of the farmers and provision of marketing facilities and the required administrative support.

Ground water of the Project area

No data available. In general, ground water potential may be high in the Study area. However, the utilization of ground water for irrigation should be delayed until careful studies are completed, because economic feasibility of ground water exploitation for irrigation is questionable in the Philippines.

Salinity in irrigation

Salinity problem has not been reported in irrigation projects in the Philippines.

Present condition of the diversion dam which has been left unused.

Please refer to the answer to the question 4-2.

6. UNDERTAKING OF THE GOVERNMENT OF REPUBLIC OF THE PHILIPPINES

QUESTION: 6-1 We will kindly ask for following items for the smooth implementation of the Study

- (1) Counterpart personnel for each Japanese member of the Study Team*
- (2) Adequate office space in Metro Manila and the Study area with furniture and facilities*
- (3) Necessary number of vehicles with drivers*

ANSWER: Counterpart personnel for each Japanese member of the Study Team

Counterpart personnel will be provided to each expert of the Study Team on a full time basis at NIA's own cost.

Adequate office space in Metro Manila and the Study area with furniture and facilities

Office space will be provided both in Metro Manila (NIA head office) and the Study area (NIA Provincial Irrigation Office). Desk and other principal facilities will be furnished; however, telephone is not available in the Study area, and photocopy and FAX machines can not be provided both in Metro Manila and the Study area due to the limited operational funds of NIA.

Necessary number of vehicles with drivers

Vehicles required for the activities of the counterpart personnel will be provided by NIA at its own costs. Unfortunately, NIA is unable to provide the Team with necessary number of vehicles during the course of the feasibility study.

QUESTION: 6-2 Farm household survey in collaboration with Japanese Study Team

ANSWER: NIA will assist the Study Team in carrying out the farm household survey. It is strongly recommended that in addition to the farm household survey, a public consultation survey be executed in order to incorporate the opinions and comments of the prospective beneficiaries in the Study area.

ANSWERS TO QUESTIONNAIRES FOR FEASIBILITY STUDY
(EIA SYSTEM OF THE PHILIPPINES)

I. NATIONAL SCALE

< I.1 New laws, regulations, and guidelines on environmental matters after 1990 >

- a. There is no major change on the governmental organizations related to environmental affairs.
- b. A DENR Administrative Order No.21 series of 1992 was issued to amend the "Revised Rules and Regulations Implementing P.D.1586 (Environmental Impact Statement System)."
- c. Water usage and classification/ Water Quality Criteria of 1978 and Effluent Regulation of 1982 were revised under DENR Administrative Order Nos. 34 and 35 (1990).

< I.2 International conventions on environmental conservation >

- a. Although the Philippines does not registered to Ramsar convention yet, three wetlands are recognized as important habitats for migrated waterfowls; Olango island (east of Sebu island), Candaba swamp in Central Luzon, and Naujan Lake in eastern Mindro island.
- b. The Philippines became a signatory to the Convention on International Trade of Endangered Species of Wild Flora and Fauna (CITES) -- so-called "Washington Convention" -- in 1976 and ASEAN Agreement on Nature Conservation in 1985.
- c. Not known.

< I.3 Endangered species of fauna and flora >

- a/b. List of endangered species included in CITES and ASEAN Agreement on Nature Conservation are given in Attachment-1. (The list might be updated recently.)
- c. Followings are laws related to wildlife protection and biodiversity:

Act 3915	National Park System
R.A. 826	Creation of Parks and Wildlife Commission
R.A. 1086	Prohibiting Killing of Tamaraw
R.A. 6147	Declaring Monkey Eating Eagle as Protected Bird
Proclamation 2141	Wilderness Area
E.O. 234	Banning Slaughter of Carabao and Buffaloes
R.A. 7586	Establishment and Management of National Integrated Protected Areas System
- d. Recent information should be checked in the feasibility study.

< I.4 Inventory of national parks, game refuge and bird sanctuaries, and wilderness areas >

There are 63 national parks, nine game refuge and bird sanctuaries, and ten wilderness areas in the country. Please see Attachments-2 and -3.

< I.5 Major types of forest vegetation in the Philippines. Forest vegetation maps and forest use map? >

Major forest types are dipterocarp forests and mossy forests. Country-wide land use maps prepared with a financial assistance of the Swedish Government (BITS) indicate recent forest land use based on the interpretation of satellite data. The maps are available at DENR's National Mapping and Resource Information Authority (NAMRIA).

< I.6 Important cultural properties and archaeological sites of historical importance in the Philippines >

Not known

< I.7 Recent example of EIA, environmental conservation plan, and environmental monitoring plan on special agricultural development project >

Environmental Impact Assessment of Miral SWIM Project in Davao del Sur, Mindanao island could be an example.

II. LOCAL SCALE

Natural Environment

< II.8 Land use map, forest vegetation map, and forest use map in and around the study area >

DENR Regional office, PENRO (Provincial Environment and Natural Resource Office), or provincial government might have these maps. However, these maps, if available, are generally outdated and thus the feasibility study should revise them or newly prepare the maps.

