



Natural Resource Management Strategies on Leyte Island, Philippines



Cover page photos

Top left: Forest land in mountainous area

Top right: Subsistence fisherman

Bottom left: Abaca, manual stripping

Bottom right: Community information board

HUMBOLDT-UNIVERSITÄT ZU BERLIN
Landwirtschaftlich-Gärtnerische Fakultät
Schriftenreihe des Seminars für Ländliche Entwicklung



Natural Resource Management Strategies on Leyte Island, Philippines

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Baybay / Berlin, November 2001

SLE CENTRE FOR ADVANCED TRAINING IN RURAL DEVELOPMENT

(Philippines, S193)

**Schriftenreihe des SLE (Seminar für Ländliche Entwicklung)
(Publication Series by the Centre for Advanced Training in Rural Development)**

Herausgeber:
(Editors) SLE (Seminar für Ländliche Entwicklung)
(Centre for Advanced Training in Rural
Development)
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(Humboldt University Berlin)
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URL: <http://www.berlinerseminar.de>

Redaktion:
(Managing Editor) Dr. Karin Fiege
SLE (Seminar für Ländliche Entwicklung)

Druck:
(Printers) Offset-Druckerei Gerhard Weinert GmbH
Saalburgstr. 3
D-12099 Berlin

Verlag und Vertrieb: Margraf Verlag
(Publishers and Postfach 105
Distributors) D-97985 Weikersheim

1. Auflage 2001:
(1st edition 2001) 1-500

Copyright 2001 by: SLE - Seminar für Ländliche Entwicklung, Berlin
(Centre for Advanced Training in Rural
Development)

ISSN 1433-4585
ISBN 3-8236-1360-X

Foreword

This report is the result of a six-month project carried out by a Filipino-German consultant team at the request of the Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ). The German team members, except the team leader, were participants of the 39th annual training course at the Centre for Advanced Training in Rural Development (SLE), Humboldt University Berlin. The team was composed of an agricultural economist, a forester, a geographer, a development communication specialist, an agribusiness specialist, an agricultural scientist, a horticulturist, and a marine biologist.

The project was carried out in close collaboration with the “Leyte Island Program for Sustainable Natural Resource Management”, and the Leyte State University, Baybay.

Interdisciplinary consultancy projects are an integral part of SLE’s training programme. The programme aims at preparing young professionals for assignments in bilateral and multilateral development organisations. It enables participants to obtain valuable practice in the use of action- and decision-oriented appraisal methods. At the same time, projects contribute directly to identifying and solving problems in rural development.

In 2001, the five groups of SLE’s 39th course simultaneously conducted projects in Ecuador, Malawi, the Philippines, Sierra Leone, and Sri Lanka.

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Acknowledgement

The research team would like to express its sincere gratitude to all those who made this study possible. Without the ample support we received, in the Philippines and in Germany, this task would not have been accomplished.

Our prime gratitude goes to the people of Leyte Island who welcomed us so openly. The overwhelming hospitality we encountered made the field work for the study an enjoyable experience. The research team would like to thank the residents in the Barangays Conalum, Esperanza, Palanog, Kahupian, and Calag-Itan in particular, for sharing their time and experience with us. We are also grateful to the staff and officials in all the LGUs we visited. The information and data they provided, together with the interesting discussions we had in their offices or during joint field trips, greatly helped in improving this report.

The research team highly appreciates all the support received from Government and Non-Governmental Organisations. We appreciate the help and support we received at all levels. Additionally, we would like to acknowledge the assistance provided by the staff of the Leyte Island Program. Alongside their many other commitments, they managed to support us in so many different ways.

Special thanks go to the President and the staff of the Leyte State University. The valuable guidance and assistance we received further enhanced the quality of the report. We are thankful to have had the opportunity to stay on the beautiful and well-equipped campus for large parts of our three-month stay.

We also thank the colleagues who provided important comments and advice during the preparation of this study. Their professionalism and patience have helped a lot to successfully complete this report.

Salamat.

Executive summary

Leyte Island is the 8th largest of the Philippine islands, located in Region 8, Eastern Visayas. It comprises of Leyte province and Southern Leyte province, with a total land area of about 750,000ha and a population of 1.5 million. 55% of the households depend on agriculture and fishing to make their living. The average annual family income (1997) stands at PhP66,000. The poverty incidence of families is 41%.

Leyte Island has relatively flat lands along its coastline, and rugged to mountainous terrain towards the interior. Large plains can be found on the eastern and western side of Leyte province. Forest lands were once the most important natural resource. In 1939, 42% of the land was covered with trees, but by 1987 this area had decreased to 12%. Figures from Southern Leyte province indicate that 76% of designated forest land is under agricultural production. The major agricultural crops grown are coconut, abaca and sugarcane as cash crops, with rice, cassava, banana, sweet potato, and corn grown primarily for subsistence. Only about 6% of households are primarily engaged in fishing, however, additional fishing activities for home consumption is common. Marine resources have been depleting due to over fishing and destruction of natural breeding grounds by dynamite and poison fishing.

The Leyte Island Program for Sustainable Natural Resource Management aims at supporting efforts to combat the further depletion of natural resources on the island. The GTZ supported programme is the umbrella for three projects, namely the Leyte Bufferzone Forest Management and Reforestation by Smallholder Communities Project (BUFOM), the Integrated Community Based Coastal Zone Management, Silago Bay (ICOM) and the Tacloban Urban Development and Environmental Management Project (TUDEM). The programme emphasises participatory planning and implementation by strengthening private and official initiatives for the mutual benefit of the people involved. It started in January 2001 and is due to run for approximately ten years.

This study, which was commissioned by GTZ, aims at providing base line information to LIP. The findings are based on research conducted in four sites, which are also pilot sites for the LIP projects, and on information collected from different institutions and programmes at various levels.

The institutional framework for natural resource management

The major players in natural resource management in the Philippines are the Department of Environment and Natural Resources (DENR), the Department of Agrarian Reform, and the Department of Agriculture including its affiliate authorities. A large area in the highlands of Leyte Island is under the jurisdiction of the Philippine National Oil Company (PNOC). It is exploiting the geothermal resources and is also responsible for environmental management of the area. Land titling is always with DENR, while responsibilities concerning actual land utilisation are shared between these institutions. Forest lands are under the jurisdiction of DENR; activities on alienable and disposable (A&D) land are the responsibility of DA, while DAR is the organisation in charge of land under the agrarian reform programme. The disputed delineation between these different areas is often a cause of problems.

The decentralisation process, ongoing since the early 1990s, has shifted responsibilities from the central government to a local level. Local Government Units (LGUs), especially at the municipal level, are the supposed key players for implementation of projects and support measures such as extension services. There are offices whose defined task is to support the local development through their expertise and financial help. The Local Government Code stipulates the tasks for agricultural planning and development, environment, health, social, and other related tasks. However, important positions such as the Municipal Environment and Natural Resource Officer (MENRO) are optional, and so far, have not been established.

National line agencies are still responsible for providing support to LGUs. Only limited staff and budget has yet been devolved. The decentralisation process created new offices at provincial, municipal, and barangay level but the necessary budgetary provisions to act independently has not been provided. Hence, part of LGUs tasks is still covered by national line agencies, making the actual distribution of responsibilities difficult to understand.

The Agriculture and Fisheries Modernisation Act (AFMA), the Comprehensive Agrarian Reform Program (CARP), and the Community Based Forest Management Program (CBFM) are the main government initiatives to tackle natural resource management problems. The strategies, as outlined in the Fishery Code or the Forestry Masterplan for example, sound very reasonable on paper. However, implementation suffers from various constraints at the grassroots level. Most ap-

proaches make use of People's Organisations (POs) as their organised target groups. Community organising is in most cases done by NGOs contracted on a temporary basis.

The situation at barangay level

Poverty is a major concern on Leyte Island. The average household is in urgent need of cash income to cover daily needs and other expenses, particularly the education costs of children. With all income spent on daily needs, there are hardly any savings for investments or unforeseen expenditures. Those households receiving remittances from members working in Manila or abroad are usually better off. However, not all remittances arrive regularly.

Limited availability of, and access to, suitable agricultural land are in many places the main reasons for people to adopt shifting cultivation practices on forestlands. In addition, illegal logging is another way of mitigating income problems. However, damage by illegal activities in forests also takes place on a larger scale and with the support of, and for the benefit of, government officials.

Land use patterns of farm households and socio-economic conditions did not differ much amongst the four research sites. An exception is the barangay Palanog with its strong influence from urban Tacloban. Agricultural production is taking place on very small holdings and is done mainly for subsistence. Yields are generally low, and only occasionally can a surplus be marketed for cash income. The same applies to fishing activities. The only common cash crops are abaca and coconuts. Credit facilities are available almost exclusively through shops or middlemen. There are no large agricultural producers or fishermen found at the research sites. However, there are small but successful individual initiatives such as (fruit) tree farming and aquaculture.

Environmental awareness and motivation is limited. Even those people who understand the linkage of persisting land utilisation practices and the depletion of the natural environment, cannot address environmental concerns due to their short-term economic needs. The struggle to satisfy their families' daily needs determines their activities. Individual efforts in tree planting on private lands are rare.

Assessment, conclusions and recommendations

The perceived needs and requirements of the local population show a high degree of congruency with the objectives of the three projects under the Leyte Island Program. With poverty prevailing on rural Leyte Island, a main task of the projects will be to combine efforts of sustainable natural resource management with possibilities to improve the livelihood of the population. Current projects provided by different government agencies have not yet solved the problem of sustainably increasing the living standard on a broader scale.

Uncontrolled use of forest lands is widespread. People without access to suitable agricultural land often engage in illegal logging or try to survive as shifting cultivators on forest land. Institutional support for environmentally sound utilisation of natural resources is currently almost unavailable to the local population. Extension services are very weak and still suffering from the problems brought about by decentralisation. While the responsibility of providing extension services to farmers lies with the municipal LGUs, they lack the staff and financial resources to successfully accomplish this task. National line agencies have not yet devolved the required personnel and budgetary allocations.

Past and ongoing programmes in forest management have not yet been as successful as intended. Reforestation efforts have not yet been able to significantly increase the tree cover in the region. New attempts will have to take into consideration the fact that broad involvement of people in CBFM projects will only be achieved by providing additional financial incentives such as viable livelihood projects. The long-term commitment of resources can only be reached if combined with short-term support.

The same applies to marine resources. Approaches to establish sanctuaries suffer from little awareness about their benefits. Local fishery ordinances are difficult to implement, and law enforcement often suffers from the unavailability of basic equipment for fish wardens. However, coastal and marine resources are of great potential for municipalities.

The coordination and cooperation amongst different institutions and between all levels leave much to be desired. There is often confusion about responsibilities when it comes to land issues. Titling of land is difficult, and people, particularly in settlement projects, sometimes do not know whom to approach. Devolution of tasks has so far taken place mainly on paper. National line agencies are still

heavily engaged in implementation of projects, although this should be with respective LGUs. NGOs often complain about difficulties in dealing with government institutions.

Local Government Units are in need of support for planning and management of their natural resources. Techniques for environmental planning and management are widely unknown. Capacity building at the municipal, provincial, and regional levels is required. Comprehensive Land Use Plans (CLUPs) rarely include forestlands, as those areas are still considered to be under the sole responsibility of DENR. The lack of experience in the LGUs excludes the valuable marine resources from development plans. However, the Local Government Code envisages a more active role for them.

LIP could help in tackling the prevailing problems in natural resource management through different measures. Activities in line with the requirements include awareness raising campaigns, which will be necessary to support motivation for protection initiatives. Technical and economic planning is still required for the CBFM sites as well as for the sanctuaries. Viable alternative income sources have to be identified and promoted. National line agencies as well as LGUs will benefit from technical, and in particular management training. Co-ordination and collaboration between different institutions should be fostered. Capacity building for environmental planning and management is urgently required at all levels.

All project efforts will have to be coordinated by the programme management. Ensuring the political support necessary for successful implementation will be one of the main tasks. Support at the policy decision-making level will be a prime concern when dissemination of successful activities becomes the major concern. The broad range of problems in the field of natural resource management calls for broad participation of important agencies. The composition of technical working groups should be adjusted to changing programme and project requirements.

Table of contents

Foreword	i
Acknowledgement	iii
Executive summary	v
Table of contents	xi
List of maps, tables, figures, and photos	xv
Abbreviations	xvii
Glossary	xxiii
1 Introduction	1
1.1 Leyte Island – an overview	1
1.2 Natural resources and land use on Leyte Island.....	6
1.3 The Leyte Island Program	16
2 Research framework and methodology	19
2.1 Objectives of the study	19
2.2 Conceptual approach.....	19
2.3 Research methods.....	20
2.3.1 Site selection.....	20
2.3.2 Sampling method	21
2.3.3 Data collection procedures	21
2.4 Critical assessment of the methodology	22
3 The legal framework for natural resource management	25
3.1 Policies	25
3.1.1 Forestry	25
3.1.2 Agriculture, fisheries and coastal resources	26
3.1.3 Agrarian reform	26
3.1.4 Agenda 21	28
3.2 Laws and responsibilities.....	28
3.2.1 Land classification and land use rights	28
3.2.2 Forest land classification and utilisation.....	31
3.2.3 Fisheries and coastal zone management	32

3.2.4 Agriculture	33
3.2.5 Agrarian reform laws	34
3.3 Natural resource management and decentralisation	35
4 Organisations and programmes in natural resource management.....	39
4.1 Organisations	39
4.1.1 National line agencies	39
4.1.2 Local Government Units at provincial, municipal and barangay level	45
4.1.3 Non Government Organisations	53
4.2 People's Organisations	58
4.3 Programmes	60
4.3.1 Other major stakeholders and relevant programmes	70
4.3.2 Planned programmes and projects	74
5 The situation in selected barangays	77
5.1 Barangays Esperanza and Conalum (Inopacan)	77
5.1.1 Framework conditions	77
5.1.2 Resource utilisation	80
5.1.3 Economic conditions on household level	82
5.1.4 Awareness and motivation in the field of natural resource management	84
5.1.5 Structures, institutions and programmes	86
5.2 Barangay Palanog (Tacloban)	89
5.2.1 Framework conditions	89
5.2.2 Resource utilisation	93
5.2.3 Economic conditions on household level	95
5.2.4 Awareness and motivation in the field of natural resource management	96
5.2.5 Structures, institutions and programmes	97
5.3 Barangay Kahupian (Sogod)	99
5.3.1 Framework conditions	99
5.3.2 Resource utilisation	102
5.3.3 Economic conditions at household level	103

5.3.4 Awareness and motivation in the field of natural resource management.....	104
5.3.5 Structures, institutions and programmes	105
5.4 Barangay Calag-Itan (Hinunangan)	108
5.4.1 Framework conditions.....	108
5.4.2 Resource utilisation.....	110
5.4.3 Economic conditions on household level.....	111
5.4.4 Awareness and motivation in the field of natural resource management.....	113
5.4.5 Structures, institutions and programmes	114
5.5 Comparative assessment of the situation in the research sites	117
5.5.1 Common characteristics	117
5.5.2 Specific characteristics	122
6 Assessment of institutions and programmes in natural resource management.....	125
6.1 Strategies and approaches.....	125
6.1.1 Policies and their implementation	125
6.1.2 Unclear responsibilities	126
6.1.3 Deficient law enforcement.....	128
6.1.4 Programmes and projects.....	129
6.2 Institutions	133
6.2.1 National line agencies.....	133
6.2.2 LGU Level	135
6.3 Coordination and cooperation between institutions	137
6.4 Summarising conclusions	139
7 Implications for the Leyte Island Program	143
7.1 Meeting peoples needs.....	143
7.1.1 Economical and social needs	143
7.1.2 Institutional considerations.....	144
7.2 Lessons learnt from different approaches.....	146
7.3 Proposals for project or programme level action	148

7.3.1 Bufferzone management and reforestation	148
7.3.2 Coastal zone management.....	151
7.3.3 Urban development and environmental management.....	153
7.3.4 Activities at programme level.....	153
7.4 Organisational aspects for programme formation	155
Bibliography.....	157
Annexes.....	163
Annex 1a: Barangay Esperanza, Municipality of Inopacan.....	165
Annex 1b: Barangay Conalum, Municipality of Inopacan	171
Annex 1c: Barangay Palanog (103, 37-a, 12), Tacloban City.....	175
Annex 1d: Barangay Kahupian, Municipality of Sogod.....	179
Annex 1e: Barangay Calag-Itan, Municipality of Hinunangan	183
Annex 2: Aquatic resources and their use in Hinunangan	187
Annex 3a: Leyte Bufferzone Forest Management and Reforestation By Smallholder Communities Project (BUFOM).....	201
Annex 3b: Tacloban Urban Development and Environmental Management Project (TUDEM)	205
Annex 3c: Integrated Community-Based Coastal Zone Management - Silago Bay (ICOM).....	207
Annex 4: Scientific and common names of main trees and crops on Leyte Island.....	209
Annex 5: Offices and officials in the municipalities and barangays	213

List of maps, tables, figures, and photos

Map 1: Overview of Leyte Island, cities and research sites	2
Map 2: Land classification	8
Map 3: Land use on Leyte Island.....	10
Map 4: Soils on Leyte Island.....	12
Map 5: Fish sanctuaries of the municipality of Hinunangan.....	196
Table 1: Poverty rate, family income and expenditure of Region 8.....	4
Table 2: Slope classes of Leyte Island	6
Table 3: Different data for A&D and forest lands in Southern Leyte	7
Table 4: Area planted with different crops and yield for 1997	9
Table 5: Percentage of areas prone to erosion by province	13
Table 6: Area and number of species of coastal habitats in six bays of Leyte Island	15
Table 7: Results of aerial survey of coastal features of Leyte Island	15
Table 8: Fisheries and aquaculture production (mT) on Leyte Island, 2000	16
Table 9: Timeline of forestry programmes of DENR	60
Table 10: Crops and their labour peaks.....	118
Table 11: Average prices and estimated volume of a catch of fish in Hinunangan, Southern Leyte	189
Table 12: Fishes that are commonly found in Hinunangan, So. Leyte.....	197
Table 13: Fishes that are commonly found in Hinunangan, So. Leyte.....	198
Table 14: Other invertebrates that are present in Hinunangan, So. Leyte	199
Table 15: Tree species and fruit trees commonly found in the study sites.....	209
Table 16: Other common species present in the study sites	210
Figure 1: Monthly average rainfall measured at four stations on Leyte Island	3
Figure 2: General distribution of jurisdiction and responsibilities	29
Figure 3: Brief overview on relevant government institutions concerning natural resource management in the Philippines observed on Leyte Island 2001	40
Figure 4: Conceptual relationships of barangay offices	52
Figure 5: Transect of barangay Esprenza.....	169
Figure 6: Transect of barangay Cunalum	174
Figure 7: Transect of barangay Palanog.....	178
Figure 8: Transect of barangay sitio Hagna / Kahupian.....	182

Figure 9: Transect of barangay Calag-Itan	186
Photo 1: Typical landscape (Inopapcan)	5
Photo 2: Ten year old gmelina trees at CBFM area, in a very bad condition	88
Photo 3: Slash-and-burn area at CBFM area, Kahupian.....	102
Photo 4: Small and commercial fishing boats in Hinunangan	112
Photo 5: Mangrove rehabilitation at the sanctuary in Calag-Itan.....	114
Photo 6: Rice fields close to remaining forest area (Tabjon)	116
Photo 7: Subsistence fisherman on San Pedro Island	195
Photo 8: Fish market in Hinunangan.....	195

Abbreviations

A & D	Alienable and Disposable
ADB	Asian Development Bank
ADR	Action and Decision-Oriented Research
AFMA	Agriculture and Fishery Modernization Act
ARC	Agrarian Reform Communities
BARC	Barangay Agrarian Reform Committee
BAS	Bureau of Agricultural Statistics
BDC	Barangay Development Council
bdf	board foot
BFAR	Bureau of Fisheries and Aquatic Resources
BMC	Bay Management Council
BSP	Barangay Service Point
BUFOM	Leyte Bufferzone Forest Management and Reforestation By Smallholder Communities Project
BWSM	Bureau of Water and Soil Management
CARP	Comprehensive Agrarian Reform Program
CBFM	Community Based Forest Management
CBFMA	Community Based Forest Management Agreement
CBO	Community Based Organisation
CBRMP	Community Based Resource Management Program
CBRP	Community Based Reforestation Project
CENRO	Community Environment and Natural Resource Office(r)
CEP	Coastal Environment Program
CGGC	Clean Green and Grow Committee
CIDSS	Comprehensive Integrated Delivery of Social Services
CLOA	Certificate of Land Ownership Award

CLUP	Comprehensive Land Use Plan
CPDO	City Planning Development Office(r)
CRMF	Community Resource Management Framework
CSC	Certificate of Stewardship Contract
DA	Department of Agriculture
DAR	Department of Agrarian Reform
DAR- FBMPC	Department of Agrarian Reform Farmer Beneficiaries Multipurpose Cooperative
DED	German Development Service
DENR	Department of Environment and Natural Resources
DILG	Department of Interior and Local Government
DOLE	Department of Labour and Employment
DSWD	Department of Social Welfare and Development
ECC	Environmental Compliance Certificate
EIA	Environmental Impact Assessment
ELAC	Environmental Legal Assistance Centre
EWAS	Esperanza Women's Association
FAR	Family Approach Reforestation
FARMC	Fisheries and Aquatic Resource Management Council
FIDA	Fiber Industries Development Authority
FLMA	Forest Lease Management Agreement
FRMP	Fisheries Resource Management Project
GO	Government Organisation
GRDP	Gross Regional Domestic Products
GTZ	German Agency for Technical Co-operation
ha	hectare
ICOM	Integrated Community-Based Coastal Zone Management Project
IRA	Internal Revenue Allotment
IRUP	Interim Resource Use Permit

ISFP	Integrated Social Forestry Program
KALMANAC	Kalihukang Nagpakabanang Mananagat sa Conalum
KASAMAKA	Katilingban sa mga Mag-uuma, Mangingisda, Kababayen-an Og Kabatan-onan sa Inopacan
KUFA	Kahupian Upland Farmers Association
LGC	Local Government Code
LCE	Local Chief Executive
LGU	Local Government Unit
LHO	Local Health Office/Officer
LIP	Leyte Island Programme
LSU	Leyte State University
LUMD	Land Use Management Development
m	metre
mT	metric tons
MAO	Municipal Agriculture Office(r)
MARO	Municipal Agrarian Reform Office(r)
MDF	Municipal Development Fund
MPC	Multi-Purpose Cooperative
MPDO	Municipal Planning and Development Office(r)
MSWD	Municipal Social Welfare and Development
NAMES	Nagkahiusang Mananagat sa Esperanza
NFA	National Food Authority
NFP	National Forestation Program
NGA	National Government Agency
NGO	Non-Government Organisation
NHA	National Housing Authority
NIA	National Irrigation Authority
NIPAS	National Integrated Protected Areas System

NPAAAD	Network of Protected Areas for Agricultural and Agro-Industrial Development
NRM	Natural Resource Management
NSCB	National Statistics Coordination Board
NSCO	National Statistics Coordination Office
NSO	National Statistics Office
OPA	Office of the Provincial Agriculturist
PAGASA	Philippine Atmospheric Geophysical Astronomical Services Administration
PARO	Provincial Agrarian Reform Office(r)
PASAR	Philippine Associated Smelting And Refining Corporation
PAWB	Protected Areas and Wildlife Bureau
PCA	Philippine Coconut Authority
PENRO	Provincial Environment and Natural Resource Office(r)
PEOPLES	Partnership for Ecological Orientation for the Preservation of Leyte's Environment Incorporated
PFD	Palanog Forest Developers
PhilDHRRRA	Philippine Partnership for Development of Human Resources in the Rural Areas
PHILPHOS	Philippine Phosphate Corporation
PhP	Philippine Pesos
PLUM	Philippine Land Use Management
PMC	Programme Management Committee
PNOC	Philippine National Oil Company
PO	People's Organisation
RIC	Rural Improvement Club
RUP	Resource Utilisation Plan
SAFDZ	Strategic Agriculture and Fisheries Development Zone
SARC- TSARRD	Sustainability Agrarian Reform Community – Technical Support Agrarian Reform and Rural Development

SCFO	Small Coconut Farmers Organisation
SIAD	Sustainable Integrated Area Development
SLPSP	Sustainable Livelihood for the Poor in Southern Philippines
SLSP	Southern Leyte Settlement Project
SPIADFI	South Pacific Integrated Area Development Foundation Inc.
TOFA	Tononga Farmers Association
TUDEM	Tacloban Urban Development and Environmental Management Project
TUFA	Tabjon Upland Farmers Association
UNCED	United Nations Conference on Environment and Development
UNDP	United Nations Development Program
VICARP	Visayas Consortium for Agriculture and Resources Program
ViSCA	Visayas State College of Agriculture

Measurements

1ganta	=	2.2kg
1board foot (bdf)	=	144inches ³
1inch x 1foot x 1foot		
1m ³	=	424bdf
1inch	=	2.54cm
	=	0.833ft

Exchange rates (as of October 2001)

1USDollar	=	PhP51
1EURO	=	PhP46
1German Mark	=	PhP24

Glossary

Alayon	Local name for a small informal labour exchange group composed of 5-10 farmers
Agsa	Term used for a labourer who works the land of either a tenant or landowner during harvest time of coconut and abaca. Sharing schemes vary from one tenant/landowner to another
Ambo	The second-degree lease of the tenant. Work is only done during planting, weeding, and harvesting. Sharing scheme varies from one tenant to another
Banca	Refers to either motorised or non-motorised boat
Barangay / barrio	A village, constituting as the most basic political unit in the Philippine local government system. It is a component of the municipality or city where it is geographically situated
Bubu	A sharing and lending scheme where in members will contribute the same amount of money and give it to a member-organiser. The collected amount will be given to the person who is drawn on that specific week or month
Ganta	The oldest basic measurement of rice grain in the Philippines. One (1) ganta of rice is equivalent to 2.2 kilograms
Kaingin	Also known as shifting cultivation or slash-and-burn agriculture. This process is done by clearing a patch of forest of its trees and other vegetation, allowing them to dry before burning, then planting preferred annual crop(s) on the cleared areas (SAJISE, 1981)
Layag	The period after an abundant harvest, when coconuts are not bearing many nuts
Lupong ta- gapamayapa	Barangay justice institution composed of credible and reputable local residents who are appointed by the barangay officials

Pasa	Freshly dried copra sold or passed immediately by the farmer-producer to the middleman
Purok	Administrative zone within a barangay
Resicada	Desiccated copra
Sari-sari store	Convenience store
Sitio	Subdivision of a barangay
Sa-op	Tenant farmer who works land owned by another and pays rent either in cash or in shares of produce. A sharing scheme set by DAR stipulates that 1:3 or 25% goes to the land owner and 75% to the tenant provided that the tenant will buy the inputs (fertiliser, pesticides, labour)
Suki	Refers to either the regular buyer/middlemen or the customer
Umbak	Dried outer part of the abaca used for handicrafts such as bags, place mats and hats

1 Introduction

The introductory chapter provides a broad overview about Leyte Island and its main features, particularly in respect to natural resource management.

1.1 Leyte Island – an overview

The island of Leyte forms part of the Eastern Visayas, Region 8¹. It is located south-east of the main island, Luzon, and is the 8th largest of the Philippine islands. Consisting of two provinces, Leyte and Southern Leyte, it has a total land area of about 750,000ha, of which 571,208ha belong to Leyte Province and 173,480ha to Southern Leyte. The capitals of the two provinces are Tacloban City (187,000 population) and Maasin City (70,644 population) respectively. Leyte Province consists of two cities (Tacloban City, Ormoc City), 41 municipalities and 1,641 barangays². The Province of Southern Leyte has one city (Maasin City), 18 municipalities and 501 barangays.

Population

In the year 2000 the Leyte Province's population was registered at 1,572,472 while Southern Leytes was 358,446. Population growth rates from 1995 to 2000 are about 0.8% in Leyte Province and 2.63% in Southern Leyte. In 1995, 39.6% of the total population of Southern Leyte were under 15 years of age. Hence, the population can generally be described as young. The NSO Census of 2000 indicates 318,303 households for Leyte province and 72,615 for Southern Leyte. The average household sizes are 5.01 persons and 4.8 persons respectively.

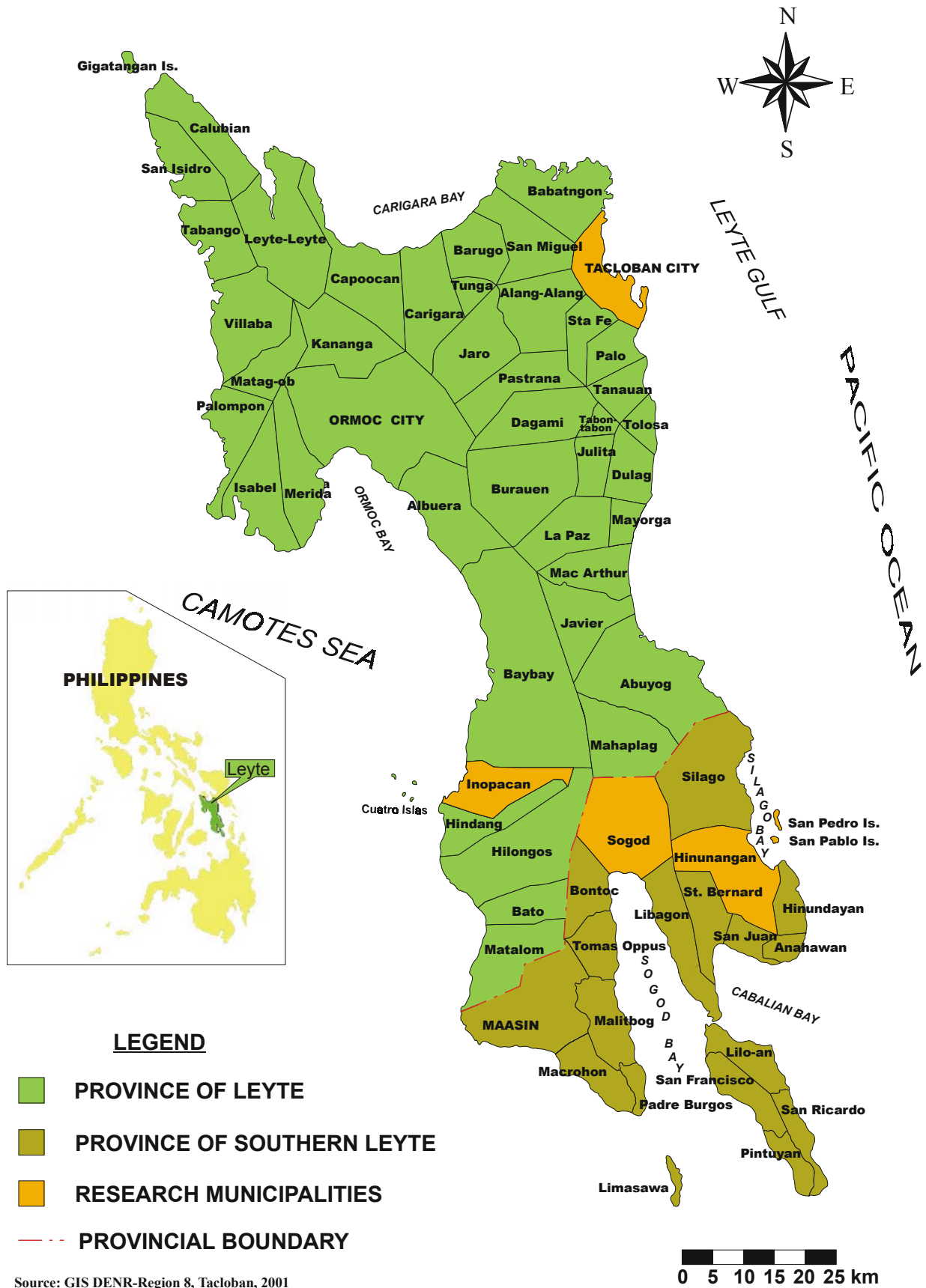
Language

In the western portion of Leyte Island, facing the province of Cebu, the dialect spoken is usually Cebuano; the east-side of the island facing the province of

¹ Region 8 is composed of the three Islands Samar, Leyte, and Biliran.

² *Barangay* was formerly officially called *Barrio* and derived from the Malay word *Balangay*, meaning a type of sailboat. Thus, the word historically refers to the small, independent, and 'clannish' settlements established by the Malay ancestors of the Filipinos. Today the barangay represents the smallest division of self-government. Several barangays make up a town or a municipality. Thus they may appear as a town quarter or also as a village.

Map 1: Overview of Leyte Island, cities and research sites

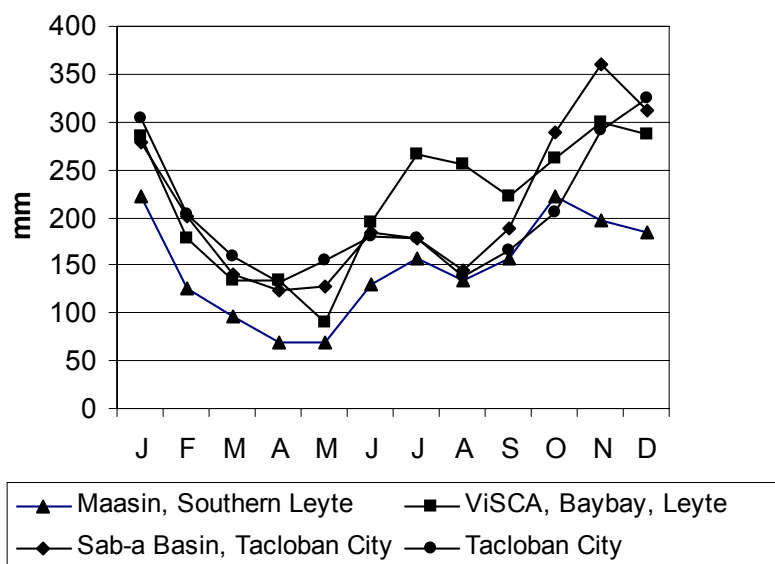


Samar is dominated by Waray-Waray, which is the dialect of the Samareños (Annual Report 2000).

Climatic conditions

In Leyte there exists, according to the Corona system (CORONAS, 1918), two types of rainfall. In the east, climate is characterised by a very pronounced rainfall from November to January. The climate affecting the west is characterised by rainfall that is more or less evenly distributed throughout the year. Generally there is no distinctive wet or dry season, but because of the central cordillera, the climate in the north-eastern part differs slightly from that in the north-west, and that in the south-east from the south-west. The western side generally receives less rainfall than the eastern side (BARRERA et al., 1954). Despite annual precipitation totalling 2600mm, temporary droughts in the area of the Leyte State University in Baybay have occurred (BALZER et al, 1994). An overview on rainfall data at different stations is given in figure 1.

Figure 1: Monthly average rainfall measured at four stations on Leyte Island



Source: EDPC, 1994

Leyte Island regularly faces typhoons with winds of 69 km/hour (EDPC 1994 cited by DARGANTES, 1996). Peak levels of some of the typhoon winds have reached speeds in excess of 150 km per hour causing considerable destruction. This occurs more in the eastern part of the island due to prevailing winds during the typhoon season (per.com. Mr. Kühlmann, Kai).

Economy and livelihood

Leyte's economy basically revolves around agriculture. The main source of income for the majority of the population comes from the production of crops, livestock, and marine products. The average annual family income in 1997 is stated to have been PhP67,291 in Leyte Province and PhP65,369 in Southern Leyte. Annual family expenditures averaged PhP54,501 and PhP50,691 respectively. The annual per capita poverty threshold for Region 8 in 1997 was PhP8,728 for all areas (urban and rural). The poverty incidence of families (average 5.1 persons), as indicated in table 1, is 40.8% for all areas.

Table 1: Poverty rate, family income and expenditure of Region 8

SOCIAL INDICATORS	1997	1994	1991	SOURCE
Annual Per Capita Poverty Threshold				
• All areas	PhP8,728	PhP6,444	PhP5,138	TWG-IS,
• Urban	PhP9,991	PhP7,327	PhP5,883	NSCB
• Rural	PhP8,250	PhP6,083	PhP4,815	
Poverty Incidence of Families				
• All areas	40.8%	37.9%	40.1%	TWG-IS,
• Urban	29.8%	30.8%	38.8%	NSCB
• Rural	44.9%	40.8%	40.6%	
Average Annual Family Income	PhP67,772	PhP49,912	PhP38,475	NSO
Average Annual Family Expenditure	PhP53,039	PhP37,522	PhP31,760	NSO

There are large companies on the island. These companies contribute the largest part of the industrial Gross Regional Domestic Product (GRDP) of the island. Two major enterprises are the Philippine Associated Smelting and Refining Corporation (PASAR), and the fertiliser and phosphoric acid production of the Philippine Phosphate Corporation (PHILPHOS). Considered to be the third largest industrial sector is the copra, sugar, and molasses industry (ACOSTA, 1991).

Topography

The surface of Leyte Island is characterised by relatively flat lands along its coastal areas, and rugged to mountainous lands towards the interior. Vast plains can only be found in the eastern and western side of Leyte Province. The Island

is traversed by mountain ranges (central cordillera) extending from north to south with peaks ranging from approximately 700m to 1100m in height.

Photo 1: Typical landscape (Inopacan)



Slope of the island can be classified into six categories as displayed in table 2. The first and second categories of 0-3% and 3-8% slope are areas highly suitable for agriculture and urban and/or non-agricultural development respectively. The slope ranging from 8-18% offers a wide variety of land-uses with options ranging from seasonal to permanent crop production. Hilly or mountainous areas with slope above 18% are by definition excluded from agricultural and non-agricultural use and are classified as forest land³. In reality, however, the majority of forest lands are in fact used for agriculture. Slopes above 50% are characterised as extremely steep rough mountain areas that are supposed to be classified as protection forest.

³A criterion for the classification is given by DENR (Department of Environment and Natural Resources). Next to those with 18% or larger slopes are areas classified as timberland (or forest land) for example, mangroves and areas along riverbanks. The counterpart of forest lands, which are public properties, is the alienable and disposable (A&D) land which can be privately owned.

Table 2: Slope classes of Leyte Island

Slope class	Area (ha)	Share	Area (ha)	Share
	Leyte	(%)	Southern. Leyte	(%)
0- 3 %	173,801	30	17,415	10
3- 8 %	46,722	8	9,998	6
8-18 %	72,207	13	14,093	8
18-30 %	163,220	29	37,676	22
30-50 %	84,623	15	41,559	24
50 % up	30,707	5	52,739	30
TOTAL	571,280	100	173,480	100

Source: ViSCA, 1996

1.2 Natural resources and land use on Leyte Island

Forests

In the past, forests were one of the most significant natural resources of Leyte Island. In 1939, forests covered 42% of the land surface, but this had decreased to 12% in 1987, an estimated loss of 240,000ha (DARGANTES, 1996)⁴. Large scale logging operations and the extensive conversion of forest land into agricultural areas, especially into coconut and abaca plantations, can be considered the main causes of this decline. 77% of classified forest land of Southern Leyte are already utilised for agricultural production (PHYSICAL FRAMEWORK SOUTHERN LEYTE, 2000). As of 1990, just 39% of the island forest lands actually had forest cover (DARGANTES, 1996 citing ERD-MO, 1991). A national logging ban in 1987 led to a gradual withdrawal of the big logging companies and its enforcement in Leyte Island became more prevalent after the Ormoc disaster 1991⁵. Today, main causes for the ongoing forest conversion can basically be attributed to the rampant practice of shifting cultivation, extending settlement, and to a certain extent, illegal logging activities.

