

Fig. 6.3.2 Plan of Trading Post

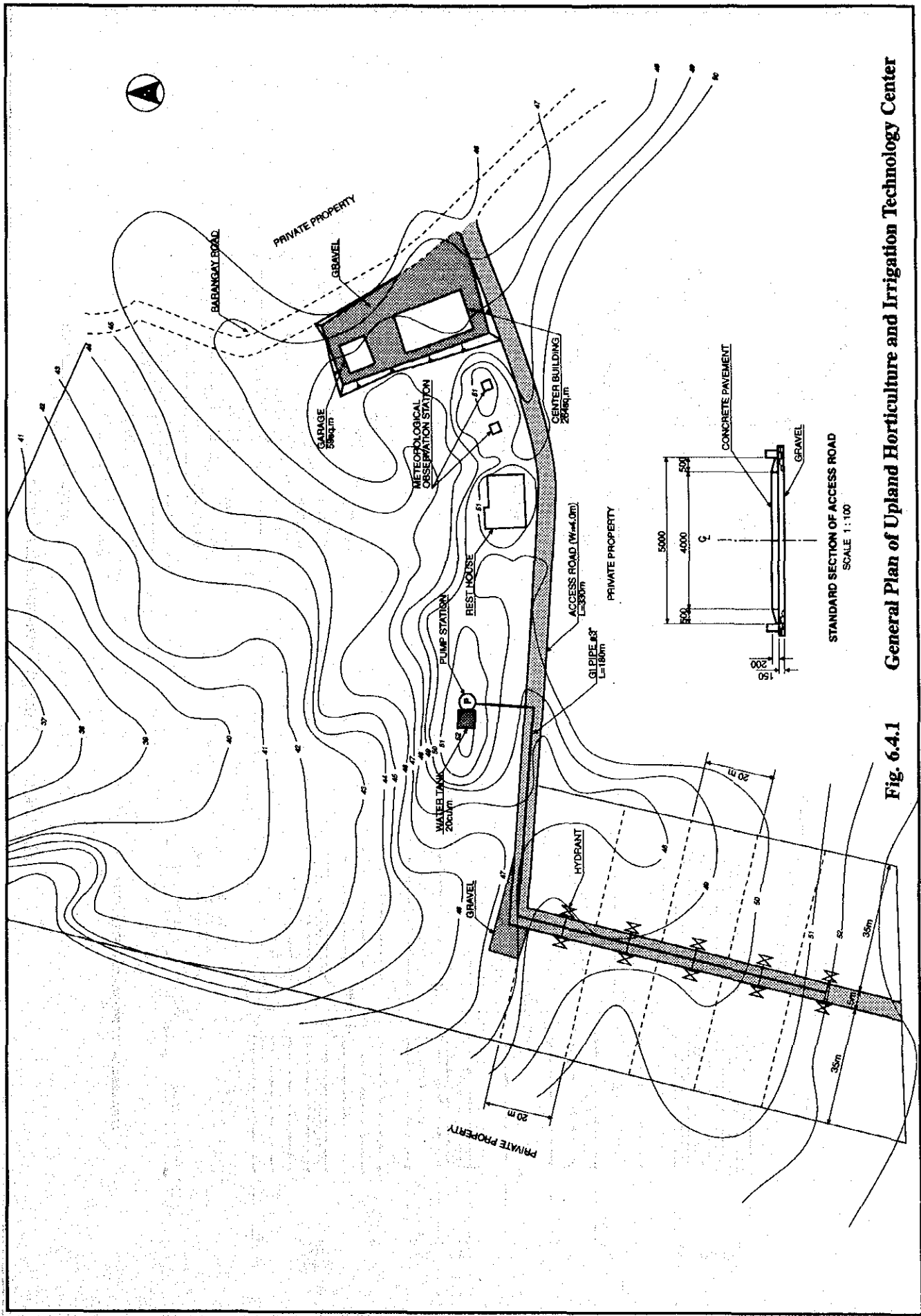
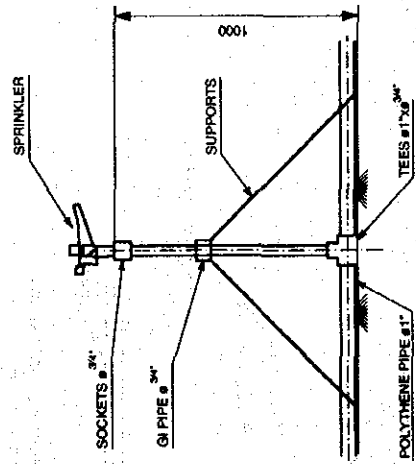
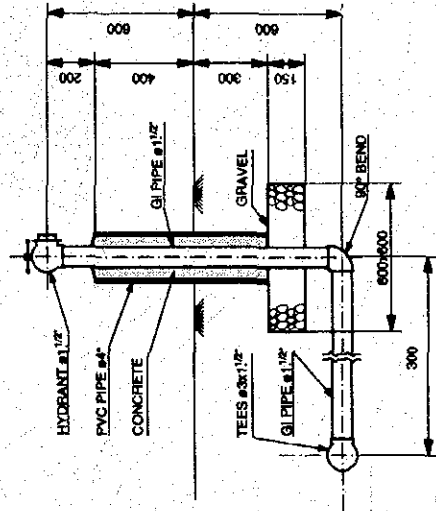


Fig. 6.4.1

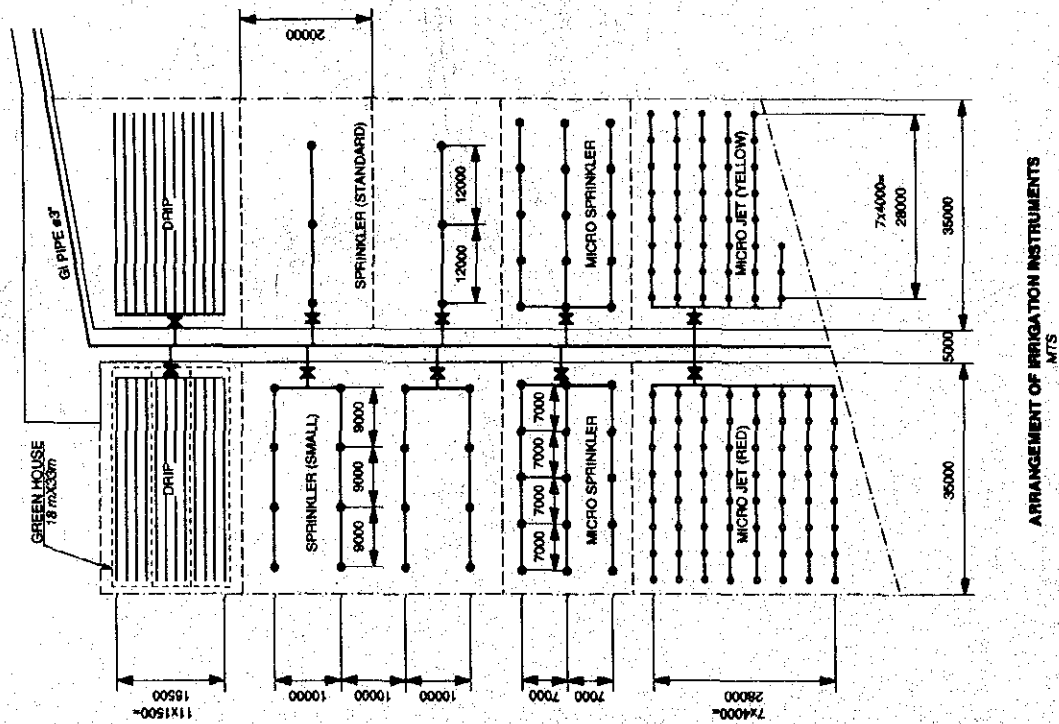
General Plan of Upland Horticulture and Irrigation Technology Center



DETAIL OF SPRINKLER INSTALLATION
SCALE 1:20

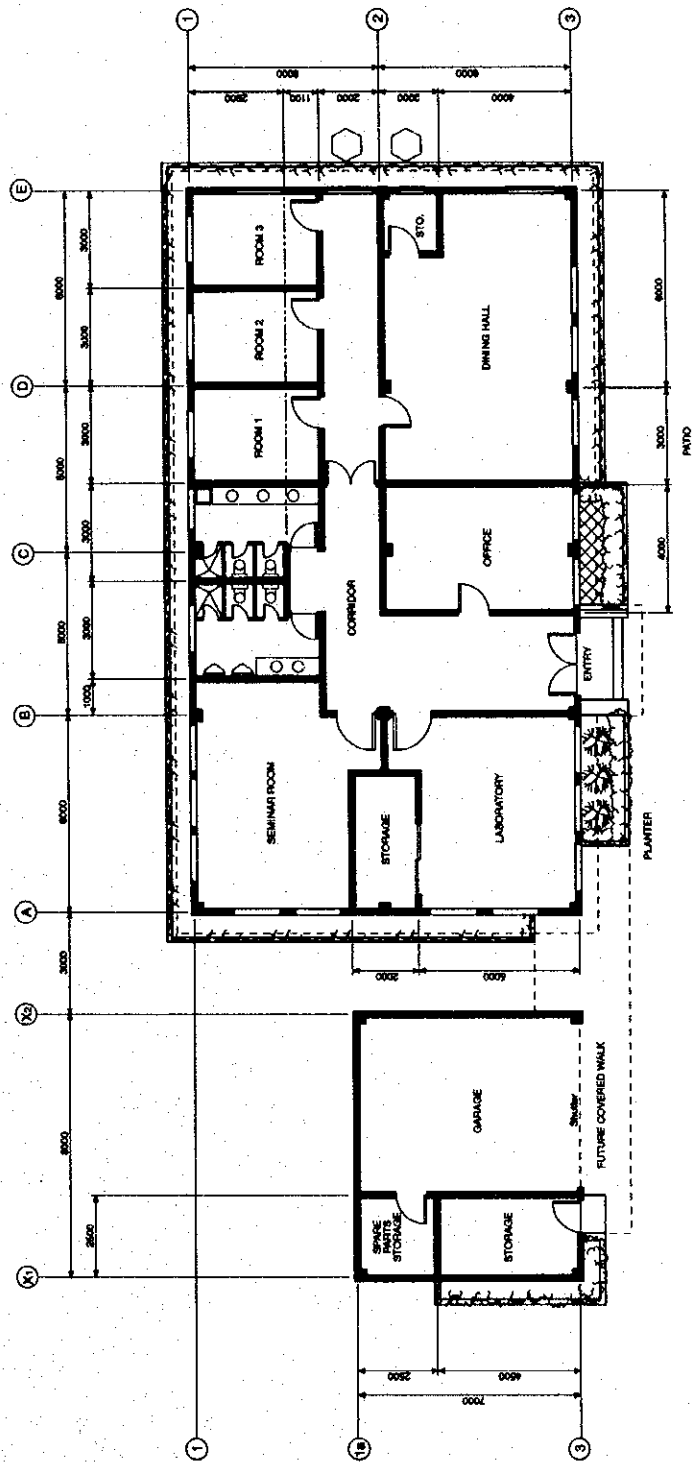


DETAIL OF HYDRANT INSTALLATION
SCALE 1:20



ARRANGEMENT OF IRRIGATION INSTRUMENTS
MTS

Fig. 6.4.2 Plan of Demonstration Farm



GROUND FLOOR PLAN
M.T.S.