< II.9 Primary forest, conservation forest, and timber production forest in and around the project area >

These information could be obtained from DENR Regional office or PENRO.

< II.10 National parks, game refuge and bird sanctuaries, and wilderness area in and around the study area >

Mayon Volcano National Park is located near the study area. For other protected area, please contact to DENR Regional office.

< II.11 Important landscape site or scenery for tourism or religion in and around the study area >

This must be clarified in the feasibility study.

< II.12 Environmentally vulnerable areas such as mangrove forests or coral reefs in the surrounding area >

None

< II.13 Endangered or protected species of fauna and flora in and around the study area >

This must be clarified in the feasibility study.

< II.14 Fish species in rivers in and around the study area. Rare or endemic species? >

This must be clarified in the feasibility study.

< II.15 Availability of recent data on water quality of river in and around the study area. Usable for irrigation of rice field >

Please refer to item 5.2.

< II.16 Hot spring or spring in surrounding area >

This must be clarified in the feasibility study.

< II.17 Regarding to Mayon volcano: >

- a. Disaster map might be obtained from PHIVOLCS (Philippines Institutes of Volcanoes) or NAMRIA.
- b. Information could be obtained from PHIVOLCS.

< II.18 Regarding to constantly attacking zone of typhoon: >

- a. Typhoon records and climate data could be obtained from PAGASA.
- b. Information on typhoon damage might be obtained from DPWH or DA. Camote (sweet potato) is a typical typhoon resistant crop. For other typhoon resistant crops, please contact DA.
- c. This should be studied in the feasibility study.

Social Environment

< II.19 Resettlement of local people in study area, if any >

This must be clarified in the feasibility study.

< II.20 Cultural properties and archaeological site in and around the study area, if any >

This must be clarified in the feasibility study.

< II.21 Present status of river use. Fishing right and river water use right >

For water right, please refer to item 4.2. For river discharge, please refer to item 4.3.

< II.22 Existence of common land in and around the study area >

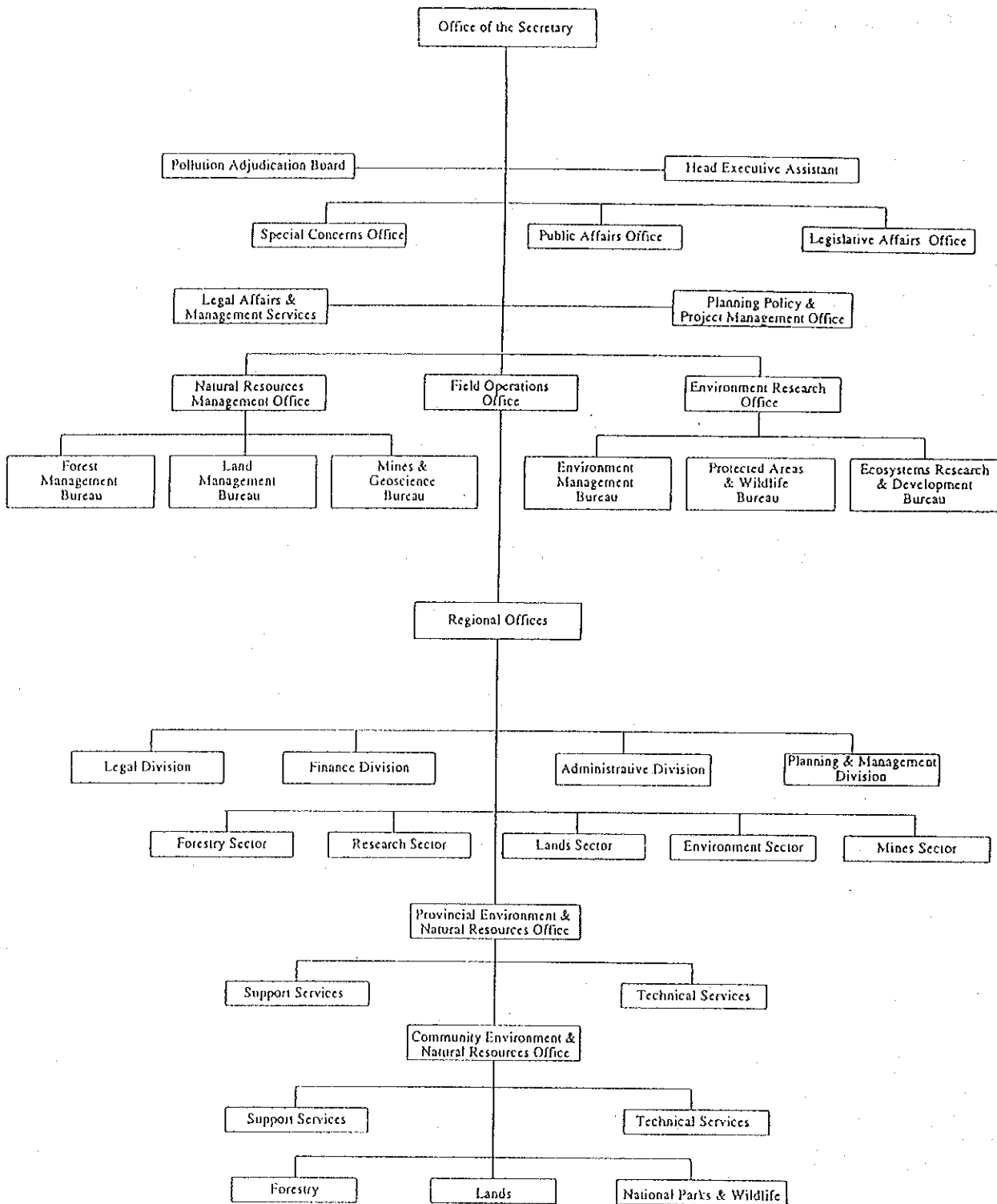
This must be clarified in the feasibility study.