Since the 1970's, numerous attempts have been made to reforest the large amount of lost forest cover, but these could not stop the continuous decrease of

⁴ Unfortunately more recent data was not available.

⁵ In November 5, 1991 heavy rainfalls caused the flooding of parts of Ormoc City and 8000 people lost their lives. This catastrophe turned official attention towards the tremendous problems caused by deforestation and the necessity of watershed protection.

the island forests. Various approaches have looked at how to face the causalities of forest conversion, but none have been sustainable. Generally, the amount of remaining forest cover can be used as an indicator of the critical situation regarding land access for the increasing number of people dependent on agriculture.

Agriculture

To determine how much of the islands area is actually used for agriculture is quite difficult as there is no actual data available on the land use in the areas classified as forest lands. Nor is the data of the ratio of A&D lands to forest lands verifiable due to a lack of proper maps, delineation, and landmarks. An example of this discrepancy of data is given in table 3.

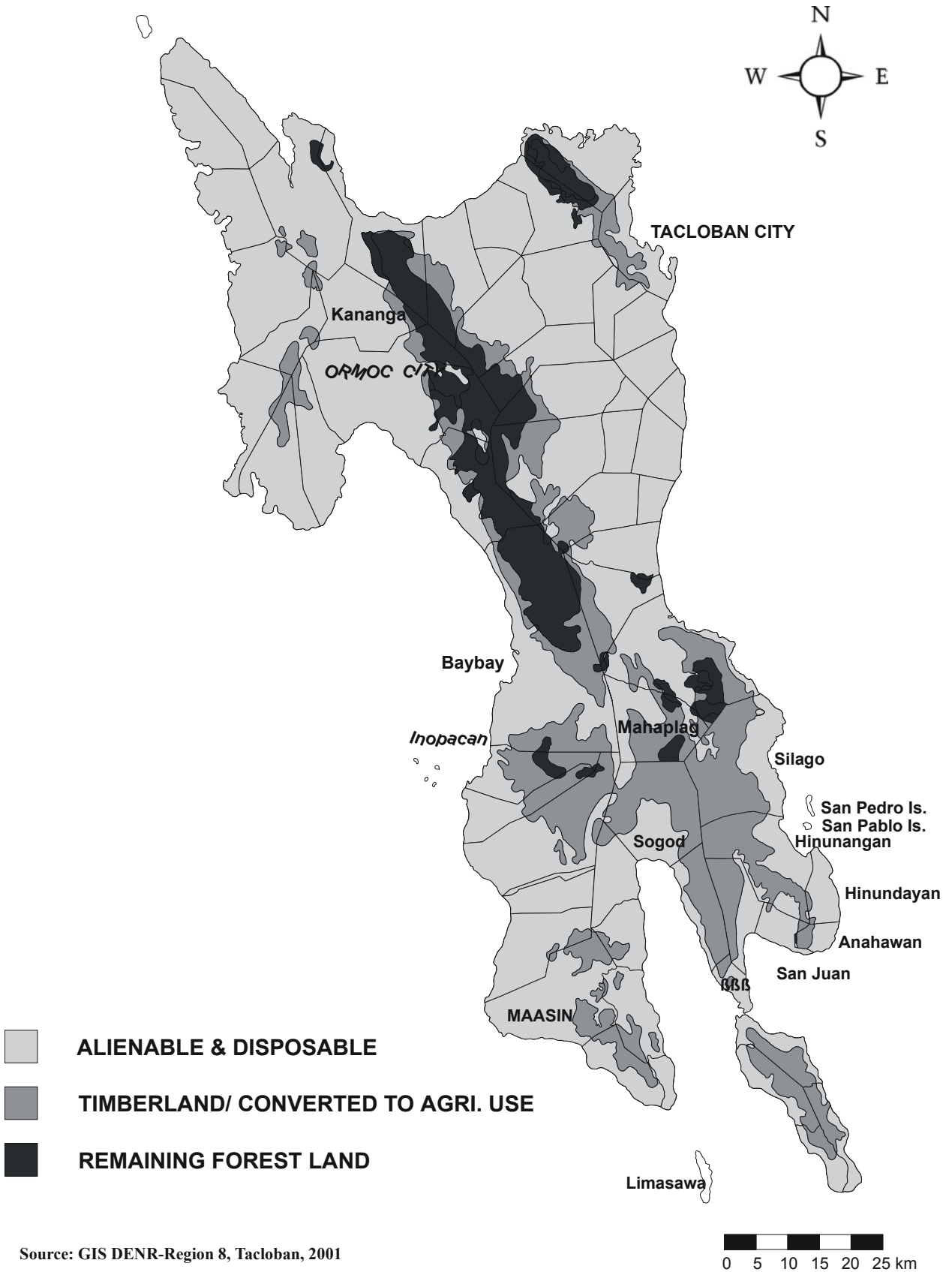
The variance in numbers with respect to land classification also mirrors the difficulties in defining and quantifying forms of land use, especially if their number relates to the legal status of the area⁶. The forest lands on Leyte, which are usually upland areas, undergo different practices of agriculture than the constantly and intensively cultivated low lands. For instance, it can be difficult to distinguish currently cultivated slash-and-burn areas from old fallow, which is covered by grass and shrubs.

Table 3: Different data for A&D and forest lands in Southern Leyte

Source	Alienable & Disposable	Forestland	Total
DENR Region 8 (Land use cover by legal status, 1987)	96,555	76,925	173,480
DENR Region 8 (Forestry Masterplan, 1996)	100,316	73,527	173,843
PENRO Maasin (1999)	106,937	60,232	167,169
Annual Report 2000, Office of the Governor, Southern Leyte	117,158	56,322	173,480
DENR Region 8 (Profile, 2001)	125,961	47,519	173,480

⁶ It is remarkable that Southern Leyte uses the DA classification because the DENR classification reduces the land area of the province which has negative implications on the LGUs, such as on the calculation of the national allotments of funds.

Map 2: Land classification



The majority of Leyte's farmers have land holdings of less than 1ha up to 5ha tilled land. A census of the Bureau of Agricultural Statistics (BAS) from 1991 showed that 93% of the farms in Leyte Province belong to this cluster, covering 62% of the total farm area. In Southern Leyte, 92% of all farms range from less than 1ha to 5ha in size and cover 71% of the farm area. Since the agrarian reform generally focuses on distributing holdings larger than 5ha, it can be assumed that the percentage of large land holdings has decreased.

The major crops grown on the island are coconut, rice, abaca, sugarcane, cassava, banana, sweet potato, and corn. Data on these crops is shown in table 4.

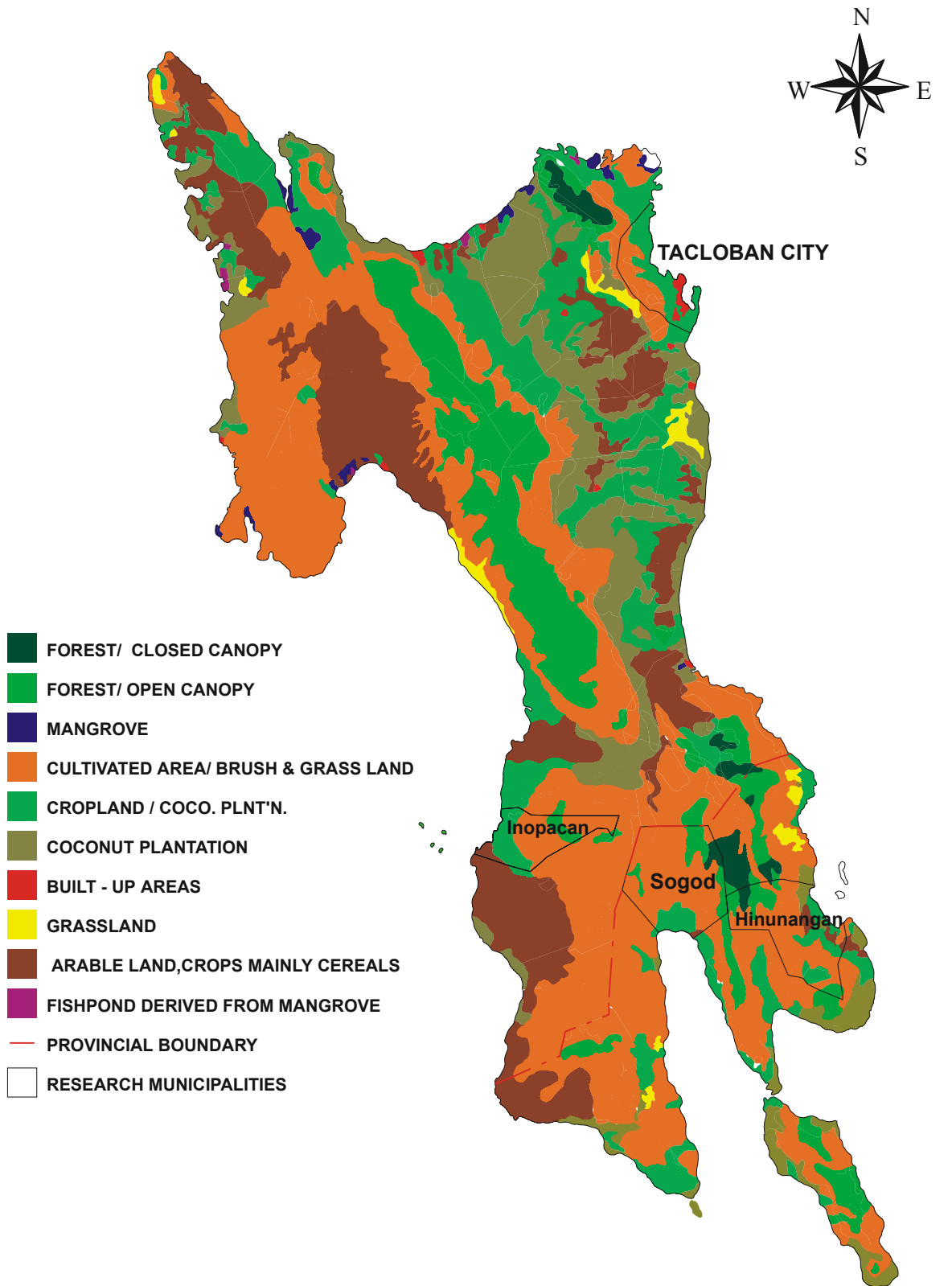
The data make clear that coconut production in Leyte plays a significant role in terms of land use and land cover (a large percentage of the island's area is dominated by it), as well as in terms of cash income. The effect of unstable and overall declining prices of copra in recent years is a considerable economic problem, at least for the large number of small scale producers.

Table 4: Area planted with different crops and yield for 1997

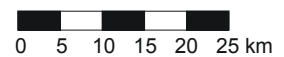
	Leyte Province		Southern Leyte		Total		
	Production (MT)	Area harvested (ha)	Production (MT)	Area harvested (ha)	Production (MT)	Area harvested (ha)	% of land area
Rice (irrigated)	160,531	57,450	43,151	12,350	203,682	69,800	9.4
Rice (rain fed)	61,968	30,958	8,743	3,416	70,711	34,374	4.6
Coconut	539,400	129,725	34,902	29,830	574,302	159,555	21.4
Abaca	7,183	11,778	13,082	9,155	20,265	20,933	2.8
Corn	19,880	33,845	3,499	5,240	23,379	39,085	5.2
Banana	263,444	5,936	39,888	8,192	303,332	14,128	1.9
Camote	48,966	3,983	11,514	6,690	60,480	10,673	1.4
Cassava	23,981	3,739	9,532	5,542	33,513	9,281	1.2
Sugarcane	528,135	8,951			528,135	8,951	1.2
Eggplant	1,095	146	105	34	1,200	180	<0.1
Pineapple	1,439	128	51	5	1,490	133	<0.1
Calamansi	1,689	67	81	26	1,770	93	<0.1
Peanut	172	466	23	58	195	524	0.1

Source: BAS, 1998

Map 3: Land use on Leyte Island



Source: GIS DENR-Region VIII, Tacloban, 2001



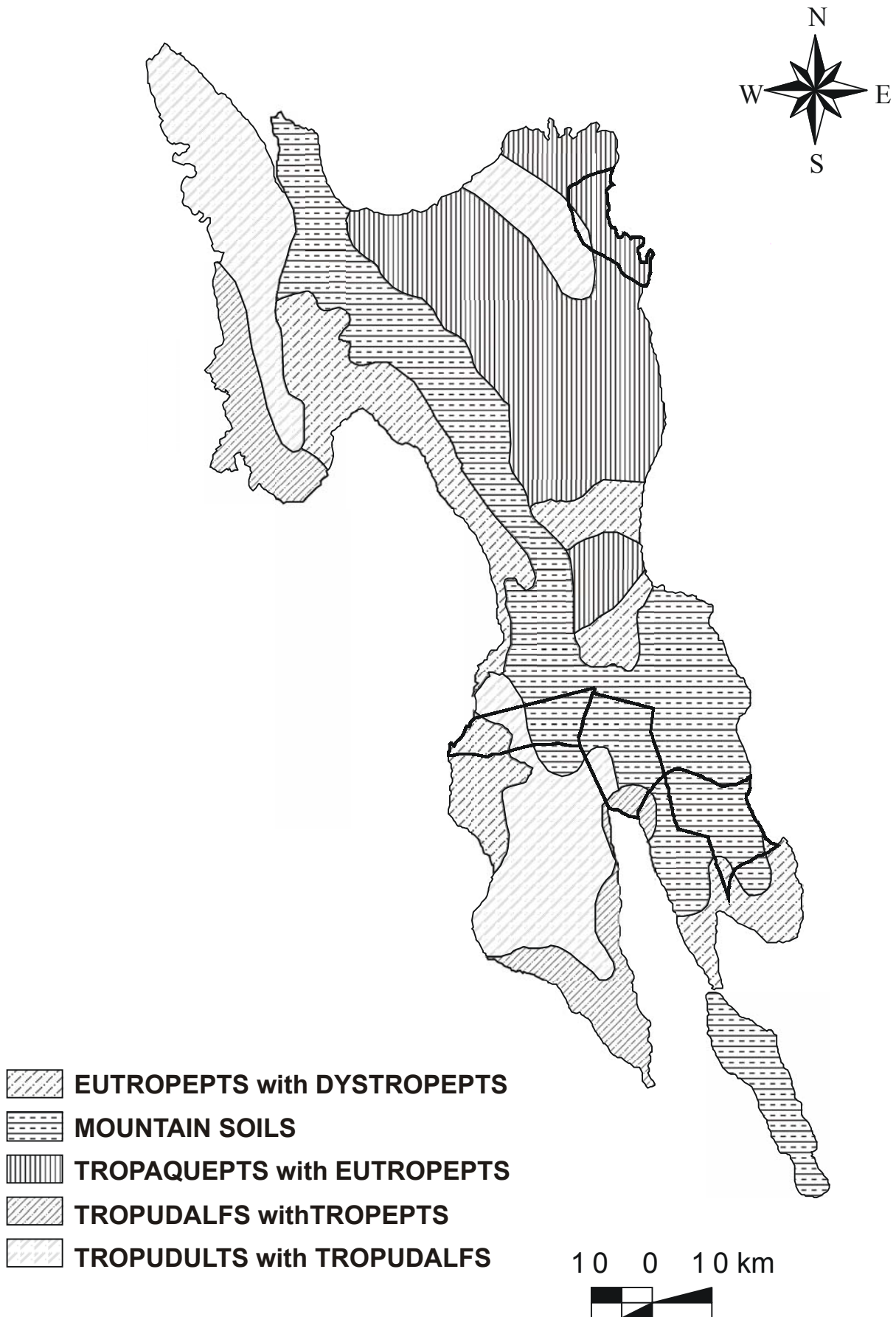
Copra and other coconut products are the major agricultural export products of the island. It is remarkable that the harvested area of 159,555ha is about 100,000ha smaller than the planted area of 259,536ha stated in a report of DARGANTES, 2001. This investigation of copra and abaca production in all the municipalities of Region 8 also states an actual area of abaca production of 15,793ha in Leyte Province and 10,034ha in Southern Leyte. Today abaca is the second biggest export crop of the Eastern Visayas. Sugarcane and pineapple, two other classic export products, are grown on a larger scale in the area of Ormoc. This part of the island is also characterised by the existence of large land holdings. Crops other than those mentioned for export usually remain in local markets or are used for home consumption.

Soil

Map 4 shows the distribution of different groups of soil types on the island. Characteristics of these types are as follows:

- **Tropaquepts** are slightly developed soils formed from young alluvial sediments. Due to their low lying locations they are generally water saturated for long periods. They are generally fertile and are used for rice production.
- **Eutropepts** are slightly to moderately developed soils located in well drained flat to sloping areas. They have high base saturation (>50%), are generally productive and are used for agriculture. They are, however, prone to soil erosion and other degradation processes.
- **Dystropepts** are similar to the Eutropepts in terms of morphology except that they have low base saturation (<50%) indicating that they are less fertile than the Eutropepts. Generally they require high inputs when used for crop production. Large parts of the severely eroded areas of the island have Dystropept soils.
- **Tropudalfs** are mature soils generally located in hilly and mountainous areas. They have high base saturation, are generally productive, and are commonly planted with various crops. They are also prone to erosion.

Map 4: Soils of Leyte Island



Source: ViSCA GIS Laboratory, Baybay, Leyte, 2001

Tropudalts are well developed, red, deep, dayey, and acidic soils in upland areas. Weathering and leaching have removed much of the nutrients from the soil profile. They are the most problematic upland soils in Leyte for agricultural production, and also reforestation is difficult due to severe fertility problems.

- **Mountain soils** include all areas in the central highlands of Leyte which were not covered by past soil surveys. This group includes young volcanic soils (Andisols) which are generally suitable for agriculture despite their limited P status. Other soils included are the Tropudalts and Eutropepts.
- **Tropepts** include Eutropepts and Dystropepts.

(per.com. Mr. Asio, Victor, ViSCA)

The removal of forest cover for the conversion of sloping lands into agricultural areas, in combination with unadapted practices of agriculture, general predisposition of the soils for erosion, and the highly erosive amount of precipitation, have led to the alarming loss of fertile ground in large areas of Leyte Island. An illustration is given in table 5. Map 2 shows the distribution of forest land and agricultural land on Leyte Island.

Table 5: Percentage of areas prone to erosion by province

	Leyte Province (%)	Southern Leyte (%)
Slight erosion	21.8	24.1
Moderate erosion	19.3	25.7
Severe erosion	19.9	32.3
Unclassified erosion	2.4	2.3
No apparent erosion	36.6	15.6

Source: DA-BSWM, 1992

Water Resources and Drainage

Leyte Island has many major and small rivers and two inland lakes. Most of the rivers are tapped for irrigation purposes while the numerous springs in the upland areas often serve as sources of potable water for settlements. A problem of resource use, among others, is the increasing uncontrolled quarrying activities on the riverbanks (e.g. for road construction). This causes visible expansion of the rivers, low velocity of the water course and low water levels resulting in increasing erosion and siltation. Primary effects in the river areas include the negative impact on the irrigation systems of rice farmers. A secondary effect is siltation

and the destruction of corals downstream, which destroys fish habitats and, in turn, reduces fish population.

The Philippine Land and Soil Management Atlas for Eastern Visayas (DA-BSWM, 1992) points out 12 watersheds for Leyte Island covering an area of 28,0989 ha, or about 37% of the total land area. The average yearly run-off is 684 million cubic meters. The average percentage of agricultural land use in the watersheds is 50%. Watersheds with 64–83% eroded areas amount to about 30% of the island's watershed areas.

Marine resources

The Philippine coastline stretches over 30,000 km including a great variety of habitats with one of the world's most diverse number of aquatic species.

However, these habitats are degraded and the resources there in are depleted both directly, (i.e. through destructive fishing practices) and indirectly by massive siltation from deforested upland areas and poor agricultural practices, and by inappropriate land use activities in coastal watersheds. Most near shore fisheries are over fished with extraction rates two to three times above sustainable levels. (ELMER, 1998) Coral reefs have been lost in great amounts due to heavy siltation, coastal development, and destructive fishing practices. It is estimated that of the 18,000 km² of coral reefs in the country in 1991, only 5% remain in excellent condition. The Philippine mangrove area shrunk from 450,000ha in 1918 to 149,000ha in 1988, and it is forecast that only 18,170 will remain by the year 2030 if the current rate of decline continues (ADB, 1997).

Including seagrass beds, the mentioned habitats are reputed to be some of the most productive in the world. Their massive destruction seriously endangers the populace's supply of food and income. Fish supply is considered to be a critical food security issue in the country as locally captured fish accounts for about 60% of the national protein consumption, making it second to rice as a staple.

Data for marine resources on Leyte Island as a whole is not readily available since inventories are done by various organisations such as BFAR or LSU (ViSCA) and data are incomplete or not yet compiled. A survey done by a ViSCA team in 1996 covered the six large bays of the island: Carigara Bay, Ormoc Bay, Silago Bay, Sogod Bay, Maripipi Bay and Cuatro Islas near the municipality of Inopacan (ViSCA, 1996). Data in table 6 refers to this survey.

Table 6: Area and number of species of coastal habitats in six bays of Leyte Island

Mangrove forests	Seagrass Beds	Coral Reef		
		in good condition	in fair condition	in poor condition
229ha	38ha	29ha	47ha	71ha
6-15 species	6-10 species	n.a.	n.a.	n.a.

Source: ViSCA, 1996

An aerial survey of coastal features was transformed into a GIS report and resulted in the data shown in table 7.

Table 7: Results of aerial survey of coastal features of Leyte Island

Feature	Area (ha)
Coastal plains	25552
Intertidal flats	3241
Rocky beach	262
Rocky cliff	665
Sandy beach	2034
White beach	64
Major built up	2420
Fish Pond	977
Quarry	28
Mangrove forests	3033

Source: ViSCA, 1996

The Provincial Physical Framework Plan of Southern Leyte (PHYSICAL FRAMEWORK SOUTHERN LEYTE, 1997) reports mangrove areas of very negligible sizes in Maasin (90ha), Hinundayan (64ha), St Bernard (55ha), Hinunangan (50ha), and Silago (40ha). Mangrove areas suffered excessive cutting (of about 40%) for firewood, settlements, and fishpond operations.

The marine resources of the island (table 5) are an essential part of the peoples sustenance and basic survival. Even though only 6% of households are primarily engaged in fishing (DARGANTES, 1996) these resources serve as additional income (e.g. for the large number of part time fishers) and food supply for the majority of people in the rural areas. Fresh or dried fish is an integral component

of their nutrition and is, if available, included in almost every meal. Major fishery products are roundscad, sardines, tuna, and bangus (or milkfish). Also harvested from the sea are seaweeds, mussels, snails, and squid. Additionally, the catch and sale of ornamental and live food fishes is an increasing business (13,000 mT annually to Hong Kong alone). Table 8 gives an overview of the island's amount of fisheries and aquaculture production.

Table 8: Fisheries and aquaculture production (mT) on Leyte Island, 2000

	Leyte Province	Southern Leyte	Total
Commercial	18,810	1,801	20,611
Municipal marine	6,345	4,559	10,904
Municipal inland	263	n.a.	263
Aquaculture	1,172	59	1,231

Source: BAS, 2001

Minerals and geothermal resources

The significant mineral deposits of Leyte Province are chromite ore, rock phosphate, dolomite, hydrate lime, sand and gravel and clay. Gold has been noted to be present on the island of Leyte but information as to the extent of its concentration and distribution is not yet known.

The central area of the island is covered by the geothermal reservation of the Philippine National Oil Company (PNOC), embracing about 107,000ha or about 15% of the islands area and large portions of the largest remaining forest in Leyte Province (see map 1 and chapter 4.4.1). The developed geothermal fields of Tongonan, Leyte produced 4,736 gigawatt-hours (GWH) of electricity in the year 2000, generating a revenue of PhP12.4 billion. The largest percentages of electricity are exported to Cebu (870 GWH) and Luzon (3,139 GWH). In the future, the supply of electricity to Mindanao and Bohol is intended and activities for the interconnection are on going (REGIONAL DEVELOPMENT REPORT, 2001).

1.3 The Leyte Island Program

The Leyte Island Program on Sustainable Natural Resource Management (LIP) aims at supporting efforts in combating the further depletion of natural resources on Leyte Island. Previous collaboration between the German Agency for Technical Collaboration (GTZ) and the Visayas State College of Agriculture (ViSCA),

now Leyte State University (LSU), led Philippine authorities to apply for support from the German Government to improve planning and implementation of adequate policies and practises for sustainable management of natural resources. Since January 2001, LIP has operated as an umbrella for three new projects, namely:

- Tacloban Urban Development and Environmental Management Project (TUDEM),
- Leyte Bufferzone Forest Management and Reforestation by Smallholder Communities Project (BUFOM),
- Integrated Community-Based Coastal Zone Management – Silago Bay (ICOM).

The three components are envisaged to integrate and form one programme of Philippine – German development cooperation. The objective being to establish principles of sustainable management of natural resources in policies, regulations, and practices at various levels of regional and local government administration, as well as with smallholder families on Leyte Island.

The programme emphasises participatory planning and implementation by strengthening private and official initiatives to the mutual benefit of the people involved. It aims at facilitating the creation of a conducive environment and the necessary legal framework and conditions to support a long-term view and to promote respective investment for sustainable utilisation of renewable resources, be they aquatic, forestry, or agricultural. Furthermore, the programme supports the devolution of political, administrative, and advisory functions to local and municipal administrations and offices, as prescribed under the Local Government Code (LGC), fostering local empowerment. A brief description of the three projects is attached in annex 3.

With detailed activities still to be determined, the programme needed to gather basic information about prospective pilot sites and the prevailing socio-economic and institutional framework in the project area. The programme administration asked the Centre for Advanced Training in Agricultural and Rural Development (CATAD) to conduct a study and to provide the baseline information for further planning activities. Details regarding the study and its approach are described in chapter 3.

2 Research framework and methodology

The German Agency for Technical Cooperation (GTZ) initiated this study on natural resource management strategies on Leyte Island in the framework of the Leyte Island Program (LIP). The study was commissioned to the Centre for Advanced Training in Agricultural and Rural Development (CATAD) at the Humboldt University Berlin. The main part of this work was accomplished during a three-month research trip to Leyte Island. The study followed a multidisciplinary approach, with researchers coming from Germany and the Philippines.

2.1 Objectives of the study

The general purpose of this study was to provide baseline data and information to the project staff and Technical Working Groups (TWGs) for the three projects under LIP and to derive recommendations in support of successful and promising approaches in the field of natural resource management.

More specifically, the objectives of this study were:

- to provide an overview of the natural resources of Leyte Island, their utilisation, potential and constraints, with particular emphasis on forest, agriculture, and coastal/marine resources,
- to describe and assess the institutional framework, other major players and relevant policies in the field of natural resource management,
- to identify relevant groups, structures, and organisations in view of utilisation of natural resources, and their capacities regarding natural resource management,
- to identify relevant socio-economic conditions and motivations at household level for the use of natural resources.

2.2 Conceptual approach

The research methods used in this study followed the principles of “action and decision-oriented research” (ADR). Participatory methods of quick data and information gathering and analysis were given preference over formal survey tools. The survey sought permanent and intensive cooperation and exchange with all stakeholders supporting natural resource management initiatives.

A multidisciplinary research team composed of Filipino and German researchers worked together on the main topics. Namely, socio-economic assessment of the situation at household level regarding the use of natural resources, and, basic institutional analysis in the field of natural resource management. Actual research work began with a six-week preparatory phase in Berlin where the problem was analysed from the available documentation. The research topics were derived by first drafting research questions. During this period, Filipino researchers had already begun to compile relevant secondary data about the research topics and the geographical area under investigation. The research schedule and the methodological outline were finalised jointly after the arrival on Leyte.

During the field phase, the research team was divided into three subgroups. The first subgroup carried out the investigations at the institutional level. This included government and non government organisations and programmes (past, present, on going and future,) in the field of natural resource management. The second subgroup was assigned to identify, describe, and assess relevant groups, structures, and organisations on the barangay level. The third subgroup's task was to collect household level information through interviews at the selected study sites.

Drafting of the report was done during the six weeks following the primary data and information collection phase.

2.3 Research methods

2.3.1 Site selection

The study was conducted on Leyte Island, covering both provinces, Leyte and Southern Leyte. Selection of the study sites was based on criteria set by the TWGs and the Program Management Committee (PMC). Sites were chosen from among the potential pilot sites of the three projects of LIP. This started with the selection of municipalities, giving importance to the geographical distribution within Leyte Province and the Province of Southern Leyte, and continued to the selection of the barangays based on the following criteria⁷:

- Existence of remaining forest cover

⁷ Selection of barangays for the research was done following the mentioned criteria. The specific topics of investigation in the different barangays are presented at the beginning of chapter 5.

- On going activities in resource management such as the existence of Community Based Forest Management projects (CBFM), watershed or similar projects
- Opportunity to involve different institutions such as the Department of Environment and Natural Resources (DENR), Department of Agrarian Reform (DAR), Department of Agriculture (DA)
- Presence of a people's organisation
- Accessibility of the sites
- Security situation

The research sites are indicated in map 1.

2.3.2 Sampling method

Potential respondents for the household interviews at the study sites were all natural resource users. However, emphasis was given to include mainly upland farmers and fishermen. The research team obtained lists of residents from the barangay secretaries or barangay captains for sampling purposes. The overall number of respondents was 45, selected randomly from the lists provided. For the institutional interviews, respondents at regional and provincial level were chosen according to their involvement in activities relevant to the research topics. At municipal and barangay level, people from all relevant offices were interviewed. Approximately 50 interviews were carried out at different institutions.

2.3.3 Data collection procedures

The study used four main tools of data and information gathering. Namely, key informant interviews and semi-structured interviews at the household and institutional levels, observation techniques and secondary-data analysis.

A set of structured guideline questions was used instead of questionnaires. The questions focused on capturing the relevant socio-economic conditions and household motivation in the use and conservation of natural resources.

The key informant interview was used to obtain information on the study sites, agricultural activities and living conditions of the people. This approach involved formal and informal interviews of all identified key persons, namely municipal officials such as Mayor, Municipal Agricultural Officer (MAO), Municipal Agrarian

Reform Officer (MARO), Municipal Planning and Development Officer (MPDO), as well as barangay officials, elder residents and former barangay officials.

Field visits / transect walks around the study sites were undertaken to make personal observations and to get an impression of the whole barangay, particularly on the general living condition, land use, crops planted and cropping pattern practices. Furthermore, visits to CBFM sites (where applicable), protected areas, and fish sanctuaries in the area were undertaken.

Secondary data sources were identified and information was obtained from various libraries and government agencies in the provinces as well as at the regional level. Additionally, documents at barangay and municipal offices were reviewed.

In general, five days were spent in each of the researched barangays. An exception was Calag-Itan, where the research team spent ten days to study both the coastal and upland zones.

A first draft report was distributed two weeks after completion of data collection in the field. During the preparation of the draft report, validation of data and comparisons with information from secondary sources took place. The final version was prepared after presentation and discussion of the report and its findings with programme staff and the Program Management Committee.

2.4 Critical assessment of the methodology

Difficulties were encountered in the search for reliable secondary data. Tracing reliable information and data in the different institutions turned out to be very time consuming. It took considerably longer than expected to find information on recent land use, information supposedly available in each DA or DENR office.

Household interviews provided a large amount of information that in some cases proved to be difficult to analyse and to interpret. With limited experience in field surveys in this environment, interviews provided a wealth of interesting information that turned out to be difficult to evaluate. More testing of guideline questions in connection with preliminary attempts in evaluation of data would have been helpful to further streamline the study. A more formal approach using structured questionnaires for data gathering might have been helpful for some of the topics. Nevertheless, the overall results provide a good insight into the local household economy.

Time constraints forced the research team to rely primarily on secondary information regarding different programmes and institutions. Interviews in different institutions were limited to a small number of agencies and programmes, with a limited number of persons interviewed. Much of the second-hand information could not be counter checked or verified through surveys. Information collection through officers of individual agencies was sometimes difficult, as general knowledge about an institutions work is not always available at all levels. Hence, the information and the assessment of different institutions and programmes does not go very deep, but provides a broad overview about stakeholders in natural resource management.

3 The legal framework for natural resource management

In this chapter, the main aspects of the actual policies in forestry, agriculture, fisheries and coastal resource management are described as well as the respective laws and responsibilities which constitute the legal framework for natural resource management. An assessment of the implementation of these policies and laws follows in chapter 6, after the findings on village level have been explained. Due to its importance in the political system, the process of decentralisation and some of its general challenges and problems are described in the last subchapter in view of natural resource management.

3.1 Policies

Due to the increasingly critical status of natural resources, the obvious disappearance of large forest areas, and the dramatic decline of fish stocks, the Philippine Government began in the 1970s the enactment of laws and measures dedicated to natural resource management. The United Nations Conference on Environment and Development (UNCED) in Rio de Janeiro in 1992, and the spur to implement Agenda 21, have also led the Philippines to a process of strengthening natural resource management policies.

3.1.1 Forestry

Current national policy concerning forestry is determined by heavy land pressure on upland resources and the results of uncontrolled logging activities. In 1975 the Revised Forestry Code was issued. Main policies that are to be pursued with this legislation are to systematise the land classification and to emphasise the protection, development and rehabilitation of forest lands to ensure their continuity in productive conditions. Other significant policies have been the imposition of a logging ban, especially in critical watersheds and protected zones, and the establishment of protected areas such as national parks according to the National Integrated Protection Areas System (NIPAS).

The Masterplan for Forestry Development is a 25 year framework for the development of the forestry sector including the identification of priority programmes contributing to the formulated policy objectives. Promoted in several pro-

grammes, and highlighted in this policy are community based strategies in management and conservation of forest resources.

3.1.2 Agriculture, fisheries and coastal resources

Current political guidelines for the agricultural and fisheries sectors focus on the assurance of food security and on technology improvement to increase the volume, quality, and value of agriculture and fisheries production for domestic consumption and for exports to face global competition. Consequently, the Agriculture and Fisheries Modernisation Act of 1997 (AFMA), p. 1, suggests a main strategy to modernise the agriculture and fisheries sectors by transforming these sectors from a resource based to a technology based industry.

Further principal policy directions are: to promote sustainable development, management and conservation of the fishery and aquatic resources in Philippine waters; maintain a sound ecological balance; contribute to sustainable use of resources for agriculture; and to promote poverty alleviation and people empowerment by providing support, extension and credit services.

Main aspects of the proclaimed policy on coastal resources are the protection of the rights of the fisherfolks against foreign intrusion, especially of the local communities with preferential use of municipal waters, and the provision of support to them. Other priorities are the improvement of aquaculture and mariculture projects and to promote the establishment of sanctuaries for the rehabilitation of fish stocks and corals (per.com. Riel, Anselmo, BFAR Tacloban).

3.1.3 Agrarian reform

As natural resource management is closely linked to the question of land distribution and property rights, the process of agrarian reform and its difficulties are briefly outlined in this extra sub chapter.

For sustainable resource management, security of land ownership or usufruct rights is necessary to promote attractive long-term investments.

Land ownership and property rights in the Philippines have been shaped by a history of more than 300 years of colonialism. For a long time, large farms, “haciendas”, have been the countryside. According to government estimates in 1986, about 80% of the total agricultural area was owned by about 20% of the popula-

tion (PAKISAMA, 2001, p. 65). The extremely unequal land distribution has been, and still is, reason for serious political conflicts and insurgency.

Comprehensive Agrarian Reform Program (CARP)

The Comprehensive Agrarian Reform Program (CARP) began in 1988 under the administration of the Philippine President Corazon Aquino after the collapse of the Marcos regime. Beneficiaries were all to be landless people. It was targeted to distribute 10.3 million ha of public and private land within ten years. Regarding the limits of this distribution, CARP stipulates that "...in no case shall retention by the landowner exceed five (5) hectares. Three hectares may be awarded to each child of the landowner" (p. 8). For rice land the limit is seven hectares. Within three phases all public and private land devoted to or suitable for agriculture should have been distributed.

Implementation of CARP

In 1998, ten years after the implementation of the programme, most of the public and voluntarily offered private land had been distributed. The reform programme is now in the phase where compulsory acquisition of private land is necessary.

In Region 8 only about 47.5% of the envisaged reform area had been distributed by 1999 (DAR Tacloban, 1999, p. 4). In Southern Leyte the distribution of the public land has been completed so far, while more than 200ha of private lands are not yet distributed. These private lands are large haciendas (per.com. PARO Southern Leyte). Leyte Province will have completed its distribution by the year 2006 (DAR Tacloban, 1999, p. 8).

Difficulties of the agrarian reform

The main reason for the obvious delay in the implementation of the last phase of land distribution is the resistance of the traditional landowners. Compensations for the land have not been accepted and interim orders against expropriation have been obtained. Furthermore, there have been threats or expulsions of tillers. Another reason for the delay has been the applications for conversion of agricultural lands into industrial or settlement areas by landowners. Typically, this concerns the surroundings of larger communities and cities.

The offices of the Department of Agrarian Reform (DAR) complain of the difficulty in land distribution because there have not been any adequate cadastral surveys

and funds with which to provide adequate services for the beneficiaries. Furthermore, DAR does not have enough capable lawyers.

The current government has emphasised that the agrarian reform is an important focus of its administration. One of President Arroyo's agendas is to safeguard and sustain the gains of the programme and to accelerate land acquisition and distribution. The new government is forced to implement the compulsory acquisition of private land and confront the traditional landlords in order to proceed seriously with the process of agrarian reform.

3.1.4 Agenda 21

The Philippine Agenda 21 was adopted in 1996. The Philippine Council for Sustainable Development was created to provide the mechanism for implementing the principles of sustainable development in the country. The Forestry Masterplan recommendations, and the Philippine Agenda 21, have been integrated into the Medium Term Philippine Development Plan, better known as Philippines 2000, which was approved by the cabinet members on December 1992.