Fig. 6.4.3 Plan of Technology Center Building

A

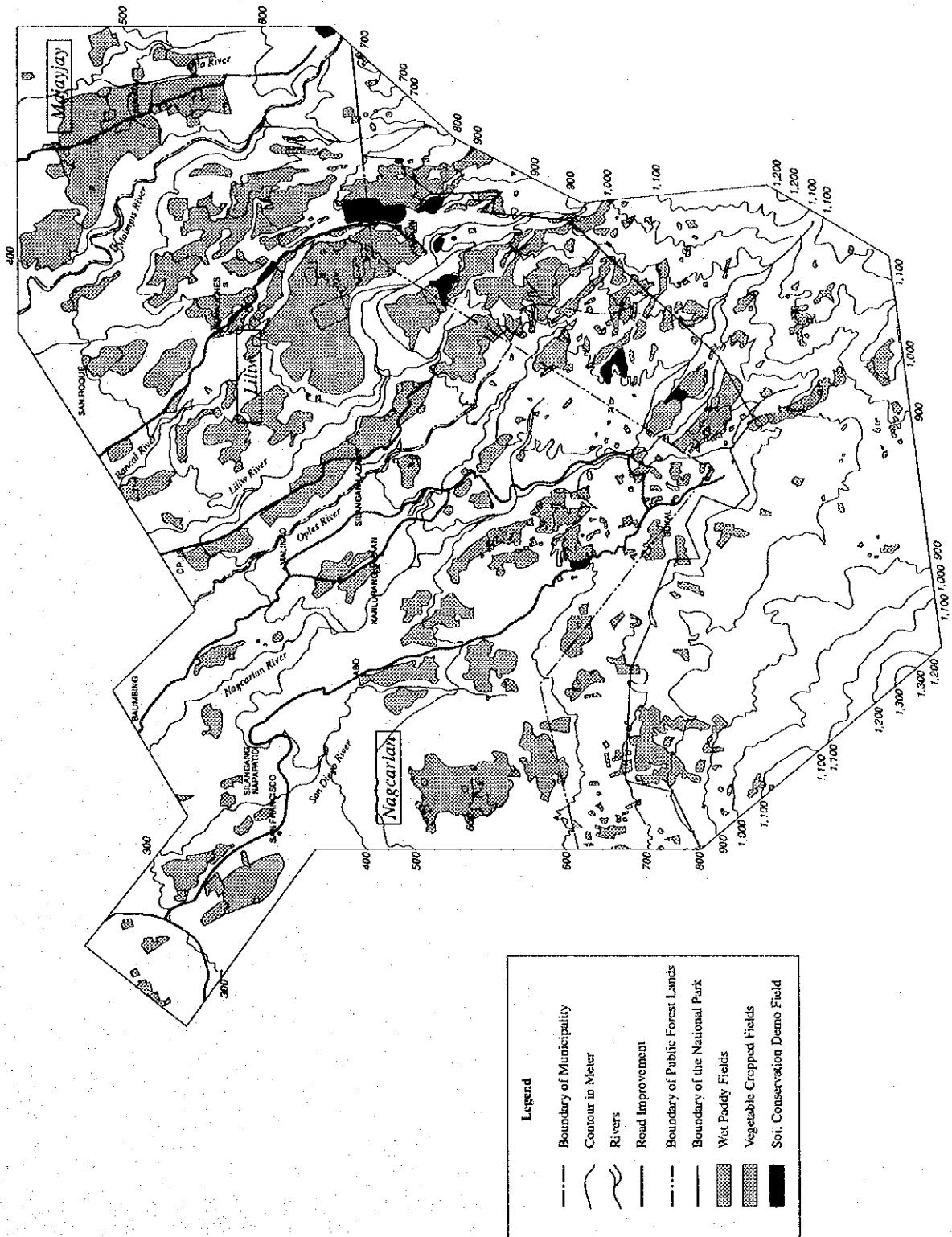
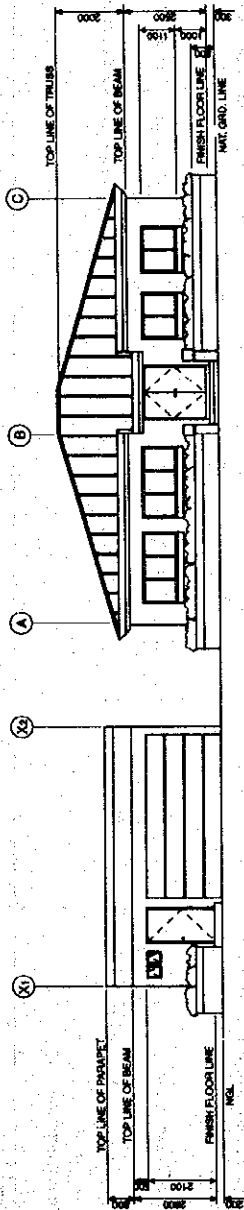
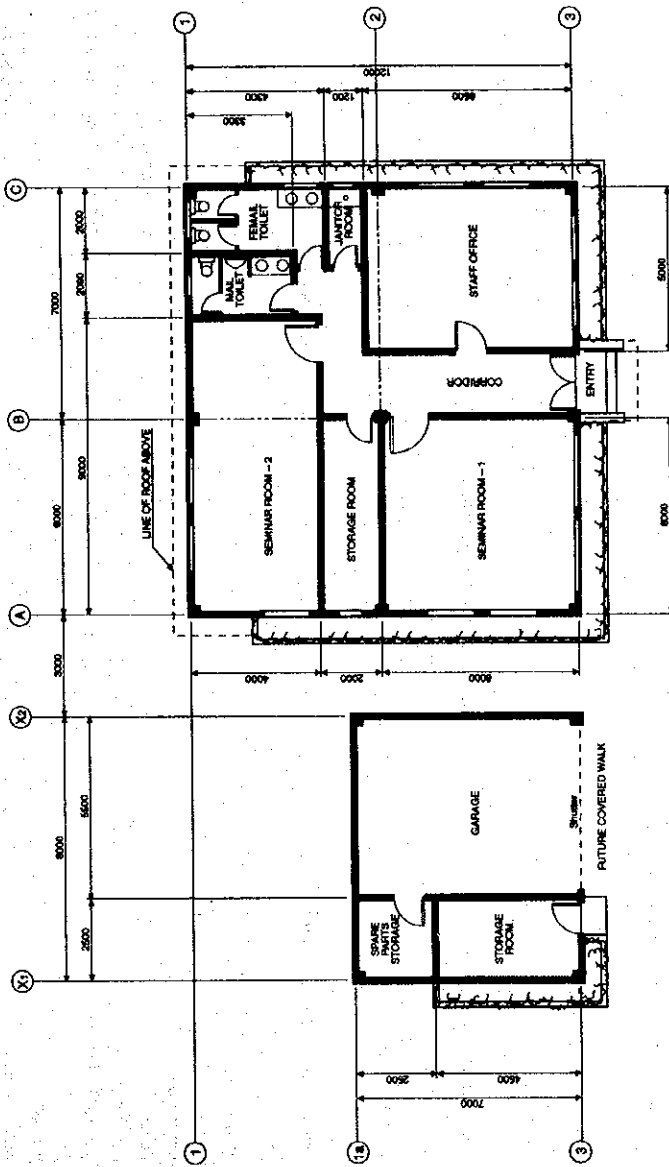


Fig. 6.5.1 Location of Soil Conservation Demonstration Fields



FRONT ELEVATION
M.T.S.



GROUND FLOOR PLAN
M.T.S.

Fig. 6.5.2 Plan of Soil Conservation Extension Center

Proposed Implementation Schedule

Year	1995												1996												1997											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Work Item	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12
Preparatory works for project implementation																																				
Submission of Project Description to DENR	■																																			
Issuance of Environmental Compliance Certificate (ECC)	■																																			
Submission of Project Proposal to NEDA	■																																			
Establishment/Strengthening of Beneficiaries' Organization	■																																			
Detailed design works																																				
Preparatory Works for construction (Bidding, etc.)	■																																			
Construction Works																																				
Mobilization	■																																			
Irrigation Works	■																																			
Intakes	■																																			
Farm Ponds	■																																			
Pipeline/On-farm	■																																			
Road Works	■																																			
Road Pavement	■																																			
Drainage Facilities	■																																			
Trading Post Works	■																																			
Upland Horticulture and Irrigation Technology Center	■																																			
Soil Conservation	■																																			
Rehabilitation of Domestic Water System	■																																			
Demobilization	■																																			

Remarks:
 Project proposal shall be submitted to NEDA Central Office with endorsement of Provincial Development Committee, Laguna Lake Development Authority (LLDA) and Regional Development Council. Special permission by DENR Region Office is required to commencement of construction works.

Fig. 7.1.1 Project Implementation Schedule

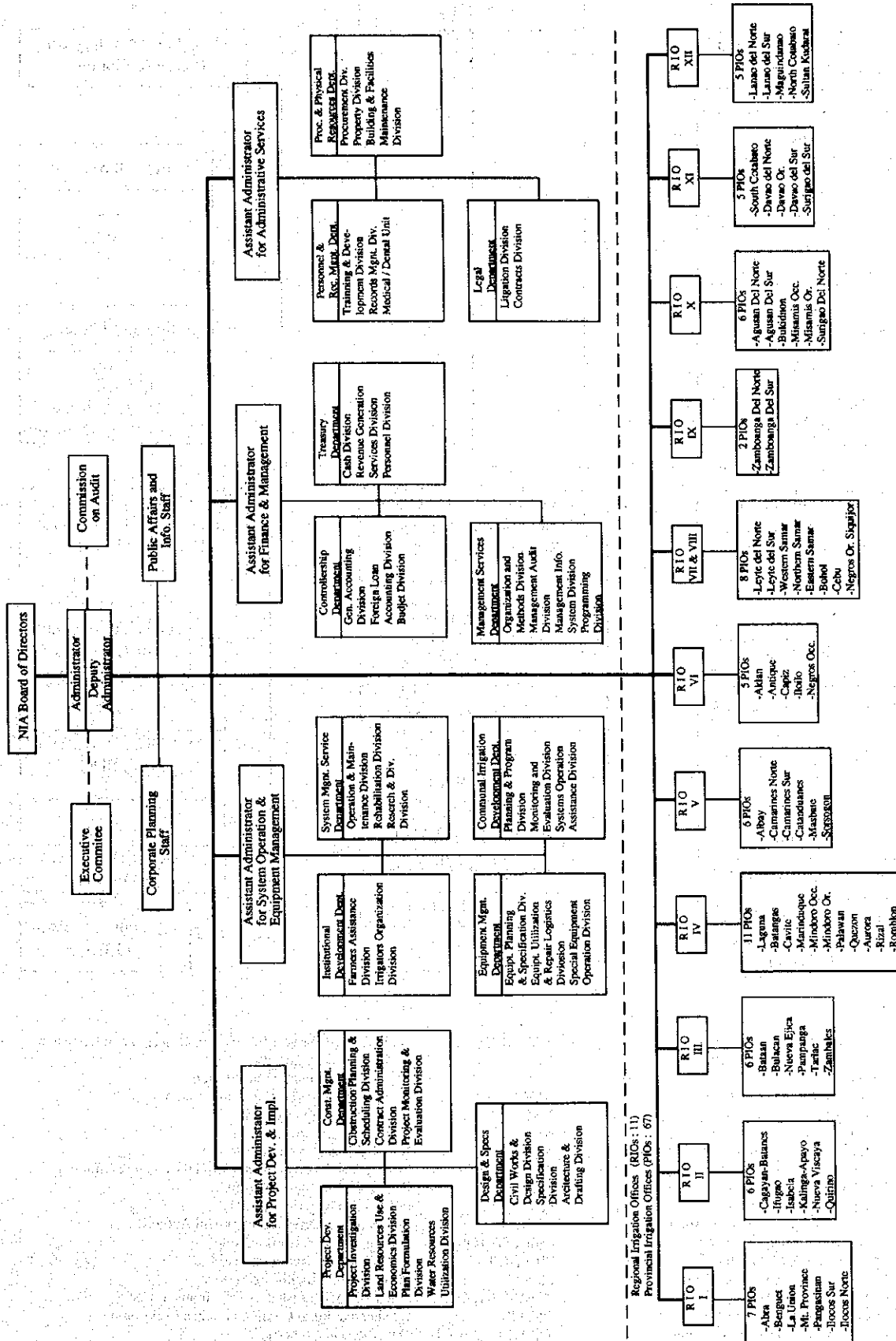
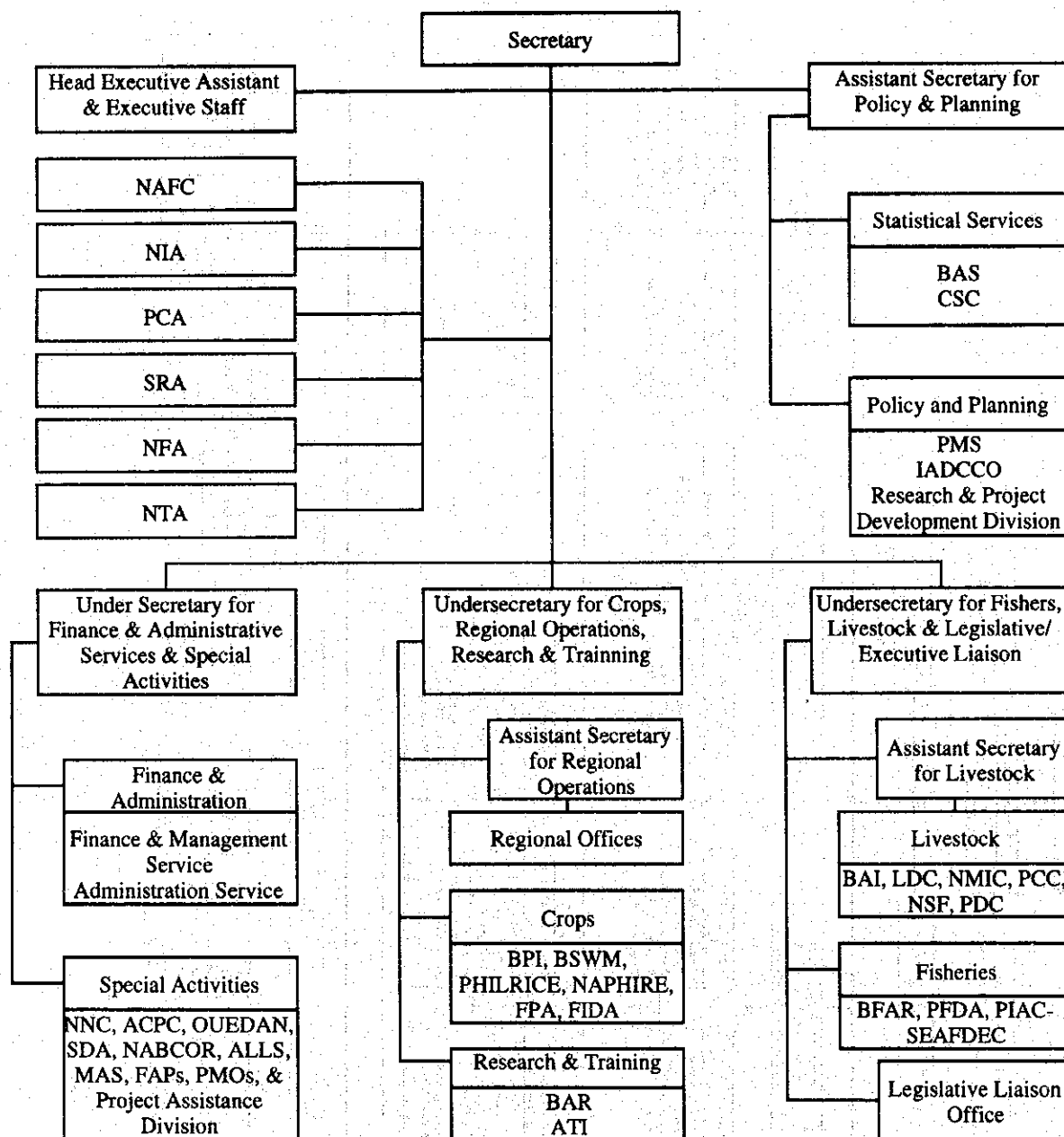