< II.23 Area inhabited by ethnic minorities, if any >

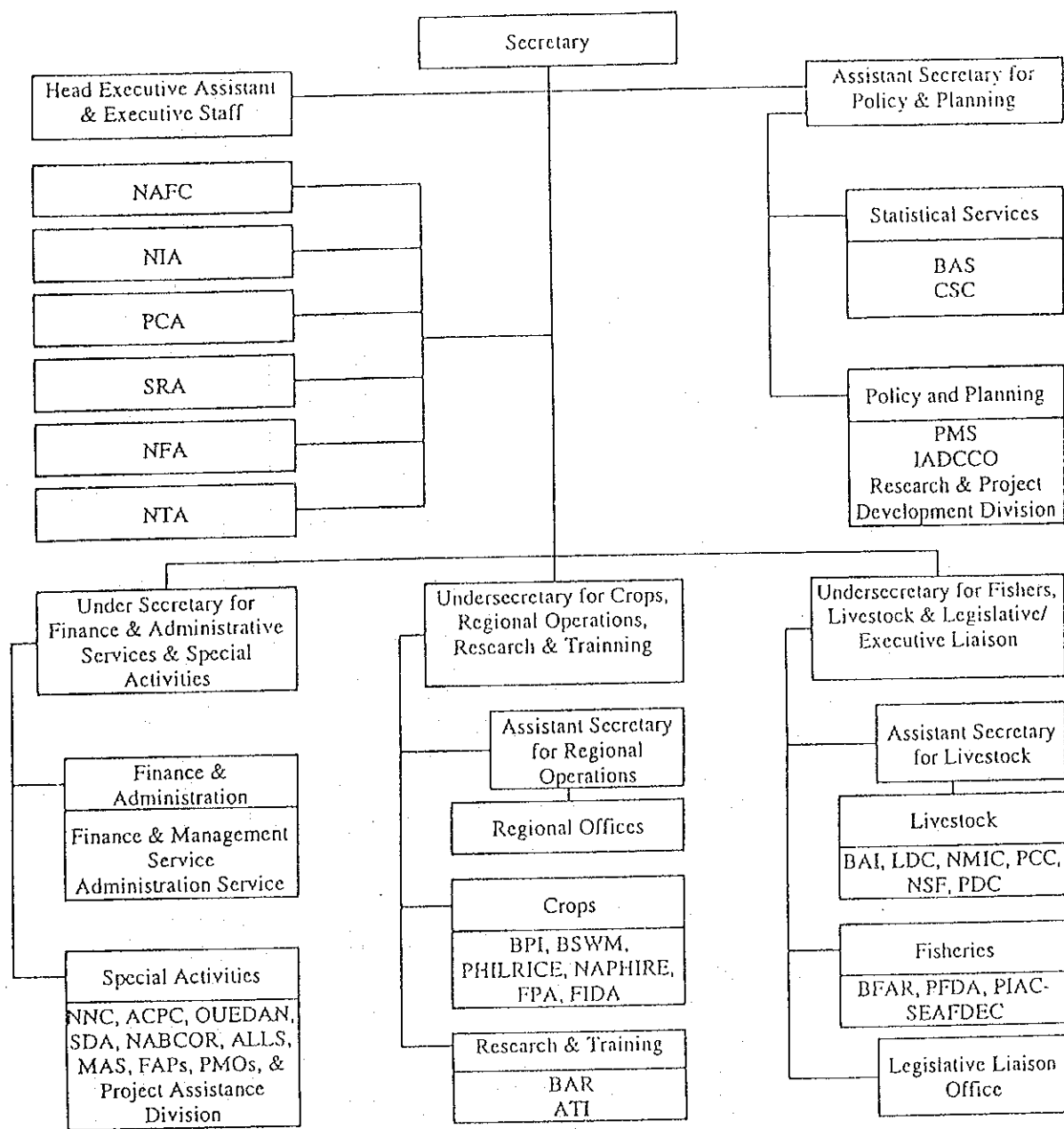
This must be clarified in the feasibility study.