3.2 Laws and responsibilities

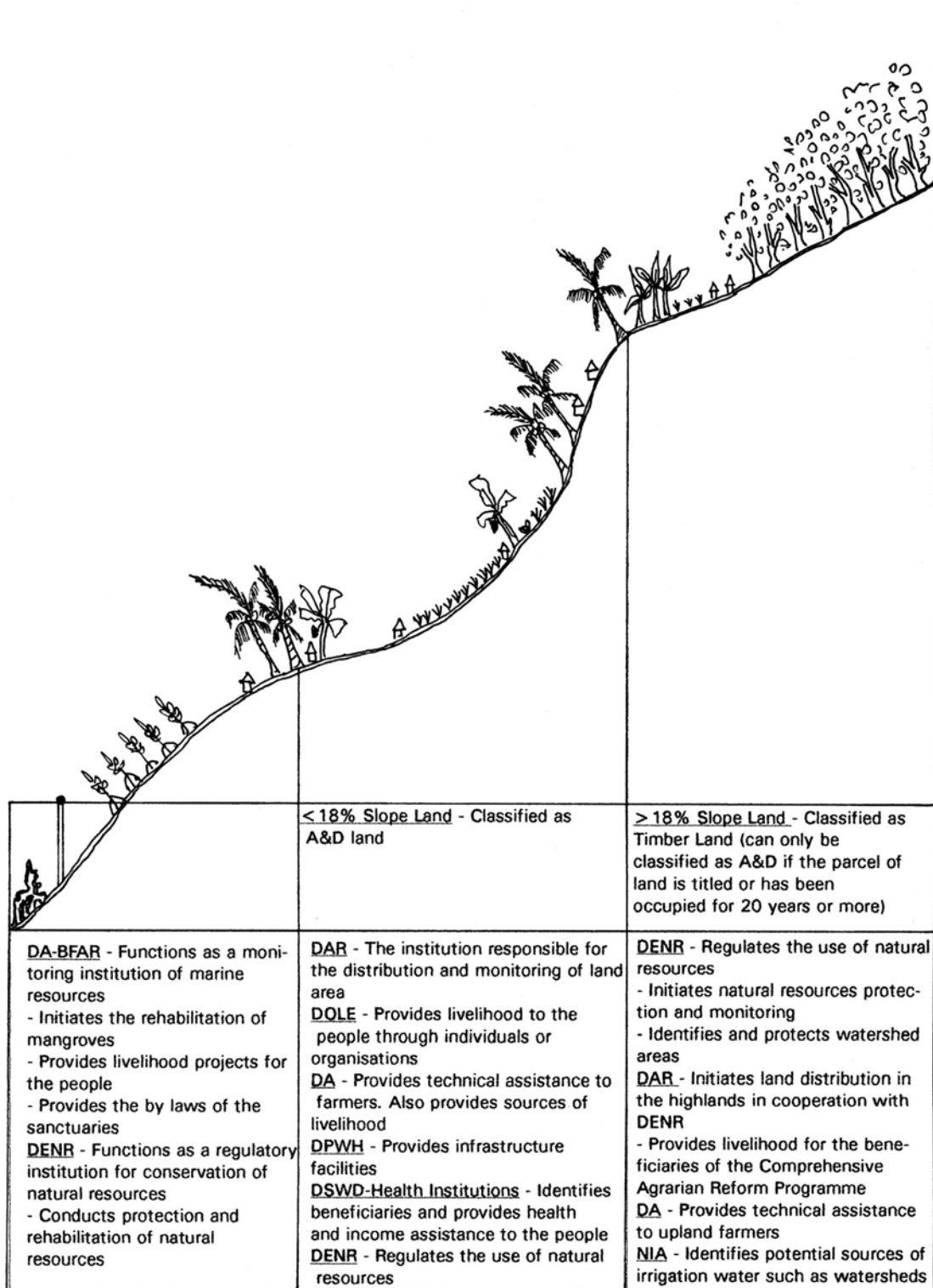
Important laws and regulations concerning land classification, forestry, fisheries and agriculture, and the distribution of responsibilities of different agencies regarding natural resource management are described in the following sub-chapters.

3.2.1 Land classification and land use rights

The land is classified into A&D Land (alienable and disposable land) and timberland. The Public Land Act of 1936, p. 2, names mineral lands as a third category.⁸ Figure 2 provides a general overview on jurisdiction and responsibilities.

⁸ One special law is the Indigenous Peoples Rights Act of 1997 which creates a legislative basis for recognition and establishment of titled land rights for indigenous cultural minorities referring to all the land occupied and utilised by them. On Leyte Island there is no case like this.

Figure 2: General distribution of jurisdiction and responsibilities



Alienable and disposable land (A&D land)

A&D land includes agricultural, residential and industrial land. It can be subdivided into titled and untitled land of the public domain. Titling for A&D land is DENR's concern. DENR gives patents for land under five hectares. There is still much A&D land either untitled or for which patents have been issued but not judicially registered. One problem is that a survey is necessary. Rarely do survey teams from DENR visit these areas. For privately hired survey teams, costs are high, approximately PhP10,000. As long as no one else claims the land there is no practical need for a tiller to apply for a title. On the other hand, tillers sometimes attempt to sell this untitled land as their own. Most of the A&D land, titled or not, is 'declared' meaning that it is declared to the municipality for the calculation and collection of the taxes.

The Revised Forestry Code stipulates that classified A&D land with more than 18% slope will be reverted into timberland except if titled or if the parcel has been occupied for more than 20 years.

Timber land

Land with a slope of 18% or more is classified as timber land. Timber land includes forest lands and mangrove areas. It cannot be privately owned. Timber land areas are generally under the jurisdiction of DENR. In the Local Government Code (LGC) it is designated for the municipalities "...that pursuant to national policies and subject to supervision, control and review of DENR, implementation of community based forestry projects which include integrated social forestry programs and similar projects; management and control of communal forests with an area not exceeding fifty square kilometres" are under the LGUs responsibility (p. 10f).

Stewardships for utilisation of timber land areas are given within certain programmes such as Community Based Forest Management (CBFM) or the older Integrated Social Forestry Program (ISF)⁹.

⁹ These programmes and their implications will be described in chapter 4.

Unclassified areas

Unclassified areas refer to areas where no survey has been conducted. Hence, no one knows where the boundaries are, or where the jurisdiction lies. Another problem is the lack of consistency of different maps and surveys. This is further exacerbated by the age of these documents and activities, some being more than 50 years old.

Traditional land use rights

It has also to be taken into consideration that before colonisation, Filipinos were characterised by their concept of land being in the control of the established occupant rather than being available through legal rights bestowed by a superior authority. It is still accepted within the communities that somebody who has cleared a piece of land and planted something is considered the owner of that area. On the other hand, it should be mentioned that the Filipino pre-colonial culture of occupancy is often presented as justification for the delay of titling land to the people, and the present unequal distribution of formal property rights.

3.2.2 Forest land classification and utilisation

Forest land classification¹⁰

- Protected areas: National Parks, Wildlife Sanctuaries and Forest Reservations (reserved by the government for a specific purpose, e.g. academic institutions research sites, military, etc.).
- Critical watersheds.
- Reforestation areas.
- Production forest: areas with slopes up to 50%, developed to supply both timber and non timber forest products.
- Limited production forest: areas with slopes over 50%, developed to supply non timber forest products.

¹⁰ On common land classification maps, no differentiation among timber land and forest land is made.

- Protection forest: areas (regardless of slope) of production or limited production forest that are highly erodible, which are to be developed to establish forest cover to prevent soil erosion.

NIPAS

The National Integrated Protection Areas System (NIPAS) approach was taken in view of the previously fragmented management and supervision of resources and the need to consolidate management under an integrated system. DENR is now demarcating the boundaries of virgin forests and protected areas. These protected areas are strictly natural reserves.

Watersheds

The Agriculture and Fisheries Modernisation Act (AFMA) of 1997 stipulates that all watersheds for existing and potential irrigation areas, and recharge areas of major aquifers that are identified by DA and DENR, shall be preserved as such (Department of Agriculture, 1997, p. 18). All logging, clearing or any other activity within the identified watershed areas shall be limited and regulated according to existing laws and regulations issued by DENR. Reforestation, agroforestry and conservation and optimal management projects are eligible for support and financing from resources made available (*ibid.*).

Forest utilisation

There are actually two mechanisms for utilisation of forest resources: licenses and permits. They are both issued by DENR. Licenses refer to a long-term concession or permits for a shorter term. Permits are also given for cutting trees within A&D Land. Under some programmes of the government, such as the Community Based Forest Management Program (CBFMP), a Resource Use Permit (RUP) for the respective forest area is given. Within CBFM the People's Organisation (PO) responsible for the area is allowed to cut, transport and sell wood products in determined volumes after the RUP has been approved.

3.2.3 Fisheries and coastal zone management

The Philippine Fisheries Code of 1998 is, in addition to the Local Government Code, the legislation through which all laws pertinent to management and conservation of the fisheries and aquatic resources are integrated.

Municipal waters

The municipal jurisdiction includes all waters and coastal areas not under special protection or classified as timber land (such as mangrove areas) and the marine waters within 15 km off the shore line. Resident municipal fisherfolks have priority to utilise these waters. The LGU should maintain a registry of municipal fisherfolks for monitoring fishing activities.

Municipal Fisheries Ordinances

Basic Municipal Fisheries Ordinances should be formulated by the LGU. There the delineation of the boundaries of municipal waters and regulations on licensing, permits and other fisheries activities should be recorded. Unified Fisheries Ordinances can be formulated together with other LGUs (Department of Agriculture, 1998, p. 20).

Closed seasons and sanctuaries

Closed seasons can be declared in any waters outside the boundaries of municipal waters for conservation and ecological purposes. Within the municipal waters the LGU and the Fishery Aquatic Resources Management Council (FARMC)¹¹ must agree (ibid., p. 16).

The LGU in consultation with the FARMC can recommend to the Department of Agriculture (DA)¹² that a portion of the municipal waters should be declared as fishery reserves for special or limited use, or sanctuaries where no fishing shall be allowed for a certain time. In Special Municipal Fisheries Ordinances the LGU in consultation with BFAR shall declare closed seasons, environmental critical areas and sanctuaries (ibid., p. 20).

3.2.4 Agriculture

The 1997 Agriculture and Fishery Modernization Act (AFMA) is the actual legislation for the agricultural sector. It underpins the policy to promote the industrialisation of the sector.

¹¹ FARMCs shall be established at the national, municipality and city levels, formed by fisherfolks' organisations, NGOs, LGU and government entities. Detailed description in chapter 4.

¹² The Bureau of Fishery and Aquatic Resources (BFAR) is one of the national agencies under the Department of Agriculture. For detailed description of the institutional setting, see chapter 4.

Strategic Agriculture and Fisheries Development Zones (SAFDZ)

In consultation with the local government units, appropriate government agencies, concerned non government organisations, and organised farmers and fishermen and women's groups, Strategic Agriculture and Fisheries Development Zones (SAFDZ) are to be identified. SAFDZ should be selected based, among others, on the criteria of their competitive advantage for particular crops, animals and aquatic products and on the strategic favourable location of the area for the establishment of infrastructure, industrial complexes, production and processing zones and market development (ibid., p. 9f).

Credit

With respect to credit possibilities for smallholding farmers, it is formulated that the Land Bank of the Philippines shall, in accordance with its original mandate, focus primarily on plans and programmes in relation to the financing of agrarian reform and the delivery of credit services to the agriculture and fisheries sectors, especially to small farmers and fisherfolks (ibid., p. 29).

Extension service

The LGUs shall be responsible for delivering agriculture and fisheries extension services (ibid., p. 79). Provincial governments shall integrate the operations of the agriculture extension services and shall undertake an annual evaluation of all municipal extension programmes (ibid.). Extension activities should be supported by a transfer of funds from the Department of Agriculture to the local government units as extension grants (ibid., p. 83).

3.2.5 Agrarian reform laws

Jurisdiction between the Department of Agrarian Reform (DAR) and DENR has often been an issue of debate due to the Comprehensive Agrarian Reform Program (CARP).

CARP, p. 7, stipulates that there should be no reclassification of forest or mineral lands to agricultural lands after its approval. Lands found to be necessary for parks, wildlife, forest reserves, reforestation, fish sanctuaries and breeding grounds, watersheds and mangroves, national defence, and all lands with eighteen percent (18%) slope or more (except those already developed) shall be exempt from the coverage of CARP (ibid., p. 13).

With respect to land titling, DAR is in charge of land that is already titled, of areas where more than five hectares are concerned, and where farmers apply to become beneficiaries of the Agrarian Reform. DAR issues Certificates on Land ownership Awards (CLOAs). In Agrarian Reform Communities (ARCs)¹³ or settlement projects from DAR, the department is also responsible for the distribution of land not yet titled.

3.3 Natural resource management and decentralisation

Efforts toward the implementation of decentralisation began in the late 1980s and early 1990s during the Aquino administration. Many NGOs were involved in the discussions and pressed ahead with the process. Within the “euphoric” atmosphere after the collapse of the Marcos administration, decentralisation was seen as a chance to allow, and to guarantee, participation of the underprivileged.

Local Government Code

The Local Government Code of 1991 was issued in 1992. Besides the general provisions, local taxation, and fiscal matters, the roles and subunits of the Local Government Units (LGUs) are described. Responsibilities and tasks have been transferred from national line agencies to provincial governments and municipalities (LGUs)¹⁴.

The following parts of the legislation and the setting are relevant for natural resource management: The capabilities of local government units, especially the municipalities and barangays, shall be enhanced by providing them with opportunities to participate actively in the implementation of national programmes and projects (ibid., p. 2). LGUs shall provide for the municipality basic services and facilities including extension and on site research services and facilities related to agriculture and fishery activities, which include water and soil resource utilisation and conservation projects. LGUs are also to provide enforcement of fishery laws in municipal waters, including the conservation of mangroves. As already cited in chapter 3.2.1, the municipality is responsible for implementing community based forestry projects; management and control of communal forests of areas not exceeding fifty square kilometres; and the establishment of tree parks, greenbelts,

¹³For a description of ARCs see chapter 4.

¹⁴ For a detailed description of the structures and functions of LGUs see chapter 4.

and similar forest development projects under the supervision, control and review of DENR (*ibid.*, p. 10f).

Personnel in local government units

In provincial and municipal LGUs, agriculturists and fishery experts are assigned and paid by the LGUs. The personnel in many cases are the devolved staff from DA and BFAR. But the appointment of an environment and natural resources officer is optional for the provincial, city, and municipal governments (*ibid.*, p. 276). As DENR has not been devolved, its offices still exist at national, regional, provincial and district levels. Some personnel from DENR have been assigned to the provincial office of environment and natural resources, but no staff has been devolved from DENR to any municipal government unit.

Programmes and their implementation within decentralisation

Most of the programmes in natural resource management and agriculture are run by national line agencies such as DENR, DA or BFAR. At the implementation level there should generally be a board consisting of members of the LGUs, the participating line agencies, NGOs, and POs. Financial aspects of the programmes are usually not devolved. The funds are channelled through the line agencies, which excludes the LGUs from control mechanisms though the responsibility for the implementation is assigned to them. The funds the LGUs have at their disposal consist of an allocation of taxes according to population, income and area.

Elaboration and implementation of programmes in the Philippines often depend more on particular leadership personalities than on conceptual, long-term programmes of political parties or the government. It is not uncommon for programmes or projects to stop following the election of a new administration. Programmes and projects within a municipality may be continuously in a state of fluctuation because, each new municipal administration will not necessarily follow a plan approved by the previous one. Thus, in many LGUs there is no clear direction of how to develop the area in the long-term.

Comprehensive Land Use Plans (CLUPs) should be elaborated in the municipalities for their area. Due to political changes and a lack of capability and funds, only a few municipalities have drafted and approved CLUPs. Coordination on a provincial level for the different municipal land use plans is non-existent.

Current state of decentralisation and its challenges for LGUs

The current state of decentralisation can be considered a moderately proceeding process. The institutional set-up has been implemented and the laws have been adopted for about ten years. Nevertheless, there are obvious deficiencies like the observed absence of environment and natural resources officers within the LGUs, as well as the lack of capabilities and political will to devolve power. National line agencies sometimes still try to give orders to the LGUs. The following questions have become challenges for LGU management:

- whether the LGUs are provided with a sufficient budget for the required tasks
- whether training and capacity building is offered
- whether the tasks and responsibilities themselves, are adequately distributed on the different levels of barangays, municipalities and provinces, and between LGUs and the national line agencies¹⁵.

It will be a long process to: develop functioning LGUs; achieve an adequate distribution of tasks; change the 'old' system of centralised power structures and the influence of influential families; and finally, change the attitudes of patronage and fixation on personalities rather than on policies.

¹⁵ For an assessment of the linkages between the different institutions see chapter 6.

4 Organisations and programmes in natural resource management

Mandates, functions, structures, and characteristics of relevant organisations and selected programmes dealing with natural resource management are the focus of this chapter. An assessment of selected institutions, institutional coordination, and programme approaches investigated during the field study will be given in chapter 6.

4.1 Organisations

The chapter is subdivided into the description of the national line agencies, the Local Government Units (LGUs) at provincial, municipal, and barangay level, and selected Non Government Organisations (NGOs).

National line agencies refer to national government agencies under a certain national department with the general mandate to develop and realise national sectoral policies.

Local Government Units refer to the provincial, municipal, and barangay elected bodies and the administrative structures with its devolved functions at those levels.

Figure 3 on the next page gives a brief overview on the existing national line agencies and functions of LGUs in natural resource management at different levels.

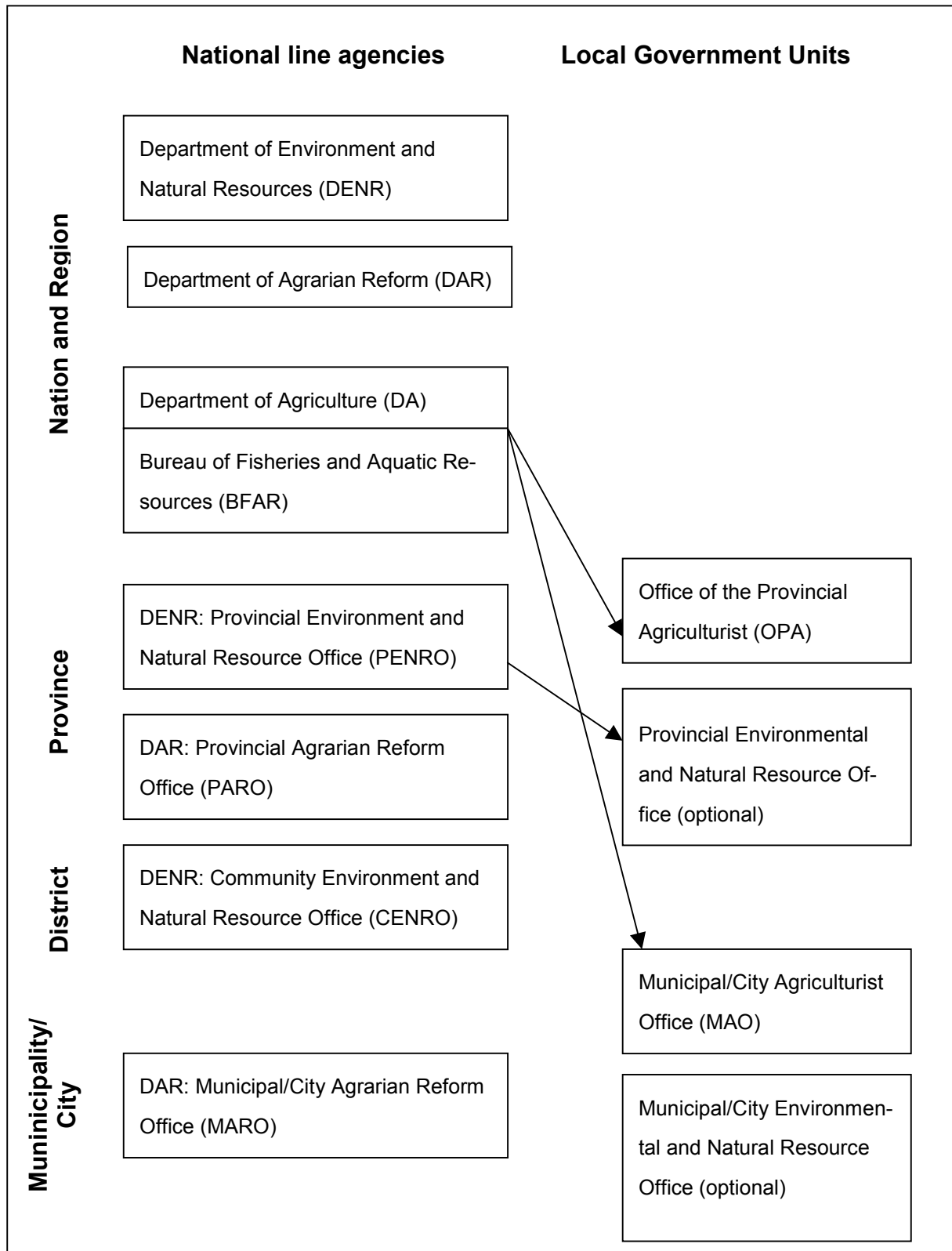
4.1.1 National line agencies

Department of Agriculture (DA)

Structure:

The DA has offices at the national and regional levels. It is an umbrella agency to which 14 subagencies, such as the Philippine Coconut Authority (PCA), BFAR, and the Fibre Industry Development Authority (FIDA) belong. Each subagency is responsible for special tasks or for a certain agricultural production branch. At the

Figure 3: Brief overview on relevant government institutions concerning natural resource management in the Philippines observed on Leyte Island 2001



→ = staff has been devolved from the line agency to the LGU

provincial level, DA has a one-man office as a provincial coordinator and one person assigned per district¹⁶.

Mandate:

Mandates from DA on a regional level are planning and implementation of national policies such as the Agriculture and Fishery Modernization Act (AFMA). Furthermore, the establishment of regional programmes and assistance of the LGUs in extension and project implementation is assigned to DA Regional Offices (DA-RO). On provincial and district levels, the tasks consist of programme supervision and coordination, where in establishment of rapport with local politicians is promoted to get support for programmes that play vital developmental roles in the province and districts (per.com. Mr. Ripolda, Raul, DA Regional Office Tacloban).

Staff:

On a regional level, a total of 1,652 personnel are assigned. From these, 366 are working directly for DA. The rest are distributed to the different agencies under DA, with about 250 personnel assigned to the National Irrigation Authority (NIA)¹⁷. 272 personnel are assigned to the National Food Authority, about 110 persons each to FIDA and the PCA, 62 to BFAR, and to the rest of the subagencies less than 50 personnel each (DA, 2001). Staff from DA has been devolved or assigned to provincial and municipal local government units.

Bureau of Fishery and Aquatic Resources (BFAR)

Structure:

BFAR was reconstituted as a line bureau under DA with the implementation of the Philippine Fisheries Code of 1998. The Code stipulates that it shall establish regional, provincial, and municipal offices as may be appropriate and necessary

¹⁶ During the field study none of these assigned functions seemed to exist. According to an interview in the BFAR office Tacloban, this is because of a lack of staff and finances. On the provincial level in Southern Leyte, for instance, the DA provincial coordinator is also a district coordinator, and at the same time works at a goat centre (per.com. Mr. Ripolda, Raul, DA Tacloban).

¹⁷ 366 more technical jobs in NIA are still outlined as vacant. The high number of vacant jobs for NIA is an exception as the number of vacant jobs for all the other DA subagencies vary between 1 and 10 in this source.

to carry out effectively and efficiently the provisions of this Code (DA, 1998, p. 34). An office from BFAR exists only at the regional level in Tacloban. The provincial level should have an office by law, but this has not been established due to financial constraints (per.com. Mr. Riel, Anselmo, BFAR Tacloban).

Mandate:

The mandate of BFAR at the regional level focuses on the coordination of efforts relating to fishery production, data collection, provision of training and technical assistance for the management and protection of fishery resources, and law enforcement to the LGUs.

Staff:

There are 62 personnel at the regional level (DA, 2001).

Fisheries and Aquatic Resources Management Council (FARMC)

The FARMC is a special structure for coordination, also created with the implementation of the Fisheries Code. At the national level, the fifteen member Council includes the Under secretary of Agriculture as chairman; five representatives of the fisherfolks, five representatives of the commercial fishing industry, and one NGO representative among others. They are mandated to assist in the formulation of national policies for the protection, sustainable development and management of fishery and aquatic resources. These councils also exist at the municipal and city level.

Department of Environment and Natural Resources (DENR)

Structure:

The DENR was created in 1988. There is one regional DENR office in Tacloban. Two offices exist for the Provincial Environment and Natural Resources Office (PENRO) of which one is situated in Tacloban for Leyte Province and the other in Maasin for Southern Leyte Province. Under the PENRO Office in each province, there are two main Community Environment and Natural Resources Offices (CENROs). In Leyte Province, they are located in Tacloban and Albuera. In Southern Leyte, they are located in Maasin and San Juan. Furthermore, there

are provisional¹⁸ CENROs like those in Baybay, Carigara and Villaba for Leyte Province, which represent congressional districts (DENR, 2001)¹⁹.

Mandate:

The regional office is in charge of implementing the national policies and planning, coordinating, monitoring and evaluating the tasks and programmes advocated by DENR in Region 8. It has four subdivisions: Operations, Technical Services, Administrative Services, and Legal Services and Public Affairs. Under the Operations Division are the Forest Resources Development, Land Surveys and Protected Area and Wildlife Divisions. Under the Technical Services Division are Land Management and Forest Resources Conservation Divisions. An office for mining is in Tacloban that has the mandate of all programmes and projects related to mineral resources.

The provincial office is in charge of supervising, coordinating and supporting all operations at the CENROs.

The CENROs have three subdivisions with different mandates: Forest Management Sector, Land and Mining Sector, and Administration. The Forest Management Sector leads the implementation of CBFM, forest protection and law enforcement, watershed management, permits and licenses, reforestation, parks and wildlife, and engineering services (land survey, mapping). Under the Land and Mining Section are land titling and sand and quarry permits (per.com. CENRO Maasin). The provisional CENROs are usually concerned with only forest matters. Each CENRO has one site coordinator for CBFM.

Staff:

The regional office has 311 personnel, while the PENROs have assigned their staff as follows: 14 in Tacloban and 13 in Maasin. The CENRO Tacloban has 94 personnel, while there are 64 assigned in Albuera. In Southern Leyte, there are 62 personnel working for CENRO San Juan and 69 in CENRO Maasin. The Forest Management Sector in CENRO Maasin has 36 personnel, corresponding to about a half of the staff of the CENRO (DENR, 2001).

¹⁸ Provisional means that the duration of existence of these offices is not defined and they are in charge only of special tasks.

¹⁹ The creation of "congressional" CENROs was put on hold under the present administration.

Department of Agrarian Reform (DAR)

Structure:

DAR has a regional, provincial, and municipal office. The municipalities involved in the field study had one municipal DAR office each.

Mandates of DAR:

The regional office is responsible for the implementation of laws, policies, plans, programmes, projects, rules, and regulations of the department. It is mandated to provide technical assistance and to conduct research and evaluation of plans and programmes.

On the other hand, the provincial office is responsible for directing and coordinating the operations and activities of the Municipal Agrarian Reform Offices operating within its administrative jurisdiction. It should set priorities and schedules for the approved plans and provide legal services to the beneficiaries of the reform.

The Municipal Agrarian Reform Office directly implements agrarian reform programmes at the municipal level (DAR, 1999, p. 48ff).

Provincial Agrarian Reform Coordinating Committee (PARCOM)

PARCOM has a special structure that should coordinate and monitor the implementation of the Comprehensive Agrarian Reform Program in the province. It is composed of the Provincial Agrarian Reform Officer as the Executive Director, representatives from other agencies such as DA and DENR, one representative each from farmer's organisations and NGOs existing in the province, two representatives of affected landowners, and two farm workers among others. (ibid., p. 52).

At the barangay level, the Barangay Agrarian Reform Committee (BARC) should operate on a self-help basis. It should mediate between parties involved, assist in identification of qualified agrarian reform beneficiaries, assist in obtaining credit from lending institutions, and coordinate the delivery of support services to beneficiaries (ibid., p. 53).

4.1.2 Local Government Units at provincial, municipal and barangay level

The provincial level

The governor and the vice governor are elected every three years and lead the provincial government. The Sangguniang Panlalawigan is the legislative body composed of elected members and representatives of social groups and sectors. It is mandated by the Local Government Code (LGC) to enact ordinances and to approve resolutions and funds. In view of natural resource management, it shall, among other responsibilities, impose appropriate penalties for acts, which endanger the environment, including dynamite fishing, illegal logging and smuggling of logs, and slash-and-burn farming.

Appointed by the provincial government are the local officials responsible for the natural resource management:

Planning and Development Coordinator

The planning and development coordinator is responsible for sectoral plans and monitors and evaluates the implementation of all programmes and projects. Furthermore, he is in charge of the preparation of Comprehensive Land Use Plans and provides support to the municipalities for the elaboration and preparation of their CLUPs²⁰.

Office of the Provincial Agriculturist (OPA)

The provincial agriculturist should, among other responsibilities, develop plans and strategies for agricultural programmes, and coordinate with national agencies and NGOs to promote agricultural productivity, through appropriate technology compatible with environmental integrity. Technicians for fisheries are also assigned to the provincial agriculturist. In Southern Leyte three personnel are assigned, one in fisheries and two in agriculture (per.com. Abat, Eva, OPA).

²⁰ A project from the German Development Service (DED) to support the elaboration of land use plans on provincial and municipal levels has taken place in the last several years in Leyte Province and is actually working in the Southern Leyte Province Planning and Development Office.

While development co-ordinators and the agriculturist are mandatory on the provincial level, the establishment of an environment and natural resource office is optional.

Provincial Office of Environment and Natural Resources (provincial ENRO)

In Southern Leyte, an environment and natural resource office is established with seven personnel. Subunits of the office include the forest management sector, which is responsible for the stewardship certificates and beneficiaries under the Integrated Social Forestry Program and is to work in close coordination with DENR. Other subunits are Protected Areas and Wildlife, Environment, Small scale Mines, and Geo sciences Section. Providing assistance to the municipalities is also a part of their mandate (per.com. Provincial ENRO, Southern Leyte).

Municipal Level

The set of governmental structures in the municipalities, and the respective duties and functions of different units, as described in the following, are to create responsibilities for local development and progress. They are also to provide a structure capable of enforcing national laws and policies as well as defining and enacting local ones. Responsibilities for the management of natural resources can be found in different offices and functions, and are mentioned respectively.

The **mayor** or Local Chief Executive (LCE) determines overall policy guidelines and appoints employees of the municipality. His awareness for natural resource management is of prime importance for environmentally sound and sustainable development of the municipality. Projects and programmes will need the mayor's commitment to ensure their successful implementation and follow up, the latter of which should be supported by the LGUs. A problem regularly mentioned during the course of the field study is the sudden change of guidelines, focal points of policies, and replacement of personnel after the change of administration in the local governments. In Tacloban, for instance, there was an ongoing internal difference of opinion involving the mayor that caused a significant delay in the appointment of a city officer for environment and natural resources (City ENRO). This office is supposed to be the counterpart of the Tacloban Urban Development and Environmental Management (TUDEM) project, which is part of the Leyte Island Program (LIP) launched by the German Technical Co-operation (GTC). Such occurrences after the change of political administrations create delays of decision-making. This also brings about the need to represent and pro-

mote projects and programmes to the newly elected or appointed officials to re-insure their commitment and participation in the implementation of these initiatives.

The **Legislative body** of the municipality is the **Sanggunian Bayan (SB)** whose tasks regarding natural resource management is given in Section 447 of the LGC, and are identical to those on provincial level (Chapter 4.1.1). Generally, the perception of environmental problems by the SB members is of central importance to create and pass legislation and regulations for resource management and protection on the local level. Examples of this function are the local regulations of solid waste disposal (Tacloban and Sogod) and the definition of competencies for fish wardens or forest guards (Inopacan). Thus, a project on compost production supported by the German Development Service (DED) in Tacloban would require a grant of production area and ordinances for the official waste collectors, which has yet to happen. In Inopacan, the supervision of fish sanctuaries (the former responsibility of a PO,) could be transferred to the LGUs after the SB have established rules and regulations for the fish wardens. In addition, a sharing scheme for penalties on fish sanctuary violation, and financial support of the fish wardens, was negotiated between coastal barangays and municipality. In Hinunangan, a municipal fishery ordinance was established by the SB but lacks the existence of a municipal FARMC as a consultative body, due to an incomplete structure of FARMCs in the coastal barangays to enforce laws and regulations (see Annex 2).

The LGC suggests that the establishment of a **Municipal Development Council (MDC)** provides a consultative and assisting body for the SB. Main functions are the formulation of social and economic plans, as well as the coordination of their implementation. In addition, the establishment of a secretariat that is related to the MDC, and is headed by the **Municipal Planning and Development Coordinator (MPDC)**, is required. In each of the four municipalities visited, an important activity of the MPDC was the preparation of the municipal Comprehensive Land Use Plans (CLUP)²¹. MPCs and MPDCs face a variety of requests including the compilation of an inventory of resources, coordination of development efforts and formulation of objectives for further activities. Plans for the provinces and municipalities become the base for future planning and provide an overview

²¹ The CLUP has been finalised as of now only for Inopacan and the City of Tacloban. Sogod and Hinunangan are still in the stage of compiling and consolidating available data and refining existing maps

of the problems and potential regarding resource management and protection. Financially, local funds for development are generally scarce and projects suggested by the MPC shall not be less than 20% of the IRA (Internal Revenue Allotment), as stated in Section 287 of the LGC. An example from Inopacan shows that the local development fund for the year 2000 has a volume of PhP4,012,151, and includes about PhP527,000 for NRM related projects involving environmental sanitation, reforestation and marine/aquatic development. Roughly 107 externally funded programmes and projects, with a volume of about PhP176.5 millions are in a proposal stage²².

Beyond the legislative and executive mandates is the responsibility for the delivery of various **basic services** that have been devolved. Offices, personnel, and corresponding funds in the four basic areas health, agriculture, social welfare, and environment and natural resources had already existed at the municipal level long before the devolution. However, this used to be the exclusive duty of the respective national agencies. Today, a number of municipal offices are derived from this former structure but are still highly dependent on national funds. Generally, a majority of local projects are funded, determined, and channelled by programmes of the respective line agencies. Local funds are usually insufficient and fail to cover even the required basic services. Some municipal agencies and their respective officers in the municipalities visited are described below.

An optionally appointed official for the municipalities is the agriculturist or **Municipal Agricultural Office/r (MAO)**, whose duties and functions refer to the delivery of extension and on site research services and facilities related to agriculture and fishery activities, as described in the LGC, Section 17. Especially in rural municipalities, the duties and functions of the MAO allow him to play an important role in local development and in the determination of methods for the use of natural resources. The office's activities are strongly linked to external programmes and projects, primarily, from line agencies like DA, DAR, and DENR as they are still the major participants in:

- agricultural extension, and the introduction of new technologies for agriculture and fisheries (DA);
- clarification of land ownership and provision of access to land (DAR); or

²² Projects of the CBRMP are not included

- supervision, control and review of the use of natural resources in general, as well as in land titling (DENR).

It appeared that, in the perception of the local beneficiaries, the function of the MAO is still associated with DA. This is due to the fact that support services like free fertiliser, certified seeds, fisheries equipment, and livestock dispersal are usually funded by this line agency. Criteria for the distribution of these goods and services is likewise, set by national or regional levels. Accordingly, the MAOs often serve as the local implementers of DA, and their capacity to modify and adjust those programmes or laws regarding local conditions are limited. Examples found at the research sites included:

- The implementation the Rice Seed Action Program of DA, which intends to increase rice production by distributing partly subsidised certified seeds
- The implementation of a Plant Now – Pay Later scheme for mango production in Inopacan by DA. This scheme is generally existing for high value crops. The intention is to establish farmers groups that are provided with the necessary inputs to cultivate these crops. Inputs are given as loans and are to be repaid after the first profits are earned.
- The implementation of Fisheries and Aquatic Resources Management Councils (FARMC) in the barangays and in the municipality of Hinunangan under supervision of BFAR. Their establishment is prescribed by the Philippine Fisheries Code of 1998 and intends to create a multi-sectoral body of fishermen’s organisations, NGOs, the LGU, and government agencies.
- Establishment and support of existing structures and programmes like Rural Improvement Clubs (RIC), farmers or fishermen’s associations or distribution programmes for seeds, fertilisers, and other agricultural inputs (Inopacan and Tacloban).

The role of the MAO in rural / coastal municipalities is of vital importance because he is the only human resource directly confronted with the management of natural resources. A municipal **Environmental and Natural Resource Office/r (ENRO)**, another optionally appointed official, existed in just one of the four vis-

ited municipalities²³. Such an office, if in existence, would have the essential function of coordinating the municipal planning and development efforts with respect to the natural resources. Additionally, the existence of an environmental and natural resource office would be a basic requirement for the delivery of services regarding the implementation of community based forest development projects. Local responsibility for the management of forest lands could help to close the gap between DENR and local authorities, as was evident in CBFM projects visited.

The process of devolution, and local governance in general, is supervised by the national government through the **Department of Interior and Local Government (DILG)**. DILG assigns and pays an office/r in the municipal level. As a national agency represented at every local level, DILG takes an intermediate position. In addition to supervising law enforcement, its office is used to transfer tasks and programmes from the national to the local level. Accordingly, DILG is implementing, or supervising the implementation of foreign funded programmes and projects. In Hinunangan, for instance, DILG is responsible for the supervision and management of funds for the Comprehensive Integrated Delivery of Social Services Program (CIDSS). Furthermore, DILG is responsible for the poverty reduction programmes implemented by DSWD, and the solar-power system on St. Pedro island that was funded and supported by the Australian government.

The **Internal Revenue Allotment (IRA)** is the most important content of the devolution, granted to the LGUs to fund the new demands that result from the increased amount of responsibilities. This allotment is not nearly enough to finance all requirements that would allow the LGUs to play an active role in local development efforts. Collection of local taxes and allocations of national taxes represent the largest part of local budgets. However, in poorly developed municipalities like Inopacan, Sogod, and Hinunangan, the percentage of local government revenues is very low due to the absence of large business establishments. An official classification of municipalities divides them into six categories determined by the amount of the municipal income. The three municipalities visited are 5th class municipalities.

²³ In Tacloban City, ENRO was appointed on July 8, 2000. However, as of October 2001 this position is held by the City Agricultural Officer and new employment is pending. The only municipal ENRO of Leyte Island exists in Albuera.

The health and social welfare sectors are represented by the **Municipal Social Welfare and Development Office/r (MSWDO)** and by the **Local Health Office/r**. The MSWDO gives limited assistance for medical support. In cases of crisis and calamity, it also supports supplemental feeding activities, and is responsible for facilitating the implementation of the Minimum Basic Needs (MBN)²⁴ information system and welfare programmes. An example from Inopacan, where the production and marketing of abaca was financially and logistically supported, shows how projects of the MSWDO can contribute to the improvement of the peoples livelihood by using local resources. The MSWDO maintains a continuous information system at the barangay level that is based on voluntary work. These close ties to the barangay level are potentially useful to gain information at household level.

Barangay level

The role of the barangay in a devolved governmental structure is described in the LGC:

“As the basic political unit the barangay serves as the primary planning and implementing unit of government policies, plans, programmes, projects and activities in the community, and as a forum wherein the collective views of the people may be expressed, crystallised and considered, and where disputes may be amicably settled” (LGC, Section 384)

Various officials and administrative bodies in the barangays are comparable in constitution to those of the municipal structure. All of them receive honoraria or allowances.