Fig. 8.1.1 Organization Chart of National Irrigation Administration



Acronyms

ACPC Agricultural Credit Policy Council
 ATI Agricultural Training Institute
 AIIS Agribusiness Investment Information Service
 BAI Bureau of Animal Industry
 BAR Bureau of Agricultural Research
 BAS Bureau of Agricultural Statistics
 BFAR Bureau of Fisheries and Aquatic Resources
 BPI Bureau of Plant Industry
 BSWM Bureau of Soils and Water Management
 CSC Computer Service Center
 FIDA Fiber Industry Development Authority
 FPA Fertilizer Pesticide Authority
 IADCCO International Agricultural Affairs Division
 LDC Livestock Development Council
 LLO Legislative Liaison Office
 MAS Marketing Assistance Service
 NABCOR National Agribusiness Corporation
 NAFC National Agriculture and Fishery Council

NAPHIRE National Post Harvest Institute for Research and Extension
 NFA National Food Authority
 NIA National Irrigation Administration
 NMIC National Meat Inspection Commission
 NNC National Nutrition Council
 NSF National Stud Farm
 NTA National Tobacco Administration
 PAD-SCO Project Assistance Division-Special Concerns Office
 PCA Philippine Coconut Authority
 PDC Philippine Dairy Corporation
 PFDA Philippine Fisheries Development Authority
 PHILCOTTON Philippine Cotton Corporation
 PHILRICE Philippine Rice Research Institute
 PMS Planning and Monitoring Service
 PTAC-SEAFDCEC Southeast Asian Fisheries Development Center
 QRCGB Quedan and Rural Credit Guarantee Corporation
 SACOBIA SACOBIA Development Authority
 SRA Sugar Regulatory Administration

Fig. 8.1.2 Organization Chart of Department of Agriculture

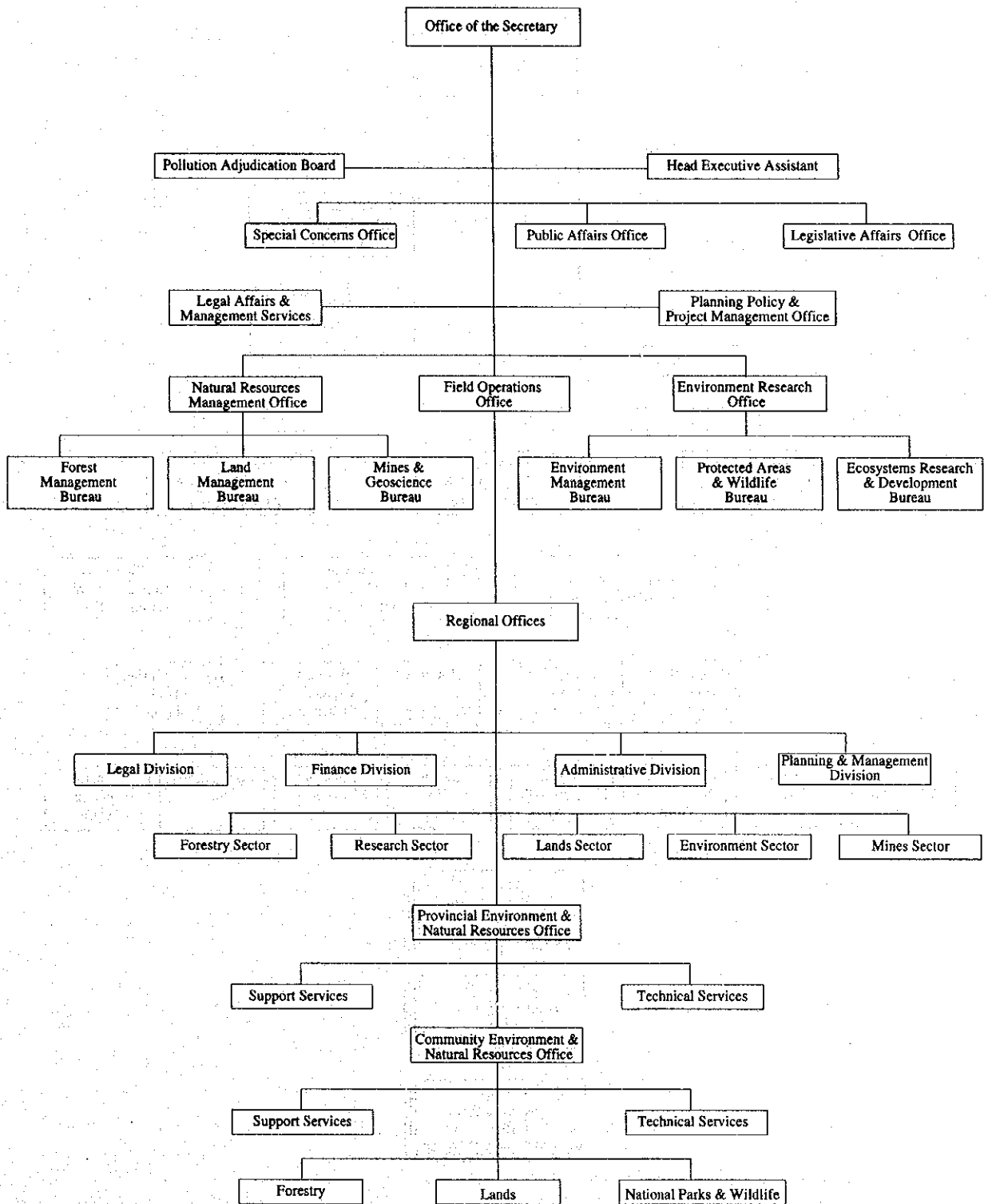


Fig. 8.1.3 Organization Chart of Department of Environmental and Natural Resources