5. Organization Chart

ORGANIZATION CHART



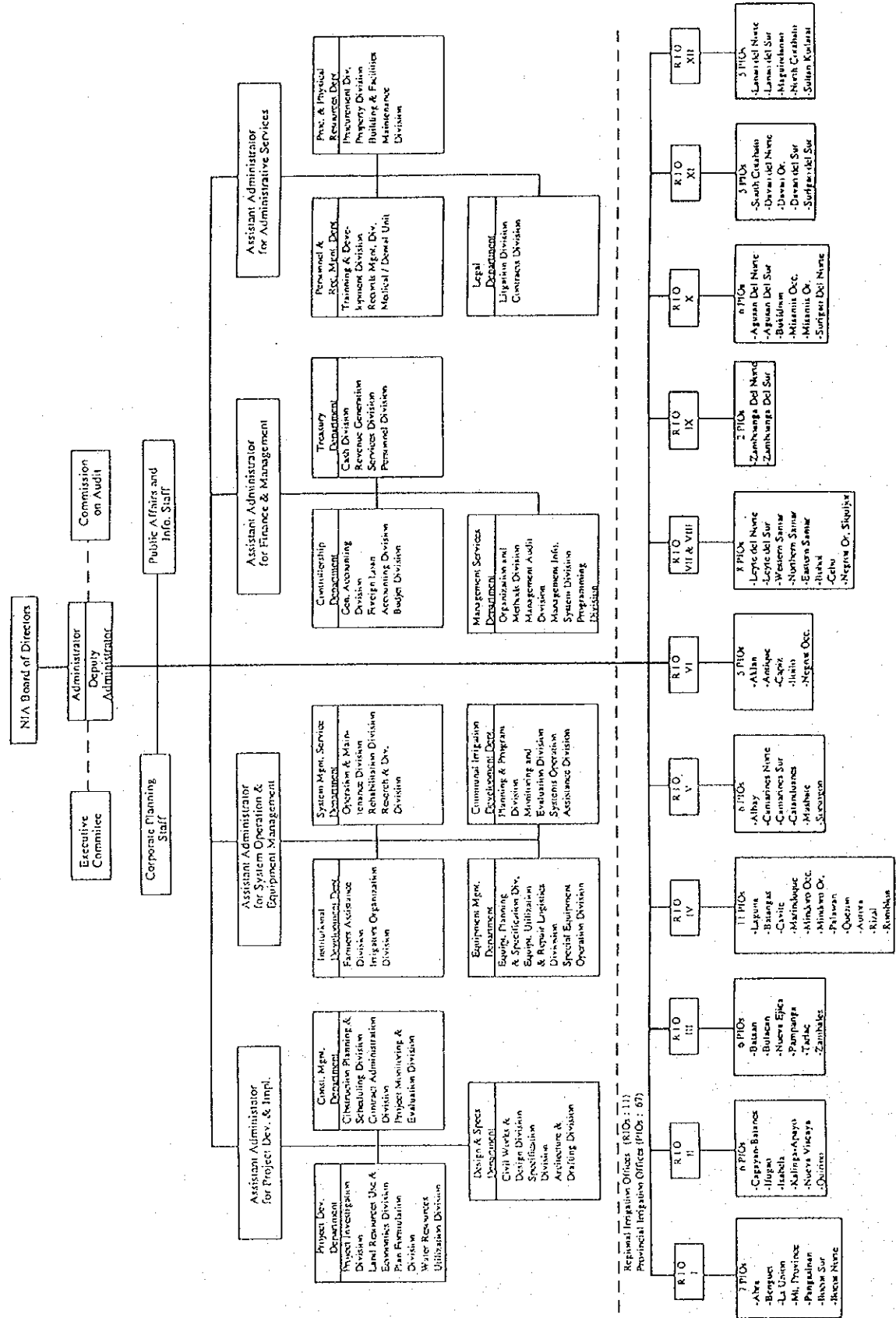
Organization Chart of Department of Environmental and Natural Resources