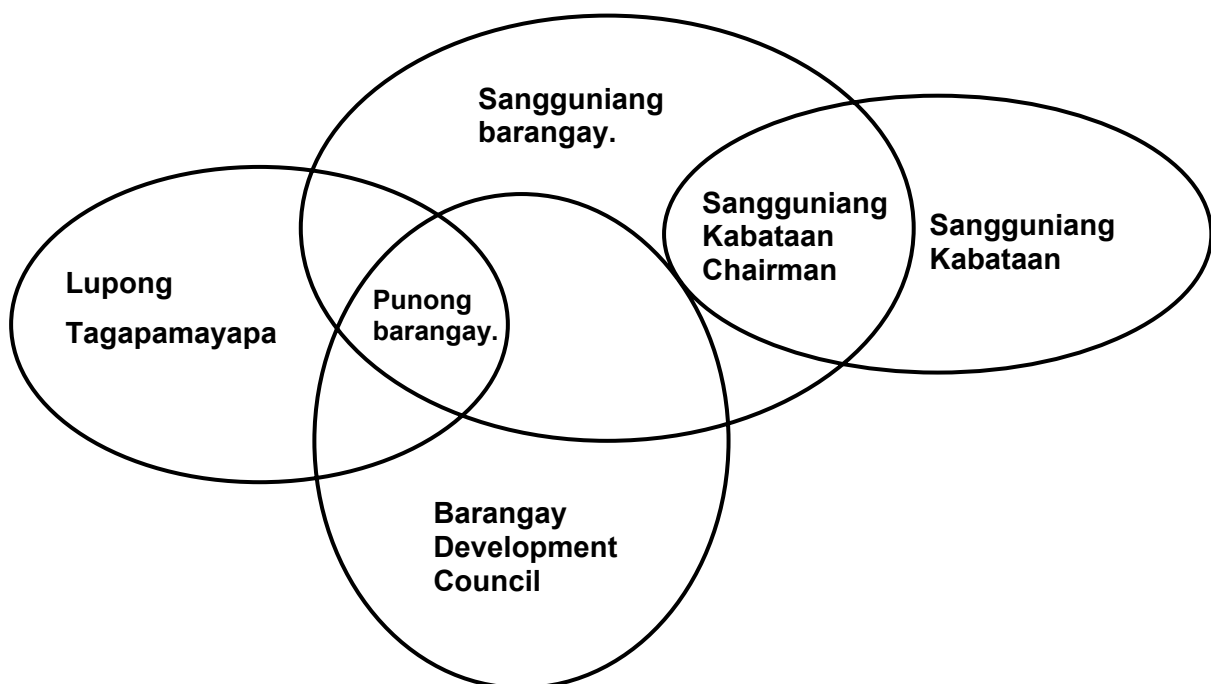
Main barangay offices are:

- The office of the Punong Barangay (or Barangay Captain) who shares the Sangguniang Barangay, the *Lupong tagapamayapa* and the Barangay Development Council.

²⁴ The MBN approach under the Social Reform Agenda was started by the Ramos Administration. One important activity within this strategy is the gathering of socio-economic data of households on barangay level.

- The Sanguniang Barangay (SBrgy.) which is comprised of seven other elective officials and the chairman of the Sangguniang Kabataan (SK).
- The *Lupong tagapamayapa* and its component Pangkat Tagapagkasundo, which are the operating arms of the Katarungan Pambarangay, represent the judicial body and provide for the conciliation and exchange of ideas for amicable settlement of dispute.²⁵
- The Sangguniang Kabataan, an organisation of the local youth.
- The Barangay Development Council (BDC), an appointed economic consultative body consisting of barangay leaders and representatives, as well as representatives of national agencies and NGO/ POs.
- The Barangay Secretary and the Barangay Treasurer, appointed officers who perform general secretariat functions and oversee funds, respectively.
- The Barangay Tanod (Brigade) provides all around assistance for activities that require physical effort and police functions.

Figure 4: Conceptual relationships of barangay offices



As shown in figure 4, the office of the **barangay captain** is the central institution in the local pattern of government. As the barangay chief executive, he has the power to appoint a number of local officials who accomplish the broad influence he has on the characteristics and overall goals of local development. As she/he is the one who will instruct the **barangay tanods** (fish wardens or forest guards) regarding patrol activities in fish sanctuaries and/or protected areas, his/her commitment to resource protection efforts would be a basic requirement²⁶. Generally, he is requested by the LGC, Section 389 to enforce laws and regulations relating to pollution control and protection of environment.

As the legislative body at the barangay level, the **Sangguniang Barangay** (SBrgy.) is the organisation that enacts ordinances for the use and the protection of the local resources. A related important task of the SBrgy., as stated in the LGC, Section 391, is the independent holding of fund raising activities which allow it to receive tax free financial support, to be accrued to the general fund of the barangay. Since several members of the SBrgy. are normally part of the **Barangay Development Council** (BDC), information about problems can be easily exchanged and plans for improvements can be developed. The BDC also serves as a forum for the involvement of NGOs/ POs in local government structures. These organisations can become regular members of these structures. Long term development projects, e.g. those dealing with NRM, will find the BDC a good platform to establish their approaches in comprehensive local planning.

4.1.3 Non Government Organisations

The NGO sector in the Philippines has been developing since the 80s. Many NGOs were created with the background of resistance against the Marcos regime. After the collapse of the Marcos administration, they have been involved in political programmes and decision-making processes. Their active involvement in local development issues is emphasised also in the Local Government Code (LGC).

²⁵ No court case can be filed unless the parties have passed through the barangay justice system.

²⁶ The Barangay captains of Palanog, Tacloban and Kahupian, Sogod are also presidents of the POs (People's Organisations) in charge of the local CBFM projects. However, this is not problem free because of probable arising conflicts. On the other hand, the PO membership of the barangay captain of Esperanza, Inopacan can be considered advantageous for the quick transfer of responsibility for the local fish sanctuary at the barangay level.

Within natural resource management programmes, NGOs are primarily contracted for community organising. Their tasks consist of the building up of POs, conducting training in capability building, management of projects and organisations, and providing seminars in technical aspects concerning the work of the respective PO. They are paid from programme funds to be contracted for special projects. NGOs have to be officially registered and accredited. Accreditation is given by the national agencies like DENR or DA, who decide which NGO shall undertake each project. Hence, this results in competition among NGOs.

Depending on the size, experience, and possibilities for fund raising, the NGO may also run its own programmes and projects. Most of the NGOs experience insufficient funding support. Comparatively low salaries, irregular working hours and tenurial instability are typically felt among NGOs. These conditions and the aforementioned competition for contracts lead to a process of change prompting more NGOs to venture into private consultancies.

Six NGOs and two of their networks were visited. They are connected with the programmes and activities in resource management in the selected pilot areas:

Partnership for Ecological Orientation for the Preservation of Leyte's Environment (PEOPLE) Organisation, Incorporated

Main Office: Ormoc, Leyte Province

General information: 'PEOPLE Inc' was registered in 1996. It was created after the flash flood disaster in Ormoc in 1991 when roughly 8,000 people lost their lives. Three personnel work full time for the organisation. 'PEOPLE Inc.' is a member of the Leyte Code network in Leyte Province. It has been contracted by DENR for community organising work and assistance to the PO Kahoi. DENR is in charge of the CBFM areas in Conalum and Esperanza/Inopacan.

Mission and services: 'PEOPLE Inc.' offers services for all programmes connected to natural resource management. It promotes linkages and builds partnerships among government organisations, NGOs, and POs who support environmentally sound, natural resource management and provide technical assistance and extension services (INFORMATION LEAFLET 'PEOPLE Inc.' and per.com Mr. Petrerros, Ricardo, PEOPLE Inc.).

Leyte-Samar Rural Development Workers Association (LABRADOR) Inc.

Main Office: Tacloban City

General information: LABRADOR was registered in 1986. The organisation has its roots in the centre for small scale industries of the Divine Word University in Tacloban in the 80s. The highest governing body is the general assembly. Aside from the board of directors, it has no permanent staff. Freelance consultants are assigned to certain projects. LABRADOR is a member of the Philippine Partnership for Development of Human Resources in the Rural Areas (PhilDHRRA) and Leyte Code. Assigned staff from LABRADOR were in charge of the community organising work for the CBFM area in Kahupian/Sogod. They have also been contracted for the implementation of the Asian Development Bank (ADB) funded Fishery Resource Management Project in San Pedro Bay.

Mission and Services: Beneficiaries are small farmers and small scale subsistence fishermen and women, among others. Major programmes involve community and sectoral organising (e.g. for social forestry, fishermen and women's groups, and livelihood options), enterprise development, credit and marketing assistance, and research and project development (NGO PROFILE, 2001 and per.com. Mr. Abenio, Eusebio, LABRADOR).

South Pacific Integrated Area Development Foundation, Inc. (SPIADFI)

Main Office: Hinundayan, Southern Leyte

General information: SPIADFI was registered in 1986. The organisation was created after the Philippine Business for Social Progress launched its Provincial Development Foundation in collaboration with the Ford Foundation. It is staffed by eight full time personnel and one volunteer. SPIADFI is member of PhilDHRRA.

Mission and services: SPIADFI has created 17 functioning POs of farmers and fisherfolks. It is involved in the establishment of fish sanctuaries in St. Bernard, supported by the German Development Service. SPIADFI will participate in an upcoming UNDP funded programme for coastal zone management in San Juan and some barangays of St. Bernard. The organisation is conducting a project on sustainable farming with organic methods and traditional rice varieties. This project is funded by the Asian Partnership for Human Development Foundation and covers the municipalities of St. Bernard, Hinunangan and Silago in Southern Leyte. Nine POs are participating. A trial farm for testing rice varieties was estab-

lished three years ago. A seed bank now exists in Hinunangan, and one farmer is breeding the variety.

As a general mission, SPIADFI is dedicated to educating and training people in Southern Leyte regarding sustainable integrated area development, to organise self-reliant POs, and to provide additional socio-economic services (ORGANIZATIONAL PROFILE and per.com. Mrs. Capena, Beverly C., SPIADFI).

Environmental Legal Assistance Centre (ELAC)

Main Office: Cebu City

General information: ELAC is an organisation of lawyers. Besides the main office in Cebu with eight personnel assigned, there are offices on Palawan and Bohol, and two offices on Leyte (in Ormoc and Tacloban). In Tacloban it is staffed with three full time personnel and two students. ELAC is primarily funded by the Federation for Philippine Environment.

Mission and Services: Programmes and services offered by ELAC include:

- Development of Legal Assistance: Legal assistance is provided for community organisations, free of charge for environmental cases.
- Training and Education: Communities receive training and education on laws concerning environment.
- As special services ELAC conducts research and case studies, as they did for the rainforestation project pilot site in Cienda. Furthermore, they provide scientific advice and are involved in the Community based Coastal Resource Management Project established in Region 7.

Philippine Partnership for Development of Human Resources in the Rural Areas (PhilDHRRA)

Main Office: Cebu City

General information: PhilDHRRA is a nationwide network with 64 member NGOs. Generally PhilDhRRA consists of two main parts: The member NGOs and the secretariat. In the Visayas the secretariat is situated in Cebu City and there are 21 member NGOs. On Leyte Island there are three participating NGOs, including

LABRADOR and SPIADFI. PhilDHRRA was formally established in 1984 and is a part of the DHRRA networks found throughout the Asian region.

Mission and Services: The network is committed to the pursuit and realisation of agrarian reform and all aspects of rural development in the Philippines. Furthermore, it focuses on assistance of LGUs and support of programmes in the health sector (per.com. Mrs. Savares, Josephine, PhilDHRRA).

Leyte Code

Main Office: Tacloban City

Leyte Code is part of the nationwide network CODE-NGO-National. It came into existence in 1992. In Leyte Province, 18 NGOs have joined the network, of which 12 are actively working. Southern Leyte is supposed to be included in the network. The network in Region 8 is funded internally. Seminars and programmes connected to certain tasks are sometimes funded by the LGUs (per.com. Mrs. Napoles, Claire P., Leyte Code).

Plan International

Main Office: Woking, Surrey, United Kingdom

General Information: Plan International is a worldwide operating NGO. Child sponsorship is the basic foundation of the organisation. In the Philippines, Plan is represented by more than ten different programme units throughout the country. On Leyte Island, Plan has an office in Sogod, Southern Leyte. The office was opened in 1998 and is staffed with 22 personnel. The activities cover five municipalities, four on Panaon Island and one on the main island of Leyte.

Mission and services: Besides the activities in child development and the health sector, Plan in Southern Leyte, conducts projects in sustainable agriculture and coastal resource management. To promote sustainable agriculture, Plan focuses on capacity building for farmers, provides extension services, and spreads extension promoting the farmer-to-farmer approach. Dissemination of farming with organic methods is one of the focal points. Furthermore, Plan keeps a trial farm for local rice seeds, promoting traditional rice varieties. In coastal zone management Plan focuses on community organising, training for technical assistance, and capacity building for LGUs. Plan works closely with line agencies, LGUs,

ViSCA, and other NGOs, such as SPIADFI (per.com. Plan International Office Sogod).

International Centre for Research in Agroforestry (ICRAF)

Main office: Nairobi, Kenya

ICRAF was founded in 1977 in Nairobi and conducts research and development activities in 23 countries throughout the world. It is a non profit organisation with the mission to improve human welfare and enhance environmental resilience in the tropics through improved agroforestry systems (ICRAF-Visayas, 2000).

The main office of ICRAF for the Visayas is at ViSCA. It started its operation in the year 2000. Ten personnel are assigned. The office is responsible for project sites in Leyte Province and Bohol²⁷. The work is at this time mainly financed by the Spanish agency for international cooperation.

Project sites in Leyte Province are located in Inopacan and Tabango. The projects focus on research, information and education in soil protection, and agroforestry in sloping farm lands using indigenous knowledge and tree species. Capability building and networking are further focal points of project approaches. The work of ICRAF in Leyte Province should last at least five years, depending on the sponsorship (per.com. Mr. Stark, Marco, ICRAF).

4.2 People's Organisations

Aside from the large number of NGOs in the Philippines there exist several thousand People's Organisations (POs). The number of POs (and NGOs) increased tremendously after 1986, when the Marcos dictatorship was ended by a broad movement of society called EDSA 1. Some actually have roots to the anti dictatorship campaigns and share the view that the government is too structured and rigid to respond to the needs of the marginalised sectors of the economy. As such, a lot of development assistance is channelled through these NGOs and POs. (Emma Porio et. al., undated). To give a universal definition, or simply to distinguish those organisations from each other, is difficult as they have so much in common.

²⁷ On Bohol, cooperation concerning extension exists with the World Bank financed CBRMP, which is also envisaged for Leyte. Two more project sites in the Philippines are on Mindanao.

The term “PO” is primarily used for groups and organisations existing in the basic sectors of society. Synonyms used are Grassroot Organisation (GO) or Community Based Organisation (CBO). These organisations, which are often set up by NGOs, receive their support in form of funding, fund raising, or capability building. Community based organisations like POs are considered to be the institutions to sustain the intended goals of development efforts. During this research a range of project types were found that are institutionalised through registered POs, from livelihood improvement to coastal zone and forest management. POs may also change the project or their activities if a former project has finished (or has failed).

Particularly in Inopacan many POs could be identified, most set up by PHILD-HRRA, which has been locally present with one representative for several years. It provides fund raising and community organising for the PO’s and facilitates the implementation of national and bilateral projects. Several training sessions have been organised to address subjects including leadership, book keeping, and handicrafts. PhilDHRRA initiated the founding of an umbrella organisation for municipal POs to sustain its efforts after its planned withdrawal from Inopacan.

This example from Inopacan shows the common approach of channelling development assistance through the interaction of NGO and POs. However, it was also found that a long-term commitment of NGOs for their clientele is often non-existent since their activities are generally based on the availability of outside funding. Therefore, the reality of NGO-PO cooperation is not in line with their basic objectives, namely people empowerment and sustainable development of communities. Achieving these goals would require the ability of POs to seek funds for themselves to develop new projects from time to time, temporary activities that will end when their respective purposes are fulfilled. All the POs visited by the research team showed high fluctuation of members correlating with incentives or perspectives provided through the different activities. These occurrences generally hamper the evolution of skilled individuals who could contribute their experiences and skills for the profit of the whole organisation. Generally, self-organisation of people is not a purpose as such, but the required commitment and work must create a profit, either in terms of income or in terms of skills gained. This would also be a pre-requisite to making POs a potent player within the local government, as this will require skilled people as well as sufficient financial backing to sustain this role.

4.3 Programmes

The usual set up has one national line agency responsible for planning, controlling and evaluating programmes including the control on the funds. The LGUs are usually responsible for programme implementation, NGOs are contracted for community organising.

DENR Programmes

Table 9 outlines previous and existing programmes and gives an overview of the variety of approaches.

Table 9: Timeline of forestry programmes of DENR

Programmes	Start	End
CBFM Community Based Forest Management	1996	ongoing
ISFP Integrated Social Forestry Program	1982	1992 devolved
CPEU Centre for People Empowerment in the Uplands	1992	ongoing
CFP Community Forestry Program	1989	1999
FLMA Forest Lease Management Agreement ²⁸	1989	1995
IFMA Industrial Forest Management Agreement ²⁹	1994	ongoing
SIFMA Socialised Integrated Forest Management Agreement ³⁰	1994	ongoing
Watershed Management	1996	ongoing
NFP National Forestry Program:	1986	2000
a) Contract Reforestation	1989	1992
b) Watershed Rehabilitation	1989	ongoing
c) Timber stand Improvement	1988	ongoing

Source: per.com DENR Regional Office Tacloban, October 2001.

²⁸ FLMAs were given to community organisations for 25 years for areas planted under contract reforestation after the contract reforestation programme stopped. It allowed family and community contractors to continue to benefit from the areas they reforested. There are still FLMA contracts, which should be converted into CBFM Agreements.

²⁹ IFMAs can be issued to private corporations for areas of 500ha and above. On Leyte Island there is one area under IFMA existing in Babatnog.

³⁰ SIFMAs are made with private individuals for areas up to 500ha. On Leyte Island, one SIFMA is issued.

Previous programmes were selected and described based on criteria set for the purpose of identifying the most important initiatives during field visits.

Integrated Social Forestry Program (ISFP)

ISFP covers communities occupying upland areas, including open and denuded forest lands and mangrove areas. The primary objective of the programme was reforestation, forest protection and recognition of shifting cultivators as occupants of forest lands. ISFP was launched to consolidate all previous people oriented programmes. Certificates of Stewardship Contracts (CSCs) were issued for 25 years, renewable for another 25 years, to individuals and families for plots up to five hectares and farmers were obliged by contract to plant at least 20% of the area with trees. They are also responsible to protect and conserve adjacent forest lands. It was assumed that the legalisation of land occupancy in timber land areas and the granting of land use rights would lead to a more sustainable resource utilisation and to a decrease of shifting cultivation methods (ViSCA, p. 10ff annex).

Within devolution, the responsibility for the ISFP was transferred in 1994 from DENR to the jurisdiction of the LGUs except for one model site in each province now called the Centre for People Empowerment in the Uplands (CPEU). According to information from the Provincial ENRO in Southern Leyte, control of the programme in fact lies partly with the province and partly with DENR³¹.

There are still many CSC holders in the upland areas. It is still possible to apply for individual stewardships within CBFM areas. It is a policy from DENR to try to persuade beneficiaries from ISF to integrate themselves with CBFM (per.com Mr. Godoy, PENRO Southern Leyte).

National Forestation Program (NFP)

Under the NFP, several programme approaches were grasped. NFP had three major components: Reforestation, watershed rehabilitation, and timber stand improvement. In the late 1980s, there was a major shift in reforestation strategies from administration conducted to contracting schemes. Contract reforestation

³¹ In the interview was learned that CSCs are registered through CENRO Maasin while implementation of ISFP is the responsibility of the LGU. However, there have been no new applications for CSC within CBFM areas in some time.

with three subcomponents was implemented. Contracts for reforestation were given for three years to corporations, communities, or families.

Family Approach to Reforestation (FAR)

FAR started originally in 1979 and was modified in 1989 under the contract reforestation scheme. Forest occupants and communities near forest land were allowed to cultivate crops and plant trees in open and denuded forest lands. The objectives of the programme include reforestation and generation of additional income. The major technologies applied were agroforestry and tree farming (ViSCA, p. 10ff annex). The visited forest area in Palanog started under this programme.

Contract Reforestation to Communities

For three years communities were paid by DENR for the establishment and maintenance of tree or rattan plantations. After harvesting trees, 70% of the profit is given to the community, 30% to DENR (DE VLETTER, JAAP, 1997, p. 7). Contract reforestation was partly financed by ADB loans. This was the case in Kahupian. The CBFM site in Esperanza/Conalum also started under this programme.

Forestry Sector Project

The Forestry Sector Project³², funded by a loan from ADB, started sometime in the early 90s. It focused on the community based management approach and included upland and mangrove areas. In 1997 there were eight ADB funded sites on Leyte Island (JIMENEZ, ROSARIO D., 1997, p. 7). The ADB sites were mixed bags of projects, meaning that ADB financed selected sites where national programmes in either Reforestation or Community Forestry were implemented (ibid.). That is the case in Kahupian, where reforestation and the Community Forestry Programme were funded by ADB.

Community Forestry Program (CFP)

The Community Forestry Program was funded by ADB and USAID. It aimed to provide upland residents with access to the financial benefits of forest products and with profitable alternatives to shifting cultivation. Community residents who

³² "Forestry Sector Project" is the name ADB used for this loan financing scheme.

organised a PO were allowed to utilise and sell fruit products from within the residual forests and to establish new plantations. They received a Community Forest Management Agreement (CFMA) for 25 years, renewable for another 25 years (ibid.). The area in Kahupian had been under the CFP before it was converted into CBFM.

Community Based Forest Management (CBFM)

In 1995, the Community Based Forest Management (CBFM) initiative was labelled the national strategy for sustainable development of forest resources. This umbrella strategy covers previous existing programmes. Although CBFM intends to convert and to integrate areas with utilisation agreements from former programmes, these agreements are still valid and participation in CBFM is optional.

Nationwide CBFM targets about 170,000ha of different classes of forestland to be gradually brought under community management. This will be done through sub projects. Each subproject will be managed as a single administrative unit. Under the strategy, participating communities are granted access to forest land resources under 25 year tenurial agreements (CBFM Agreements), renewable for 25 years, provided that a People's Organisation (PO) is created or existing (DENR, undated).

There are 20 CBFM Sites in Leyte Province and 13 in Southern Leyte (per.com DENR Regional Office). One more site is planned to be established this year in Southern Leyte (CENRO Maasin).

Key CBFM Activities:

1. Preparatory Stage

Creation of local institutional arrangements by which LGUs enter into partnerships with DENR in pursuing CBFM. DENR – LGU teams will undertake forest land use planning, identify and select potential sites, and inform communities of its interests in assisting them to promote CBFM in their forest lands. DENR and LGUs may formalise their teamwork in support of CBFM through a memorandum of agreement.

2. Diagnostic and PO formation stage

Deployment of CBFM fieldworkers, usually from an NGO, for community organising. They are immersed full time at the site.

3. Planning stage

Sectoral or small group planning activities from the PO are undertaken and the consolidation of the PO is addressed. The CENRO helps the PO prepare its Annual Working Plan (AWP) and the Resource Use Plan (RUP). DENR further provides the resources and transports permits that the PO requires to carry out its plans and may provide an Interim Resource Use Permit (IRUP) to harvest and use resources until the final RUP is approved.

4. Implementation stage

The PO carries out the RUP. The CENRO provides technical assistance and advises the PO, especially on forest matters (DENR, undated).

Funding:

CBFM areas are financed by the regular national fund and may also be supported by funds of the Comprehensive Agrarian Reform Program (CARP). Under regular funding, free seedlings were given by DENR to the POs for reforestation. The regular fund is generally minimal and implementation usually is very slow (per.com. CENRO Maasin). Some selected sites were funded by ADB. Under ADB funding, a loan is given for the first three years for comprehensive site development. DENR decides which sites receive ADB funds. After harvesting, the PO must pay back 30% (ibid.).

Other programmes of DENR include the management of protected areas and wildlife (NIPAS) and the delineation of permanent forest lines under the Banner Program for the Year 2000. This programme aims to properly delineate the forest line through ground surveys. It started in July 2000 in the province of Biliran and in some parts of Leyte Province (DENR, 2001).

The Coastal Environment Program (CEP) of DENR has one site established in Leyte Province, in the municipality of Inopacan, but none in Southern Leyte (per.com DENR Regional Office). According to PENRO Maasin, one site is proposed to be established in Sogod Bay (per.com. Mr. Godoy, PENRO Maasin).

DA Programmes

The focus of the Department of Agriculture (DA) programmes lies in the implementation of the Agriculture and Fishery Modernization Act (AFMA). The main strategy of the act consists of identification and implementation of Strategic Agri-

cultural and Fishery Development Zones (SAFDZ). The LGUs are asked to make proposals and resolutions for said zones.

Two or three integrated development plans in Samar have already been addressed by investors or donor agencies (per.com. Mr. Ripolda, Raul, DA Regional Office Tacloban).

Accompanying the AFMA implementation, there are also many projects in agricultural production under several subagencies of DA, such as the promotion of high yield rice varieties, irrigation systems, etc.

BFAR Programmes

In 1989, the Fishery Sector Programme (FSP) was started by DA. It ran until 1996. The Fisheries Resource Management Project (FRMP), funded by ADB, became the second phase of FSP. Beyond this programme, BFAR also tries to spread the approach of community oriented coastal zone management and the promotion and development of livelihood alternatives. However, this is difficult because there is the perception that a large amount of funding is required, which the regular project can not afford (per.com Mr. Riel, Anselmo, BFAR Tacloban).

Fisheries Resource Management Project (FRMP)

FRMP, which runs from 1998 to 2004, is primarily funded by ADB loans. As the executing agency, the Department of Agriculture delegated BFAR to implement FRMP. The LGU on a municipal level must provide a counterpart contribution and establish a Fisheries Management Unit. On a provincial level, the participation consists of coordinating the municipalities, training, and providing necessary technical support, such as extension service. In Southern Leyte, the Office of the Provincial Agriculturist (OPA) is assigned as its counterpart (per.com. Mrs. Abat, Eva, OPA).

The project is comprised of three components: Fishery resource management, income diversification, and capacity building. Fishery resource management includes interrelated elements of the following: data management; coastal resource management, planning and implementation; fisheries legislation; community based law enforcement; and near shore monitoring, control, and surveillance. Income diversification aims to promote micro enterprises and support for mariculture development. For capacity building specifically, training, seminars,

and on site coaching in project implementation is provided (FRMP PROJECT MANAGEMENT OFFICE, 1999).

The first step of the project was to control illegal fishing and to strengthen fisheries law enforcement. In the second year, coastal resource management planning and implementation was to be carried out. Other steps included the implementation of fishing licensing systems, and income diversification (ADB, 1997, p. 24).

On Leyte Island there are four project sites implemented: The Carigara Bay, San Pedro Bay, Ormoc Bay, and Sogod Bay in Southern Leyte. Within FRMP there are no more sites for further project implementation.

Last year FRMP was implemented in Southern Leyte. Participatory coastal resource assessments were also conducted (per.com. Mrs. Abat, Eva, OPA). From the 11 sites selected in the first year of the project in Sogod Bay, only six were selected to continue to phase II of the programme. The Municipal Agricultural Officer from Sogod informed that five sites did not fully implement the coastal zone plan or enforce the related laws³³.

DAR Programmes

Four main programmes are advocated by DAR: Land Tenure Improvement to complete land acquisition and distribution, Land Use Management Development (LUMD) to complete survey projects, Program Beneficiaries Development and Legal Assistance (DAR, 1999, p. 29f).

Program Beneficiaries Development includes provision of support services, credit, assistance, training, capability building, and infrastructure development such as irrigation on farm to market roads.

An important approach is the implementation of special Agrarian Reform Communities (ARCs). Barangays can still apply to become an agrarian reform community. Areas without foreign assistance are financed through the normal national programme (per.com. Mr. Mercado, DAR Tacloban). The Agrarian Reform Communities have assigned development facilitators who conduct training on community organising, cooperative development, and simple farm book keeping and accounting (DAR, 1999 p. 9).

³³ In the Sogod Bay, there are many problems with illegal commercial fishing activities.

In Leyte Province, 44 ARCs exist in 34 municipalities and there are 16 ARCs within 11 municipalities in Southern Leyte (DAR, 2001). The research site in Palanog/Tacloban and the Southern Leyte Settlement Project, which also covers parts of the barangay Calag-Itan, Hinunangan, are both ARCs (ibid.).

Foreign assisted Agrarian Reform Communities in Region 8:

From 1997 to 2002, the World Bank has financed the Agrarian Reform Community Development Project in ten ARCs in Leyte Province and eight in Southern Leyte, focusing on rural infrastructure and agricultural enterprise development.

The Japanese Bank of International Cooperation (JBIC) is funding the Agrarian Reform Infrastructure Support Project, which has two phases. The project runs from 1996 to 2005, with a second phase starting in 2001 focusing more on institutional aspects where two ARCs are involved on Leyte.

FAO is funding Sustainability Agrarian Reform Community – Technical Support Agrarian Reform and Rural Development (SARC-TSARRD) with 12 ARCs in Leyte Province and nine in Southern Leyte (NEDA, 2001).

Community Based Resource Management Project (CBRMP)

CBRMP, an on going project, aims at reducing rural poverty and environmental degradation through community based natural resource management projects. It is a World Bank financed programme implemented in Region 5, 7, 8, and 13. It started in April 1998 and should last until December 2003. It focuses on municipalities of income classes 4 – 6; 1 – 3 class municipalities can also apply, but must share more of the costs. Priority groups within the LGUs are the 30% lowest income earners.

The coordination is under the Ministry of Finance. There are four project components:

- Subloans for LGU subprojects, including grant and loan support for community based resource management subprojects.
- As a financing facility, a Municipal Development Fund (MDF) is established as a rural window facility for channelling funds to low income LGUs.
- Planning and implementation support for LGUs.

- Environmental technology transfer and policy implementation by strengthening adequate mechanisms between DENR and DA.

(Department of Finance, 1999, p. 1f).

In the first phase of its one year implementation, called the social preparation phase, an NGO is contracted for community organising work and a special coordinator for project implementation is approved.

In Region 8, about 20 LGUs have implemented CBRMP and most of them are based in Samar. In Leyte Province CBRMP has been implemented in Babatngon, Isabel, Javier, Mahaplag, Matalom and Palompon. In Southern Leyte one site in Liloan facing the Pacific Ocean has been established. The municipality of Sogod retracted from implementing the project because of the loan component, which the LGU has to pay back. Inopacan in Leyte Province got its proposal approved in August 2001, just before the deadline for accepting project proposals from LGUs.

Inopacan was visited during the field study. In close cooperation with consultants from the Visayas Consortium for Agriculture and Resources Program (VICARP), the project proposals for subprojects were elaborated. Subprojects in Inopacan include livelihood projects such as swine production for the barangay Esperanza. An agroforestry project and a micro watershed development project are planned in three upland barangays. A marine sanctuary project and mangrove rehabilitation and reforestation are planned in four coastal barangays of the municipality including Esperanza and Conalum. For these subprojects the LGU receives an amount of PhP15 million, part loan and part grant. One coordinator, formerly an agricultural technician in the Municipal Agricultural Office, has been assigned. Fears concerning the obligation to pay back the loan were evident in the LGU of Inopacan.

Sustainable Integrated Area Development (SIAD)

SIAD has been designed as the framework concept to implement Agenda 21 in the Philippines. It was approved in 1999 and LGUs are directed by a Presidential Order to localise PA 21 using SIAD. It is characterised by its tri-sectoral partnership approach:

- Government Institutions
- Business sector

- Civil society

(Office of the President Republic of the Philippines, 2000).

SIAD focuses on supporting local decision-makers and builds upon existing efforts of LGUs to develop their local area. Main components are to assist LGUs in the elaboration of comprehensive development plans, to mobilise new funding sources for local initiatives, and to facilitate the integration of national and sectoral plans into these local plans. In practical terms it is envisaged to stimulate and support activities of increasing the productivity of rural households, provide livelihood alternatives, and promote sustainable natural resource management.

In one example where SIAD was a solid member of the NGO network PhilD-HRRA, they assisted the LGU in Inopacan in the elaboration of a Comprehensive Land Use Plan (CLUP) for the municipality. Furthermore, they supported project proposals, such as for the CBRMP, and project implementations, as well as helped the LGU find funding sources from different foundations (per.com., Mrs. Savares, Josephine, PhilDHRRA). Another example is the next programme:

Preparation of the Local Agenda 21 – Daguitan Watershed Forest Reserve as the focus ecosystem

Leyte Province is one of the chosen pilot sites³⁴ within the Governance for Philippine Agenda 21 Program (GO PA 21) from the National Economic and Development Authority (NEDA). In the year 2000, the Leyte Council for Sustainable Development has been created³⁵. This council is composed of members from the provincial government, national line agencies, NGOs, and representatives of the private sector. It is responsible for the elaboration of the Local Agenda 21 and project implementations in that context. The Daguitan Watershed Forest Reserve has been chosen by the council as the project area for preparation of the Local Agenda 21.

The project begins in October 2001 and should last at least one year. It is funded mainly by the GO PA 21/National Project Management Unit, with an equity of 14% from Leyte Province. Seven municipalities in Leyte Province are covered.

³⁴ Pilot sites were chosen nationwide based on project proposals from provinces. In the Visayas and Mindanao, nine provinces were selected.

³⁵ It is envisaged by the council to promote the establishment of equivalent councils in all five provinces of Region 8.

Main stakeholders are to be LGUs on the municipal level. Expected benefits are a rehabilitated and improved Daguitan Watershed, which is to be proclaimed as a National Integrated Protected Area System (NIPAS). General objectives are to compose a draft of local Agenda 21, prepared with the Daguitan Watershed as the focus ecosystem, and to integrate different stakeholders in that process. Project activities should focus on capability and awareness building on watershed management in communities, providing training, and dissemination of information. (Leyte Council for Sustainable Development, 2000 and per.com. Mrs. Napoles, Claire, VICTO³⁶).

4.3.1 Other major stakeholders and relevant programmes

Leyte State University (LSU), formerly Visayas State College of Agriculture (ViSCA)

ViSCA became Leyte State University in August 2001. It is situated seven kilometres north of Baybay in Leyte Province. LSU pursues and promotes agricultural and industrial development, especially in the Visayas. It was chosen by the Department of Agriculture (DA) as one of the four national universities of agriculture under the Agriculture and Fisheries Modernization Act (AFMA) of the Philippine government. It carries out instruction, research and extension activities in support of agricultural development.

With respect to extension, the university offers a masters degree programme in agricultural extension. Furthermore, its Radio Station DYAC is an important facility for extension. DYAC's School-on-the-air programme, in particular, is an effective and cost-efficient means of disseminating information especially to remote and far-flung areas. DA is one of the active sponsors of the programme.

Other important departments which provide research and extension services are the Philippine Root Crop Research and Training Center (PRCRTC), National Abaca Research Center (NARC) and the National Coconut Research Center of the Visayas (NCRC). Their mandate is to formulate comprehensive and integrated research, development, and extension programmes and to generate and disseminate appropriate technologies.

³⁶ VICTO Visayas Cooperative Development Centre Region 8 is an NGO situated in Tacloban that focuses on promoting cooperativism. VICTO is one of the member NGOs in the Leyte Council for Sustainable Development.

The Farm and Resource Management Institute (FARMI) implements a research programme to improve and sustain the agricultural productivity of resource-limited upland farmers through participatory development and testing of appropriate rainfed farming system.

The Center for Social Research (CSR) conducts policy research from which recommendations for effective agricultural and rural development planning can be drawn, and facilitates institutional collaboration with government and non government agencies. It likewise aims to advance the knowledge of rural people about relevant socio-political, economic, and environmental issues, and continues to design innovative social research in small farmer development.

The Institute of Tropical Ecology (ITE) has been founded following the former GTZ thrust on ecosystem rehabilitation and conservation and endeavours to develop technologies for sustainable use of natural resources. It also undertakes environmental education activities.

Since 1978, LSU has served as the lead and base agency of the Visayas Consortium for Agriculture and Resources Program (VICARP), which currently has 22 member agencies and institutions from Region 8. VICARP conducts research and offers consultancy services and training to institutions and project staff.

During the field study, personnel and consultants from LSU departments were often met in technical working groups, meetings, and other related undertakings.

ViSCA-GTZ Applied Tropical Ecology Program

The ViSCA-GTZ Applied Tropical Ecology Programme was implemented from 1990 to 1999 in collaboration with the Visayas State College of Agriculture (ViSCA), now the Leyte State University, and the German Agency for Technical Cooperation (GTZ). The project aimed to contribute to the overall goal of improving the social and economic living conditions of the rural poor in the area by stabilising the ecological environment.

During the first two phases of implementation, the project focused on the development and improvement of the working environment and collaboration with different departments of ViSCA, as well as with responsible government officials and agencies such as the Department of Environment and Natural Resources (DENR) (ViSCA-GTZ, 1999).

Apart from supporting the academic programmes of ViSCA, the most important result of the project has been the development and application of a concept for the sustainable rehabilitation of previously deforested areas by applying the "Rainforestation Technology". It aimed to form a bufferzone around the primary forests, improve watershed areas, protect the biodiversity of the Philippine rainforest, and provide additional income to farmers (MILAN, 1997).

Areas that have been denuded due to large scale logging concessions and long-term plantation of coconut monocultures, and those that were often covered with cogon or imperata grass, were reforested by planting well-adapted indigenous tree species. Research was conducted to screen the specific soil and climatic conditions needed by different local tree species and identify cash crops that grow well under the shaded conditions of a tropical rainforest. These include fruit trees, spices (such as vanilla), and ornamental flowers such as orchids and anthurium. This approach attempts to develop a farming system that more closely resembles the structure of a natural Philippine rainforest ecosystem.

The approach was first implemented on the basis of community organising with farmer cooperatives. It includes the collection of seeds from mother trees as well as raising and planting seedlings by the members of the community.

The assumption that timber of indigenous trees is of high value and expected to provide high revenue to the community in the future, should serve as an incentive for the participating households to engage in reforestation. Income from the trees can be expected after four years from harvesting firewood or round timber for construction of houses, and after twelve years from harvesting lumber. It is therefore imperative to introduce alternative livelihood projects when tree plantation starts in order to provide income to the community. The alternative livelihood ventures introduced by the project were intercropping with other cash crops during the first year of RF implementation, and later, cutflower production (orchids and anthurium), hog fattening, bakery products and nata de coco production, sewing, and handicraft such as mat weaving. At the most advanced pilot site, the Cienda/San Vicente Farmers' Association, income from forest products was available in the fifth year after planting, by raising and selling seedlings. There is a high demand for seedlings by other organisations that are also interested in reforestation with native trees (MARGRAF, MILAN, 1996).

This approach was introduced at selected pilot sites on Leyte Island, Palawan, Bohol and Mindanao, and is also supported by the DENR of Region 8 as well as

by the PENRO Leyte. Out of 27 pilot sites, two are managed by cooperatives while the others are individually managed. The most advanced of these pilot sites are the *sitios* of Cienda and San Vicente in barangay Gabas, Baybay. In January 2000 the community was awarded by DENR the management of a forest area through the CBFM Programme with a total area of 2,236 ha. Since 1999, the LGU of Baybay has supported an extension of the approach by funding the community organising programme. According to the project proposals for the Leyte Island Program (LIP), the results of the project will also be integrated and further developed in LIP activities.