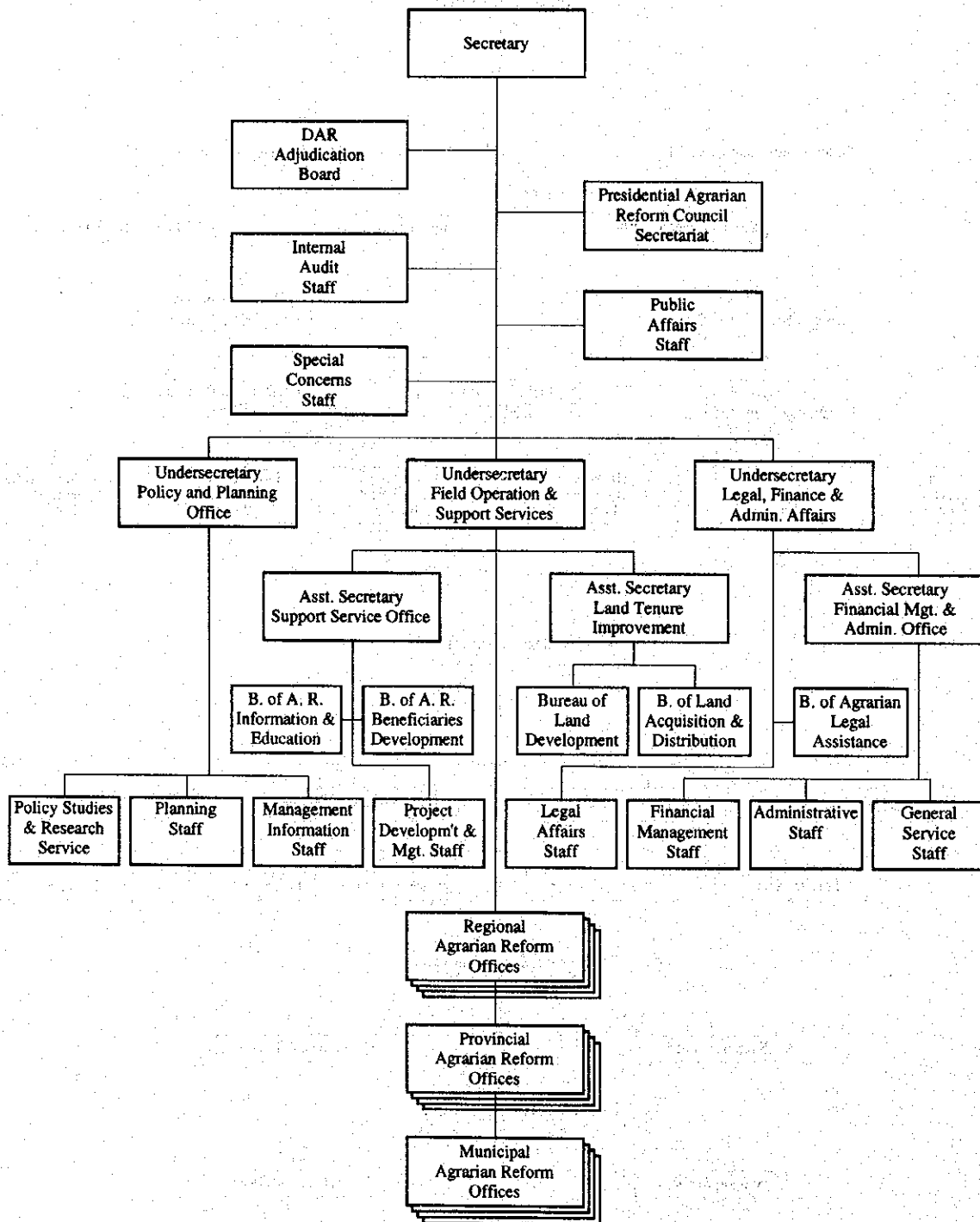


Fig. 8.1.4 Organization Chart of Department of Agrarian Reform

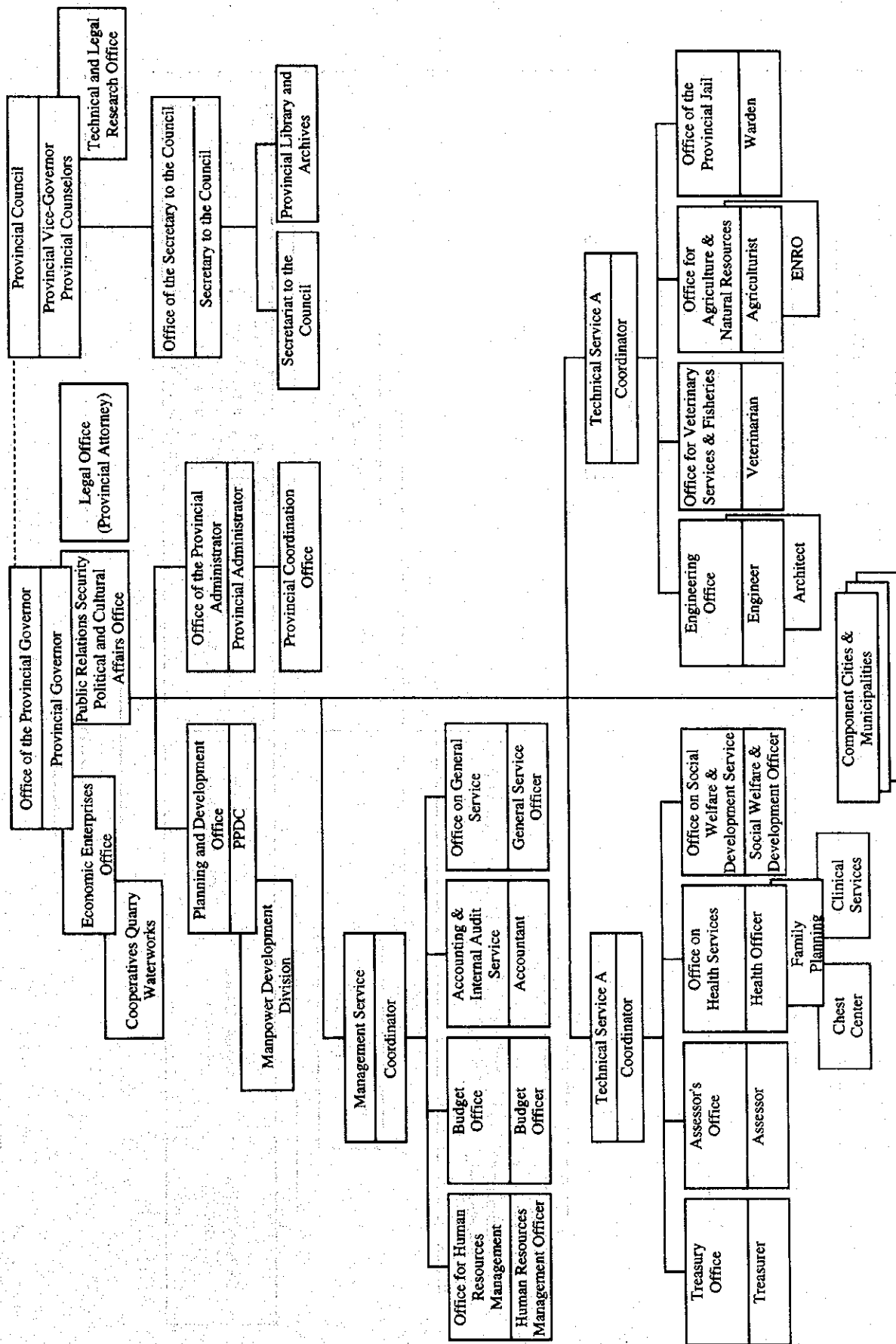


Fig. 8.1.5 Organization Chart of the Provincial Government of Laguna

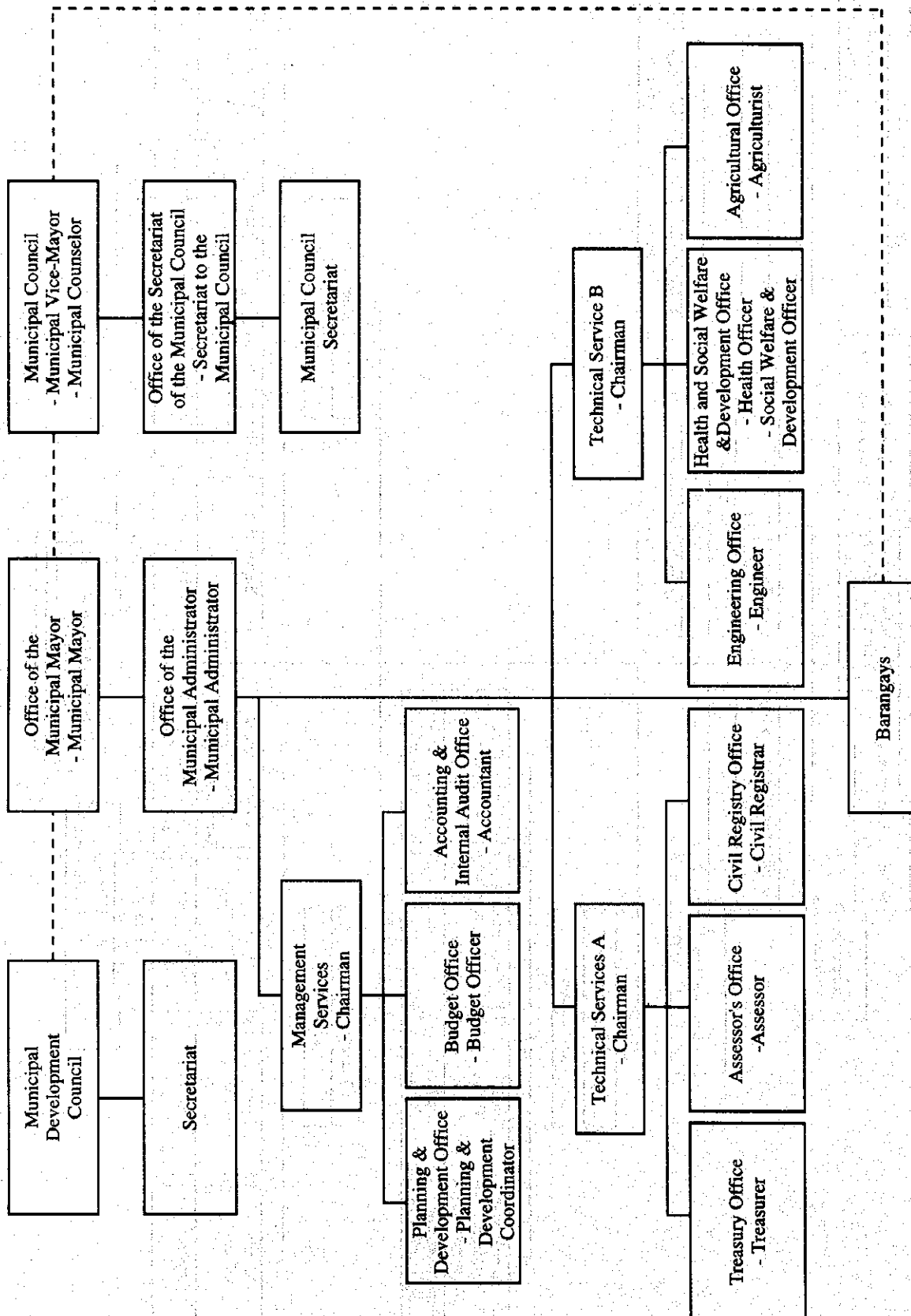


Fig. 8.1.6 (1) Organization Chart of Municipal Government of Nagcarlan, Laguna

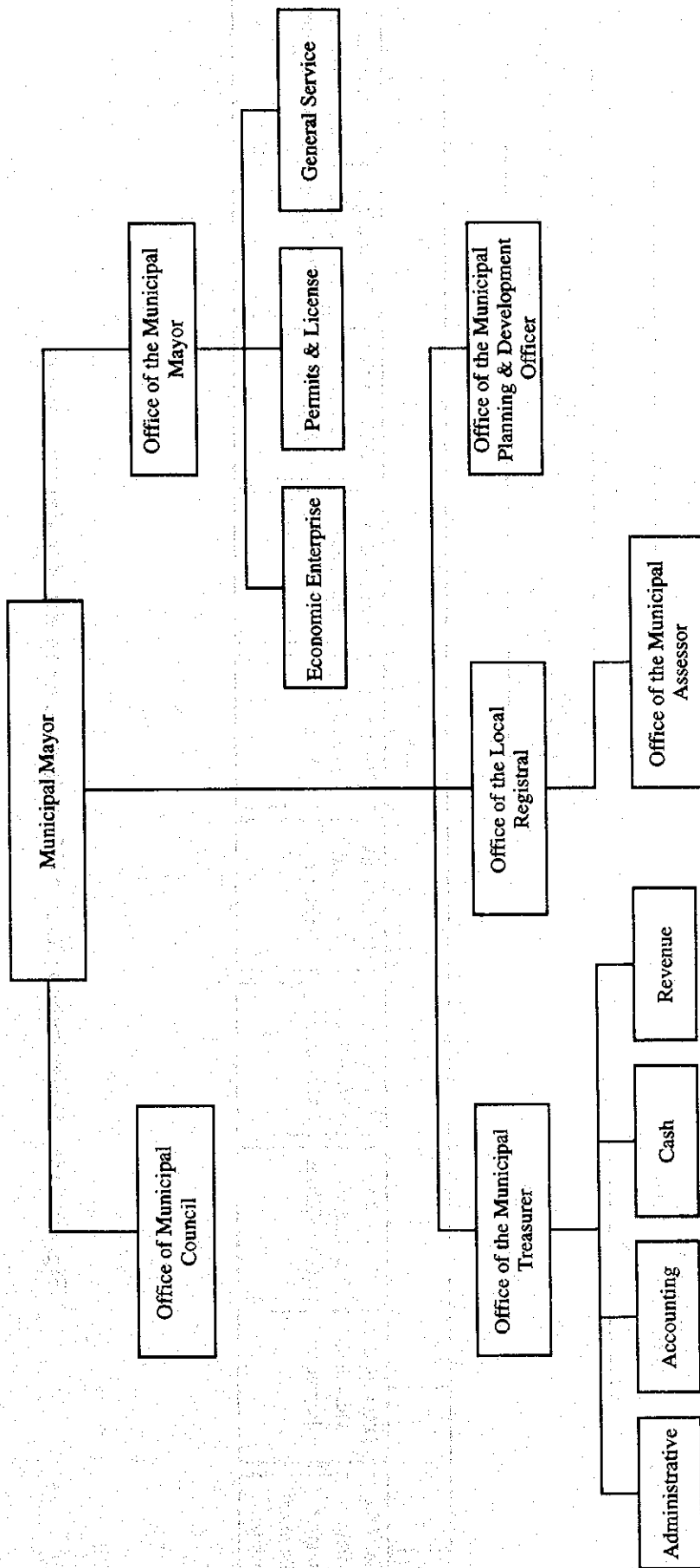


Fig. 8.1.6 (2) Organization Chart of Municipal Government of Liliw, Laguna

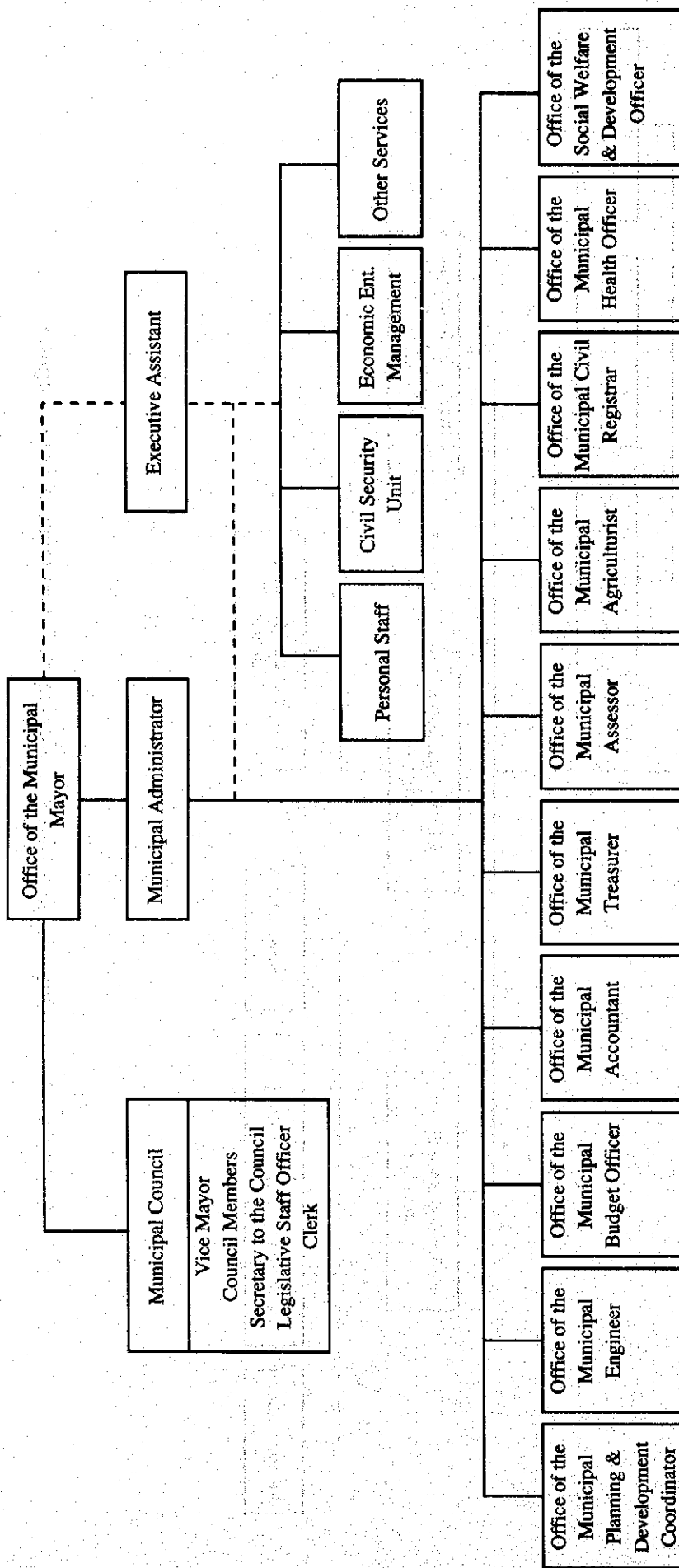


Fig. 8.1.6 (3) Organization Chart of Municipal Government of Majayjay, Laguna

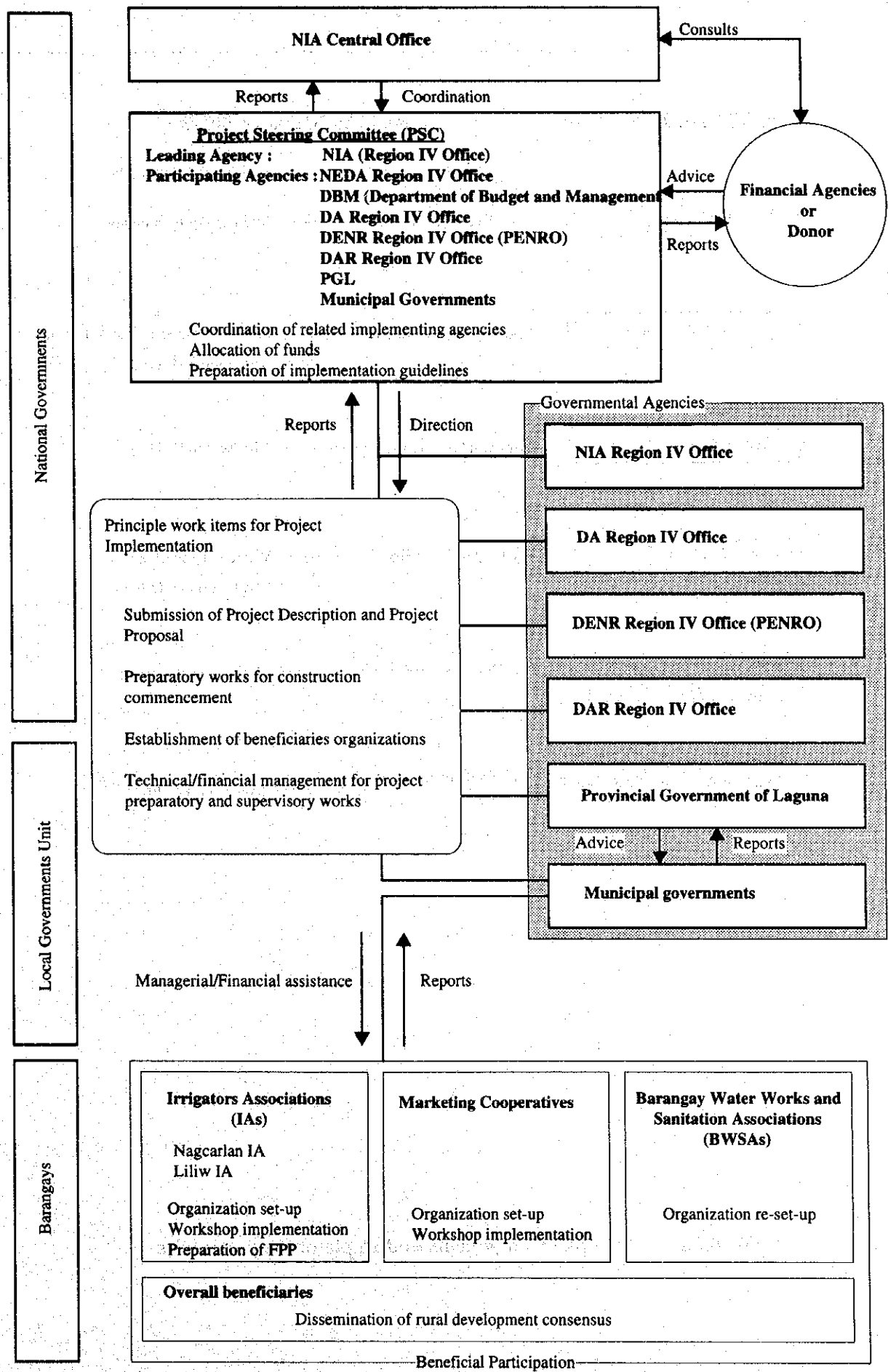