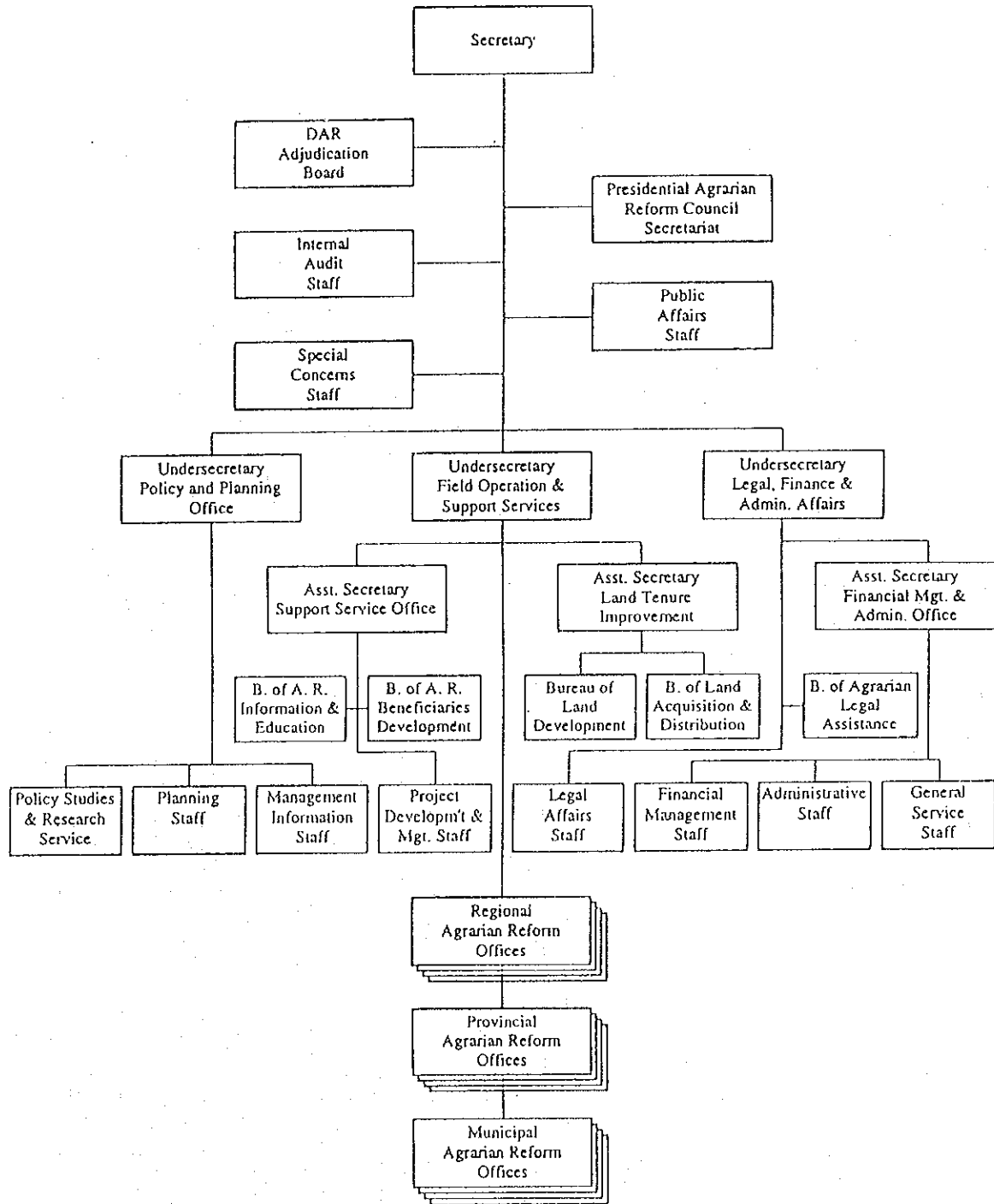
Acronyms

ACPC	Agricultural Credit Policy Council	NAPHIRE	National Post Harvest Institute for Research and Extension
ATI	Agricultural Training Institute	NFA	National Food Authority
AJIS	Agribusiness Investment Information Service	NIA	National Irrigation Administration
BAI	Bureau of Animal Industry	NMIC	National Meat Inspection Commission
BAR	Bureau of Agricultural Research	NNC	National Nutrition Council
BAS	Bureau of Agricultural Statistics	NSF	National Stud Farm
BFAR	Bureau of Fisheries and Aquatic Resources	NTA	National Tobacco Administration
BPI	Bureau of Plant Industry	PAD-SCO	Project Assistance Division-Special Concerns Office
BSWM	Bureau of Soils and Water Management	PCA	Philippine Coconut Authority
CSC	Computer Service Center	PDC	Philippine Dairy Corporation
FIDA	Fiber Industry Development Authority	PFDA	Philippine Fisheries Development Authority
FPA	Fertilizer Pesticide Authority	PHILCOTTON	Philippine Cotton Corporation
IADCCO	International Agricultural Affairs Division	PHILRICE	Philippine Rice Research Institute
LDC	Livestock Development Council	PMS	Planning and Monitoring Service
LLO	Legislative Liaison Office	PTAC-SEAFDCEC	Southeast Asian Fisheries Development Center
MAS	Marketing Assistance Service	QRCCGB	Quedan and Rural Credit Guarantee Corporation
NABCOR	National Agribusiness Corporation	SACOBIA	SACOBIA Development Authority
NAFC	National Agriculture and Fishery Council	SRA	Sugar Regulatory Administration