Philippine National Oil Company (PNOC)

The Philippine National Oil Company (PNOC) exploits and develops the geothermal resources in the reservation of 107,625ha in Leyte Province. The area covers 16 municipalities and parts of Ormoc City. The geothermal steam production is concentrated in barangay Tongonan, Kananga and Ormoc City. Technically, steam is channelled through pipes from the geothermal reservoirs in 3-5 km depth (Production Well) to one of the five plants. The process requires the removal and disposal of condensed water that will be either reinjected into the reservoirs or collected in a (thermal) pond. This water is one of the problematic elements in the process of production as it is highly toxic and contains, amongst others, high amounts of heavy metals. Some accidents within this dangerous part of the process are reported.

Within the Executive Order 223, PNOC received the right and the duty to manage and protect the area. DENR is monitoring the activities and Environmental Compliance Certificates are required for planned projects. Generally, A&D lands and forest lands are delineated through a cadastral survey by DENR. There were negotiations with DAR which claimed 1989 forest lands on rolling slope as potential CARP areas.

The PNOC has organised 18 farmers associations in the area which are receiving community organising services and are provided with funds ranging from PhP400,000 to PhP600,000 per year. The Tononga Farmers Association (TOFA) even received PhP6 million between 1997 and 2001 from a grant of the New Zealand government. All of the associations maintain nurseries for contract reforestation of 25 – 100ha per year and association. Additionally, the organisations receive livelihood support. Thus livestock was provided, sari-sari stores were established and land for the establishment of abaca plantations and rice

production was purchased. It was reported that some of the associations are also holding a Certificate of Land Ownership Agreement (CLOA) of DAR. The issuing of land titles in the PNOC reservation follows the same rules as outside except that applicants will have to seek for an additional agreement from the PNOC. The Environmental Management Division of PNOC (EMD) does community organising and extension. Its different sections include Nursery and Plantation (re-forestation), Resource Management (planning and monitoring), Forest Protection Management (forest guards) and, Extension Service Management (community organising and education).

4.3.2 Planned programmes and projects

Infrastructure for rural productivity enhancement sector project

This is an ADB funded project with the long-term goal to increase rural incomes with distribution gains favouring the poor in areas with high agricultural potential. The project has been approved and planned to last until 2008. Regions 4, 5, 8, 9, 10, 11 and 12 are included, and DA is the executing agency. The project has three main components: To improve rural infrastructure, capacity building for devolved project implementation and management, and project management and coordination. Objectives are to improve rural infrastructure and to reduce rural poverty by increasing agricultural productivity.

Sustainable Livelihood for the Poor in Southern Philippines (SLPSP), financed by the Japanese Fund for Poverty Reduction Grant, is being developed in conjunction with the project. It will be implemented over a period of three years and should enhance income generating opportunities in the project areas (ADB, 2000, p. 1f).

Research and development project on indigenous trees

This project is planned by ICRAF in cooperation with the Institute for Tropical Ecology and the Centre for Social Research at ViSCA/LSU, and with the agricultural college of Bohol. For a first research phase, which takes place in autumn and winter of 2001, a proposal has been approved and financing has been provided by the European Union.

In the first phase, a baseline survey on indigenous knowledge and trees will be undertaken in view of integrating these into further projects. In that context, the proposed pilot sites of the GTZ Leyte Island Programme will also be surveyed.

The baseline survey is to be the first step of a larger project of indigenous tree domestication. A proposal for such a project should be presented in 2002 as a concerted proposal of several institutions interested in this subject in the Philippines.

5 The situation in selected barangays

In order to get a better understanding of the conditions in the five selected barangays – Esperanza and Conalum (municipality of Inopacan), Palanog (Tacloban City), Kahupian (municipality of Sogod), and Calag-Itan (municipality of Hinunangan)³⁷ - sample families were randomly chosen in each site and were interviewed. The study focused mainly on the economic conditions at the household level, the activities in the field of resource utilisation, and the question of awareness and motivation of the population in the field of natural resource management. Additionally, the institutional framework at barangay level was identified and described.

5.1 Barangays Esperanza and Conalum (Inopacan)

5.1.1 Framework conditions

Both barangays, Esperanza and Conalum are administered by the municipality of Inopacan. In 1995 the municipality covered 20 barangays, with a population of 18,864 persons. 29% of the population live below the food threshold³⁸ (Municipality of Inopacan, 2000 I, fact sheet 2).

The total agriculture area of 4,611ha in Inopacan in 1996 was distributed as follows: 1,873ha for coconut; 1050ha for abaca; 969ha for fruit; 376ha for rice (236ha irrigated); 166ha for root crops; 89ha for corn; 34ha for cacao; 29ha for coffee; 12ha for vegetables; 11ha for pineapple; and 3ha for field legumes. 90% of the farm lots in Inopacan are 1-2ha in size, 9% reached 2-5ha, and just 1% are larger than 5ha (Municipality of Inopacan, 2000 II, p.15f, 29).

Characteristics of the barangays

Barangays Conalum and Esperanza are situated near the coast along the national highway, connecting the northern and southern part of the island. Each of

³⁷ The location of the research sites is indicated in map 1 on page 2.

³⁸ The annual per capita food threshold, which is updated every five years by the national food authority, is defined as the annual per capita income required or the amount spent to satisfy nutritional requirements (2,000 calories). In 1996 the amount was defined as PhP6300, the new value, published in 2001 is PhP7724 (per.com. Municipal Social Welfare and Development Officer, Hinunangan).

them is composed of six *puroks*³⁹, which not only concentrate along the coast but also stretch into the mountainside.

Both barangays are fairly old settlements, where most families have lived and cultivated for four generations or more. Some of the households were established during the Second World War, when certain areas in the Philippines were under Japanese occupation and a migration movement was under way. Traditionally the families are farmers, but they also engage in fishing.

In Esperanza 26 families reside exclusively in the upland region, while other households have houses near the main road as well as temporary homes in the lower upland region. In Conalum 181 families live in the lower and higher upland areas.

Population growth due to extension of families can be illustrated by the example of the upland sitio Lison in Esperanza. At the time of the Second World War, only five families had been living at Lison. Today the settlement has grown to 26 households. The survey showed that six households among them belong to one extended family. Given the limited agricultural cultivation area in a mountainous region, as well as the fact that existing rice fields must be divided among children of each family, the livelihood difficulties for the population becomes obvious.

In Esperanza and Conalum, infrastructure conditions (such as rural health centres, etc.) correspond to the local barangay standard. Drinking water wells have been built and households are provided with their own taps. However, the pipe of the drinking water system in Esperanza, built in 1999, is damaged and needs repair.

Socio-economic conditions

Even though Inopacan is classified as a 5th class municipality⁴⁰, neither, Esperanza nor, Conalum are included in the Comprehensive Integrated Delivery of Social Services, (CIDSS) by the Municipal Social Welfare and Development Office. Both barangays are still above the poverty limit required for being included in the

³⁹ purok: administrative zone within a barangay, if a purok builds an isolated settlement it is called sitio.

⁴⁰ Municipalities are divided into six classes according to their economic conditions. A first class municipality in Baybay for instance represents the highest class. A sixth class municipality the lowest.

programme. Richer families are generally in better condition as they have access to additional sources of income such as tricycle driving or laundry service, or receive financial support from family members abroad.

The result of a PRA workshop conducted by PhilDHRRA in October 2000 showed that according to their main source of income, the population can be divided into two groups: 70% of the households are small scale farmers, while 30% are fishermen. Many of the small scale farmers also fish (per.com. Otero, V. LGU).

Processing and marketing

Only the first steps of agricultural processing activities in copra and abaca production are carried out within the barangays. Raw materials the abaca fibres and copra are sold to places outside of the barangay for further processing. There are two middlemen for copra in Conalum, while abaca is marketed in Baybay. The fibres are then usually sold to agencies in Davao and Surigao, and from there to Japan. Marketing of other goods in the barangay is often done by way of barter trade rather than by selling. Fishermen and farmers often exchange fish for rice⁴¹.

Few commercial fishers operate in Esperanza while the number is higher in Conalum (6 in Esperanza, 36 in Conalum). They use motorised boats to reach fishing grounds farther away and on deeper sea (MUNICIPALITY OF INOPACAN, 2000 III).

Access to land

The majority of families in the two barangays either declared land⁴², inherited declared or titled land, bought land, or are tenants on the land of other owners. Tenureship contracts are transferred from one generation to the next, sometimes even over four generations.

Among the households interviewed, 14% had no access to land at all. Regarding the remaining 86% of the households, 30% of the cultivated fields are leased

⁴¹ For instance, 6Kg of rice are exchanged for 1Kg of fish.

⁴² A declaration for land usually stands for "tax declaration", meaning that an area was registered at the municipality.

while 70% are declared. Cultivators on leased area give a share to the owner of the field, which is usually 25% of the output⁴³.

For those families who have not inherited rights to cultivate an area, it is very difficult to get access to land. They would either have to buy land or sign a tenurship contract. Apart from the financial constraints of buying land, it is not easy to find alienable land in the first place as all lots of agricultural area are declared and often already leased. Unless a tenant returns a lot to the owner or an owner offers a new piece of land for lease or sale, access to land is not possible.

Two examples of landless households in Esperanza illustrate the difficulties of acquiring land. In one case the family was forced to sell their land due to financial constraints about 40 years ago. In another case land could not be inherited to a stepson 23 years ago. In both cases the families were unable to gain access to a new lot of land. Even though there are various other factors involved in each situation, both show that access to land is difficult once it is lost.

There is an ISF area in Esperanza under stewardship contracts, which are valid for a 25 year duration. While no land can be titled in the CBFM-area, those families who declared land within the zone of alienable and disposable land (A&D land) can apply for titles.

5.1.2 Resource utilisation

The households in Esperanza and Conalum depend mainly on the cultivation of coconut, abaca, and rice. On a smaller scale they depend on root crops such as camote, cassava, taro, and corn, banana, vegetables, and fruit cultivation. Rice is usually grown on flat areas in the lowlands, while abaca plantations are concentrated on slopes in the upper parts of the mountain. Coconut trees are grown both on lower and upper regions. Most families also grow vegetables and fruits for their personal consumption in house gardens. Some even grow timber trees for their own utilisation.

The mountain area in Esperanza and Conalum has been defined and classified by DENR into different land use zones:

⁴³ Compare "agsa" in the glossary.

A vast area of A&D land reaches from the lower uplands towards the mountain. This zone of former forest land was released for private use. The area is declared and abaca, root crop and coconut plantations have been established there.

The bordering terrain is defined as forest land, leading to the zone of protection forest on top of the mountain. Some farmers still cultivate fields within the forestland. Onion and abaca plantations along with cassava and camote can be found, as well as large idle areas covered with imperata.

The forest land also includes an area of 100ha gmelina plantation (30ha in Conalum and 70ha in Esperanza) in a former Community Based Reforestation Project, in 1999 converted into CBFM areas. In June 2000 the management contract was taken over by the People's Organisation KAHOI⁴⁴, which is now responsible for the areas. The trees of the CBFM plantation are in a very bad condition and of low value. Part of the plantation disappeared earlier due to a landslide. An Integrated Social Forestry Program (ISFP) area of 10ha, adjacent to the CBFM area in Esperanza, is also planted with gmelina, but under individual Certificate of Stewardship Contracts (CSC). The PO KAHOI plans to include the area and the CSC holders into the KAHOI CBFM expansion.

In addition to cultivating crops, some households also collect mushrooms, medicinal plants, coconut leaves for fuel, nipa leaves for roofs, rattan for construction, tigbao for the production of brooms, and romblon for mat weaving.

Livestock

Livestock as a source of income does not play a major role in Esperanza and Conalum. However, there are a number of families raising pigs, a few raising goats, and almost every household has at least a few chickens, which are often kept to produce and sell as roosters (the price for one large rooster varies between PhP100 to PhP300). Carabaos provide support for hard fieldwork but are only found in few households.

Pig raising on a small scale is common to provide for a family's personal consumption during fiestas or other festivities. Pig raising in large scale demands a

⁴⁴ The name KAHOI is an abbreviation of "Kapunungan sa mga Yanong Maguuma sa Kakahoyan sa Inopacan", translated as "Organisation of ordinary upland farmers of Inopacan". If spelled "KAHOY" it would be the Cebuano translation of "tree".

high input of labour and capital, in particular for feed. Making profits was reported to be difficult to achieve. For example, raising and selling four piglets of 35Kg each at a price of PhP75 per Kg, would mean that profit could only be made after having sold three animals. Around PhP8,000 was needed to cover the expenses for raising the piglets.

Fishing activities

About 59 non motorized *bancas* are used for fishing to cover the family's personal consumption (20 in Esperanza, 39 in Conalum). The owners do not use boats exclusively. Owners often lend their boats to neighbours or relatives and in exchange receive a share of the catch. Sharing of fishing nets is also common. The output is divided into equal parts among the owners of the boat, and the net, and each fisher involved.

Many farmers are also part time fishers and vice versa. Few households depend entirely upon fishing. The common fishing grounds are off Inopacan, but sometimes also near the municipality of Hindang. Details of fishing practices in Inopacan are described in the annex (compare annex 1a, they correspond very much to those described for the barangay Calag-Itan, Hinunangan. Also compare annex 2).

5.1.3 Economic conditions on household level

Regarding their economic situation, households in the barangays are not homogeneous. In Esperanza 126 of 256 households live from farming and also engage in fishing for their personal consumption. 34 families live exclusively from fishing and 83 households from off farm employment (MUNICIPALTY OF INOPACAN, 2000 III). In Conalum 328 of 388 households live from farming and most of them also fish for their personal consumption. 39 families live from fishing alone (per.com. L. Pelesco, barangy captain Conalum). While the majority of the households live from farming and or fishing, some households get support from family members working abroad or in Manila and have thus managed to reach a higher standard of living.

In general, the lots cultivated by households are small⁴⁵. Coconut and abaca lots in average measure 1ha (min: 0.5ha, max: 4ha). The rice fields of the interviewed households are of an average size of 0.25ha. The average reported output of 600Kg of rice per ha must be regarded as very low when compared to the estimated local potential of up to 4,500Kg per ha⁴⁶. The majority of the rice fields that are situated in the lower areas are irrigated, while some that have been prepared in the upper regions cannot be irrigated.

Most of the households can just cover their daily needs and do not accumulate savings. The main sources of cash income in the local economy are abaca and coconut plantations. Few households are engaged in raising livestock. Most families plant rice and catch fish for their personal consumption. Only when the production exceeds the families' personal consumption, is surplus marketed within the barangay.

The average farming income from all households interviewed accounted for 95% of the total income, while 5% is derived from labour of household members (incl. the amount of money sent by family members working outside of the barangay). Income from processing or handicraft production accounted for less than 1% of the total income.

Financial support from family members is in most cases provided by children to their parents, and only for a limited period of time. Before getting married many children work outside of the barangay for several years. During that time they usually do not save money for themselves, but send their income to their parents. This support will end as soon as they get married. Depending on the type of work performed, this financial support may be substantial or nominal. Overseas remittances are generally higher than other support.

Of the total yearly household expenditure, about two thirds are spent on daily needs (food, clothing, education and shelter), one third on hired labour and about 5% on agrochemicals or fishing equipment. Though household incomes vary, both rich and poor alike tend to devote two thirds of their annual expenditure to

⁴⁵ The information on the size of agricultural production area in general, and fields of individual households in particular, was very difficult to collect and might in most cases be an estimate rather than a precisely measured value.

⁴⁶ According to local research at LSU, the output of rice under ideal conditions can be as high as 4,500Kg per ha.

satisfy their perceived needs. If the total income is assessed against the necessary expenditures around one fourth of the households interviewed do not have enough capital to cover their needs of rice for daily consumption⁴⁷. Those very poor families usually are offered free medication and subsidised rice by DSWD.

Households having a surplus of capital are usually those who do not need to spend money on the education of children, medical expenses of family members, or exceptional events like funerals, wedding ceremonies, construction of houses, etc. In general, neither households in Esperanza nor in Conalum can accumulate savings to invest more money in agricultural production than needed to keep the living conditions of their families stable.

5.1.4 Awareness and motivation in the field of natural resource management

The households interviewed depend on agriculture and, to a lesser extent on fishing. This dependency seems to be peoples primary motivation for resource utilisation. Problems for the population occur when the conditions of the resources for their livelihood change or when resources decrease.

When fisherfolks noticed diminishing catches of fish, an improvement of the fishing conditions was realised with the establishment of a marine sanctuary in 1996. Illegal fishing practices were prohibited. The attitude regarding the sanctuary was, in general, positive.

In 2001, another decrease in catch occurred, though the reasons for this are unclear. Some persons assume it was simply a bad season, while others blamed it on overfishing by larger boats coming from Ormoc. Households engaged in both fishing and farming can compensate for their recent losses from fishing by concentrating more on farming. However, severe problems occur for those families who have no access to land.

Most persons interviewed in Esperanza and Conalum seem to have a general understanding of the inter dependency of resource utilisation and the protection

⁴⁷ A coping strategy of households that have not enough cash income to buy rice for every day consumption is, to collect root crops. Nevertheless, it is most peoples wish to have rice 3 times per day, every day.

of resources. Still, there is a gap between being aware of the factors influencing sustainability in resource management and acting accordingly.

Some of the farmers interviewed now plant trees on their own initiative, for example to provide timber for a future house of a child or for the construction of a future *banca*⁴⁸. Seedlings for these trees are in most cases collected in the forest. When people find a small dipterocarp tree within their abaca field they do not cut it, as trees are now seen to have great value.

Most households are interested in cultivating abaca and coconut, as these plants represent the main source of income in the region. Farmers have experienced that abaca plantations are negatively affected if intercropped with gmelina trees, while anii trees provide positive effects. Most of the farmers interviewed do not favour gmelina trees to be planted on their land. Some are actually afraid of them. They regard the fruit as poisonous and neither drink water from a spring near a gmelina tree nor eat mushrooms growing on their bark. Farmers expressed high interest in planting indigenous timber trees like lauan and narra, as well as fruit trees. It was mentioned, however, that the risk of investing in fruit trees (especially in the case of mangoes) is high because heavy storms might blow away the flowers of the tree and the harvest would be lost or decreased. Some farmers considered planting fruit trees, but due to difficulties in transportation and marketing, only few families have established orchards on a large scale.

There are still cases of families clearing areas within remote forest land. Reaching these lots is not easy, and it can be presumed that only severe financial constraints force a person to such a decision. In one case the family had to mortgage their original cultivation area, their only source of income. Hence, a new piece of land had to be organised.

Illegal logging no longer occurs in Esperanza, but is still common in Conalum. The illegal loggers and their labourers are known, but nobody dares to apprehend or accuse them in public for fear of being killed. The fact that this topic was often raised and that people are not willing to accept the ongoing activities of timber poaching any longer suggests a high degree of sensitivity towards resource protection.

⁴⁸ The lifetime of a boat made from Lauan is reported to be a period of five years.

5.1.5 Structures, institutions and programmes

There are ten organised groups, six governmental and non governmental organisations and various churches existing in the barangays. Some of these organisations and their offices belong to the common structure of social services found in most barangays. An example of this is the Barangay Service Point (BSP), where people can get information about social services and ask for socio-economic data of the barangay. Such data are gathered, for instance, by the Barangay Nutrition Committee (BNC). In Esperanza and Conalum these offices are represented by women who are also members in other associations or the LGU.

In **Esperanza** there are two POs and two agricultural associations outside the common administrative structure. The POs are **NAMES** (Nagpakabanang Mananagat Sa Esperanza) and **EWAS** (Esperanza Women's Association). NAMES had formerly been a fishermen's PO and was mainly responsible for the establishment and maintenance of the local fish sanctuary. When responsibility for the sanctuary was transferred to the LGU, a new project was initiated. EWAS was founded in 1991, and linked to Western Leyte Foundation of Agro Rural Entities (WELFARE), an NGO based in Baybay and now part of the PhilDHRRA network. The two POs merged for the purpose of official registration with the Department of Labour and Employment (DOLE) to get legitimate funding as a rural workers association. The common project that was conducted by the two groups was the processing of abaca into handicraft products. The project has received support by PhilDHRRA for registration and the writing of project proposals. The funding from from DOLE (PhP80,000) was also used to conduct seminars on handicrafts.

The two agricultural associations of Esperanza are the **Small Coconut Farmers Association** (SCFO) and the **Rural Improvement Club** (RIC). SCFO was established in 1990 and is registered with the Philippine Coconut Association (PCA). The organisation has 18 members, but this number is decreasing due to low copra prices. The main function of the organisation is to conduct a monthly consultancy meeting with a PCA technician and to provide seminars to the organisation's officers. Members also have life insurance up to PhP5,000. When the price of copra fell, the technician recommended intercropping the coconut areas with banana, cacao, root crops, and corn. Moreover, fertiliser for abaca and corn seeds was provided by PCA. Amazingly, it was reported that corn was highly recommended for upland areas. Members of the association are practising a cooperative saving and lending scheme, with profits used for pig raising.

The Rural Improvement Club (RIC) is a group initiated by a programme of DA. It is a women's association and mainly aims to establish and improve communal and backyard gardening. Other activities of RIC are chicken, swine and goat raising, production of stuffed toys and romblon handicrafts, and participation in the Clean Green and Grow Committee (CGGC). The CGGC is a contest of villages that aims to improve the backyard gardening and general cleanliness of barangays. The women in Esperanza receive support from the municipal agricultural extensionist who herself is a member of RIC. Funds for single projects are partly provided through the 20% barangay development fund of the Internal Revenue Allotment (IRA). Additionally, products of the backyard gardens are marketed locally and 5% goes to the fund of the organisation.

Conalum, the barangay adjacent to Esperanza, has the two POs, namely: **KAHOI** (Kapunungan sa mga Yanong Maguuma sa Kakahoyan sa Inopacan)⁴⁹ and **KALNAMAC** (Kalihukan sa Nagpakabanang Mananagat sa Cunalom)⁵⁰. The set of other groups and organisations is comparable to Esperanza (RIC, SCFO, CGGC).

KAHOI is the PO who had been holding a Community Based Forest Management Agreement (CBFMA) since June 2000. KAHOI was organised in 1995 and the majority of its first members were the tax declaration holders of the reforested areas. KAHOI is registered with DOLE as a rural workers association. In addition to the CBFMA, the PO is establishing 1.5ha abaca plantation as a livelihood project. After some ups and downs, the membership has increased through the approval of the CBFMA to 22 members. The Community Organising (CO) for the CBFMA was done for one year, from 1997 to 1998, by Partnership for Ecological Orientation and Preservation of Leyte's Environment Inc.(PEOPLE's), a NGO based in Ormoc City. PhilDHERRA also conducted a number of additional seminars.

The CBFMA refers to the management of two reforested areas in the uplands of Esperanza and Conalum, covering a total of 100ha. Activities to fulfil the tasks of the CBFMA include the preparation of an annual work plan and the resource utilisation plan. Two members counted 300 trees ready to harvest in a preliminary inventory of existing resources mid 2001. A field visit to the two CBFM lots,

⁴⁹ Organisation of ordinary upland farmers of Inopacan

⁵⁰ Movement of fishermen of Conalum

however, showed that these areas were planted with gmelina, which was not growing well, and was obviously placed in an unsuitable area. Harvesting these trees will return little profit to the organisation and the amount would have to be shared with DENR to refund the reforestation costs. The area had been reforested between 1990 and 1993 as a community Based Reforestation Project (CBRP). The contractor was a representative of the Inopacan Upland farmer Association. Some former and current members of KAHOI who had tilled the land and claim to hold tax declarations since the Second World War claim portions of the reforested area.

Photo 2: Ten year old gmelina trees at CBFM area, in a very bad condition



The second PO that exists in Conalum is KALNAMAC. The organisation is registered with DOLE and received funds of PhP66,000. PhilDHRRA assisted KALNAMAC in the processing of its application and in organising seminars for the members. The organisation was set up in 2001 to conduct a livelihood project. The people are producing *ampao* (a type of candy made of crisped rice) and selling it to schools and stores in the barangay. One of the members interviewed was also a member of the local **Multi-Purpose Cooperative** derived from the SCFO. This organisation has a saving and lending scheme that draws on money (PhP90,000) originally invested in the cooperative's local store. When this store

had to close, some of the remaining cooperative members borrowed the stock and started lending the money at a 5% monthly interest rate. The amount of money that can be lent is however, limited to the amount of shares of the stock a person is holding. Sometimes other collateral is accepted. The system has been working for two years now and evidently some amount of money is being earned.

According to some key persons in Esperanza, Conalum and in the municipality, the percentage of people who are members of organisations is about 30%. In addition, there are other informal structures which are common in the barangays and where membership is limited to the *purok*, *sitio* or family. One of these structures is the various *alayons*, which are temporarily activated for times of labour peaks, for instance during harvesting or planting periods or for the maintenance of irrigation systems. During these times, members will cooperate for a certain amount of working hours. Such organisations were mainly found in the upland *puroks* among the smallholder rice and coconut farmers. A second structure is the *bubu*, a saving and lending scheme that provides money to members for exceptional expenditures. The members contribute an equal amount of money. The organiser gives the total amount to the member scheduled to receive the said amount. It is made sure that every member receives the same amount of money. Generally, both of the described types of organisations are strongly linked to stable community structures, and will not survive if people seek sources of income other than agriculture, or if they migrate.

The comparatively large number of organisations in Esperanza and Conalum was obviously due to the long-term presence of PhilDHRRA, which has been active in Inopacan for many years. The NGO has organised or supported at least 12 POs in Inopacan, which form a federation called KASAMAKA. This umbrella organisation will support its member organisations and shall lobby at the LGU level after PhilDHRRA's withdrawal from the municipality. The linkages between POs and LGUs have improved over the years and different forms of cooperations have already been developed (per.com. Ms. Savaris, J., local representative of PhilDHRRA).

5.2 Barangay Palanog (Tacloban)

5.2.1 Framework conditions

The barangay Palanog belongs to the administration structure of Tacloban City. Tacloban is the capital of both Leyte province and of Region 8. The city has a

total area of 100 km², of which only 35% is built-up area inhabited by 187,000 people. Tacloban is attractive to labour migrants moving to the city where they gradually establish squatter zones.

During the late seventies and the early years of the eighties the Tacloban City Planning and Development Office planned to expand the city and develop areas as commercial centres, which at that time were occupied by squatters. It was decided to relocate the squatters to rural zones. The original barangay Palanog (today known as Palanog 103), situated 9 km from the city, was identified as such a resettlement place. Land owned by the city was distributed, which led to the establishment of the two new barangays, Palanog 12 and Palanog 37-A, 2 and 4 km respectively from the original barangay Palanog 103.

Characteristics of the barangay

The three Palanog barangays were established within the catchment area of the Tigbao river, a valley bordered by mountain ridges on the northern, southern and western sides. Palanog 12 is located in the lower part of the catchment, Palanog 37-A⁵¹ in the middle, and Palanog 103 in the upper part. The names of the settlements refer to earlier registrations before the relocation. For instance Palanog 12 was formerly barangay 12 of Tacloban City.

In January 2001 the number of households was distributed as follows: Palanog 12: 265 households, Palanog 37-A: 156 households and Palanog 103: 258 households (CITY OF TACLOBAN, 2000 I, II). The three places are of different nature. While Palanog 12 and 37-A have been recently established, the history of Palanog 103 goes back four to five generations.

At the beginning of the century, three families were the first settlers in the area. They still live in the barangay and are owners of rather large areas. At that time the valley was unpopulated and covered by trees. Large resources of rattan were available⁵². As the settlement slowly grew, rattan (representing the main source of income for the inhabitants) was heavily harvested and eventually disappeared

⁵¹ Palanog 37-A is also called "GE", deriving from Gose Epe, the owner of a construction company, as among the inhabitants are many of his workers.

⁵² The local name "Palanog" is translated as "rattan-flowers".

around the time of the Second World War. To date replanting of rattan has not been attempted in Palanog⁵³.

The area developed from being a mere *sitio* of the neighbouring barangay Tigbao to becoming the separate barangay of Palanog. In 1979, when Palanog 12 was established, the mountain slopes had already been cleared and coconut trees planted.

In the areas of the new barangays Palanog 12 and 37-A crop cultivation has been difficult. Areas of 10x15ms as well as a unique payment of PhP500 to compensate expenses for transportation were distributed to each of the resettled households. Support in the beginning was also provided by institutions such as the Red Cross, World Vision, or DSWD that offered material to construct houses.

People often complain that infrastructure development was not taken care of after the relocation. A road along the river connecting the villages to the city was not built until 1996. Supported by a World Bank Programme, an extension of the road to also connect the neighbouring valley is presently under construction.

As many as 20 years after relocation the drinking water supply has not yet been completely established. Given the situation of the hilly area and stony ground, it is difficult to dig wells. Eight pumps in the village cannot provide enough clean drinking water. Once a week a truck from Tacloban fills the two tanks in Palanog 103 and 37-A. This amount of water is only sufficient to cover peoples needs for three days. Most families buy additional water in Tacloban and have to pay for transportation. Palanog 12 objected to the installation of a water tank as they expected this solution would not provide an ideal standard of hygiene.

While immigration to Palanog 12 and 37-A is only allowed after having received permission by DSWD, the number of inhabitants in Palanog 103 still increases. It is planned to again relocate squatters at the outreaches of Palanog 103, which might cause social conflicts in the area⁵⁴. At present some households have to face the problem that their houses, built on government land, will soon be demolished, as the area will be included in the construction project for the extension of the road.

⁵³ Rattan has been replanted in barangay Abucal in Tacloban.

⁵⁴ The squatter areas that are to be relocated do not have the best reputation. People are afraid the barangay might not be safe in the future.

Socio-economic conditions

Socio-economic conditions in Palanog reflect its history as a resettlement site a short distance from the main part of Tacloban. Many residents work in Tacloban or sell goods there. A large group of the households living in Palanog 12 have been victims of typhoons or floods in the places of their origin and are supported by DSWD.

Agriculture is of minor importance and focuses on subsistence production, copra production, and on collecting firewood from korokawayan (also called Imelda trees⁵⁵) and alagasi, which is sold in Tacloban. In 1981 the City Agricultural Officer (CAO) organised tree planting on the mountain slopes. Families are now allowed to collect firewood from the area.

Inhabitants from Palanog 103 do not participate intensively in decision-making processes in the barangay. During the planning stage of the barangay development plan, village assemblies had been organised. The inhabitants could express their problems but they did not find their suggestions were followed up on afterwards. The barangay development plan was finally prepared by barangay officials, together with representatives from the LGU, and forwarded to the city administration in 1997. Priority projects according to the barangay development plan were the construction of a multi-purpose hall, infrastructure improvement, and a functioning drinking water supply.

In Palanog 12 inhabitants are not involved at all regarding decisions for the development of the barangay. The barangay officials exclusively elaborate any plans, make decisions, and afterwards inform the inhabitants.

Processing and marketing

Many of the inhabitants of Palanog 103 selected the place as a settlement area because of the short distance to the next major market place. 60 years ago Tacloban was an important market place. Some individuals went there regularly to sell rattan, hammocks, and baskets and to buy goods for themselves. Today, copra, fruits, and firewood from Palanog are sold in Tacloban. In order to get better prices people prefer selling the goods themselves in the city rather than to middlemen coming to the barangay. Some households have even started their

⁵⁵ The tree was introduced in the Philippines by Imelda Marcos.

own trading business. They buy fruits from at the highway trucks arriving from Cebu and sell them in Tacloban. A market has developed also in Palanog, where goods can be offered. About 50 households in Palanog 103 produce and sell folding beds for an entrepreneur in Cebu.

Access to land

The three barangays of Palanog stretch within a narrow valley. Especially at the site where Palanog 12 is situated, most of the area is on mountain slopes and is not suitable for cultivation of rice. In the middle part of the catchment the soil is stony and not suitable for agriculture either. Only the region at the upper part of the catchment offers area that can be managed as agricultural and timber land.

In 1997, more than 15 years after the relocation of households included in the resettlement programme, farm land distribution, implemented by DAR, began. The issue of Certificates for Landownership Awards (CLOA) is still in progress, but presently on hold by DENR for further clarification of land classification.

The first fishing survey in the area of Palanog 103 was conducted in 1950. The land was divided between three families who had been the first settlers. Questions of titles, declarations, and tenureships in Palanog 103 are unclear in some cases. In one example, the tenant of a field sold the land that the owner had cleared in 1950. The buyer now regards the area as his. The former owner still pays tax for it and only learnt about the event from neighbours. He claims that if he had the amount of PhP6,000 now, he could pay the money to the bureau of registration in order to get the title. Apparently, the proclamation of the "land-to-the-landless-program" by DAR encouraged his former tenants to sell the land. It is not clear whether the buyer of the area could eventually get it titled if he were to pay the money first.

Even though large parts of idle or flat land suitable for agricultural production exist within the catchment, no parcels are available for lease or sale to farmers. Some landowners have left the area but have not agreed to offer their land to tenants because they are afraid that DAR will enter the case and they may lose their land. About 11.5ha of the area is owned by the City of Tacloban.

5.2.2 Resource utilisation

Cultivation area is scarce and concentrated on flatter areas of all three barangays of Palanog. The main crop planted in areas suitable for production is coco-

nut, though some orchards are also found. The area is quite hilly so only very few rice fields are found and those that exist are not irrigated. Farmers also grow vegetables, bananas and pineapples, considered as backyard gardening. Many people still go to the mountain to cultivate root crops such as cassava and sweet potato, but they have no ownership of land there. Cultivation in the mountains is only for family consumption. Many families cultivate fields in the neighbouring barangay Paglaun, where more flat land is available.

Since the construction of the road from Tacloban, Palanog began to experience an increase in population. Farmers have begun having problems with stolen fruit. As a consequence, the amount of fruit harvested and hence the income, have declined. Some households who previously sold fruit now mainly harvest for their personal consumption. Previously the only problems encountered were with birds and wild pigs. No abaca has yet been harvested in Palanog as there is no tradition or knowledge about stripping.

When the CAO conducted a seminar on corn production in March 2001 and distributed high yield seeds, some households tried planting corn. Due to the limited production area they planted on mountain slopes, causing erosion. The households interviewed did not add any other input and were not content with the result. Thus, they do not want to plant corn again.

Those who have no land can collect fuel wood from other people's property. As long as they do not take coconuts, the landowners do not object. DENR also tolerates this practice considering the economic constraints of the landless people. Firewood collection is only strictly prohibited along the riverbank.

After the destruction of coconut trees by a typhoon in 1985, DENR began planning a tree plantation. In 1989 an area of 54ha, was planted with gmelina and coconut trees by 13 upland farmers (regarded as agroforestry practice), under the Family Approach Reforestation Program (FAR)⁵⁶. After three years the reforestation contract was turned over to DENR. The new contract is now with the PO of Palanog Tree Developers.

⁵⁶ As a strategy for reforestation, forest occupants and communities near forest land were allowed to cultivate crops and plant trees in open and denuded forest lands. The objectives of the programme include reforestation and generation of additional income.

In 1993 an area of 250ha was planted with mangium, gmelina, mahogany, acacia, and coconut under the contract reforestation by the Hinterwealth Agroforestry and Development Cooperation. The survival rate of trees planted within this programme was rather low. Meanwhile, the community had applied to include the area into the Forest Lease Management Agreement (FLMA). Land that was previously cultivated by individual farmers was also included. The FLMA reforestation area is situated in the upper part of the barangay near barangay Paglaum. The plantation will likely produce small profits due to stunted gmelina trees. DENR would like to convert the FLMA into CBFMA.

Trees have also been planted along the river to prevent erosion, but the quality of these plantations needs improvement. In Palanog 12 the CAO distributed seedlings to individual households, but after heavy rainfalls the small trees have been washed away. In some cases children destroyed the plantation. Until today replanting has already been conducted ten times. A plantation of trees along the new extended road above of Palanog 103 is also in the planning stage. The future plantation area is already strongly affected from erosion.

High pressure on the limited land suitable for cultivation, firewood collection at the head of the valley, and the importance of the protection of the watershed reveal a difficult setting for the establishment of sustainable management practices.

5.2.3 Economic conditions on household level

Only one third of the households in Palanog 103 make their living by farming. A large part of other households either work in Tacloban or are small entrepreneurs within the barangay (sari sari stores, restaurant, barbacue selling, etc.).

Most families in Palanog 12 were traditionally fishing families. None of the households in Palanog 12 live exclusively from farming today, though some maintain small gardens to produce food for their personal consumption. Many family members earn their living in Tacloban. Twenty years ago DSWD offered small lots for cultivation to interested households from Palanog 12. Some started farming in addition to continuing to work in Tacloban. Farmers could not sufficiently care for their lots and they often found their crops stolen upon returning home in the evenings. Not surprisingly, they lost interest in farming.

Families in barangay Palanog 103 that were included in this survey are all farming for their livelihood. An important source of cash income for them is the pro-

duction of copra, which provides 48% of the average agricultural income. The second important source of cash income is the collection of firewood, making up about 22% of the average agricultural income. The plantation of vegetables and the establishment of orchards provide about 10% of the income. Around sixty households used to plant vegetables for commercial purposes, but apart from five households, all of them have stopped due to the high cost of agrochemicals. There are ten commercial fruit producers in Palanog 103. The value of average rice production is equivalent to 20% of the agricultural income.

A number of households also raise hogs. Due to the high density of inhabitants and the scarcity of area, this kind of livelihood programme is considered to have a negative impact on the hygienic conditions within the barangay. The pigs are close to the kitchens of the houses and nearby to children playing.

Almost all cash income is spent on daily goods and education. Only a very small amount of money was reported to be invested on agrochemicals. Among the families included in the survey, a large gap exists between those households getting regular income for their work and landless households who make their living from collecting firewood. When deducting the yearly expenses from the income, a surplus of capital was available for the first group (varying from PhP6,000 to PhP20,000) while no savings at all, or even a deficit, was recorded for the latter.

In order to raise the standard of living in Palanog, it was mentioned that an improvement in the farm to market infrastructure, and also training on farming system development, especially concerning hillside farming, were important needs for the barangay.

5.2.4 Awareness and motivation in the field of natural resource management

Concern for finding sustainable methods of cultivation does not seem to be a priority, as the question of organising daily life is more pressing to the people.

Even though people are not aware of the direct impact their cultivation practices have on the environment, they do recognise environmental changes. One interviewee mentioned flooding of the river during rainy days as the most serious problem effecting their livelihood, as they cannot reach the other side of the valley to collect firewood. The same person also noted that previously the water did

not rise as fast as it now does. This observation indicates the negative impact logging has in upper parts of the watershed. Families in Palanog 12 are particularly vulnerable to flooding after rainfall.

There are differences between the waste disposal management systems of Palanog 103 and 12. Inhabitants in Palanog 103 are instructed by three barangay health workers to either dig their garbage into the earth or deliver it to the local dumping site 1km away. People in Palanog 12 often throw their waste along the river bank or into the river, where eventually it ends up in the sea.

Apart from families who have lived in Palanog 103 for several generations, all inhabitants have immigrated to the place. Many of the families even came from Samar where they had been fisherfolks. No traditional land use practice, adapted to the area, has been transmitted from one generation to the next and farming skills are not developed. Resource utilisation in Palanog valley seems to be focused more on resource exploitation. Consequently, the slopes of the valley are highly affected by erosion.

5.2.5 Structures, institutions and programmes

Organisations of the forestry and agricultural sector exist only in barangay Palanog 103, which is the oldest of the three parts with a small percentage of traditional inhabitants who are farmers.