Fig. 8.2.1 Managerial Organization Structure for Project Implementation

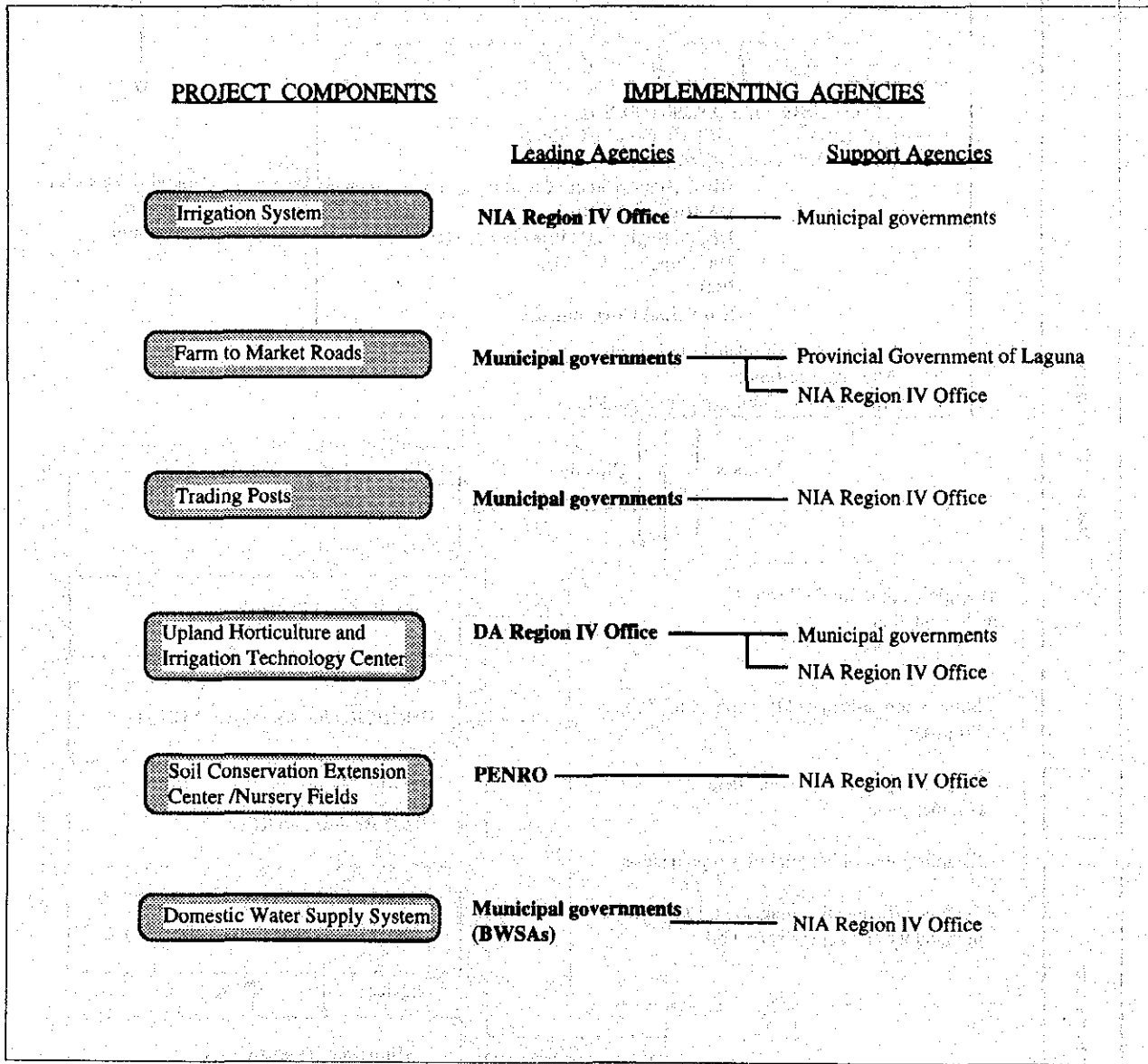


Fig. 8.2.2 Project Components and Implementing Agencies

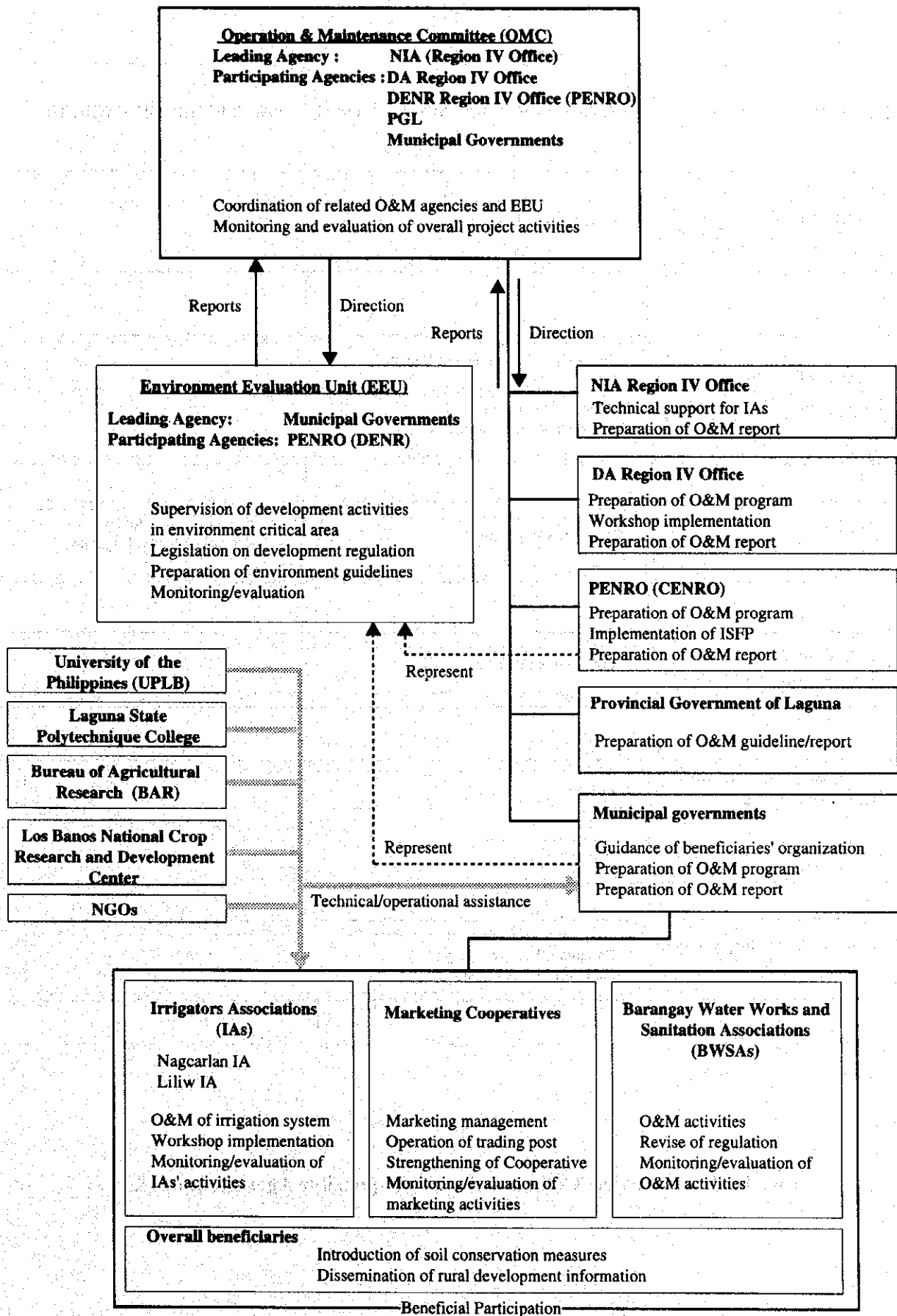


Fig. 8.3.1 Functional Organization Chart for O&M

PROJECT FACILITIES	RESPONSIBLE AGENCIES FOR O&M	OWNERSHIP OF FACILITIES
Irrigation Facilities	Irrigators Associations (IAs)	
Farm to Market Roads	Provincial Government of Laguna Municipal government of Nagcarlan, Liliw, Majayjay	
Trading Posts	Marketing Cooperatives	Municipal government of Nagcarlan, Liliw, Majayjay
Upland Horticulture and Irrigation Technology Center	DA Region IV Office	