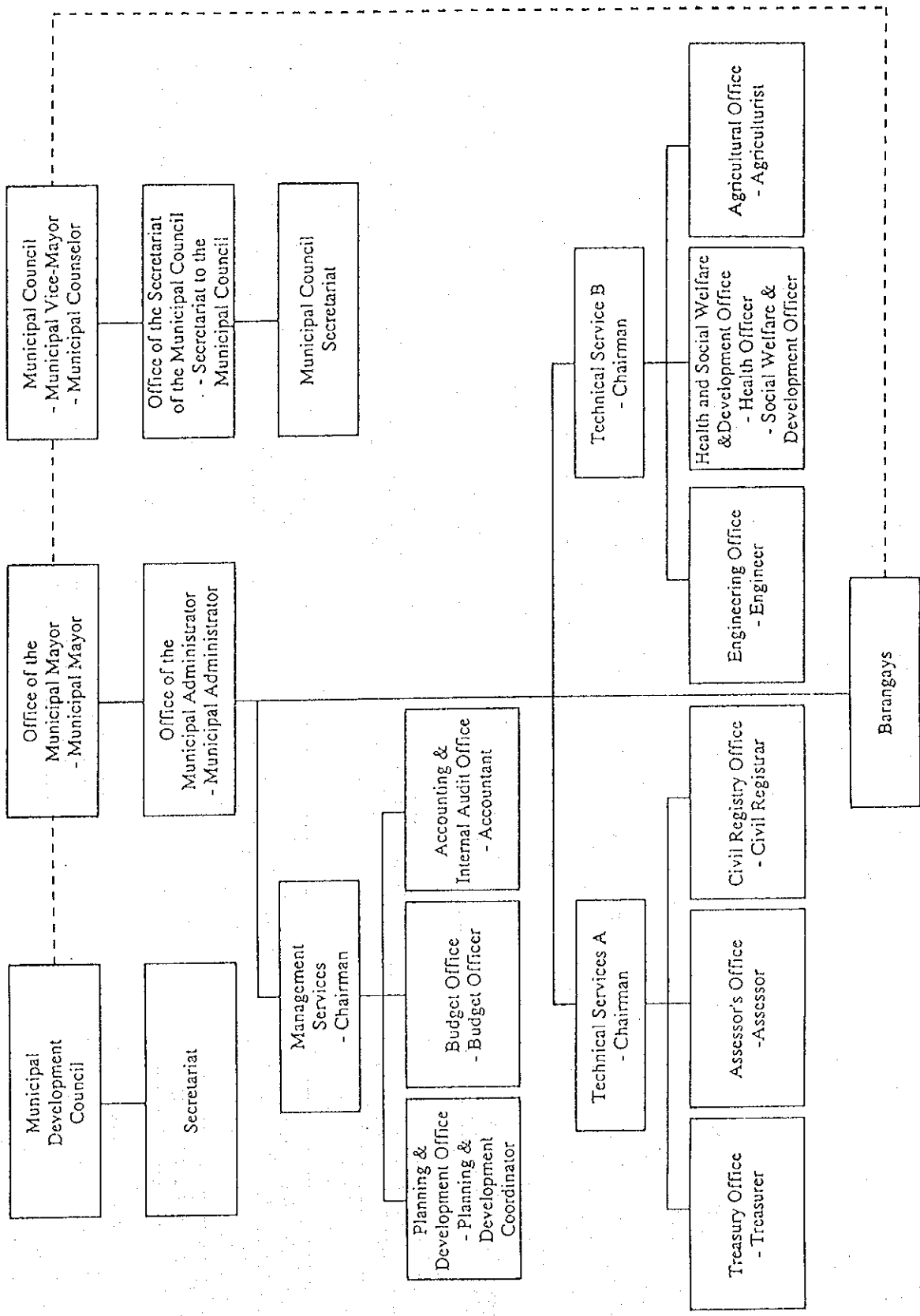
Organization Chart of Department of Agriculture