The PO **Palanog Forest Developers** is registered with the Security and Exchange Commission (SEC), which mainly registers commercial enterprises and whose fees are quite high. The organisation has 26 members who belong to families that hold contracts on Forest Lease Management Agreements (FLMA) with DENR. These agreements derived from the Family Approach Reforestation (FAR) programme in 1989. The organisation is not open for new members, as the contracts for the lots are individually signed, but there are plans to increase the reforestation area approved by the preliminary City ENRO. This would probably also extend the number of members. The intended transformation of the FLMA into CBFMA is still in process. The reforested areas are planted with gmelina which grew weakly in the upper slopes but somewhat better in the lower portions, probably due to better water supply and soil fertility.

The **Farmer's Organisation of Palanog 103** was initiated in the year 2000 by the City Agricultural Office (CAO). The association has no elected officials yet

and activities were not mentioned. However, there is a large overlap in membership with the **DAR-Farmer Beneficiaries-Multi-Purpose Cooperative** (DAR-FB-MPC) in barangay 103. This organisation is registered with DOLE and with the Cooperative Development Authority (CDA). The president of the cooperative is also the chairman of DARs Barangay Agrarian Reform Committee. This organisation started its activities with a lending scheme funded by the registering institutions. Activities of the cooperative were the establishment of a store selling various goods in the barangay and the establishment of a watermelon demonstration farm in 2000. The store had to close again due to defaulting creditors. The watermelon farm was established in cooperation with the CAO and has been placed on the land of one of the landlords who owns large portions of the Palanog area. It was reported that informal permission to till the area had been granted. However, when the yield of melons was good, the landlord claimed 25% of it, treating DAR like a common tenant of its land⁵⁷.

The **Rural Improvement Club (RIC)** of barangay 103 was initiated in the year 2000 by the CAO. Members were accredited and officials elected. According to the president, support of backyard gardening activities through free seeds was promised and the preparation of a community garden was suggested. The women prepared the land but the seeds did not arrive. In spite of the short coming, two of the members used the land for a successful eggplant plantation. Presently the lot is utilised for housing.

In barangay 37-A only one organisation could be identified. The **Palanog Cooperative 37-A, Zone 1** has 26 members (7 male and 19 female) and is registered with CDA. The cooperative runs a micro lending scheme based on a PhP25,000 grant from the former congressman. To join the organisation, an entrance fee of PhP300 is required. Members can borrow up to PhP500. The interest rate is 2% per month plus a 1% service fee, the repayment period is up to 20 months. The scheme was believed to be very successful, as the capital has increased rapidly. There is obviously an urgent need by the people for short-term credits as many of their livelihoods depend on buying and selling goods at informal markets in Tacloban City.

⁵⁷ It also was reported that it is a common strategy of landlords to apply for transformation of their landholdings into classified residential area in order to avoid distribution by the DAR, a struggle that is reflected in the example.

Examples like the land conflict caused by the watermelon plantation reflect the general problems of land ownership in the Palanog area. In the comparatively scarce space of the Palanog valley, various players are involved in the planning of the area and in the use of its resources. There are, on one hand, the traditional owners of the land made up of landlords claiming land rights given to them (in many cases) during the Marcos dictatorship and smallholders living in the barangay. On the other hand there are DAR, the City Planning and Development Office (CPDO) and the National Housing Agency (NHA), who are involved in the planning and implementing of the resettlement. Additionally, DENR is involved with issuing Environmental Compliance Certificates (ECC) for projects that require an Environmental Impact Assessment (EIA), a precondition for the approval of the resettlement plans.

Barangay Palanog is characterised by its highly dynamic migration and the rapid increase of settlement area due to its history. With 3,600 inhabitants, the population figure is quite high. Social bonding is not based on traditional rural patterns of resource exchange, but primarily on formal and informal urban markets. This constellation has certain implications regarding projects focusing on natural resource management, as well as on probable livelihood projects. Projects of the first type could not fully rely on the motivation of farmers to protect their means of production (natural resources) and the latter would have to fit the particular requirements of the urban economy.

It remains doubtful whether the present environmental problems, derived from the lack of access to land or other sources of livelihood, can be solved if an additional 700 poor households are resettled in the area. If these people start harvesting firewood on the steep slopes (as is already practised for livelihood purposes) these resources will quickly be over exploited and the bare hills will be exposed to further soil erosion. Settlements and people living further downstream would be even more endangered by flooding and landslides than they already are.

5.3 Barangay Kahupian (Sogod)

5.3.1 Framework conditions

The barangay Kahupian belongs to the municipality of Sogod. The municipality was already a settlement before Spanish colonisation and was officially established as a barangay in 1700 before becoming a municipality in 1853. In 1996

Sogod was upgraded to the level of 4th class municipality. It is the 3rd largest in terms of area out of 19 municipalities in Southern Leyte. The municipality is composed of 45 barangays and had a population of 31,062 in 1995. Sogods dominant products are wood, abaca, and copra (MUNICIPALITY OF SOGOD, 2000 I).

Characteristics of the barangay

Barangay Kahupian is located in the upland, completely within timber land area and without access to the coast. It has a rather short history. In 1956 only ten people lived in the settlement. At that time, the area was fully forested and the families made their living practising shifting cultivation, planting root crops and vegetables, and harvesting wild abaca.

Starting in the seventies two large concessionaires had been active in Kahupian: Angel Veloso and the Timber Producers Marketing Corporation (TPMC). They built a logging road and cleared large areas around today's *sitio* Bernal.

In 1974 Kahupian became a barangay. When the construction site of the national highway of the Philippines reached Kahupian in 1975 many of today's inhabitants, primarily from Davao, arrived as road construction workers.

Socio-economic conditions

Over the years more immigrants moved to Kahupian, attracted by the large amount of fertile land available. Today, barangay Kahupian covers an area of 3,300ha with 270 households and 1500 inhabitants (MUNICIPALITY OF SOGOD, 2000 II).

The main source of livelihood for the inhabitants today is agriculture. Abaca production plays a very important economic role in Kahupian. However, a widely spread virus infection meant that production had already been abandoned by a number of families. This problem may lead to either out migration or to clearing new, unaffected lots in forest land. The first coconut trees were only planted in 1982.

Kahupian is still not connected to electricity. The former barangay captain forwarded a resolution to the municipality in 1982 that to date has still not been followed up on. The cost for electricity in the province of southern Leyte is one of the highest in the region. In order to enhance the supply of energy in Sogod, off-

grid surveys have been conducted to assess the suitability of rivers for the construction of micro hydroelectric plants (MUNICIPALITY OF SOGOD, 2000 I).

The supply of potable water is still not completely established in Kahupian. The Department of Agriculture provided a pipe from their cattle farm but found out that water could then no longer reach the farm. Hence, the pipe was cut off. A spring that was previously the most important for the water supply in *sitio* Bernal dried out in 1998. Another spring with a slow running water has been used since.

Processing and marketing

Processing and marketing of abaca is of major importance in Kahupian. Twelve stripping machines can be found in the barangay and two traders market the fibres. Some households also produce abaca-mats and handicraft for sale, supported by the MAO.

The PO Kahupian Upland Farmer's Association (KUFA) produces furniture of rattan, lauan, and other species of timber. Previously the furniture was sold at the main road. Local authorities prohibited this practice, deeming it an obstacle for traffic, the business has stopped since. The closest and important market places for the barangay are Hindang and Sogod.

Access to land

Land ownership in Kahupian goes back to the early days of the settlement when the area was still timber land and fields automatically became the property of the person who cleared it.

With the identification of special land zones by DENR, an area of 1,008ha A&D land has been offered for declaration. From October 1987 until December 1994 within the ISFP 115 certificates of stewardship contracts, covering an area of 278ha, were issued to members of the PO Kahupian Integrated Social Forestry Association (KISFA). This organisation was registered in 1982 but no longer exists. The contract is now with KUFA (MUNICIPALITY OF SOGOD, 2000 I).

In Hagna, the upland *sitio* of Kahupian land is still available. Most of the area is, however, claimed, even within the CBFM area. The *sitio* Hagna is still growing today. In 1991 just 17 households were established in Hagna and only abaca was being cultivated. Today the number of households has grown to 53 and root crops, vegetables, fruit, and rice are now planted.

5.3.2 Resource utilisation

267ha of the area are dedicated to agricultural use. According to the Comprehensive Land Use Plan CLUP for 2001-2010, the municipality of Sogod plans to convert 135ha of the present agricultural area into an agro industrial area (MUNICIPALITY OF SOGOD, 2000 I). In 1975 the Bureau of Animal Industry (BAI) under DA claimed land to establish a cattle farm.

The land use pattern is similar to the common cropping patterns in upland barangays described previously. Abaca and coconut are planted on a large scale on slopes, while vegetables, root crops, and fruits are mostly cultivated on a smaller scale. Coconut trees are usually found in the higher regions. Shifting cultivation is still very common in Kahupian.

Photo 3: Slash-and-burn area at CBFM area, Kahupian



Kahupian has the largest CBFM area in Southern Leyte, covering 2300ha. Following the ISFP, the Community Forestry Programme (CFP) was introduced in 1987, which has again been converted into CBFM. According to one household interviewed, cultivation under stewardship contracts was only practised in val-

leys, but with the introduction of the CFP, slopes have also been integrated into cultivation areas.

In 1997 about twenty contractors reforested 50ha of an open denuded area, they had planned to reforest 307ha. This area also became part of the CBFM area. The programme was partly financed by ADB, but due to a delay in the implementation, ADB withdrew their money. In April 2001 an Interim Resource Use Permit (IRUP) was issued to KUFA by DENR to allow the harvest of abandoned timber left by the logging company. Apparently these harvesting activities have not been limited to abandoned logs.

The fact that a landslide from a section of the CBFM site is blocking the national highway hints at the poor quality of gmelina trees that are not well adapted to the location.

5.3.3 Economic conditions at household level

85% of all farmers in Kahupian plant abaca. In addition to processing and marketing abaca, most households also produce copra. As already described for the barangay Esperanza, these two products represent the main sources of cash income for the households. Other crops such as vegetables and fruits (especially banana) are produced, to 70% for personal consumption and 30% for sale.

Among the households interviewed, 58% of the total income from agriculture was earned from abaca, 22% from copra, and 19% from rice.

Outside labour provides 18% of the total income in the barangay. Some households receive income from small entrepreneurs such as running sari sari stores or driving habal habals. From the latter business, a monthly net income of up to PhP3,000 was reported. Some inhabitants also do other kinds of work such as masonry for a daily salary of PhP100 to PhP150.

Individual initiatives such as fresh water aquaculture can be found. Some families signed contracts with the DA cattle farm to take care of a cow. As soon as the cow has produced two calves they will be given to the cattle farm or BAI. The cow will become the property of the contractor.

In Kahupian the sharing scheme of *agsa* is common. 50% of the amount of the harvest is given to the owners of the land while workers share the remaining 50%⁵⁸.

Kahupians location within the timber land area implies an important role of forest products for the socio-economic situation. So far, 19 families benefited from the Interim Resource Utilisation Permit (IRUP). They could earn an income of PhP1,000⁵⁹. The president of KUFA, who is also the barangay captain, did the selection of beneficiaries from among the PO members. Illegal logging is rampant. Cases of poached timber being marketed in Kahupian have occurred.

Families interviewed spend 96% their cash income on daily expenses (mainly food and education) and 4% on agrochemicals.

Access to credit

The barangay captain reported that most of the farmers occasionally borrow money from traders and repay with farm products. The money is commonly used for their consumption before harvest (usually for a week). If people need a larger amount of money in case of an emergency (e.g. occurrence of severe sickness and accidents) they borrow money from the money lenders who provide loans with a high interest rate of 10 –15% per month. If they cannot repay their debts, they will be summoned by the police or the barangay captain to sign a promissory note to repay their debt in instalments. If finally, the farmer is still not able to repay, his planted crops or the land will be automatically owned by the creditor.

5.3.4 Awareness and motivation in the field of natural resource management

The level of awareness and motivation in the field of resource management in Kahupian differs among individuals.

The people engaged in activities of the PO KUFA were motivated to become members mainly because they were hoping to be paid to develop and plant

⁵⁸ Elsewhere tenants keep 75% of the harvest with 25% going to the landowner.

⁵⁹ 500 boardfeet of timber were purchased for PhP8 each by KUFA. From the total of PhP4000, expenses for labour, gasoline, oil, and the operator were deducted, leaving a profit of PhP1000. KUFA will sell the timber for PhP20 per boardfoot, making a profit of PhP12 per boardfoot (1 boardfoot corresponds to 1 foot x 1 foot x 1 inch).

seedlings. After ADB withdrew from their engagement in the area no more incentives were offered and many of the members lost interest in the organisation. After failing to attend three consecutive PO meetings they were excluded from the organisation.

Apart from the expected profit, another incentive to some participants was the possibility to attend training courses for contour farming, application of fertiliser, fire protection, furniture production, or vegetable planting.

A few households were found that seemed to be convinced of future financial benefits from reforestation. For instance, one of the households interviewed converted a former commercial vegetable plantation into trees after joining KUFA. According to his statement, DENR convinced him to save forest resources for the next generation. Until now he has earned little income but he thinks of the future. He expects the income from trees to be as high as PhP3,000-5,000 per tree and thus did not want to invest in coconut or abaca. Practices like this are an exception. A number of cases were seen where farmers cleared their new areas by slash-and-burn methods.

5.3.5 Structures , institutions and programmes

The aforementioned PO KUFA was registered in 1997 and has been holding a CBFMA since 1998. Presently, the organisation has 68 members and it was reported that no new members will be admitted until the Resource Utilisation Permit (RUP) is approved by DENR. Activity besides the recovery of abandoned logs was the establishment of 1000m² cut flower production (roses), funded by the Provincial Government and with assistance of the office of the provincial agriculturalist.

KUFA can be seen as the most important and influential organisation of the barangay as the assigned area of management covers about two thirds of the barangays area and includes the majority of the natural resources, the means of livelihood of the population. It is therefore, understandable that the barangay captain is also the president of the organisation, though it might appear to be a concentration of power and responsibility unhealthy for the barangay, the PO, and for herself. She reported that she had intended to reject her reappointment

as PO president but was asked by various members to keep her position⁶⁰. The PO and to a greater extent, its officials, were clearly overburdened with responsibilities and contradictory tasks. Problems encountered were:

- Membership declined due to a lack of funds, time constraints of members, or exclusion of inactive members.
- People who are living and cultivating in the CBFM area are, for the most part, no longer members of the PO.
- The PO is indebted with PhP144,000 for forest charges but profit from the wood recovery activities have already been spent to pay for labour costs.
- Some labourers are still claiming their overdue salaries from the reforestation in 1998.
- Conditions of the RUP were obviously not understood, neither by the board of directors nor by the other members.
- Even members are still practising slash-and-burn and therefore, are contradicting the organisations purpose. Walks through the CBFM showed that large portions of the land were either already allocated agriculturally for the long-term (irrigation systems), or have recently been cleared for cultivation.
- The processing and marketing of rattan, which used to be an important source of income, stopped due to the closed national road where the products formerly had been sold.
- The DA cattle farm within the CBFM area had reportedly illegally extended their pasture area into a planned nursery and the livestock sometimes causes damage to peoples property

Interviews conducted without the presence of PO officials or DENR staff revealed dissatisfaction and mistrust regarding the recent policy and regulations of the PO. Community organising generally appeared to be weak, an observation backed by the fact that activities in this field had stopped prematurely as there had been conflicts between the NGO in charge (LABRADOR) and DENR.

⁶⁰ It was also reported that she was asked by DENR to keep her position.

The **DA cattle farm** occupies an area at least partly inside the CBFM area, adjacent to the POs bunkhouse. Its presence in this place is astonishing, as on forest land, at least officially, agricultural activities are not supposed to take place. Additionally, the very presence of DA in the uplands is rather an unusual occurrence. An explanation might be provided by the differing maps of DENR (land classification map) and DA (SAFDZ/NPAAAD map), which reveal that large portions of the DENR classified forest land are supposed to be agricultural development zones of DA. Conflicts resulting from these inconsistencies are mirrored in the conflict regarding the particular farm in Kahupian. DA representatives also reported a number of problems:

- The farm originally claimed and used 200ha but DENR only approved the 86ha actually managed.
- DENR's final approval for the farm is still missing.
- DENR started planting forest trees in the DA claimed area.
- The farm's fence has been shifted to increase settlement or cultivation areas.
- The DA proposal of planting forage trees for the cattle was rejected by DENR, who insists on the planting of forest trees in the critical watershed surrounded by the farm.

DA claims the land use rights due to its long-term presence in the area. Proposals for an amicable settlement between the two line agencies DENR and DA are reported to have been exchanged, but as of October 2000 there are no results regarding a clear delineation of borders and different kinds of land use.

Informal organisations like *ayon ayon* (the local term for *alayon*) could be identified in *sitio* Hagna but were reported to exist also in the other *sitios* of the CBFM area. Six members in Hagna use the organisation for common work on their rice fields and abaca plantations. They are not members of KUFA.

5.4 Barangay Calag-Itan (Hinunangan)

5.4.1 Framework conditions

Barangay Calag-Itan is one of 39 barangays administered by the municipality of Hinunangan. It is situated in the Silago Bay area and has a total population of 23,883 (MUNICIPALITY OF HINUNANGAN, 2001).

Characteristics of the barangays

Calag-Itan is a coastal barangay, though it stretches to upland areas. It covers a total area of 3,676ha (MUNICIPALITY OF HINUNANGAN, 2001). Calag-Itan consists of 240 households, living in five *puroks* and seven *sitios*. The latter are all situated in upland areas where no family lives permanently. About 40 households that have their cultivation areas in that region have built temporary residences near their sources of livelihood (per.com. Pan, E., barangay official).

In the past, inhabitants of Calag-Itan have had to move several times between the coastal and mountain areas: During the Second World War the area was one of the centres of the Japanese American confrontation. A Japanese invasion occupied Silago Bay area and a group of soldiers stayed in a sawmill in Calag-Itan. During that time families hid in the forests. Only half of the population survived.

Starting in 1979 many of today's inhabitants moved to Calag-Itan to work for logging companies. Before the logging activities started, only about 100 families lived in Calag-Itan. They claim there were large areas of primary forests at that time. The Silago Timber Company was the first to receive a large logging concession. Their activities were banned in 1981 when a conflict between the army and the New People's Army (NPA) occurred. As a consequence, those families who could afford to leave the area moved away, while others at least left the mountainous areas and stayed near the shore. Other logging concessionaires arrived in the area and many of the employees settled in a squatter zone near to the shore and still cultivate the areas they had previously cleared.

Socio-economic conditions

The development of the socio-economic conditions in the barangay over the last 60 years was described to be stable. In the opinion of the villagers, the majority of the inhabitants are still neither rich nor poor.

The main cash income of the population of Calag-Itan is from selling copra. Other agricultural cultivation is done mostly for personal consumption. Those, who for whatever reason, cannot earn other cash income, work as labourers for other households.

Processing and marketing

The nearest large market place for the barangay of Calag-Itan is in the main part of Hinunangan, just three km away. Villagers from Calag-Itan rarely go there to offer their products, as most goods such as vegetables and fish can be sold within the barangay. No traders are involved in selling vegetables.

Copra is usually sold to middlemen in Calag-Itan who then sell it to Hinunangan, while abaca fibres are sold to a trader in the neighbouring barangay of Bancas. Some families still prefer to market their products in Sogod as the price for abaca offered there is higher (in July 2001: PhP14-17 per Kg, compared to PhP10-12 in Banca). No abaca stripping machine is available in Calag-Itan. Producers either strip their abaca manually or they go to the neighbouring barangays of Esperanza and Nava where the nearest stripping machines are found.

Previously rattan was also marketed in Calag-Itan to traders from Sogod. But as rattan resources have decreased the material is now used locally for the construction of houses and for the production of baskets. Other sources of income from handicraft production are the production of brooms from tigbao and mat weaving from romblon. The products are sometimes produced to order and either sold to a middleman or directly to Hinunangan. Small abaca-mats were once produced and sold to Japan but orders, and thus production, have stopped.

Access to land

The agricultural area in Calag-Itan is completely under cultivation and no further fields are available. Households are still in need of more land to cultivate. Therefore, Calag-Itan was included in the Southern Leyte Settlement Project (SLSP)⁶¹ coordinated by DAR. Under the SLSP a total of 16,000ha of land were

⁶¹ The SLSP arose out of the "Imelda Settlement Project" from 1975. Originally, there were 16,000ha of forest land approved by DENR for that project, but today, each settlement lot to be released by DAR requires a common survey of the two line agencies and a final approval of DENR. The project covers land in 22 barangays in the municipalities Hinunangan and St. Bernard. Besides distributing land to groups of CLOA holders, DAR's activities focus on the development of its beneficiaries.

released by the government and distributed to beneficiaries who receive 3ha each. An area of 275ha in *sitios* Tabjon and Sam Buhan in Calag-Itan were included in the SLSP.

At present Certificates for Landownership Awards (CLOAs) are distributed as mother-CLOAs for three lots⁶². A mother-CLOA of the first lot was given to beneficiaries in 1993 and the land has since been divided between 85 households, but individual certificates cannot be issued before conducting a land survey. For the second lot, a mother-CLOA has been released to a group of 7th Day Adventists. In the case of the third lot, the distribution of land was announced during a barangay assembly and landless residents of Calag-Itan were asked to apply to participate in the project. Those who were selected received their lots by way of raffling and their names are listed on the respective mother-CLOA. The permit to begin cultivation has not yet been officially issued, as some unforeseen problems appeared. Some sections of the area to be distributed have long since been claimed by other households while other sections are forested or belong to a watershed area that was to be converted into a protected area.

5.4.2 Resource utilisation

Farming activities

60% of the available area of barangay Calag-Itan is devoted to agriculture and 20% to residential area. All households of Calag-Itan have their main places of residence in the five *puroks* near the shore, though most of them cultivate land in the seven *sitios* of the upland areas. The *sitio* situated farthest from the barangay centre is the *sitio* Tabjon. When logging companies cleared large sections of the upland area and constructed a logging road to Tabjon, the cultivation began (MUNICIPALITY OF HINUNANGAN, 2000).

In both the uplands and lowlands the plantation of rice and coconut is of major importance with regard to land use in Calag-Itan. An area of 20ha in the lowlands is devoted to the cultivation of rice, while rice areas are also found in the uplands. Most rice fields cultivated by the households are, however, located in the neighbouring barangay of Canipaan, where more flat area is available. According to

⁶² A mother-CLOA is given to a group of beneficiaries for an area identified for later individual distribution.

farmers, the quality of the soil allows just two harvests per year even though the fields are irrigated. Planting high yield varieties would allow harvesting three times per year but they regard this option as unprofitable.

A second constraint for the production of rice noted by the farmers was a shortage of water during the months of July through to September. Previously existing springs have gone dry as a result of deforestation and increasing population. The irrigation systems were also noted to be in need of improvement.

Coconut is often intercropped with bananas, vegetables, or root crops such as taro, cassava, and camote. Abaca and pineapple plantations are found in the area. Today some farmers in Tabjon also grow fruit trees as for instance avocado, jackfruit, durian, and lanzonis as well as tigbao to produce brooms.

In 1999, the LGU organised the plantation of a mini forest with mahogany trees, part of a tree planting programme that began 10 years ago. A mangrove plantation, organised by BFAR, was implemented prior to the establishment of a fish sanctuary in 1999.

Apart from agricultural land use, people also collect forest products such as *kuyot* (wild yam) and rattan. If the rattan cannot be harvested separately, the whole tree will be cut down.

Fishing activities

The conditions and practices of fishing within the barangay of Calag-Itan are described in detail in the annex 2.

5.4.3 Economic conditions on household level

75% of the households in Calag-Itan depend on farming and fishing as sources of livelihood. The information on socio-economic conditions given in this chapter focuses on farming households. Catches of fishermen are irregular. On some exceptional days 50Kg of fish are caught while on other days there might be no catch at all. In one case a commercial fisherman reported an average daily income of PhP150 during the season from April to October.

Among the fourteen families included in this survey 20% of the total yearly income derive from off farm activities such as sari sari stores and transport businesses (tricycles, jeepneys, and multicab driving). 6% of the total income come

from handicraft production such as mat weaving, broom production, or the production and sale of rattan baskets. The majority (74%) of the total yearly income is derived from agriculture. 21% of this total agricultural income is from abaca, 18% from copra, 30% from rice (value of subsistence production), 3% from vegetables, and 28% from fishing products. (There was no data available for income derived from livestock production.)

Photo 4: Small and commercial fishing boats in Hinunangan



The most important constraint identified by the population was a lack of stable cash income for the households to cover their expenses. Of their total income, 88% is spent on daily needs, 7% on labour for processing of abaca and copra, 2% on agrochemicals, and 3% on fishing gear such as lines, hooks, ice for preservation of catches (excluding larger expenses on boats etc.).

Most coconut farmers in Calag-Itan apply fertiliser. The amount of nuts harvested almost doubles when applying fertiliser (1000 pieces instead of 600 pieces on an area of 0.25ha).

Regarding the living standard within the village, people of Calag-Itan have noted that the conditions of farmers and fisherfolks do not differ very much. Most farm-

ers receive a fixed income every three months by processing copra. Fishermen can sometimes be lucky and bring home a large catch.

5.4.4 Awareness and motivation in the field of natural resource management

The level of awareness and motivation in the field of natural resource management can be illustrated with the example of the acceptance and understanding regarding the fish sanctuary established in 1999.

The sanctuary was established shortly after a village assembly was held, and attempts to integrate all inhabitants of the barangay into the decision-making process. However, only few villagers were present. As a consequence, only a minority of inhabitants in the barangay seemed to support the idea of the establishment of a sanctuary. Those who do not understand the potential benefits of the sanctuary apparently have not been informed regarding the scientific background of the project. They complain about the prohibition of collecting intertidal invertebrates, not knowing that only a small portion of the beach is off limits. These people are usually farmers who do not fish and only occasionally collect marine invertebrates. Among the fisherfolks some supported the creation of a sanctuary. They had noticed a decrease of fish near the shore before and now report that larger catches sometimes occur beyond the sanctuary boundary. The difference between the two attitudes can be explained by the differing degrees to which people have been informed. It became clear that building awareness and support from the population could be achieved by offering adapted forms of information.

Similar conclusions can be made regarding the awareness for resource management in general. In Calag-Itan *kaingin* is still common. The harvest of trees on titled land for household use, for instance for building of a boat, is considered to be allowed by some of the persons interviewed. Those not having trees on their own land may request to harvest wood from other families' property. However, DENR is by law the only institution that may issue such permits. The policy of the cooperative is, that anyone who harvests a tree must replant one.

Some cases show that people who have an understanding regarding the correlation of land use and environmental conditions adjust their behaviour towards sustainable cultivation practices. Two of the households interviewed, who have received forest land under the CLOA decided not to cut trees, realising they are

essential for the protection of the catchment area. Some households planted mangrove trees with seedlings that they collected themselves in order to protect their houses against tidal waves. They also expect to harvest the wood for charcoal and for construction after 10 years.

Photo 5: Mangrove rehabilitation at the sanctuary in Calag-Itan



It can be concluded that the level of sensibility of the inhabitants of Calag-Itan regarding environmental issues is higher than their level of information. By offering awareness building opportunities one could expect to achieve wider support from the population.

5.4.5 Structures , institutions and programmes

The seven identified organisations of barangay Calag-Itan can be divided into those active in the lowland settlement area, and those formed in the course of the Southern Leyte Settlement Project (SLSP) in the upland *sitio* Tabjon.

The **Tabjon Agrarian Reform Beneficiaries Production Cooperative (TABCO)** was initiated by DAR and is an official organisation of the SLSP. Since 1999 the

cooperative has been registered with CDA. It has 52 members. Most of them are land holders on Lot 162⁶³ and only three are from Lot 6. Membership in the cooperative requires an admission fee of PhP50 and a yearly built up capital of PhP500 for the first five years of membership. TABCO received support through DAR in the form of seminars for members and officials. The release of money from a World Bank fund for abaca plantations, goat raising and poultry was reported by the Municipal Agrarian Reform Officer (MARO). Activities of the organisation are the establishment of fruit tree plantations on member's farms, extension services, provision of free fertiliser and pesticides for indigent members, and a cooperation for weeding. Moreover, the establishment of nurseries, irrigation systems, and of plantations for vegetables, abaca, coffee, and ornamental plants is intended.

The **Tabjon Upland Farmers Association** (TUFA) arose out of three farmers' groups in the settlement area and was initiated by the Municipal Agricultural Office (MAO). The organisation is not registered. TUFA has 42 members and received support from the MAO and DA in the form of extension services and the provision of 2500 coconut seedlings (PCA) as well as mango and citrus seedlings. Moreover, areas for the establishment of contour farms have been identified in Tabjon. The existence of a second farmer's organisation in Tabjon was attributed to the high financial requirement for joining TABCO which requires a sufficiently high income of the farmers (per.com. Mr. Ngoho, MAO Hinunangan).

The **Multi-sectoral Forest Protection Committee** (MFPC) includes the "Tabjon Special Environmental and Protection Force" and was initiated by the coordinator for ARB cooperatives of the SLSP and the vice president of TABCO. The group intends to initiate and facilitate a better cooperation between the different institutions involved in the development and the protection of the upland areas (such as DAR, DENR, DA, the LGUs, and PNP). The group has numerous ideas and plans⁶⁴ that would need the strong commitment from those institutions. A recent activity of the group was the coordination of a campaign to reject the plans of the Southern Leyte Institute of Agricultural Technology (SLIAT) to establish a new campus of 1000ha in a watershed area west of Tabjon.

⁶³ The name "Lot 162" refers to the size of the lot which is 162ha. The official designation is Lot 8015.

⁶⁴ Plans for eco-tourism, watershed protection, reforestation and for the establishment of a wild-life sanctuary for endangered species were mentioned by the ARB coordinator.

Photo 6: Rice fields close to remaining forest area (Tabjon)



The **Irrigation Association (IA)** of Calag-Itan was initiated by PCA in October 2000. The group has 30 members and conducts monthly meetings. Most of the members (60%) are tenants of rice fields with an average size of 0.25ha (per.com. Mr. Gabot, L., president of the IA). The organisation is registered with SEC and arose out of a group (*bayanihan*, local term for *alayon*) that was responsible for the maintenance of the irrigation system. In the future, the organisation will be responsible for the maintenance of a new irrigation system in barangays Pondol and Calag-Itan, funded by a loan from the National Irrigation Authority (NIA). Moreover, it will need the collection of the required irrigation service fee to refund the loan for the construction, a reason why some of the rice growers have not joined the association.

Calag-Itan has a **Barangay Fisheries and Aquatic Resources Management Council (FARMC)** whose functions are explained in annex 5. Generally fishermen are not organised into groups but will cooperate temporarily or hire labourers.

The barangay captain reported the existence of a farmer's association and a women's organisation in Calag-Itan proper, but these groups were not active.

The number of *alayons* was estimated to be 10, with an average membership of 6-10 individuals. *Alayons* are used mainly for harvesting and planting.

5.5 Comparative assessment of the situation in the research sites

In the previous chapters, barangays Esperanza, Conalum, Palanog, Kahupian, and Calag-Itan have been presented, focusing on issues regarding the management of natural resources. In the following, additional information valid for all barangays will be given before comparing the situation in the five barangays.

5.5.1 Common characteristics

Even though each of the five barangays has its own specific characteristics, a number of common features are found. Common aspects include patterns of land use, the seasonal calendar, the processing and marketing of abaca and copra, as well as the issue of inadequate access to credit.

General land use patterns

In all barangays, abaca and coconut represent the main sources of cash income. Rice, vegetables, and root crops are grown primarily for personal consumption. Rice is usually grown on flat areas in the lowlands, while abaca plantations are concentrated on slopes in the upper parts of the mountain. Coconut trees are grown both in lower and upper regions.

Various patterns of intercropping are common in the mountain areas:

- Coconut trees are intercropped with root crops, vegetables and fruit trees (bananas, jackfruit, lanzonis, santol, mango, avocado, and oranges) as well as with timber trees such as narra, lauan, anilau and lanyu.
- Abaca is intercropped with anii trees, bananas, and root crops.

In coastal barangays most farmers also engage part time in fishing (and fishermen and women part-time in farming). Fish is sold only when the catch exceeds home consumption.

Livestock production, such as hog fattening, is more important for the family's personal consumption during fiestas than for commercial purposes.

Seasonal calendar

Farming systems are similar all over the island. Labour peaks occur during March to September. In this time of the year, people are busy with the preparation of the land, planting and harvesting crops. An illustration of when and what type of work is done is given in table 11.

Farmers with irrigated and non irrigated rice fields differ in their planting season. Irrigated fields can be planted three times a year and have no fixed time as to when the planting season is. On the other hand, non irrigated fields can only be planted during rainy season (once or twice) per year.

Planting of vegetables is done in the months of February and March. Root crops, except for cassava which has a fixed planting time falling in the months of April and May, have no fixed time as to when to plant as long as its not too hot or too dry.

Table 10: Crops and their labour peaks

Crops	Activities
Abaca	Processing is done during dry season
Cassava	Planting time is April to May
Coconut	Processing is done every quarter of the year
Corn	Planting season is in March and harvesting is done after five months.
Irrigated rice field	Planting can be done three times per year.
Non irrigated field	Planting time during rainy season (June and December)
Pineapple	Harvesting is done during May after two years from planting
Sweet potato, taro, ube	August - October: Preparation of land (clearing, burning) December: planting
Vegetables	Planting time during February to March

Processing of copra can be done every quarter of the year while abaca can be processed once or twice per year. Both have no definite time as to when to process. However, it was observed processing these crops falls into the dry season and or when there are incoming celebrations like fiestas, which often fall during May. The harvesting time for pineapples is two years from planting, in May.

Main fishing activities of the people fall during April to November when there is usually an abundance of fish. It was also reported that the hardest time falls during March when often there is no fish catch due to the very rough sea. At the same time there are no vegetables or other crops to be harvested since planting season starts only during this month (per.com. Mr. Ducenas, Rogelio)

Processing and marketing of abaca and copra

Within the barangays, processing activities are limited to copra extraction and stripping and drying of abaca fibres.

Abaca has two different product qualities distinguishable according to the processing technology used: fibres stripped mechanically versus those stripped manually. Fibres stripped mechanically are of finer quality and were sold at PhP20 per Kg in July 2001 in Inopacan versus PhP11 for manually stripped fibres (both prices are for dried fibres).

In families that do not own land, members often have a working agreement with one or more producers. These working agreements cover activities such as stripping abaca, harvesting coconuts, extracting the meat for copra processing or planting, weeding, harvesting rice fields, as well as applying fertiliser or pesticides.

Workers on an abaca plantation are usually not only responsible for stripping, but also for carrying the fibres down the hill and for selling them. They often get credit from a buyer for the rental of a stripping machine. To whom the fibre will be sold depends on who will offer credit. In one case the payment scheme followed *agsa*. 15% of the output is given to the owner of the machine for maintenance. The remaining 85% is divided into two parts, one given to the owner of the abaca, the second part is divided between the workers. Workers are paid according to the output of their work. If, for instance, 100Kg of fibres are sold at PhP20 per Kg a net income of PhP850 goes to the worker(s). One worker can produce this amount of fibres in six days. For carrying 100Kg of dried abaca workers receive an additional PhP150. Workers often do not deliver the products

to the owner of the plantation but hand over part of the income after selling the fibres and deducting their share. The basic salary, usually PhP100, is given on a daily basis.

The outer part of abaca fibres, *umbak*, is sometimes used for handicraft production. In Conalum an abaca hat is sold for PhP100. The expenses for raw material are PhP20 with 1.5 days for production. Abaca place mats are sold for PhP20, with expenses of PhP18 for raw material and 0.5 day of labour.

For the production of **copra**, the meat of coconuts is extracted from the shells and dried. The remaining shells are often processed to charcoal for local marketing. Two products of different quality can be distinguished. The first step of drying produces *pasa*, which still has a high degree of moisture and is sold at fixed prices per Kg to small buyers. From further processing comes *resicada*, which is bought by larger entrepreneurs. The price of *resicada* varies according to the quality of the product: the lower the moisture content, the higher the price. In July 2001 *pasa* was sold for PhP5 per Kg in Hinunangan (a year earlier the price was only PhP2-3 per Kg), while the best quality *resicada* went for PhP7 per Kg.

Most producers hire labour during harvest times. Different agreements for payment exist. Workers either receive a daily salary of about PhP150 per day or are paid according to a sharing scheme, for instance receiving 50% of the output for the extraction of the meat. The salary for climbing trees varies from PhP1.5 to PhP2.5 per tree. PhP0.2 is paid for each nut picked. PhP12 is paid for carrying one 50Kg sack of copra. From 1000 coconuts 250Kg of copra can be produced. Other coconut products include tuba (coconut wine), nata, vinegar, young coconut shoots, candies, etc.

In 2000, when the price for copra was as low as PhP2-3 per Kg, many producers did not harvest their nuts since the cost would have been higher than the income. After an abundant harvest coconut trees produce few nuts. Consequently, the output for the following years harvest will be very small. The local term for this period is *layag*.

If the producer of copra or abaca is only a tenant of the area where the products are harvested, a share must be given to the landowner. According to the most common sharing system of *agsa*, the owner receives 25% of the output.

Access to credit

Families rarely receive loans from the banks or credit cooperatives, because they would have to offer collateral or a large amount of savings as security. In addition, most families do not dare to take a loan from a bank, as they are afraid of the bureaucracy. They fear becoming dependent on the bank for a lifetime if they are unable to pay the money back. None of the 45 families interviewed had received a loan from the bank. It is easier to receive a loan from a credit cooperative but these are given only to members. Even then, few people dare to take the risk.

A common way of taking small loans is to ask a middleman for an advance payment. This kind of credit is free of interest, but borrowers are obliged to sell their goods to the specific middleman who lent the money to them. Often the borrower will have to accept a lower price for his harvest in return. The reduction of the price is equivalent to an interest rate between 2 to 15%, rising with a higher loan amount and a repayment longer period. The highest demand for (short-term) credit for the households is during harvest times. It is mostly at these times that advance payments are required from middlemen. The amounts are usually between PhP500 and PhP800.

Additionally, sari sari stores sometimes allow customers to buy on credit. Goods in these cases are sold at slightly higher prices. For instance, one *ganta* of rice (2.2Kg) is normally sold for PhP41, but PhP42 if bought on credit. This kind of credit is only offered for short-term lending, for instance until the next harvest.

Another common way of borrowing money is to mortgage land to another family. A fixed amount of money will be given to the borrower. Until he will can pay the money back, the lender will be allowed to harvest the products on the mortgaged area. The minimum period of time is one harvest, but it can be extended until the borrower is able to return the money. Prices for mortgaging are not fixed and vary from case to case. In one example in Calag-Itan an area of 0.25ha of coconut plantation was mortgaged for PhP1,000 for 18 months. In another case in Conalum, an area planted with coconut trees with an average output of 250Kg of copra per harvest, was mortgaged for a period of two years for PhP2,000. The money was used to buy galvanised steel sheets for the repair of a roof. In Kahu-pian a farmer who mortgaged his 2ha abaca plantation for two years received PhP20,000.

Credit is usually taken only when severe financial constraints on the family occur, such as an illness or death of a family member, or the need to build a house etc. In one example, financial problems after delivering a baby were solved by accepting a credit of PhP1,000 from a family member at an interest rate of one sack of rice⁶⁵ for each harvest until returning the credit.