Soil Conservation Extension Center /Nursery Fields	PENRO	
Soil Conservation Demonstration Fields	Beneficiaries	
Domestic Water Supply System	Barangay Water Works and Sanitation Associations	

Fig. 8.3.2 Project Components and Responsible Agencies for O&M

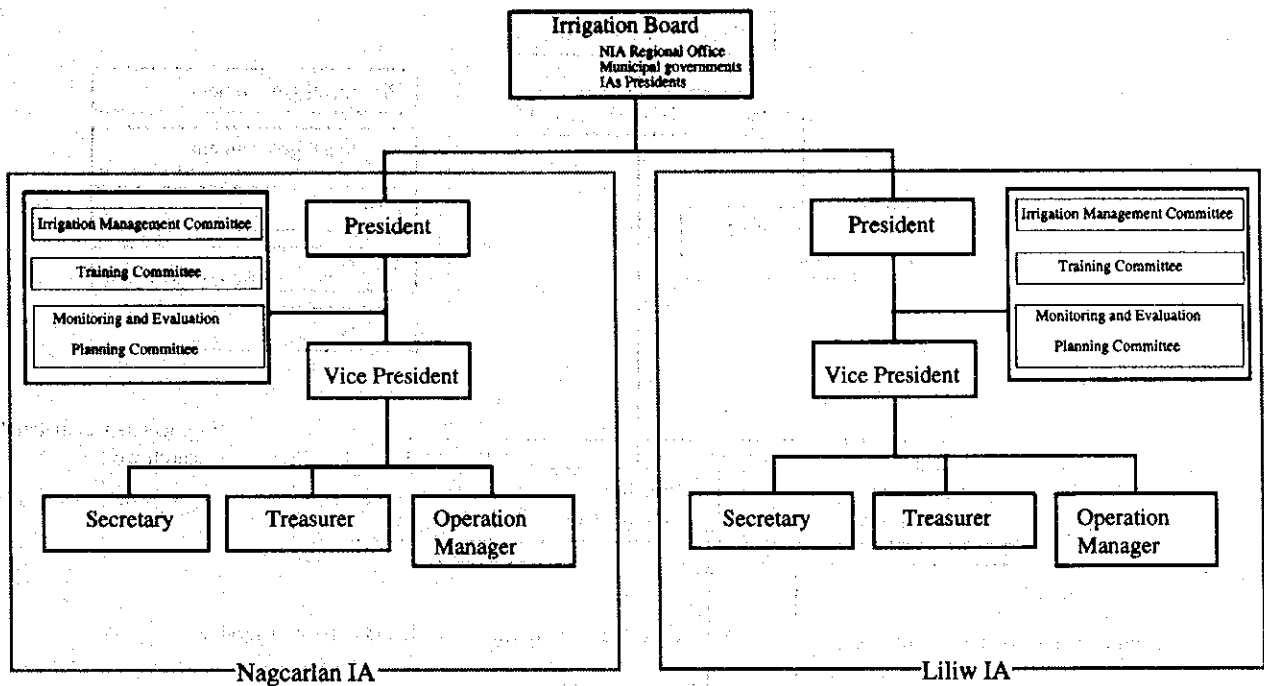


Fig. 8.3.3 Structural Organization Chart of IAs

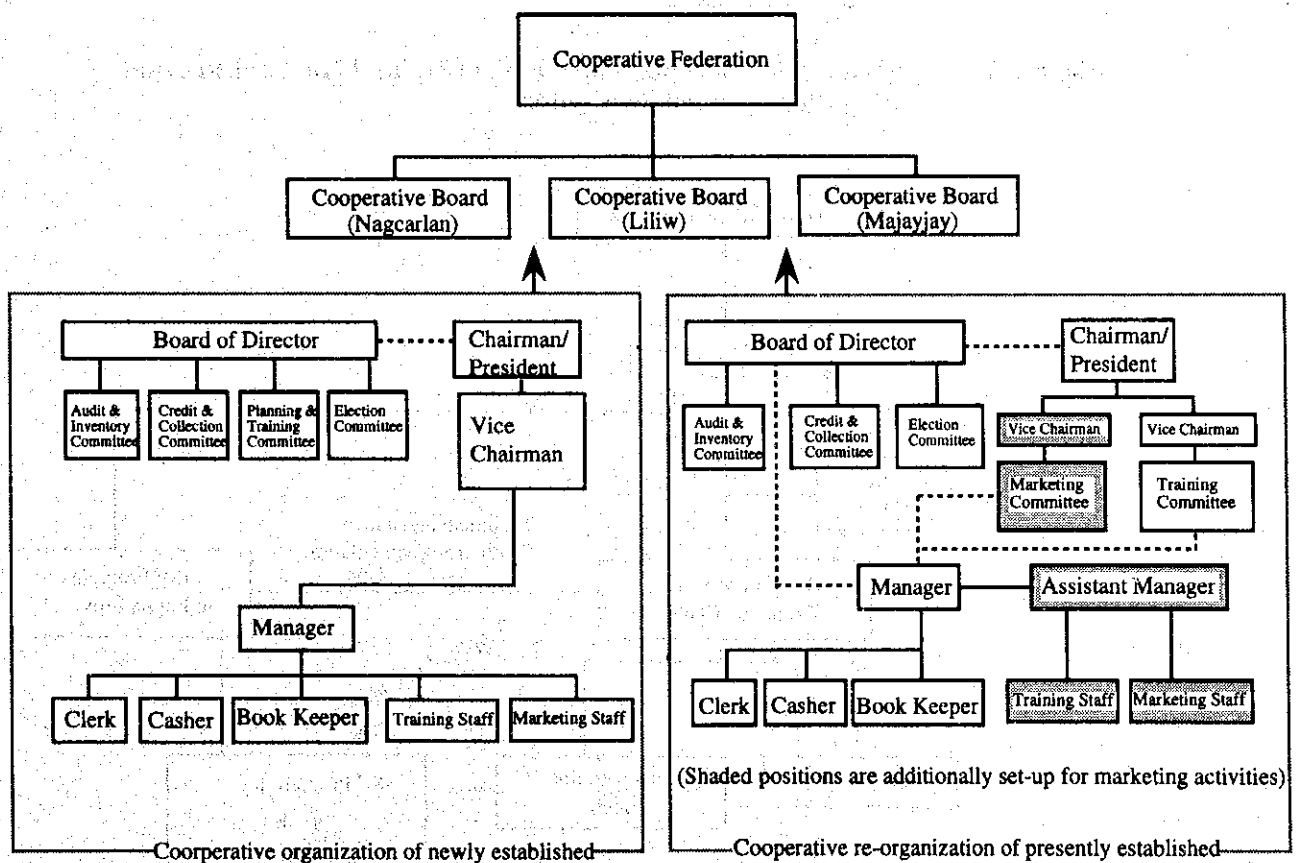


Fig. 8.3.4 Structural Organization Chart of Marketing Cooperatives

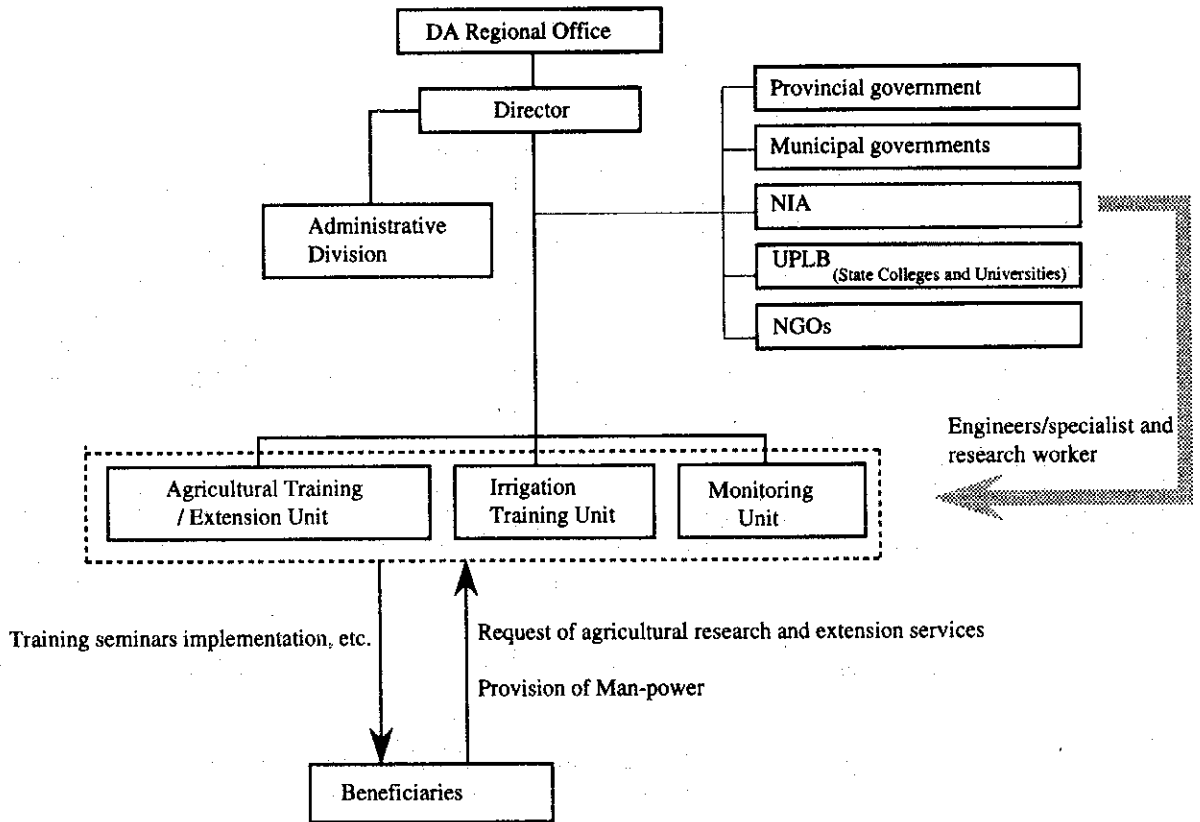


Fig. 8.3.5 Managerial Organization Chart of Upland Horticulture and Irrigation Technology Center