Organization Chart of National Irrigation Administration

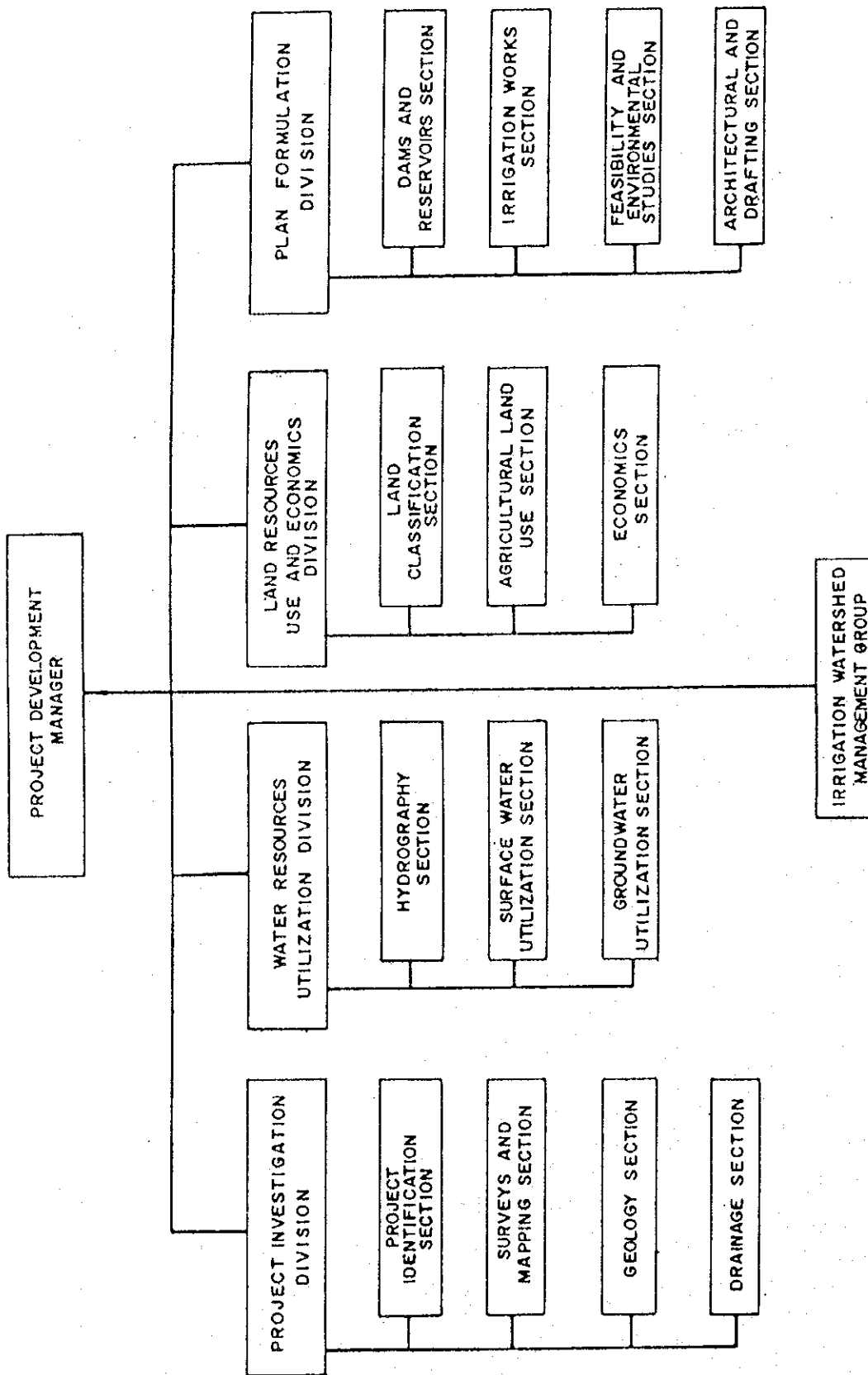


Organization Chart of Department of Agrarian Reform



Organization Chart of Municipal Government

NATIONAL IRRIGATION ADMINISTRATION
 PROJECT DEVELOPMENT DEPARTMENT
 ORGANIZATIONAL CHART



6. 収集・確認資料リスト

収集資料

【地図】

- (1) LAND USE / VEGETATION MAP (1/50,000:1987:LIGAO:3759-IV)
Albay Land Resources Evaluation Project
Bureau of Soils and Water Management
Province of Albay
Department of Agriculture, Region V
- (2) LMU MAP (soils) (1/50,000:1989:LIGAO:3759-IV)
Bureau of Soils and Water Management
Province of Albay
Department of Agriculture, Region V
- (3) SLOPE MAP (1/50,000:1987:LIGAO:3759-IV)
Albay Land Resources Evaluation Project
Bureau of Soils and Water Management
Province of Albay
Department of Agriculture, Region V
- (4) PROVINCIAL MAP (1/100,000:Dec. 1989)
(location map of irrigation projects and systems)
Albay Provincial Irrigation Office
Regional Office No. V
National Irrigation Office
- (5) ALBAY (1/146,000)
(road map)
M & L Licudine Enterprises, Albay, 1988
- (6) ADMINISTRATIVE MAP, PROVINCE OF ALBAY (1/150,000:Oct. 1990)
National Mapping and Resource Information Authority
- (7) Topographic Map, POLANG UI (1/50,000:May 1990:LUZON, SHEET 3659 I)
National Mapping and Resource Information Authority
Department of Environment and Natural Resources
- (8) Topographic Map, PANGANIRAN (1/50,000:Apr. 1990:LUZON, SHEET 3659 II)
National Mapping and Resource Information Authority
Department of Environment and Natural Resources
- (9) Topographic Map, BACACAY (1/50,000:May 1990:LUZON, SHEET 3759 I)
National Mapping and Resource Information Authority
Department of Environment and Natural Resources
- (10) Topographic Map, MANITO (1/50,000:Apr. 1990:LUZON, SHEET 3759 II)
National Mapping and Resource Information Authority
Department of Environment and Natural Resources
- (11) Topographic Map, LEGAZPI CITY (1/50,000:Apr. 1990:LUZON, SHEET 3759 III)
National Mapping and Resource Information Authority

Department of Environment and Natural Resources

- (12) Topographic Map, LIGAO (1/50,000: May 1990: LUZON, SHEET 3759 IV)
National Mapping and Resource Information Authority
Department of Environment and Natural Resources
- (13) Topographic Map, LEGAZPI CITY (1/250,000: September 1989, PCGS 2516)
National Mapping and Resource Information Authority
Department of Environment and Natural Resources
- (14) Topographic Map, BULAN (1/250,000: January 1984: LUZON, PCGS 2519)
National Mapping and Resource Information Authority
Department of Environment and Natural Resources
- (15) Topographic Map, Mayon Volcano, Province of Albay, (1/33,000: 1993)
- (16) Physical Framework Plan (行政区分图)
(Municipality of Camalig, Municipality of Daraga ; 1/50,000)
- (17) Roadmap of the Philippines (1/1,000,000)
National Book Store, 198
- (18) Proposed Composite Land Use Map, Region V Bicol, (1/250,000)
- (19) National of Integrated Protected Area System (NIPAS) Map, Region V Bicol,
(1/250,000)
- (20) Land Classification Map, Region V Bicol, (1/250,000)
- (21) Constraint Map, Region V Bicol, (1/250,000)
- (22) Proposed Protection Land Use Map, Region V Bicol, (1/250,000)
- (23) Proposed Production Land Use Map, Region V Bicol, (1/250,000).