In 2000, when copra prices were low, most money lenders did not provide credit to farmers, and at the same time farmers did not dare to take a loan as a coping strategy for the loss of income.

5.5.2 Specific characteristics

Apart from common features, the barangays differ in a number of aspects, including the issue of awareness and motivation regarding natural resources.

Land use

When comparing the five barangays visited, similarities in the land use patterns can be observed. However, differences exist with regard to the focus of activities. While the harvest of rice in all places represents about 20 to 30% of value of agrarian production, abaca and copra production varies from place to place. Income from copra in Palanog makes up about half of the total income from agriculture, while in other barangays it covers only about 20%. Abaca is not planted at all in Palanog, represents around 20% of total agricultural income in Calag-Itan, around 30% in Esperanza and Conalum, but nearly 60% in Kahupian.

Fishing activities are only practised in coastal barangays such as Esperanza, Conalum and Calag-Itan. It was obvious that the agricultural practises in Palanog are less developed than in other barangays. Even though environmental degradation is a problem everywhere, Palanog was the most affected by erosion.

Socio-economic conditions

Households depend more on on farm than off farm activities. When comparing the average yearly income of the households in the four study sites, differences become apparent. The average yearly income from agriculture was the least in Calag-Itan (PhP11,800) and the highest in Kahupian (PhP33,000). The amount

⁶⁵ The price for one sack of rice in Inopacan was PhP860 in July 2001.

of off farm income was the highest in Palanog due to the limited agricultural production area and thus different occupational patterns.

The average yearly cash expenditure in Palanog is almost double the amount spent in Calag-Itan (PhP32,800 versus 17,800), resulting from a higher degree of subsistence production in Calag-Itan and of limited cultivation area in Palanog. However, everywhere the average household spends the total cash income on daily needs (mainly food and education) and is rarely able to accumulate savings.

Marketing conditions

The marketing situation in all barangays, except Palanog, focus on the market within the barangay. Marketing of goods outside the barangay is usually done via middlemen. Taclobans urban influence on Palanog and the fact that many of the residents previously lived in Tacloban City create different conditions for that barangay. Places like Esperanza and Conalum, situated along the national highway, have a potential for further marketing development.

Constraints identified by the population

In all of the visited study sites, a lack of financial means has been mentioned as an important constraint. A lack of possibilities for income generation was noticed, as well as under developed marketing systems or a bad farm-to-market-infrastructure. In Conalum and Kahupian, where illegal logging still occurs, inhabitants mentioned the need for an improved forest management system. Barangays Palanog and Kahupian reported the need to establish a potable water system. People often mentioned a lack of agricultural training, especially concerning adapted upland farming practices.

Environmental awareness and motivation

According to their land use practices, farmers can be divided into two groups

- those who have cultivated for a long time in one area (such as in Esperanza), versus
- those who recently migrated to a new settlement (such as is in the case of *sitio* Hagna in Kahupian).

In the latter case, cultivation areas are still being cleared, commonly by slash-and-burn practices. Families are not yet well established in their new environ-

ment, and thus can easily decide to leave when problems occur, such as the abaca virus infection.

In places like Esperanza, families have been cultivating their areas in the same manner for several generations. In order to be able to give land to their children and to cultivate areas of maximum soil fertility, farmers have also cleared new lots in the forests and extended their cultivation area. Traditionally, several lots were cultivated alternately within a certain period. Three to seven years of fallow were common.

Forest resources have for generations been thought to be limitless (and timber was formerly not of great value) so farmers have felt no need to change their traditional methods of cultivation.

During the last decades, logging companies have cleared large parts of the forests, which has led to serious problems of land degradation. New laws were set up to exclude certain areas from further exploitation by logging and cultivation. As a consequence, families face the problem of decreasing sizes of cultivatable area per household, as land has been divided and inherited many times, and expansion is no longer possible.

Parents or grandparents of the present cultivators were responsible for clearing the lots and planting coconut trees or abaca that are still in production. In most cases the present generation did not need to invest in their area or decide what to plant. They continue to follow their parents land use practices and continue to cultivate what has been planted before.

As mentioned before, cultivators rarely invest in new seedlings or replanting. Coconut and abaca plants already exist (often as a result of previous distribution). Rice seeds are exchanged within a barangay, seldom new ones are bought. Investment in seeds or seedlings is not part of the household budget when income is spent on daily needs.

The fact that some farmers take the initiative and plant indigenous forest trees on their own land, and that most farmers express interest in planting trees, suggests a potential for resource protection. Constraints seem to be related to limited finances or funding sources (i.e. loans). Current forms of resource utilisation must be seen as a result of the situation where most households spend all their income to cover their daily needs. There is little room for them to change their present system of livelihood.

6 Assessment of institutions and programmes in natural resource management

This chapter is subdivided into three sections. The first gives an assessment of policies, legislation and programmes. The second refers to national line agencies, LGUs, NGOs and POs and the last examines the coordination and cooperation between different institutions.

6.1 Strategies and approaches

6.1.1 Policies and their implementation

Main strategies of the policies concerning natural resource management are to emphasise the importance of sustainable resource management and resource protection, as well as to stimulate an increase in agricultural production by improving technology, as stipulated in the Agriculture and Fishery Modernization Act (AFMA). Sustainable resource management and increased production do not necessarily need to contradict each other. A look at the implementation of the policies within different programmes and projects on the barangay level, however, reveals that contradictions are clearly present.

Projects and measures in the agricultural sector focus on the development of Strategic Agriculture and Fisheries Development Zones (SAFDZ). Although components of environmental protection are part of this integrated development plan, project design and extension focuses mainly on developing and implementing high yield varieties, and on improvement of technical systems such as irrigation. These projects do not take into consideration thousands of farmers working in the uplands practising slash-and-burn methods without titled security for the tilled land. They are unable to afford the required inputs for high value crops. If the aforementioned extension content is provided to these people, it may have negative consequences, such as the failed attempt to plant high yielding corn fields on a burned, steep sloping hill in Palanog.

Contradicting policies in agriculture and fisheries are not alone in their responsibility for the observed problems in the field of natural resource management. Forestry policies, as outlined in chapter 3 and 4, show good approaches for forest protection and sustainable utilisation, but as findings and experiences at the research sites show, problems lie with deficient policy implementation. This ap-

plies to fisheries and coastal zone management as well. Policies and programmes sound good on paper but implementation is weak. Furthermore, there are aspects which further aggravate policy implementation.

6.1.2 Unclear responsibilities

The distribution of responsibilities concerning natural resource management between the different institutions seemed, in many cases, to be in dispute.

Unclear land classification

Confusing land classification is one reason for the unclear distribution of responsibilities between agencies. Problems arise, especially from the incongruity of maps belonging to different line agencies that do not allow proper planning. Examples can be found in the differences between maps belonging to DA that refer to SAFDZ, maps belonging to DENR, or those existing maps in the municipalities.

Unclear boundaries between timber land and A&D land cause problems for people as they do not know where to claim land or which agency is the proper authority. Many pay taxes to the LGU although their land is situated in forest land, as was reported in barangays Esperanza and Conalum. No clear criteria for the identification of bufferzone areas within the forest land have been identified.

Boundaries of municipal waters are often yet to be identified. This causes basic difficulties for the implementation and control of all laws and rules concerning municipal waters, such as licensing fees, and control mechanisms.

Unclear delegation of responsibilities in current legislation and within devolution

Although distribution of responsibilities should be clearly expressed in current legislation, laws in the LGC are sometimes not clear enough to provide legal security for the LGUs. The formulation of the LGU's responsibilities within the LGC on forest land is that they are under "supervision and control and review of DENR" (LGC, p. 10f) without specifying the issue further. The Fisheries Code of 1998 provides a more detailed legal basis for fisheries and coastal zone management than exists for forestry matters. Nevertheless, Fisheries Code regulations are sometimes not well defined, such as those regarding the distribution of authority for licensing between LGUs or FARMCs, and the authority of BFAR regarding the establishment of fish sanctuaries in municipal waters.

None of the municipal governments visited appeared to be carrying out their responsibilities with regard to forest land. The LGU's responsibilities seemed to be barely recognised by DENR whose officials often claimed that forest lands are under DENR's jurisdiction exclusively.

Devolution can be confusing, particularly when some responsibilities are devolved to the LGUs, but the head implementor is still at the national and regional level. If some functions are devolved and others are not, as is the case with DENR's responsibilities and the functions of the Environment and Natural Resource Officers in the LGUs, it becomes difficult to distinguish respective tasks, mandates, responsibilities, and authorities. One example is the responsibility for the ISF Programme, which should have been completely devolved but is in fact still partly under DENR's jurisdiction. Aside from the lack of political will to hand over power and control to the LGUs, it creates difficulties when the responsibility for one programme, such as ISF is devolved while others are not. CENRO Officers reported that citizens are coming to the CENRO office with questions concerning ISF stewardships, demonstrating public confusion with respect to programmes and the responsible institutions.

Unclear responsibilities between DENR and DAR

Shortcomings exist in the way DAR identifies land that is chosen for distribution. As demonstrated by an example from Tabjon in the Southern Leyte Settlement Project in Calag-Itan, DAR's policy often ignores the negative impacts their resettlement projects will have on forest areas and watersheds, as a result of increased resource utilisation. Additionally, the responsibilities of DENR and DAR in these areas are obviously unclear due to the confusing land classification scheme. This causes a general delay in decisions that could improve the situation of the beneficiaries, as well as enhance the protection of the natural resources.

Titling is another critical responsibility confusion point between DENR and DAR. Despite general agreement between both institutions concerning A&D land and Agrarian Reform Communities, people often simply do not know which agency to ask for titles, how to become an agrarian reform beneficiary, or how to get titles from DENR. A consequence for the people is that property rights remain unclear.

Inappropriate distribution of responsibilities

Even if responsibilities are clearly distributed, it remains questionable whether this distribution of responsibilities is rational. For instance, if land is classified as timber land DENR is the responsible line agency. However, if the area in question has been utilised for agriculture for decades and has no trees, it might be more reasonable to transfer more responsibility to DA and to classify the land as A&D land.

6.1.3 Deficient law enforcement

A look at recent legislation such as Local Government Code, Fisheries Code, AFMA, or newer programmes like CBFM reveals that some laws are not yet implemented even though law enforcement has been cited as an important part of several programmes and activities, such as FRMP, CBRMP and community organising.

Deficient control mechanisms and existing corruption

Activities such as slash-and-burn (*kaingin*), cutting of trees without a permit, and uncontrolled fishing, are illegal by law, but as examples from the barangays illustrate, they remain rampant. These problems exist in part due to insufficient control mechanisms, lack of commitment, and corruption in enforcement agencies. In cases of intentional violation of laws such as illegal logging, it is difficult to expect enforcement measures to be taken if those behind the illegal activities are people of influence and power. Large scale illegal logging is an activity of organised structures and influential people, since elaborate transport and marketing systems are needed. People in the villages usually expressed fears to report such cases, though it is well known who is behind it in places such as Conalum and Kahupian.

Lack of livelihood alternatives

Besides organised violation of laws, many illegal activities such as small farmers' slash-and-burn practices or dynamite fishing are still ongoing due to the lack of economic alternatives, scarce (agricultural) land, and basic poverty. For example, forest guards receive a salary much lower than the possible income from lumber. A policy of "maximum tolerance for some humanitarian reasons" as one leading officer called it (meaning that penalties are not imposed,) may not be the proper strategy to address these problems. Income alternatives must be offered.

Deficient knowledge, transparency and information services

Deficient knowledge of current legislation by both, citizens and authorities suggests that there is a lack of transparency and information services concerning programmes, projects, and the related legislation. Some interviewed in Calagitan were unaware of the future benefits of the fish sanctuary, and people in other places were not well informed about laws regulating forestry utilisation or land titling. Some landowners of smaller lots in Conalum and Palanog were scared to offer their land to tenants because they are afraid that DAR may later distribute the land to the tenants and that they would then lose their land. They preferred to leave parts of their land idle. In Esperanza, some upland farmers mentioned that they do not know which agency is responsible for their lands, nor which agency is running which programme. A cultivator adjacent to the CBFM area was not well informed about the existence of the area. Deficient knowledge by authorities and insufficient training are reasons why LGUs lack the capability to implement laws.

Mistrust towards authorities

Basic mistrust towards officials was also mentioned. The incidence of the barangay captain shooting a violator of the fish sanctuary on San Pedro provides an example of general neglect of the law by all parties. People often rely on rules established within the village and prefer to resolve disputes on their own, assuming that authorities would not support them.

6.1.4 Programmes and projects

The assessments focus on those programmes and projects, which were existing in the visited research sites, and include assessments by the beneficiaries. Assessments of other programmes and projects mentioned in the following include only certain aspects and come basically from individuals of different institutions involved in implementation.

Community Based Resource Management Program

The implementation process of the World Bank financed CBRMP in Region 8, and especially in Leyte, was said to be slow. Reasons mentioned included the incapability of the LGUs to finalise project proposals or to guarantee implementation in a timely manner. It should be noted that this programme channels money through a window facility of the Ministry of Finance to the LGUs more directly than is the case with most other programmes, where money is channelled

through DA/BFAR, DAR, or DENR. Hence, the CBRMP requires greater counterpart commitment and loan repayment to enhance the fiscal responsibility of the LGU. Corresponding fears regarding repayment obligations have been present in the LGUs where CBRMP is to be implemented, for instance, in Inopacan.

Fisheries Resource Management Project

According to some statements, illegal fishing in some project sites is still occurring, and problems with law enforcement and the elaboration of management plans and local fishery ordinances are common. Registration of fisherfolks, and licensing were mentioned as other problematic tasks that the responsible LGUs frequently do not accomplish.

Implementation of Agenda 21

In the context of the tripartite approach (government institutions, civil society, business sector) of the Agenda 21-related concepts and projects, it was mentioned in interviews that participation of the private business sector in the Council for Sustainable Development in Leyte Province for instance is weak. The use of private sector business to stimulate supplementary and alternative livelihood opportunities through incentives (e.g. tax incentives for employing rural, coastal area residents) for this sector has not yet evolved.

Agrarian Reform Programmes

A complaint regarding agrarian reform programmes is that support service for beneficiaries is inefficient due to a lack of funds. According to an interview at a DAR office, an undesirable result is that people obtain titles but then contract the land back to the previous owner. This strategy is less risky for people than initiating agricultural activities without sufficient knowledge or capital.

Contract Reforestation

Contract reforestation funded by ADB was conducted in Esperanza/Conalum and Kahupian. It was reported that areas were intentionally burned after planting in order to be contracted again for reforesting the area. In other cases contractors profited further by engaging subcontractors, as reported in Kahupian. In Conalum and Esperanza it was reported that the reforested area was planted by one contractor and had never been surveyed before. Interviewed people who were former tillers of this area mentioned that they had never been informed and that

gmelina trees were planted in the middle of their fields. As their fields were situated in forest land they had no possibility to claim that. Additionally, the area has not been well cared for since planting. A part of it disappeared in a landslide and now only small gmelina trees, not adapted to the elevation level are growing there.

Integrated Social Forestry Program

Not all beneficiaries of the Integrated Social Forestry Program (ISFP) have planted 20% of their area with trees as required by the programme. In fact, it is common to find ISF areas fully planted with abaca, coconut or other crops, some on very steep slopes as was observed in Kahupian and Conalum. In *sitios* of Kahupian, ISF sites were also used for vegetables and fruits for home consumption and houses were built on the sites. It was also mentioned that there had never been any revision of the areas. This was considered to be the impact of transferring the responsibility for ISF areas to the LGUs, which are either overburdened by these tasks or have simply refused to be in charge of the ISF Programme.

Community Based Forest Management Program

Regarding CBFM, numerous problems with the research sites have been described.

POs in CBFM:

The POs within CBFM are faced with problems of management and lack of technical capability. For example a watchtower was built in the CBFM area in Kahupian but no forest guard has been in charge of the management since funding from ADB ended. Influential people in the villages are often also influential within the PO. For example, in Kahupian the barangay captain was also the PO president. In Esperanza and Conalum a charismatic leader of the PO appears to be the main reason for sustained motivation of the people, despite the fact the CBFM area is in a bad condition. Fluctuation of PO membership is generally high. People tend to organise because the programme requires it, or because it is a source of funding, rather than due to their own initiative. It is clear that in order for work to continue in a PO, there must be a sufficient income, otherwise, how can individuals attend meetings and perform organisational work. Hence, it is not guaranteed that those people utilising forest products and using slash-and-burn methods are themselves members of the PO. It is therefore, questionable if

POs, in their current form, are an adequate answer to the requirements of natural resource management or to the needs of the people.

People's needs addressed with CBFM:

The primary concern of farmers is daily subsistence. They do not want to, or cannot, invest time to work for an organisation unless adequate compensation is provided for their service. People usually manage an area only if money is allocated from DENR for this purpose. Protection activities are usually very weak, *kaingin* activities still exist, and if members protect anything it is the CBFM area itself, but not adjacent forest areas. CBFM does not provide enough additional income to prevent upland farmers from utilising slash-and-burn methods. This is particularly true during the time prior to a Resource Utilization Permit (RUP) being approved.

Institutions involved in CBFM:

DENR staff face the problem of lack of financial support (for example, travel allowances,) for coordinating CBFM activities. As there is no adequate incentive system for personnel, there is a risk that they will seek additional income from areas that might not fit in their list of tasks. Examples of misuse of CBFM funds were found.

The LGUs were not participating in CBFM activities as it is envisaged in the LGC. Questions concerning the involvement of the municipality in CBFM were usually answered with the statement that CBFM takes place in forest areas, and is therefore, under DENR's jurisdiction.

Livelihood projects

Livelihood projects are confronted with the problem of a lack of marketing analysis. Hence, they are often not sustainable or only provide a limited additional income, instead of being a long-term alternative. It was reported that groups are frustrated by the limited income provided by some livelihood projects, and that the negotiated sharing schemes do not provide enough incentives for individuals. Statements were given by members of POs working on livelihood projects indicating that they would prefer to have as few members as possible within the PO to increase individual profits. Thus, it is questionable if the pure group approach to POs, including the required voluntary work, is always suitable.

Common essentials

- Examples from many projects implemented in barangays show that organisations are created and high expectations raised, but projects are not properly explained, implemented, or monitored. One question all the programmes are confronted with is how the funds are channelled, as there are many examples for misuse of funds. Crucial points in that context are the involvement, responsibility, and capability of LGUs, which are still quite weak. Another related important question is whether programmes reach their intended target group or if they “get lost” within dubious structures of power and corruption.
- Generally, it can be concluded that programmes and projects look better on paper than in reality. Thus, the main problems are proper realisation and implementation.

6.2 Institutions

6.2.1 National line agencies

Devolution or non devolution

The national line agencies all claim that they do not have enough funds at their disposal to provide the required assistance to LGUs or to guarantee a good course for their programmes and comply with their tasks. Problems with insufficient staffing were stated as the second main reason.

In DENR offices it was mentioned that visiting field sites requires money, but they have an average monthly travel budget of just PhP200 per person. The government each year decides upon funding and the budget is often lower than necessary for the targets that should be reached. Another example, was that in one of the provisional Community Environmental and Natural Resources Offices (CENROs), the person in charge of the CBFM areas had only a three month contract, which does not allow time for work planning nor provide incentives.

It has been often observed that in offices of line agencies, staff were sleeping or attending their cell phones instead of carrying out their official duties. Thus the problem lies not in the quantity of assigned staff, but in a lack of motivation and incentives for working. It is not an uncommon attitude in bureaucratic public institutions to put little effort into work, as neither personal salaries nor the budgets

of the institutions themselves depend on the efficiency of their work. Decentralisation is typically blamed by national line agencies for the lack of staff and funding. Employees fear this process as it threatens the privileges, power, and working conditions they have become accustomed to.

The primary difficulty is that even ten years after the implementation of the LGC, the national line agencies did not devolve staff and adequate funds to the (new) responsibilities of LGUs. It is crucial for the success of the Philippine devolution process that these requirements of decentralisation be accomplished.

Extension Service

Responsibility for extension and funding:

Extension is, according to the LGC, 100% devolved to LGUs. DA is mandated to assist LGUs in providing extension services. According to an assessment from DA personnel, DA is not able to “bridge the gap” between the line agency and LGU, nor to assist and train the LGU in extension services due to lack of sufficient funds and personnel.

The LGC stipulates that extension activities should be supported by the transfer of funds from DA to LGUs. During the field study no such transfers were observed. The LGUs obviously lack the staff and sufficient money for the extension services they are mandated to provide. Municipal Agricultural Officers (MAOs) expressed in various interviews that their offices are overburdened by the tasks assigned to them. On the other hand, extensionists in Hinunangan reported that they received training from DA, which was conducted partly in cooperation with ViSCA. One motivated extensionist mentioned that she had attended training provided by NGOs.

Fisheries related extension:

An additional problem is that most of the technical staff in MAOs offices are agriculturists who often have to attend fishery related concerns as well. DA has within its structure of subagencies a bias toward agriculture. The inadequate staff and money provided to BFAR suggests that fishery matters are a low priority within DA. For many years now, fisherfolks, NGOs, POs, and other institutions, have suggested that a separate department for fisheries and aquaculture should be initiated by the government.

Access to extension services:

In Calag-Itan, farmers mentioned that the MAO regularly visited their barangay. On days when he is present they can go to the barangay office to talk to him. Announcements of the MAO visits are required, as farmers are often not well informed of when he will be in their village. Furthermore, farmers expressed their wish for practical training courses instead of theoretical seminars. In one example, DA personnel asked farmers to take soil samples without giving detailed instructions and demonstrations on how to identify the correct layer of soil. Thorough practical demonstrations for training are said to be needed. It was noted, that companies that supply agrochemicals conducted most seminars.

Upland farmers with small lots often do not know where to go for extension services. Exceptions in the uplands are basic services provided by the DA sub-agencies for abaca and coconut. Farmers in the *sitio* Hagna of Kahupian mentioned that personnel from FIDA recently visited their abaca plantations after a viral disease had spread in the area. A need of training was reported in Palanog regarding hillside farming and the adoption of farming methods that will prevent erosion.

It seems that extension services, if at all, are rather provided for lowland agricultural activities more than for the uplands. This reflects the main strategy pursued with AFMA, which focuses on implementation of technology oriented agricultural methods and high yield varieties. Concepts such as agroforestry are usually not promoted by line agencies. The MAOs and assigned extensionists seem to try to fulfil their tasks but they rely on the strategies and means provided by DA. They do not carry out their own initiatives due to lack of funds and sufficient qualified personnel.

6.2.2 LGU Level

In the LGUs at municipal and provincial level, financial problems, the lack of capability, deficiencies in management and coordination, and a lack of personnel were observed. Statements were made that the LGUs are overburdened by new responsibilities after devolution. On the other hand, staff motivation and desire for more responsibilities, rights, and autonomy exists.

Province

Coordination between different institutions and programmes is not well organised at higher planning levels. The role of the province in coordination of political measures, programmes, and projects seems to be weak. At that level, where coordination of the implementing municipalities should be established, the LGUs are obviously overwhelmed by a large number of different measures and programmes, as well as by their own financial and personnel constraints. In the Provincial Environment and Natural Resources Office (PENRO) of Southern Leyte as few as seven personnel cover different subsections like forestry, geosciences, and small scale mining.

Municipality

Lack of funds, staff, and capabilities were often mentioned in the municipalities as well. Examples of the difficulties in accomplishing their assigned tasks in natural resource management were given. In most municipalities, the attempt to prepare a comprehensive land use plan without proper maps and updated data has proven to be quite a technical challenge, if not an impossible one, for the planning staff. Another example is the function of the MAO, who is not only responsible for the technical aspects of agriculture and fisheries, but is also confronted with numerous other problems of resource utilisation. Associates from BFAR emphasised that there should also be a municipal fishery officer (a requirement for FRMP), but often one does not exist. It is obvious that no one in the LGUs is really in charge of the tasks concerning natural resource management as long as the Environment and Natural Resources Office does not exist. In that context it seems to be a weakness of the legislation that the implementation of such an office is optional for the LGUs and that DENR has not been directed to devolve staff and funds for this purpose.

Dependence on political administrations

Another observed characteristic is the high dependence of measures, programmes, and projects on the political administration. If the mayor is behind a programme, it will be implemented. If he or she is against it, it probably will stop even if it might have been successful. Political entanglements and a mixing of political representatives connected to traditionally influential families, who primarily serve their own interests, provoke serious problems for the successful implementation of any long-term policy.

Lack of control on funds

The elaboration of strategic development plans and the motivation to develop plans for long-term measures in natural resource management require a certain security of funds at the disposal of the LGUs. If the communities do not have sufficient funds to fulfil even the minimum responsibilities given to them, they have to apply for funding from national programmes. It is not possible for LGUs to directly approach donor agencies for development assistance. In the Philippines it is only national line agencies that may seek foreign assistance through the National Economic Development Authority (NEDA).

A consequence is often that instead of being forced to work carefully and efficiently with a given amount of funds, the rule becomes to apply for as much as one can get. The funding is then primarily invested in areas where you are most likely to get further funding, rather than where it might make most sense in terms of sustainable development of the area. So projects are usually not integrated into community programmes. If the money ends, the project ends.

With changing provincial or municipal administrations, changes in plans and projects become aggravated through the lack of funds. Promotion of and investment in basketball courts, roads, stages, and other popular vote winning schemes makes more sense to politicians than to invest limited funds in long-term measures for natural resource management.

It is therefore, critical that LGUs are in control of funds in accordance with the mandates given to them, instead of being dependent on the funds of national programmes (which the LGUs cannot control) or on personal contributions of politicians.

6.3 Coordination and cooperation between institutions

Appropriate coordination mechanisms between institutions are crucial for planning and implementing policies in a meaningful manner. Decentralised management requires multi-sectoral management for the local government units at the implementation level. Current legislation includes coordination mechanisms for all levels, such as municipal councils, FARMCs, and within programmes like CBFM and technical working groups of projects, to mention just a few. Although the legislation promotes coordination and cooperation, this can only be achieved by institutions and the people themselves.

Cooperation between national line agencies

Different national line agencies at the regional level admitted that their cooperation was not extensive, except within technical working groups of special projects such as CBRMP. At the provincial and municipal levels there were obvious lacks of coordination between the line agencies (DENR and DAR) not assigned to the LGUs at any level. Since they have their own offices down to the municipal level, there seems to be no authoritative body in charge of the coordination between them. The example described earlier of conflicts in land titling in Tabjon/Calagltan shows that this has direct negative consequences for programme beneficiaries.

Cooperation between national line agencies and LGUs

Many problems regarding lack of coordination and cooperation between national line agencies and LGUs were noted at the implementation stage of programmes in the municipalities and barangays. General statements frequently heard on the part of the national line agencies express that it is not possible to trust in the capabilities of the LGUs and thus, funds and control on programme implementation should remain under their jurisdiction. Furthermore, since decentralisation of each programme implementation depends on the political will of the LGUs, the line agencies are left with little influence in the process. They are often confronted with the problem that with changing administrations in municipalities and barangays, or during election campaigns, nothing happens with these programmes. It was also noted by personnel in the line agencies that they are not able to cooperate with the LGUs regarding funding flow, provision of technical assistance, and training. A gap of communication, trust, and cooperation was identified.

On the other hand, LGUs complain that only limited functions are assigned to them, that often only the implementation is devolved, and that some line agencies refuse to give up their programmes so that even devolved functions are still with them.

One statement proposed that successful cooperation should be focused on NGOs or other institutions involvement, in order to bridge the gap by offering adequate services and coordination mechanisms. In that context it was mentioned that the role of the State Universities should be maximised.

Cooperation between national line agencies and NGOs

Relations between the line agencies and NGOs also appear strained. On the one hand they have been working together in many programmes and there are positive comments on the community organising work of NGOs. On the other hand mistrust has been expressed from both sides. Consequently, there appears to be coordination, but not necessarily good cooperation.

NGOs complained that in some cases, without extra fees, no cooperation with the line agencies is successful and that it is difficult to get the money they are entitled to. It should be noted that the assessments given by the NGOs differ according to different line agencies. Several NGOs have stopped their contracts with DENR, but are still working with BFAR. NGOs mentioned problems of insufficient payment and disputes over payment from DENR. The cancellation of a DENR contract by LABRADOR, a NGO for Kahupian, resulted in accusations from both sides. While the NGO claims outstanding payments, DENR asserts that the NGO has not accomplished the tasks for which it was contracted.

A statement given in a DENR office expressed that in some projects they do not contract NGOs because they are considered to be too expensive for work that can be done by individual professionals living in the project area.

It should also be taken into account that the differing assessment could depend on the current programmes financing. While BFAR can offer satisfying payments due to the ADB financed FRMP Programme, DENR at the moment has no donor funded projects.

Cooperation between NGOs and LGUs

Between NGOs and LGUs, cooperation seems to depend on the particular political administration. Generally, closer cooperation is planned in coordination boards drafted in the LGC, and within special projects. If NGOs work in a certain area only during their contract, it is a problem for the LGU to rely on their services. However, local NGOs often do not have the capacity to address the scope of the projects which are to be implemented by the LGUs.

6.4 Summarising conclusions

The following points stress again the main findings of the assessment of different policies, programmes, institutions, and their mutual interaction.

In general policies and programmes sound good on the paper but the implementation is a different story:

- Unclear land classification and confusing, inappropriate distribution of responsibilities makes detailed planning and implementation difficult.
- Corruption, deficient control mechanisms, and lack of livelihood alternatives lead to ongoing illegal resource use.
- Deficient knowledge of legislation by citizens and authorities, lack of transparency and information services, and mistrust towards authorities aggravate law enforcement.
- Examples from programmes show that it is crucial where the money is channelled, as there has been rampant misuse of funds.
- LGUs on the implementation level lack control of programme funds.
- Projects are not integrated into community plans.
- POs are primarily developed to get money from current programmes.
- Programmes in natural resource management do not properly address peoples' needs.

Decentralisation has not yet been fully and successfully accomplished:

- The national line agencies have not devolved enough qualified staff and adequate funds along with the added responsibilities given to the LGUs.
- Extension services are extremely weak due to incomplete decentralisation and DA's policy of focusing on technology input in agriculture and fisheries.
- LGUs are confronted with financial problems, lack of capability, deficiencies in management and coordination, lack of personnel, and seem highly influenced by the respective politicians.
- Cooperation between different institutions is hindered by mistrust and a gap in coordination skills.

The fundamental direction to search for adequate strategies in natural resource management was present in all institutions and organisations. The programme approaches in themselves point in the right direction. It is a question of finding

out what can be changed or improved upon in order to reach sustainable development for natural resources, and to enhance the economic situation of the people.

7 Implications for the Leyte Island Program

The findings of the study, as outlined in the previous chapters, suggest a number of activities to support the local population and local agencies in their efforts for sustainable natural resource management. Summarising the objectives of the projects under LIP and comparing them with perceived needs and requirements show a high degree of congruency. There are several things to be learnt from previous and ongoing programmes and projects when planning for specific support interventions by the Leyte Island Programme. The multi-disciplinary and multi-level approach required to tackle the prevailing problems should help to consolidate interventions from the barangay up to the regional level.

7.1 Meeting peoples needs

Improving livelihood, for example, by meeting urgent cash requirements, is high on the people's agenda. However, during the interviews, the rural population did not express that improvements to their natural environment are their most urgent need. Nevertheless, both topics, meeting the cash requirements and supporting a stable environment can be addressed through sound utilisation of forestal, agricultural and fishery resources, as outlined in the projects objectives and activities.

7.1.1 Economical and social needs

Poverty is a dominant problem within the rural areas of Leyte. The realisation of having almost half of the population living below the poverty line clearly indicates the requirement to elevate the standard of living. People expressed their urgent need for improved livelihood and increased cash income to cover daily expenses as well as unforeseen expenditures. This prime requirement is particularly prevalent amongst the target groups of the projects, upland farmers, and fishermen.

Accessing the rural population and motivating them for involvement in any efforts for sustainable natural resource management, have to be made through interventions that will improve the livelihood of those people. One cannot expect them to venture into improved resource utilisation without an assurance that this would lead to economic enhancement. In this respect, it will be very difficult to convince people to embark on long-term investments such as tree planting, unless it is

combined with short-term economic activities. If the reforestation project is to offer a financially viable system to upland farmers, it will most likely have to be linked to a credit or guarantee system. Farmers in their current financial situation will not be able to bear the investment costs and endure the years until harvest is possible. The problem of weak access to credit facilities is not only a limiting factor for tree planting efforts, but is prevalent for all other types of short-term and long-term investments.

Financial constraints dominate the daily life of many people on Leyte Island. Little cash income from limited agricultural production, and limited fish catches restrict flexibility on the people's lives. Falling prices for commodities and dependency on a few middlemen further aggravate this problem. The projects will have to offer possibilities for income generation inside and outside of farming and fishing. There are certainly possibilities for improvement of the livelihood of people. However, the remaining question is how many people will be able to find additional income from different activities. In projects as they are sponsored by the Department of Labour and Employment (DOLE) or through Community-Based Resource Management Programmes (CBRMP), it remains doubtful that markets could absorb larger amounts of either handicraft or pork meat before prices decline. Consequently, this would make those activities unattractive. Embarking on a broader dissemination of those activities requires a further and deeper look into their economics.

7.1.2 Institutional considerations

Support in safeguarding the environment constitutes a prerequisite for any improvements in rural Leyte. With a majority of the population deriving its income from agricultural and fishing activities, conservation and optimal utilisation of natural resources has to be the focus of any intervention. Sound environmental management is amongst the objectives of all institutions involved in the Leyte Island Programme. However, achievements in this direction are often limited and hampered by weak capacities, either financial, technical or managerial. Any supportive measures directed to organisations will have to look at the specific shortcomings within the respective institution.

A general demand from the population is to enhance access to public support and, in particular, extension services. With functioning extension services virtually unavailable to farmers, it becomes very difficult to initiate changes in resource utilisation practices. Implementation of government schemes often suffers

from uncoordinated efforts by different institutions. For some of the technical innovations, it must be said that they are either not adapted to the actual needs of upland farmers and fishermen or, as stated earlier, the required extension services hardly reach the farmers. However, the projects should be reluctant to embark on the task of substituting non-existent government structures. While support in identifying adapted and viable farming practices will be highly appreciated, replacing the needed extension service is certainly not within the scope of any of the three projects. Nevertheless, the gap could at least be partly filled by involving Leyte State University (LSU) and the staff and students of the masters degree programme in agricultural extension. This could in the beginning provide a temporary solution for the pilot sites.

Uncontrolled use of forest lands is also a consequence of lack of access to land. Disputes about titling issues, not only in settlement areas, urgently need solutions. While there is still an ongoing conflict about the land and the trees on it, people will search for options other than farming. Poaching is often the closest alternative. In some cases the projects might be asked to provide legal support to solve matters of ownership. Ambiguous legislation and unclear coordination might seek clarification by the court in order to provide long-term security for planning in other similar cases.

Supporting responsible and responsive local governance and strengthening decentralised planning and management of natural resources will be an important response to the requirements at the LGU level, particularly at the municipal level. Local Government Units (LGUs) at the municipal level are the key players in all efforts to reach the rural population. Burdened by the devolution of offices and related tasks, and hit by weak economic activities within their boundaries and subsequently low tax revenues, LGUs will only be able to sustain basic services for their population through sound management of their assets. Enlarging their assets through communal forestry and improving management through capacity building and enhanced equipment will be a major concern for the projects right from the start of implementation.

In general, fostering a good relationship between barangay people and the public agencies, in order to ensure participation of communities in any decisions regarding natural resource management, are key tasks of the projects. People are demanding credibility, honesty, and transparency from the officials with whom they are dealing. In some instances, where officials may be involved in illegal activities, the projects should seek to have those officials replaced. It must avoid

becoming associated with persons who do not have the support and confidence from the target groups.

7.2 Lessons learnt from different approaches

The limited capacities of government agencies have led to a preference of group approaches in their programmes. The Department of Agrarian Reform (DAR) deals with beneficiary groups while the Department of Environment and Natural Resources (DENR) deals with People's Organisations (PO) for their programmes. However, not all programmes or projects mould themselves for a group approach. When individual interests differ from the group interest, those initiatives will rarely be successful. While income generating activities (such as common livelihood projects like hog fattening or handicrafts) should be operated on an individual basis, the situation in natural resource management projects is different.

Under the devolved Integrated Social Forestry Program (ISF), individual user rights for plots of land were given to farmers. However, even with regulations in place to ensure covering at least part of the land with trees, these areas are as denuded as many other cultivated areas of timber land, with or without a Certificate of Stewardship Contract (CSC). In the current CBFM agreements, provision is made to enable the award of CSCs within CBFM areas, but little use is made of this instrument. Hence, its suitability to get commitment from, and time control over, forest dwellers who are operating as kaingeros is not tested. If CSC arrangements are to be revived for the current CBFM sites, there must be a strong commitment to comply with the rules and regulations. Non compliance should lead to the removal of CSCs and reallocation of the land. Demonstrating the commitment to enforce the laws, combined with a public awareness campaign, should raise the motivation of participants.

The involvement of NGOs for community organising and capacity building within POs has turned out to be a successful approach. Although the relationship between some NGOs and GOs may often be plagued with problems, the achievements in preparing groups for project activities are widely acknowledged. The three projects will also need to make use of the services NGOs can provide. With limited support in terms of staff time to be expected from government agencies, NGOs will be needed to organise and conduct training programmes and other activities in selected pilot areas.

Trees can not only provide protection to soils but may also be an important source of income. Fruit trees are much appreciated and dissemination programmes (e.g. for mango trees, "plant-now-pay-later") are run by the Department of Agriculture (DA). While fruit trees provide income after just a few years gestation period, the situation for timber is different. The question here is to find a suitable production system and to provide financial support to maintain the trees until they are ready for harvesting. The Rainforestation Project provides valuable hints on the types of tree that best suit certain conditions. Caution must be exercised as manageability and financial viability is a critical point on all tree farming activities. What appears to be a rather secure source of income are nurseries for indigenous dipterocarp species. The large demand from reforestation projects all over the country provides, at the moment, a secure market for seedlings of those trees.

Farmers in Kahupian embarked on aquaculture activities entirely without outside advise or support. This shows that successful income generating activities, such as raising of ornamental fish as well as fish for consumption, spread even without sophisticated extension services. Freshwater aquaculture can provide a good source of living wherever water supply is present. One farmer in Sogod stated that he could make up to PhP200,000 per year from one hectare of fishponds. The activities are scaleable and, depending on the size of the business, they may not require any major input. They can easily be adapted to almost any of the different conditions in the villages, whether they are upland or coastal. Fingerlings for tilapia production are available from the Department of Agriculture (DA) and are distributed through the Municipal Agricultural Office (MAO) to interested farmers.

Projects supported by the German Development Service (DED) provide examples of the difficulties in conducting planning exercises. Planning documents like maps, socio-economic information, or financial data are not readily available. The concept of spatial planning has yet to be incorporated into the development efforts of most institutions at all levels. Nevertheless, the projects rely on detailed information about land uses, delineation of areas, classification, and responsibilities. Thus, the creation of an information base on those issues should remain a common task of the projects.