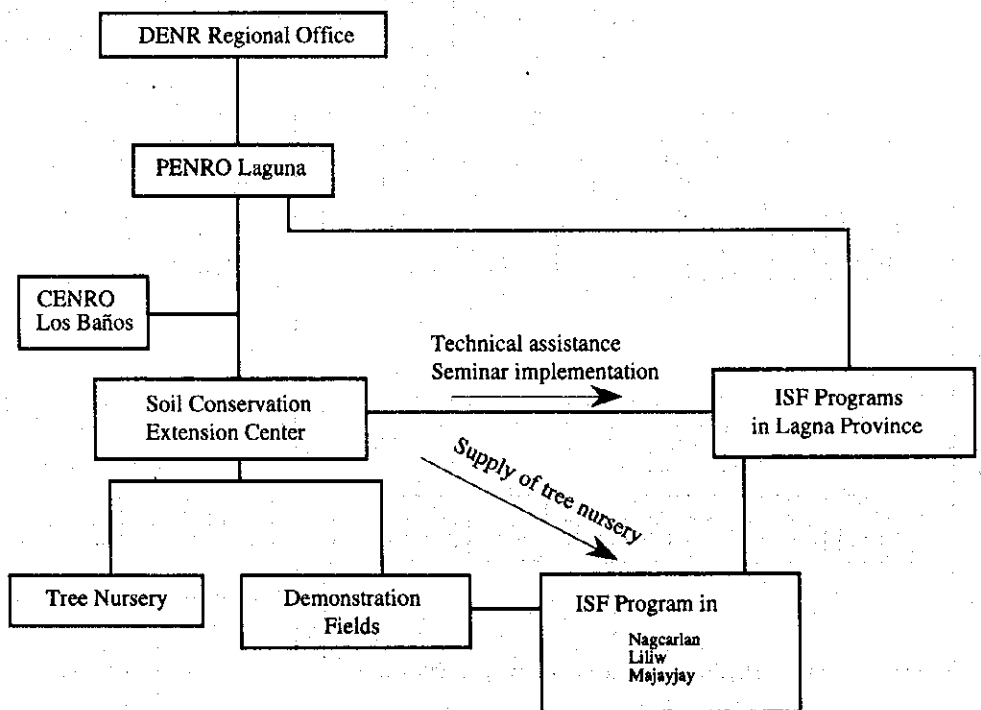
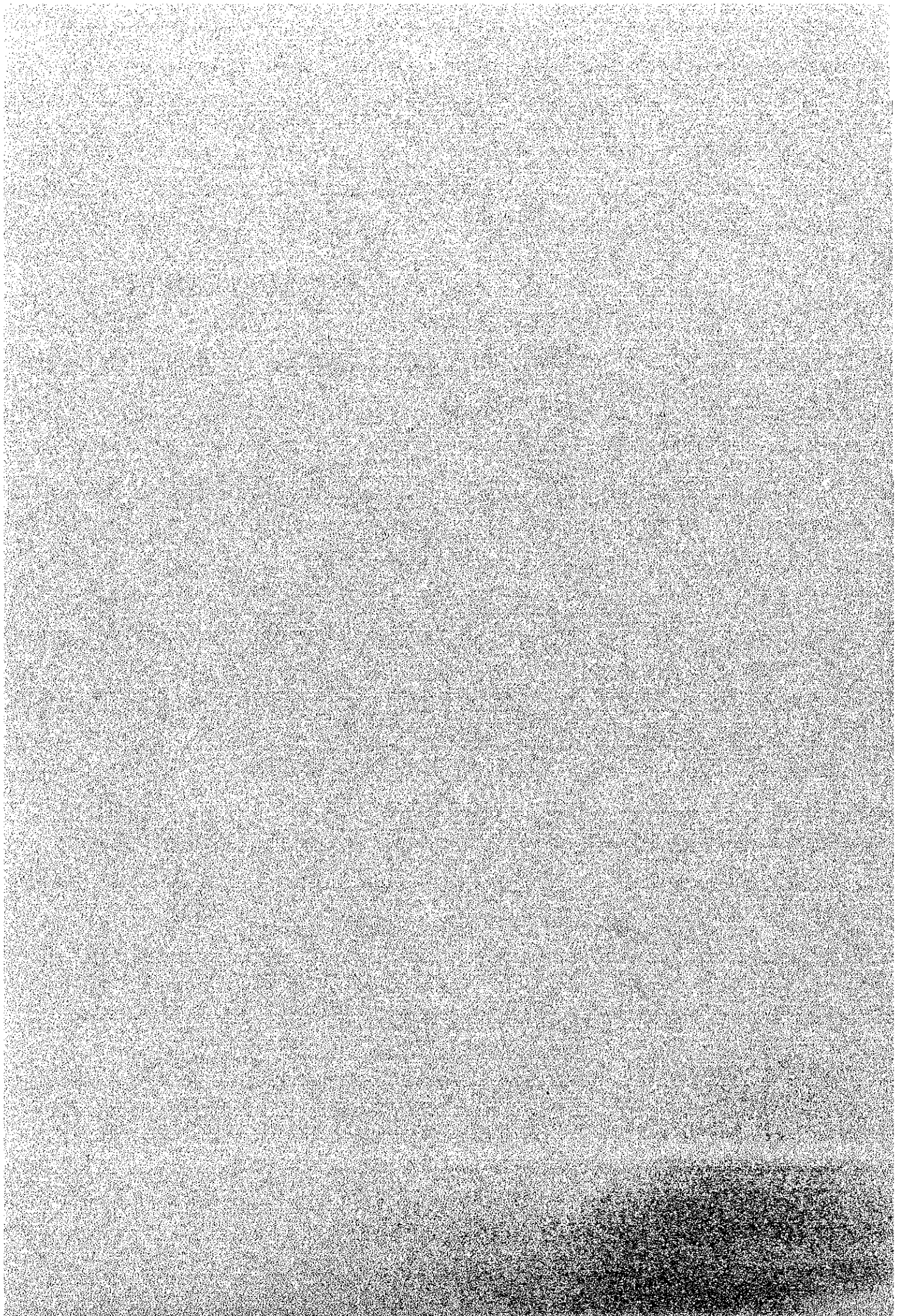


Fig. 8.3.6 Managerial Coordination Chart of Soil Conservation Extension Center

Attachments



Attachment - 1 List of Personnel Participated/Interviewed during the Study (1/3)

PHILIPPINE SIDE

1. National Irrigation Administration

Apolonio V. Bautista	Administrator, NIA
Edilberto B. Punzal	OIC, PDD, NIA
Abelardo Y. Armentia	OIC, PFD, PDD, NIA
Clemente T. Alanano	Principal Engineer-A, PDD, NIA
Erdofo B. Domingo	Principal Engineer-A, PDD, NIA
Silvino B. Hernandez Jr.	Supervising Soil Technician, PDD, NIA
Reynaldo B. Llamoso	Engineer-A, PDD, NIA
Reynaldo B. Villanera	Engineer-A, PDD, NIA
Ricardo Dimaculangan	Geologist, NIA
Fernando Antolin	Economist, PDD, NIA
Francisco T. Orense	Sr. Agronomist, PDD, NIA
Rolando T. Bonrostro	Regional Irrigation Manager, RIO-IV, NIA
Wilson M. Lopez	RIO-IV, NIA
Ceser T. Lagmay	RIO-IV, NIA
Romeo R. Añonuevo	Provincial Irrigation Engineer, PIO-Laguna, NIA
Jerry Malixi	PIO-Laguna, NIA
Lutgarda Canamo	PIO-Laguna, NIA
Giovanni V. Vendiola	PIO-Laguna, NIA

2. LOCAL GOVERNMENTS

Province of Laguna

Restituto L. Luma	Governor
Oscar F. Feliciano	Provincial Administrator
Dante T. Reyes	Provincial Planning and Development Coordinator
Carol Basa	Provincial Agrarian Reform Officer I
Glenn Guidayan	Chief, Support Services Office

Municipality of Nagcarlan

Demetro T. Comendator	Mayor
Rosauro H. Suarez	Vice Mayor
Paulino Asilo	Municipal Administrator
Alberto Angeles	Municipal Development Officer
Jessie Bonbasi	Municipal Agricultural Officer
Calixto N. Delapena	Agricultural Technician

Municipality of Liliw

Cesar C. Sulibit	Mayor
Gerardo Hombrebueno	Vice Mayor
Bert A. Dimaguila	Municipal Administrator
Eduardo V. del Mundo	Municipal Development Officer
Sonia A. Monterrir	Municipal Agricultural Officer
Eduardo V. del Munds	Municipal Engineer
Elnora H. Ilocso	Municipal Cooperative Office
Pamela Monfero	Council Woman

Municipality of Majayjay

Ruben C. Guera	Mayor
Hectar Ordonez	Municipal Administrator
Nelly C. Arguiza	Municipal Agricultural Officer
Hector V. Ordoñez	Executive Assistant and Acting Municipal Administrator

Attachment - 1 List of Personnel Participated/Interviewed during the Study (2/3)

PHILIPPINE SIDE

3. RELATED GOVERNMENTS

DA

Jose D. Garrido, Jr.	Regional Director, Region IV
Benedicto S. Caballero	Supervising Agriculturalist, Bureau of Plant Industry
Romeo S. Recide	Director, Bureau of Agricultural Statistics (BAS)
Celestino C. Olalo	Chief, Crop Livestock Poultry and Statistics Division, BAS
Mariano Rondon	Section chief, Other crops Statistics, BAS
Canon S. Atienza	OIC, Assistant Director, Bureau of Agricultural Research (BAR)
Andrea B. Agillon	Sr. Agriculturist, Research Coordination Division, BAR
Benjamin M. Legaspi	Supervising Plant Pathologist, Assistant Director, National Crop Research & Development Center, BPI

Carolina L. Bautista	Chief, Marketing Assistance Service Unit
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NEDA

Lirio Y. Calixto	Ex-Regional Director, Region IV
Catalino S. Boquiren Jr.	Regional Director, Region IV
Oscar D. Balastro	Assistant Director, Region IV

DPWH

Alfredo P. Torres	Regional Director, Region IV
Rosauro A. Adapon	Asstant District Engineer, District Office

PCARRD

Jocelyn E. Eusebio	Head of Project Resources and Development Dept.
Second Laguna de Bay Irrigation Project	
Balfazar H. Usis	Irrigation Superintendent, Second Laguna de Bay Project
Antonio G. Gerundio	Supervising Agriculturalist
Eda F. Fidel	Senior Agriculturalist

UPLB

Valentino G. Arganosa	Professor of Animal Science, UPLB
Jose M. Sossiano	Assistant Professor, Department of Horticulture, UP

Province of Benquet

Lolita B. Bentes	Provincial Agriculturalist
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DENR

Celestino B. Ulep	Assistant Director, Protected Area and Wildlife Bureau (PAWB)
Angelita P. Meniado	Sr. Ecosystems Management Specialist/Chief, Terrestrial Parks Section, PAWB

Antonio G. Principe	Executive Director, Region IV
Luciana Hornilla	OIC/Chief, EIA Division, Region IV
Antonio P. Tullas Jr.	OIC/Chief, Forest Resources Development Division, Region IV
Mercedita A. Eusebio	Coordinator, Regional Forestation Development Office, Reforestation Division, Region IV