【書物】

- (1) DENR Administration Order No. 14, Series of 1993
Revising Chapter II,
Section 57 to 66 of the 1978 Implementing Rules and Regulations for P. D. 984
Environmental Management Bureau,
Department of Environment and Natural Resources
- (2) Administration Order No. 14-A, Series of 1993
Amendment to Administration Order No. 14 Series of 1993
and Clasifying its Coverage and Scope
Environmental Management Bureau,
Department of Environment and Natural Resources
- (3) DENR Administration Order No. 21, Series of 1992
Amending the Revised Rules and Regulations Implementing P. D. 1586
(Environmental Impact Statement System)
Environmental Management Bureau,
Department of Environment and Natural Resources

- (4) DENR Administration Order No.29,
Implementing Rules and Regulations of Republic Act 6969
Environmental Management Bureau,
Department of Environment and Natural Resources
- (5) A Primer on Environmental Impact Assessment in the Philippines
Environmental Management Bureau,
Department of Environment and Natural Resources
- (6) Proceedings of Geologic Hazards Seminar Cum Exposure Tour for Media People
Philippine Institute of Volcanology and Seimology, 4-5 Nov, 1988, Legazpi City
- (7) Operation Mayon
A Contingency Plan for Mayon Volcano
Phillipine Institute of Volcanology and Seimology, 1990
- (8) Mayon Volcano Alert Sygnals (As Revised, Feb.1993)
Philippines Institute of Volcanolgy and Seimology, 1993
- (9) Managing Disaster
"Operation Mayon 1993"
Provincial Disaster Operation Center, Provincial Disaster Coordinating Council, 1993
- (10) Mayon Eruption
Provincial Disasater Operation Center, Provincial Disaster Coordinating Council, 1993
- (11) Bicol University Information Guide 1993
Bicol University, 1993
- (14) Directory of Non-Government Organizations, Region V
NEDA V Technical Staff, 1991
- (19) Philippine Strategy for Sustainable Development,
Part 1, A Conceptual Framework
Department of Environment of Natural Resources, JANUARY 1990
- (20) DENR Administrative Order No.25, 1992
National Integrated Protected Areas System (NIPAS)
Implementing Rules and Regulations.
Environmental Management Bureau,
Department of Environment and Natural Resources
- (21) DENR Office Circular No.3, Series of 1983
Technical Definition and Scope of the Environmentally Critical Projects and Areas
Enumerated in Proclamation 2146
- (22) フィリピン国セクター別基礎資料、農林水産(3)灌漑排水
石田 武士、1995
- (23) ピナツボ火山噴火後の地形変化と土砂災害-(2)
大野 宏之ほか、1995

(24) ココナツに関する資料
加藤 明夫、1995

(25) Albay - The Gate Way of Bicol
Department of Tourism Region V Office, 1995

(26) Bicol (Region V) Regional Socio-economic Profile
NEDA V Technical Staff, 1993

(27) Bicol Region Physical Resources Profile
NEDA V Technical Staff, 1994

【データ】

- (1) Questionnaireに対する回答 (Daraga市及びCamalig市)
- (2) Population : 1990, Province of Albay
- (3) Monthly Rainfall, Province of Albay
- (4) Monthly Discharge, Province of Albay
- (5) Meteorological Profile, Province of Albay
- (6) Irrigation Profile, Province of Albay
- (7) Meteorological Data for Legazpi City, PAGASA, Leazpi, 1995
- (8) Summary of Daily Precipitation Observations, PAGASA, Leazpi, 1995

確認資料

【書物】

- (1) KEY COMMERCIAL CROPS DEVELOPMENT PROGRAM (KCCDP), 1993-1998
Department of Agriculture, September 1993
- (2) CORPORATE PLAN, 1993-2002
National Irrigation Administration, June 1993
- (3) Philippine Statistical Yearbook, 1993
National Statistical Coordination Board
- (4) PHILIPPINE AGRIBUSINESS FACTBOOK AND DIRECTORY, 1993-1994
(INPUT SUPPLY · AGRICULTURE · PRODUCTION · DISTRIBUTION
Center for Reserch and Communication
- (5) SUPPLY AND UTILIZATION ACCOUNTS OF SELECTED AGRICULTURAL
COMMODITIES, 1991-1993
Bureau of Agricultural Statistics, Department of Agriculture, December 1994

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