Gregorio D. Reyes	Chief/Science Research Specialist, Upland Farms Ecosystem Research Division, Ecosystem Research and Development Bureau (EDB)
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Lopes A. Calanog	Supervising Science Research Specialist, ERDB
Ray P. Alcances	Chief, EIA Division, Environmental Management Bureau (EMB)

Cesar S. Siador Jr.	Task Force Leader, EIA Infra and Energy, EMB
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PENRO, St. Cruz

Ricardo F. Trinos	Executive Assistant
Rogelio L. Delgado	Provincial Environmentalist
Conrado C. Monterola	Community Development Assistant

Attachment - 1 List of Personnel Participated/Interviewed during the Study (3/3)

PHILIPPINE SIDE

CENRO, Los Baños	
Federico L Ocampo	Community Environment and National Resources Office (CENRO), Laguna
Wilfredo R. Angeles	Forester III
Melito A. Camara	Biologist
Rico Galing	EMS II
Jose C. Panaglima	Ecosystem Management Specialist (OIC Mts. Banahaw-San Cristobal National Park)
NCPC	
Susan May F. Calumpang	National Crop Protection Center
LLDA	
Ariel R. Almendral	Director, Laguna Lake Development Authority
Derlyn D. Gemeniano	Cheif, Pollution Control Section
NAPCOR	
E. P. Anguluan	Manager, Watershed Management Department
Eduardo R. Salvador	Watershed Management Department
Wilfredo Ducusin	Project Planning and Development Chief, Mak-Ban Watershed Area Team
BSWM	
Nestor Ticzon	Bureau of Soil and Water Management, Region IV
Cooperatives	
Pedro Coronado	President of Masilayan Multi-purpose Cooperative
Rogelio B. Borlaza	President of Kaunlaran Sa Banahaw Multi-purpose Cooperative
Rodrigo Arvesu	Liliw Multi-purpose Cooperative

JAPANESE SIDE

1. Embassy of Japan	
Yugo Matsuda	First Secretary
Katsuhiko Yamauchi	First Secretary
2. JICA Philippines Office	
Akihiko Hashimoto	Resident Representative, JICA Philippines office
Katsumi Yoshida	Assistant Resident Representative, JICA Philippines office
Naoyuki Ochiai	Assistant Resident Representative, JICA Philippines office
Takeshi Ishida	JICA Expert, NIA
Yasutaka Hosono	JICA Expert, NIA
Tastuo Hokari	JICA Expert, NIA
Norikazu Tsujii	Team Leader, DCIEP-2
Akira Nagaoka	JICA Advisor, BAR, DA
Takayoshi Mori	JICA Consultant, PAWB, DENR
Toshinori Sekishita	JICA Advisor, Forest Management Bureau (FMB), DENR
Izuru Nakamura	JICA Coordinator, JICA Tokyo Head Office

Attachment - 2 List of Collected Data and References (1/4)

- 1 The 1991 Local Government Code, Republic Act No.7160, Oct., 1991
- 2 Horticulture Sector project, Vol. 1, 2 and 3, ADB , Feb., 1991
- 3 Operation Plan 1993, Bureau of Plant Industry
- 4 Annual Report, Bureau of Plant Industry
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- 6 Implementing Rules and Regulations of Seed Industry Development Act of 1992, BPI
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- 11 Retail Price Index of the Agricultural Food Basket, Philippines, 1980 - 1989
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- 14 Annual Report 1992, BPI
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- 19 Plant Industry Production Guide, BPI
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- 24 Annual Report CY-1993, Vegetable Component of Second Laguna de Bay Irrigation Project, Jan., 1994
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- 26 Brief Profile of Second Laguna de Bay Irrigation Project, NIA
- 27 Estimates of Trend Co-efficients and Seasonality Indices of the Prices of Various Vegetables, Second Laguna de Bay Irrigation Project, Jan., 1994
- 28 An Overview of Second Laguna de Bay Irrigation Project - Vegetable Component, 1993
- 29 Planting, Harvesting and Trading months of Major vegetables, Laguna, BAS
- 30 Trading Matrix of Major Vegetables in Different Municipalities, Laguna, BAS
- 31 Municipal Statistics of vegetable Production, Laguna, BAS
- 32 Updated Average Production Costs and Returns per ha, Philippines, 1985 - 1992, BAS
- 33 Master List of Vegetable Farmers, Liliw
- 34 Weekly Farm gate Prices of Tomato and Cabbage 1993, Nagcarlan
- 35 Weekly Farm gate Prices of Tomato 1993, Liliw
- 36 Cost of Production and Prices of Vegetables 1993, Nagcarlan
- 37 Cost of Production and Prices of Vegetables 1990 - 1993, Liliw
- 38 Price List of Vegetable Seeds, Philippine Kaneko Seeds Corporation, Dec., 1993
- 39 Baranguay Profiles, Municipality of Nagcarlan
- 40 Baranguay Profiles, Municipality of Liliw
- 41 Baranguay Profiles, Municipality of Majayjay
- 42 Fruit and Vegetable Development Plan 1992 - 1995, DA, Jan., 1992

Attachment - 2 List of Collected Data and References (2/4)

-
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 - 72 1992 Statistics on Philippine Protected Area and Wildlife Resources, Protected Area and Wildlife Bureau, DENR, 1993
 - 73 Erosion Map - Region IV, Bureau of Soils and Water Management, November 1990
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 - 75 Geologic Map of the Macdod Corridor 1:100,000 (Taal-Banahow), Philippine Institute of Volcanology and Seismology, Institute of Mineralogy and Economic Geology Aachen, Germany, 1991
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Attachment - 2 List of Collected Data and References (3/4)

-
- 81 Individual Project Program of Work, Department of Public Works and Highway, Regional Office IV, 1992
 - 82 Outstanding and Priority Projects, Laguna Lake Development Authority, December 1993
 - 83 Provincial Irrigation Profile, Province of Laguna, 1987
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 - 86 Organization chart with explanation note of Municipal Government, Nagcarlan, Liliw, Majayjay
 - 87 Annual Budget of Municipal Government, Nagcarlan, Liliw, Majayjay
 - 88 Organization Chart with explanation note of Provincial Government, Province of Laguna
 - 89 Socio-economic profile, Laguna, Provincial Government of Laguna
 - 90 Consolidated Laguna Agricultural, Social Services and Infrastructure Concerns Program Part II, Provincial Government of Laguna, May, 1991
 - 91 Proposed Plans and Programs for Development, Provincial Government of Laguna, may, 1991
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Attachment - 2 List of Collected Data and References (4/4)

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ASSIGNMENT	NAME	1994												1995		
		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
Team Leader & Rural Infrastructure	KIMURA Katsuhiko	■	■	■		■	■	■	■	■	■	■	■			
Sub-Leader, Irrigation & Drainage, Water Management	YATABE Kenjiro	■	■	■		■	■	■	■	■	■	■	■			
Meteorology & Hydrology	KATO Taichiro	■	■	■		■	■	■	■	■	■	■	■			
Hydrogeology & Groundwater	TATEBATASHI Motoaki	■	■	■		■	■	■	■	■	■	■	■			
Soil & Land Use	NISHIYA Mitsuo	■	■	■		■	■	■	■	■	■	■	■			
Agriculture, Farmers' Organization, Agricultural Supporting Service	OHNO Kumihiro	■	■	■		■	■	■	■	■	■	■	■			
Design & Cost Estimation	HOTTA Tomoki	■	■	■		■	■	■	■	■	■	■	■			
Agro-economy, Marketing, Project Evaluation	ARIGA Naoki	■	■	■		■	■	■	■	■	■	■	■			
Environment	SASAKI Akihiko	■	■	■		■	■	■	■	■	■	■	■			
Coordinator	TAKAHASHI Yoichi	■	■	■		■	■	■	■	■	■	■	■			
Report		△	ICR	△	P/R(I)	△	ITR	△	P/R(II)	△	DFR	△	E/R			
Phase		Phase 1			Phase 2											

ICR: Inception Report
P/R (I): Progress Report (I)
P/R (II): Progress Report (II)
ITR: Interim Report
DFR: Draft Final Report
F/R: Final Report

Attachment - 3 Assignment Schedule of the Study team

Attachment - 4 Field Investigation conducted by Local Contractors

During Phase 1 and 2 Field Work, following seven kinds of investigation works have been conducted by local contractors under supervision by JICA Study Team. These subletted works have completed successfully, and those results were used as basic data in the Development Plan of the Project.

1) Groundwater Survey

Contractor: MEGA Philippines, Inc.

Duration: Phase 1

Objective: To get all information of hydrogeological condition of the area.
To estimate possibility of the groundwater irrigation.

Scope:

- 1) Test Well Drilling 3 sites
 - Abo of Nagcarlan 125 m depth
 - Silangan Lazaan of Nagcarlan 50 m depth
 - Malinao of Nagcarlan 125 m depth(Steel casing and screen pipes of 3 inches diameter)
- 2) Observation of Groundwater Level
- 3) Reporting

2) Soil Survey

Contractor: MEGA Philippines, Inc.

Duration: Phase 1

Objective: To investigate soil and land condition in the Study area.
To assess land capability for horticulture development.

Scope:

- 1) Soil Test Pit 40 sites
(1.0 m depth)
- 2) Soil Profile Survey 40 sites
(FAO standard methods)
- 3) Soil Sampling 90 samples
(Maximum 3 horizons from the test pits)
- 4) Laboratory Test
 - Physical Test 90 samples
(Soil Texture)
 - Chemical Test 50 samples
(pH (H₂O), pH (KCl), EC, Total-N, Organic Matter,
Available-P, CEC, ex-Ca, ex-Mg, ex-K, and ex-Na)

Fertilizer Test 25 samples

5) Data Analysis, Reporting and Mapping

3) Water Quality Survey

Contractor: MEGA Philippines, Inc.

Duration: Phase 1

Objective: To identify sound water resources availability for irrigation and domestic use.

- Scope:
- 1) Water sampling 20 sites
(Spring and river water)
 - 2) Water quality test 20 samples
(Temperature, pH, Conductivity, DO, TSS, COD)
 - 3) Reporting

4) Farm Household Survey

Contractor: Design Factors foundation, Inc.

Duration: Phase 1

Objective: To get necessary data on living condition, economic situation, agricultural production, farming practice, cooperatives, farmers' willingness, and so on.

- Scope:
- 1) Preparation work
(Listing of farmers, preparation of questionnaire, etc.)
 - 2) Interview about 100 farmers
(Using prepared questionnaire)
 - 3) Reporting

5) Topographic Survey

Contractor: LA Construction, Corp.

Duration: Phase 2

Objective: To obtain the information on topographic condition to be needed for preliminary design.

- Scope:
- 1) Temporary Bench Marks 37 points
(Interval of 1 km along the proposed roads)
 - 2) Topographic Survey about 22.5 ha in total
(Intake works and demonstration farms)
 - 3) Route Survey, Profiling Survey And Cross Sectional Leveling

- | | | |
|----|---|------------------------|
| | Profiling Survey | about 34.6 km in total |
| | (Interval of 100 m, Roads) | |
| | Cross Sectional Leveling | about 34.6 km in total |
| | (20 m in width on both side at an interval of 200 m, Roads) | |
| 4) | Inventory Survey | |
| | (Existing condition of water servise facilities) | |
| 5) | Drawing | |

6) Public Consultation Survey

Contractor: CHERT Consulting Group, Inc.

Duration: Phase 2

Objective: To research farmers' direction of the development concept.
To confirm the appropriateness of the proposed project components.

Scope:

1)	Public Consultation Meeting	16 Brangays
2)	Interview	about 100 beneficiaries
3)	Reporting	

7) Geotechnical Survey

Contractor: MEGA Philippines, Inc.

Duration: Phase 2

Objective: To clarify characteristics of foundation.
To obtain basic data for analyzing foundation of structures on ground.

Scope:

1)	Core boring	2 sites
	(Bukal of Nagcarlan, Novaliches of Liliw)	
2)	Standard Penetration Test (SPT)	2 sites
	(Bukal of Nagcarlan, Novaliches of Liliw)	
3)	Reporting	

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