7.3 Proposals for project or programme level action

There are a number of immediate and long-term activities that can be considered to support natural resource management efforts. Providing help for barangay level initiatives as well as support to involved organisations will be necessary activities. The different levels of planning, from policy decision-makers to implementing institutions, need to be addressed in order to reach a sustainable improvement.

7.3.1 Bufferzone management and reforestation

As the pilot sites for upland and reforestation activities were chosen in places where efforts in natural resource management are already taking place, the project will not have to start from scratch. The emphasis will be on supporting and improving ongoing activities. Such support will have to be on the organisation of the People's Organisations that handle the sites, on technical questions of optimal forest area management, as well as on institutional capacity building for government authorities in charge of those areas.

The current practice of excluding forest land from access by government organisations other than DENR has to be changed as soon as possible. With some exceptions already in place, land use practises clearly demand a broader approach that will have to include the involvement of DA or some of its affiliate organisations. The project will be confronted with land use practices, i.e. *kaingin*, which have to be replaced by more sustainable resource utilisation. With current practices and project implementation problems persisting, the concept of CBFM is certainly not reaching much of its objectives and doubts must be raised whether it is worth pursuing.

Improving and adapting agricultural practices within managed forest areas has proven possible. The project can make use of the ample experience available in institutions like the International Centre for Research in Agroforestry (ICRAF), which is working in the same geographical area⁶⁶. Encouraging farmers who have successfully adopted agroforestry practises should be sustained. They can be used for demonstrations and training.

⁶⁶ ICRAF also maintains its regional office on the same compound at LSU as the Leyte Bufferzone Forest Management and Reforestation By Smallholder Communities Project (BUFOM), one of the LIP projects.

Many farmers in upland areas grow abaca on forest lands. Up to now, the crop has provided a rather secure income for their families⁶⁷ and has appeared to have done no damage to the environment, even when planted for many years on the same plots. However, the abaca yields achieved by most of the farmers are below its potential productivity and this source of income is further jeopardised by the infestation of the area with a devastating virus. The loss of abaca farming as a source of income forces farmers to grow crops that are less adapted or that provide less money or else it urges them to clear more forest areas to expand their fields, causing substantial environmental damage. Support to farmers in all aspects of abaca production, including virus eradication, quality improvement, and marketing, should be made available to interested farmers.

Since the project does not have its own staff to provide all the extension and support services when embarking on the aforementioned activities, it can be reiterated that it will be very important to pull in other agencies aside from DENR. Since the major burden for supplying all those support services lies at the municipal level, it will be crucial for any successful resource management efforts to strengthen the LGUs to enable them to perform their functions.

Mitigating measures for mistakes that have been made in the establishment of some CBFM sites have to be identified. The planting of poorly adopted exotic trees like gmelina should be stopped immediately. In any case, foreseen failure of those (past) plantations is determined, the project should take quick action in offering alternatives to the POs that are handling those areas. Prime responsibility for financing such measures should, however, be taken by DENR.

Apart from improving the management practices on existing CBFM or similar project sites, the project will have to develop an adapted concept of bufferzone management. The current delineation on the sites visited is in no way geared towards the establishment of a bufferzone between agriculturally used land and forest areas to be protected. Any boundary appeared to be rather arbitrary, neglecting current land use practices and activities in adjacent areas. The project should try to influence future establishment of CBFM areas, taking into consideration their function in an overall management plan for the remaining forest ar-

⁶⁷ Prices have been declining in recent years. However, farmers still consider abaca a viable crop.

areas on Leyte Island, or at least their importance in an approach to develop a consistent municipal land use plan, i.e. CLUP.

The concept of communal forest as outlined in the LGC should get a closer look with respect to its acceptance, its manageability, its financial viability and, in particular, its possibilities as a resource management tool. With some municipalities already investing in forest areas, e.g. under CBRMP, the long-term viability should be researched. Properly managed resources could in the future provide an additional income for some of the concerned municipalities.

However, private, group or communal tree planting schemes will only be successful if appropriate species are planted. Economic research in (indigenous) tree farming systems is still weak in the area. Results from preliminary evaluation of the rainforestation concept suggest that it might not provide the financial incentives needed for wider dissemination⁶⁸. There is, nevertheless, a lot to learn from the research conducted in connection with the rainforestation approach and the associated ViSCA-GTZ Applied Tropical Ecology Program⁶⁹. Most reforestation efforts will require a financial instrument that allows farmers to bridge the long gap between planting and harvesting. The project will have to establish links to credit facilities and help farmers to obtain appropriate financial assistance for their farms. Alternative or additional financial support may come from an economically viable mixture of trees and crops (and animals) on a farmer's land. Agroforestry or agro-silvopastoral systems suitable for the area should be identified or adapted.

The growing population in rural areas and the relocation of squatters to some of those areas, e.g. Palanog / Tacloban, puts much pressure on the land and will require alternatives to the exploitation of natural resources. Identification of other viable economic activities ('livelihood projects') is a difficult task, but necessary in a situation where the access to land is limited by the availability of alienable and

⁶⁸ Calculations in DIRKSMEYER, 2000, indicate a high probability of severe liquidity problems of farmers when adopting the rainforestation system. DIRKSMEYER, WAIBEL and WESSELER, 1997 nevertheless assumed that despite the shortcomings of the model, it would be safe to conclude the (long term) economic viability of the system.

⁶⁹ Cooperation between the German Agency for Technical Cooperation (GTZ) and the Visayas State College of Agriculture (ViSCA) (which is now Leyte State University (LSU) under the Applied Tropical Ecology Program has officially stopped in 1989. However, ViSCA / LSU has an impressive record of research collaboration with many national and international institutions. The experience and expertise will certainly be helpful to LIP in many respects.

disposable land and where scarce and valuable forest resources are to be protected. Enforcing the laws to expel people from forest areas is neither possible nor socially acceptable. Law enforcement may become a scope of the project, but in respect to compliance with CSC provisions, abolishing illegal logging, going after corrupt officials, or supporting the local population in cases of conflicts about land access, titling, and associated contradictions of responsibilities.

7.3.2 Coastal zone management

The management of marine resources seems to have received less attention than the management of terrestrial resources. The initiation of conservation practices does not always go hand in hand with raising awareness. Marine sanctuaries are established and fishery ordinances are passed without proper consultation and training of the local population. Measures are taken “instantly”⁷⁰ and in many cases the required broad based support from the resource users is weak. Sustainable management will require understanding and assistance from all users.

One of the first activities that should be started by the project is awareness building for the necessity and usefulness of marine resource management. There are established sanctuaries in a number of barangays in the Silago Bay area. However, acceptance is low, partly due to the fact that a basic understanding of the function and long-term benefits of sanctuaries is not present. Fishermen and women and the coastal population will need this understanding before long-term planning for marine resources can begin.

Even with sanctuaries established and respective rules agreed upon and passed, the problem of enforcing the laws remain. Local authorities are not equipped to trace and prosecute violators of marine laws. Most local fish wardens, if any have been appointed at all, lack the basic resources for their tasks. The project should try to find means for financing a small patrol boat which could be shared amongst different barangays or even municipalities. This could help identify intruders and detain people engaged in illegal activities. Financing of operating costs should be done either through the municipal budget or through a small fee charged to fish-

⁷⁰ This term was used by local officials in Hinunangan to describe the way sanctuaries have been implemented in their area.

ermen in the area. Such moves would also show the determination of all stakeholders to take protection of the marine environment seriously.

Planning for the conservation and management of marine resources is still very weak, particularly at the provincial and municipal level. There are a number of ways in which the project could support comprehensive integration of the coastal environment into the overall development planning process. The key level will again be the municipality. Drafting of local fishery ordinances, as done by the Sangguniang Bayan (SB), lacks the necessary background knowledge to have such local laws adapted to specific needs and requirements of the local marine habitat. Ordinances are discussed and passed as blueprints, copied from various sources. The project can help focus the rules and regulations to the pertinent problems in the area, through assistance in the development of coastal community management plans by way of a participatory process involving all stakeholders.

The Comprehensive Land Use Planning documents (CLUP) will have to incorporate any plans for the development of marine resources. The project could help incorporate adapted and acceptable proposals for development, conservation, and management projects for coastal resources into municipal, provincial, and regional development plans. This will require considerable technical input from the project, since current capacities for planning are very weak. The expertise in planning the development of marine resources is basically non-existent at the municipal level and very weak at the provincial level.

There are already a number of freshwater aquaculture activities (tilapia production) in the project area. The project should take initiative to further spread these activities to suitable places. With limited marine fish available and high prices achievable, such income-generating activities can provide a viable improvement of rural livelihoods. Further research into the assessment of the potential for marine culture, e.g. fattening or grow-out and ornamental seawater fish production, has to be initiated.

Additionally, other income-generating activities that would make use of coastal resources should be identified in order to decrease the pressure for unsustainable and exploitative actions. The Silago Bay area surely has the potential for tourism development. A number of local businessmen already run small resort-type beach huts that apparently are highly frequented by Filipino tourists on weekends and during holiday periods. With the highway to Tacloban under con-

struction, the area will soon be accessible within a two hour drive from the regional capital. Early planning for the development of sound (eco-) tourism will certainly pay off in the long run. The project might help in the planning and selection of specific tourism sites and capitalise on the interest and experience already displayed in other coastal municipalities on Leyte Island.

7.3.3 Urban development and environmental management

The experience gained by the Tacloban Urban Development and Environmental Management Project (TUDEM) should be made available to other cities and municipalities on Leyte Island. Adopting the necessary holistic approach will require the other projects to draw on expertise that TUDEM is able to provide. Problems, which at first sight may appear to be typical urban, like waste management, water contamination, and planning deficiencies, are reflected also in the situation outside the regional capital. While BUFOM and the Integrated Community-Based Coastal Zone Management - Silago Bay project (ICOM) deal primarily with rural, respectively coastal communities, aforementioned problems are present throughout the island. Solid waste disposal and sanitary water supplies are concerns for all municipalities and all barangays.

Improvements of environmental management techniques and planning at municipal and barangay, and provincial levels are urgently required. TUDEM should aim at complementing efforts of the other projects with its expertise. Additionally, proposals for sound management of upland areas and coastal zones can be disseminated and adapted to the peripheral barangays of Tacloban. The situation in an upland barangay such as Palanog can benefit from adapted farming and forestry practises, whether it belongs to a city or not. Similarly, environmental planning as promoted by the two other projects must not exclude water, waste, and related health problems. A mutually supplementing approach in all three projects will certainly best serve all participants.

7.3.4 Activities at programme level

All of the aforementioned proposals for activities under the different sub projects of LIP will not only need support for implementation, but will require the backing from provincial and regional decision-making bodies. The overall programme management will have to ensure necessary support on those levels when matters arise that are beyond the decision-making power of the members in the respective Technical Working Groups (TWG). Bringing up those issues (e.g. legal

problems) to the respective provincial, regional, or even national authority will be an important task for the programme management. Ensuring top down institutional support, as well as passing information on relevant policy topics to the project level in the field, will require a very well functioning communication structure.

While coordination and cooperation of decision-making bodies are necessary, equal importance has to be given to ensure that upland and coastal activities are coordinated on the ground. All municipalities and most of the barangays that were visited during the study had access to the sea. There was no place where a distinctly terrestrial or marine resource management problem was dominant. Coastal zone management and upland farming and reforestation problems exist side by side in the locations and should be tackled simultaneously. Although the projects have been chosen on geographical pilot areas, mutual support should be guaranteed through respective allocation of resources. Forest Management and watershed management activities will also have an impact on coastal areas. A holistic approach to area management must be developed and maintained by the programme at all levels.

The programme management level should also take action to ensure the availability of basic information, data, and maps. This endeavour should be undertaken in close cooperation with other initiatives in need of such material. All participants involved in municipal, provincial, and regional planning face this problem. Support should be granted to attempts in overcoming this gap. There are initiatives with members from the National Mapping and Resource Information Authority (NAMRIA), ViSCA, University of the Philippines (UP) – Tacloban, and others who are dealing with the problem. Assistance to these bodies will be an important step in supporting the preparation of any useful resource development and management plan. Furthermore, the establishment of linkages with ongoing initiatives (Fishery Resources Management Programme (FRMP), CBRMP) will make more experiences available to the programme and would provide the possibility of taking mutually beneficial advantage of other specialists in the area.

Initiating and coordinating additional research efforts into topics of common concern will also be within the domain of the LIP management. A number of topics have been identified during this study where further research could benefit programme and project activities. Amongst them are the identification of income generating activities, the financial viability of tree farming under the conditions in

Leyte, adapted land use systems for CBFM area, a suitable concept for buffer-zone establishment and management, and viable mariculture activities.

7.4 Organisational aspects for programme formation

Overall organisation of the Leyte Island Program will, in the mid term, have to be adjusted in order to best serve the goal of supporting the adoption of sustainable resource management in the broader sense. It will be crucial to strengthen contacts at the regional and provincial level. In the long run it will be more important to influence and seek support at the provincial, regional, or even national level. When successful pilot sites have been established and proof has been provided that sustainable natural resource management is possible, then the spreading of the managerial and technical knowledge necessary will rise in priority on the programme agenda. Replication of promising approaches beyond a limited number of pilot sites should be the responsibility of the respective government or LGU structures rather than that of the different projects. The programme should refrain from being dragged into a longer-term grassroots involvement, particularly as far as financial aspects are concerned.

Support is, however, required to get government commitment for fine tuning the legal framework, and for dissemination efforts that will need a strengthened extension service. With sufficient legal provisions in place to safeguard the environment, problems of implementation and enforcement appear to be managerial and, to some extent, financial. Bringing these matters to the attention of the appropriate authorities at the appropriate level will be an important step to improve the situation. However, initiating action from the top will require commitment and good relations between all participants on those levels.

There is a common interest in this influence at the policy level by all three projects under LIP. This influence will finally be decisive in getting legislation adjusted, financial resources allocated, and political support committed. In this respect it will be important for the LIP management to strengthen its ties with those at the policy decision-making level.

At the moment, the counterpart for LIP comes from DENR. However, DENR represents only one participant in natural resource management. Even as a major player in the field, the study showed that for successfully approaching the wide range of problems, broader participation at the institutional level is required. Having the Programme Management Committee as the body to discuss cross-

cutting issues in programme implementation, basic exchange about programme-related progress and problems is ensured. However, tackling the challenge of inter agency cooperation and coordination may, in the long-term, need more intensive efforts at the policy level than in the field.

The above mentioned situation constitutes a problem not only for the efforts under LIP but also for other natural resource management programmes in Leyte and in all the Philippines. There are a limited number of foreign assisted projects on Leyte. Bringing all their experiences together, combining it with the knowledge gained from previous GTZ supported and other projects, should create a wealth of information for successful handling of related issues on all levels. In this respect it should be recalled that evaluations of previous projects showed problems with sustainability when concentrating on implementation in the field and neglecting to induce changes in the framework conditions.

The PMC, as it is constituted at the moment, may not be the best forum to discuss required policy adjustments. The technical side of preparing proposals on how to adjust and fine tune laws and regulations should take place in a small working group where respective proposals will be discussed and formulated for the attention and action by the PMC (Ad Hoc Task Groups for PMC). The difference to the currently operational Technical Working Groups (TWG) of the three projects would be its focus, and also, required policy support for replication of successful approaches. Such a small working group, initiated and managed through LIP should seek to incorporate the experiences of other projects and programmes, including those associated with institutions other than DENR.

The main task for the programme management should shift during the process of implementation of LIP, from coordinating sub projects to coordinating the required commitments and changes on provincial, regional, and national decision-making levels. Therefore, it might be worthwhile to explore options for extending the linkages to decision-making bodies, perhaps through their involvement as counterpart institutions for the programme.

Bibliography

- ACOSTA, R.T. (1991): Leyte Island: Ecosystem in Peril. Center for Social Research in Small-Farmer Development, ViSCA. Baybay/Leyte.
- ACSPPA (1994): Development & Democracy - A People's Agenda. Hermoso, R.R., Ataneo Center for Social Policy and Public Affairs. Manila.
- ACSPPA (1997): Policy Influence – NGO Experiences. Institute for Development Research, Konrad Adenauer Stiftung. Quezon City.
- ASIAN DEVELOPMENT BANK (1997): RRP: PHI 26616 Report and Recommendation of the President to the Board of Directors on Proposed Loans to the Republic of the Philippines for the Fisheries Resource Management Project. Manila.
- ASIAN DEVELOPMENT BANK (2000): RRP: PHI 30552 Report and Recommendation of the President to the Board of Directors on Proposed Loans to the Republic of the Philippines for the Infrastructure for Rural Productivity Enhancement Sector Project. Manila.
- BALZER, P & Margraf, J (1994): Recent rainfall trends in ViSCA, Baybay, Leyte, Philippines, Annals of Tropical Research. Baybay/Leyte.
- BARRERA, A. et al (1954): Soil Survey of Leyte Province, Philippines, Soil Survey Report No. 18. Manila.
- BERONILLA, J.B. (1995): Forest Protection Strategies of the PNOC. Tongonan/Ormoc City/Leyte.
- CITY OF TACLOBAN (2000 I): Barangay profile Palanog 12. Tacloban City/Leyte.
- CITY OF TACLOBAN (2000 II): Barangay profile Palanog 37-A. Tacloban City/Leyte.
- CORONAS, J (1918): The climate and the weather of the Philippines, Philippines Census A.D. Manila.
- DA-BSWM (1992 I): Philippine Land and Soil Management Atlas for Eastern Visayas, Region 8. Quezon City.

- DARGANTES B.B. (1996): Socio-ecological Case Study on Forest Lands Cultivation in Leyte, Philippines, Verlag W. und S. Koch. Stuttgart/Germany.
- DE VLETTER, JAAP (1997): Feasibility Study Rainforestation Farming, in: Report on the Project Appraisal Mission VOL. II, Deutsche Gesellschaft für Technische Zusammenarbeit. Eschborn/Germany.
- DEPARTMENT OF AGRARIAN REFORM (1988): Comprehensive Agrarian Reform Program, Republic Act No. 6657. Quezon City.
- DEPARTMENT OF AGRARIAN REFORM (1999): Medium Term Agrarian Reform Development Plan. Tacloban City/Leyte.
- DEPARTMENT OF AGRICULTURE (1997): Agriculture and Fisheries Modernization Act, AFMA, Republic Act No. 8435. Quezon City.
- DEPARTMENT OF AGRICULTURE (1998): Philippine Fisheries Code of 1998, Republic Act No. 8550. Quezon City.
- DEPARTMENT OF AGRICULTURE (2001): Eastern Visayas Briefer, Powerpoint Printout. Tacloban City/Leyte.
- DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES (1990): National Forestry Master Plan. Quezon City.
- DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES (1992): Forestry Master Plan Region 8. Tacloban City/Leyte.
- DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES (2000): Provincial ENR Statistical Profile for CY 2000 of PENRO, Maasin City, Southern Leyte. Maasin/Southern Leyte.
- DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES (2001): Compiled DENR Region 8 Profile. Tacloban/Leyte.
- DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES (undated): CBFM Information Leaflet. Tacloban City/Leyte.
- DEPARTMENT OF FINANCE (1999): Community-Based Resource Management Project, Manual of Operations VOL I. Manila.
- DIRKSMEYER, WALTER (2000): Environmental Economics of Rainforestation Farming, in: Horticultural Systems in the Tropics, Working Paper Series 3, University of Hannover, Institute of Horticultural Economics. Hannover/Germany.

- DIRKSMEYER, WALTER, WAIBEL, HERMANN & WESSELER, JUSTUS (1997): The Economics of Reforestation Farming, handout for: International Conference on Reforestation with Philippine Species 1997. Palo/Leyte.
- EDPC (1994): Data compiled by the Electronic Data Processing Center of ViSCA in cooperation with PAG-ASA and cited in a processed form by Dargantes, 1996, ViSCA. Baybay/Leyte.
- EMMA PORIO et. al. (undated): Urban Governance and Poverty Alleviation in Southeast Asia – Trends and Prospects. Ataneo Center for Social Policy and Public Affairs, Ataneo del Manila University. Quezon City.
- Ferrer, E. M. & Nozawa, C. M. C. (1998): Community-Based Coastal Resources Management in the Philippines: Key Concepts, Methods and Lessons Learned, <http://www.idrc.ca/cbnrm/documents/ferrer.cfm>
- FISHERIES RESOURCE MANAGEMENT PROJECT (1999): FRMP Project Management Office, copy. Quezon City.
- HARESCO-SALVADOR, TEODORA (1997): Winning the Challenge of Effective Barangay Governance – A Sourcebook for Strengthening Local Democracy; PRODEM (Promoting Local Initiatives for Democracy And Justice), National Library. Philippines.
- ICRAF-VISAYAS (2000): Information leaflet, ViSCA. Baybay/Leyte.
- IIRR, LGSP, SANREM CRSP/ SOUTHEAST ASIA (2001): Enhancing Participation in Local Governance: Experiences from The Philippines, International Institute of Rural Reconstruction. Philippines – Canada. Local Government Support Programme and SANREM CRSP/ Southeast Asia. Philippines.
- JIMENEZ, ROSARIO D. (1997): Technical Report on Institutional and Gender Aspects, in: Report on the Project Appraisal Mission VOL. II, Deutsche Gesellschaft für Technische Zusammenarbeit. Eschborn/Germany.
- LAO R.M. (1996): Nursery and Plantation, Establishment Experiences in Philippine National Oil Company (PNOC). Tongonan/Ormoc City/Leyte.
- LEYTE ANNUAL REPORT (2000): Province of Leyte, Provincial Planning and Development Office. Tacloban City/Leyte.

- LEYTE COUNCIL FOR SUSTAINABLE DEVELOPMENT (2000): A Proposal for the preparation of Local Agenda 21, Province of Leyte with the Daguitan Watershed Forest Reserve as the focus ecosystem. Tacloban City/Leyte.
- LOCAL GOVERNMENT CODE (1991): General Primer; Republic Act No. 7160: The Local Government Code Of 1991. Manila.
- MILAN, PACIENCIA P., MARGRAF, JOSEF & GÖLTENBOTH, FRIEDHELM (1997): Strategy for community involvement in Rainforestation Farming, hand-out for: International Conference on Reforestation with Philippine Species 1997. Palo/Leyte.
- MILAN, PACIENCIA P. & MARGRAF, JOSEF u (1996): Rainforestation Farming, A farmer's guide to biodiversity management for the Philippines, Philippine-German Applied Tropical Ecology Program, ViSCA. Baybay/Leyte.
- MUNICIPALITY OF HINUNANGAN (2000): Barangay profile Calag-Itan. Hinunangan/Southern Leyte.
- MUNICIPALITY OF HINUNANGAN (2001): Accessibility Database 2001, Integrated Rural and Accessibility Planning, Information System. Prepared by International Labour Organisation, Department of the Interior and Local Government, Royal Government of the Netherlands. Hinunangan/Southern Leyte.
- MUNICIPALITY OF INOPACAN (2000 I): Comprehensive Land Use Plan 2000. Prepared by SIAD Technical Working Group and the Local Government of Inopacan in partnership with PhilDHHRA and funding support from the Ford Foundation. Inopacan/Leyte.
- MUNICIPALITY OF INOPACAN (2000 II): Ecological Profile 2000. Prepared by SIAD Technical Working Group and the Local Government of Inopacan in partnership with PhilDHHRA and funding support from the Ford Foundation. Inopacan/Leyte.
- MUNICIPALITY OF INOPACAN (2000 III): Barangay profile Esperanza. Inopacan/Leyte.
- MUNICIPALITY OF SOGOD (2000 I): Comprehensive Land Use Plan 2001 - 2010. Sogod/Southern Leyte.
- MUNICIPALITY OF SOGOD (2000 II): Barangay profile Kahupian. Sogod/Southern Leyte.

- NATIONAL ECONOMY AND DEVELOPMENT AUTHORITY (2001): Major On-going ODA Assisted Programs and Projects Eastern Visayas, Printout June 2001. Tacloban City/Leyte.
- NSCO (2001): Statwatch - A Quarterly Statistic Update, Regional Unit 8. Tacloban City/Leyte.
- OFFICE OF THE PRESIDENT REPUBLIC OF THE PHILIPPINES (2000): An Overview On – Poverty Eradication through Sustainable Development (SIAD) – Framework for the Localization of Philippine Agenda 21, information brochure. Manila.
- PAKISAMA (2001): PAKISAMA Bauernnetzwerk: Landwirtschaft in den Philippinen, p. 65ff, in: Südostasien 1/01. Essen/Germany.
- PHYSICAL FRAMEWORK SOUTHERN LEYTE (1997): Provincial Physical Framework Plan/ Comprehensive Provincial Land Use Plan; prepared by the Provincial Development Council, Province of Southern Leyte. Maasin/Southern Leyte.
- PROVINCE OF SOUTHERN LEYTE (2000): Southern Leyte Annual Report, Office of the Provincial Governor. Maasin City/Southern Leyte.
- RAU, N. UND RAU, A. (1980): Commercial Marine Fishes of the Central Philippines, Deutsche Gesellschaft für Technische Zusammenarbeit. Eschborn/Germany.
- REGIONAL DEVELOPMENT REPORT (2001): Regional Development Report, Eastern Visayas Region, prepared by the Regional Development Council c/o NEDA Regional Office No. 8. Palo/Leyte.
- REHM, S. & ESPIG, G. (1991): The cultivated plants of the tropics and subtropics, Institute of Agronomy in the Tropics, University of Göttingen, CTA. Wageningen/Netherlands.
- VISCA/ LEYTE STATE UNIVERSITY (1996): Comprehensive Coastal Resource Management Plan for the Eastern Visayas, Coastal survey done by a ViSCA Team August – September 1996, ViSCA. Baybay/Leyte.
- VISCA/LEYTE STATE UNIVERSITY & GTZ (1999): Schlussbericht über die Durchführung des Vorhabens - Angewandte Tropenökologie. Baybay/Leyte.

VISCA/LEYTE STATE UNIVERSITY (1998): Compiled Forestry Licensure Board Examination Review. Baybay/Leyte.

WHITE, A.T. (2001): Philippine Coral Reefs, a natural history guide, Bookmark Inc. and Sulu Fund for Marine Conservation Foundation. Philippines.

Annexes

Annex 1: Barangay Profiles

Annex 1a: Esperanza

Annex 1b: Conalum

Annex 1c: Palanog

Annex 1d: Kahupian

Annex 1e: Calag-Itan

Annex 2: Aquatic resources and their use in Hinunangan

Annex 3: Description of the 3 projects under LIP

**Annex 3a: Leyte Bufferzone Forest Management and
Reforestation by Smallholder Communities**

**Annex 3b: Tacloban Urban Development
and Environmental Management**

**Annex 3c: Integrated Community-Based Coastal Zone
Management – Silago Bay**

Annex 4: Scientific and common names of main trees and crops at the study sites

Annex 5: Offices and officials in the municipalities and barangays

Annex 1a: Barangay Esperanza, Municipality of Inopacan

Introduction

The municipality of Inopacan lies on the western side of Leyte facing the Camotes Sea. It is situated between two municipalities, Baybay and Hilongos. The municipality covers 20 barangays and spreads from coastal to upland areas. It is classified as a 5th class municipality where the classification is dependent mainly on the income of the municipality. The bulk of the commercial or business establishments are in the Poblacion (the centre of the municipality). The business establishments mainly deal with buying and selling commodity goods, farm products, and marine products. Production and processing of goods and products are not common in the area. Farm products come from the constituent barangays of the municipality. Esperanza is one of the 20 barangays covered by the municipality. The barangay can be described as both coastal and upland, situated four kilometres from the Poblacion. Most of the houses were near the national highway.

Barangay Profile

Population and Household

The barangay has a total population of 1,210, a growth rate of 0.57% per year, and a population density of 3.37 persons per hectare. Total households are 256, some of which are composed of extended families.

Livelihood

The main livelihood of the people in the barangay is farming. Likewise, there are livelihood projects provided by the Department of Labor and Employment (DOLE) for the members of People's Organisations (PO), such as abaca handicrafts to mention just one. Community members do not rely on these projects as their main source of livelihood. There are also farmers who sometimes engage in fishing. Their decision to do both is based on the size of their farm and its distance from the coast, the stage of their crops, their ability to perform the work, as well as the season.

Other sources of livelihood, such as selling snacks to school children or selling barbecued foods on the roadside (usually late in the afternoon), are usually done by women. Backyard swine raising is another source of livelihood.

Agriculture

The main crops grown in the barangay are: abaca, coconut, rice, corn, and some intercrops. The abaca (Manila hemp) areas cover a total of 80ha. Abaca plantations, the main source of livelihood, are usually found in the highlands where people have been cultivating for generations. Coconut areas cover a total of 70ha. They are also grown in the highlands but are presently showing low productivity due to poor soil condition. Income from coconuts is dependent mainly on the price of the copra. There are 35ha of rice cultivation area, 10ha of reforestation area, and 5ha of corn fields. Rice and corn are usually grown for personal consumption but some are intended for the market. The lowlands are mainly planted with rice, coconuts, bananas, vegetables (in small parcels of land) and fruits. In the sloping areas, vegetables, root crops (camote, cassava, ube, etc.), and pineapples are planted in small areas.

Market Description

Products that are usually marketed by the farmers are copra and abaca. The products are sold to middlemen in the barangay who set the prices of such farm products. Vegetables and fruits are mainly sold in the Poblacion and some in the barangay. Abaca can either be processed as fibre, or stripped. Fibre extraction can be done either manually or mechanically. After extraction, the fibres are sun dried. Abaca stripping is primarily done manually. *Umbak* is the dried bark of abaca, which is used for handicrafts. Production of handicrafts is new in the barangay. It was recently introduced by DOLE through a local PO.

Sanctuary/Fisheries/Coastal Description

The marine resources of the barangay had been gradually depleted before the sanctuary was established. The mangrove area in the barangay was damaged by strong waves and now needs to be rehabilitated to a strategic depth to avoid the same loss. Illegal fishing, such as poison fishing using natural and chemical toxins to extract fish and other marine resources, was rampant. The Maljo-Esperanza sanctuary was established on January 21, 1996 with an area of 18.5ha covering the coral reef areas of Bita-og, Belazon and Dila-dila. The sanctuary is off shore and does not include the gleaning area. The Cancanoy reef was not included in order to provide a fishing area for the fisherfolks of the barangays. The sanctuary is protected by fish wardens who are also the barangay Tanods/Police. The sanctuary was organised and established by PhilDHRRA

and turned over to the barangay for management. All types of fishing activities are prohibited inside the sanctuary. Motorised boats are provided with a special route to avoid passing through the sanctuary. Every individual in the barangay is advised to protect and look after the sanctuary. Violations of the law relative to the rehabilitation and protection of the sanctuary are settled in the barangay. Extreme offences of these laws will be settled in the municipal office with police authority.

Fishing activities are done by the fishermen outside the sanctuary. The common method of fishing in the area is hook and line. This method is used by fishermen who have non motorised boats. Most individuals who have motorised boats use gill nets. This fishing practice is done to compensate for the expenses incurred by the use of the boats, since gill nets can produce larger catches than hook and line. Some fishermen in non motorised boats use gill nets in the gleaning and shallow areas. Fishermen claim 12-18 days per month for their fishing activity with at least 3-5 hours per day. The rest of the days are devoted to other activities. The duration of fishing is sometimes dependent on the fish catch. Higher catches make the fishermen extend their time above the average. When the catch is less, they stick to their usual time duration for fishing. The fishing activities are usually done either early in the morning or late in the afternoon until night. The catch for the day would be for home consumption and also for marketing. The larger the catch, the higher the tendency for fishermen to sell or process (dry) their fish.

Off Farm Activities/Livelihood

Most people in the barangay are dependent on fishing and farming. Some people work in the municipality or in different regions in the Philippines, particularly in Cebu, Manila, and Mindanao. Driving public vehicles such as tricycles, motorcycles, and buses are also some of the off farm activities that provide the people with a source of income. Some of the vehicles the people are driving are owned and some are rented. Rendering labour to other people, such as washing clothes and masonry, are other sources of income.

Resources (Income) to Hand⁷¹

There is an extreme income gap between households. Those individuals who are working in offices, in other regions, and as Overseas Contract Workers (OCW) and those owning a large tract of land for farming are the people who have better income compared to those who are mainly relying on their income from the farm or the sea. The former can afford to have a higher standard of living, some leisure expenditures, and good houses; the latter can afford to purchase goods depending upon the income they gain for the day. Some people who have lower incomes, purchase goods by credit and pay their debts after the harvest. For the farm inputs, some will approach traders in the barangay and ask for an amount for the cropping season. Payments of such debts will either be paid in cash or produce during harvest.

Brief Description of Houses⁷²

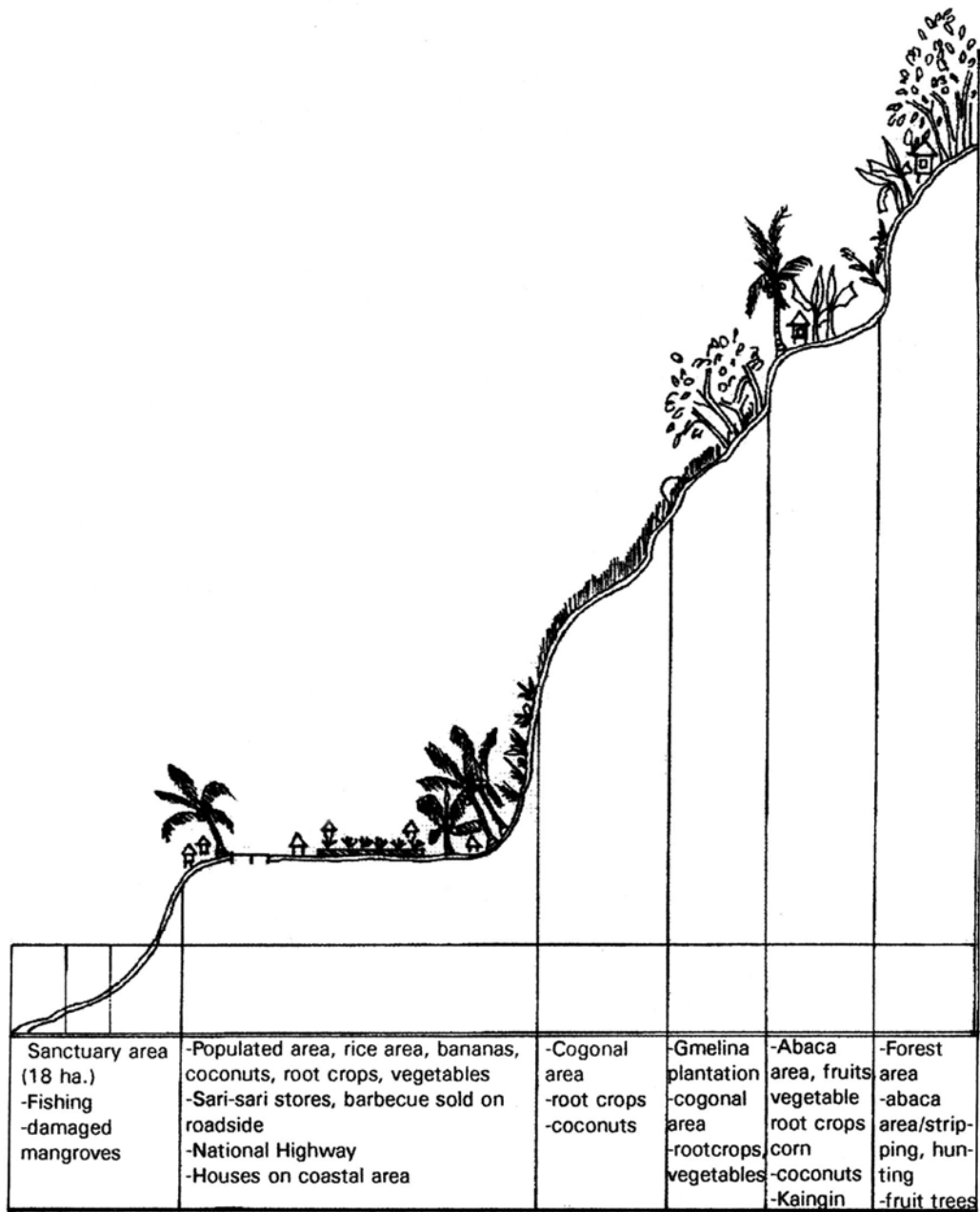
Most of the houses in the barangay are made out of light materials. Some are built of concrete and some are semi-concrete (light materials for the upper portion of the house and the base is reinforced with concrete). Some of the people in the barangay can tell the economic level of the household by the condition and the appearance of the house. Most of the houses are provided with electricity. Water is accessed from the natural spring in the mountains of the barangay. A concrete reservoir that directly serves the people was built, but without further filtration. The distribution of the water is communal, where ten families are assigned to a faucet to access their water. The families utilising the water are obliged to pay a maintenance fee of PhP10.00 per month.

⁷¹ Additional information can be found in chapter 5.

⁷² The condition of houses may serve as a proxy indicator for the socio-economic status of the household

Transects

Figure 5: Transect of barangay Esperanza



Annex 1b: Barangay Conalum, Municipality of Inopacan

Introduction

Conalum is one of the barangays of the municipality of Inopacan. The barangay is coastal and located approximately five kilometres from the Poblacion. It is bounded by Camotes Sea in the west, the mountains of Jubasan in the east, Barangay Tahud in the north, and adjacent to Barangay Esperanza in the south. More than half of the barangay consists of steep slopes, and is therefore excluded from settlement.

Barangay Profile

Population and Household

The total population in the barangay is 1,801 with 388 households. The population density is 3.11 persons per hectare, which is less than in Esperanza.

Livelihood

The main livelihood of the people of Conalum is farming. Fishing is another source of livelihood that occupies the time of some farmers. They farm by day and go fishing at night or when agricultural activities are minimal. Farmers also render labour services to other farm lots (cleaning and weeding) for additional income.

There are some livelihood projects in the barangay provided by the Department of Labor and Employment (DOLE) for the People's Organisation (PO). One PO that benefits from such a project is the Kalihokan sa Nagpakabanang Mananagat sa Conalum (KALNAMAK). They are provided with technical and financial assistance, and started the *ampao* Production in the barangay. Members of this organisation rely more on the income of their farm than on the share they receive from the project. Swine raising is another source of income for some individuals in the barangay.

Agriculture

Half of the total area in the barangay is claimed to be agricultural. The people in the barangay mainly grow abaca, coconuts, bananas, root crops, and rice. These crops are common in the area and are grown on the larger parcels of land. Other crops such as vegetables, pineapples and fruit trees are planted on small parcels

of land and primarily intended for personal consumption. Rice and some of the coconut plantations are situated in the flat terrain. Bananas and root crops are also planted as intercrop between coconuts. Abaca is mainly grown in the upland and sloping areas where vegetables, root crops, and pineapples are also planted.

Market Description

The common crops that the farmers sell to the traders are copra, abaca fibre, and rice. The farmers source their cash inputs for crop production from the traders. If the farmer relies on the trader for his main source of income, the farmer has no option as to where to market his product. He has no option due to his obligation to pay his debts. Farm products such as rice and vegetables are generally grown for personal consumption. However, if sufficient funds cannot be obtained from the traders in order to produce more cash crops, farmers may sell these in the market.

The abaca harvested is either processed into fibre or *umbak* before marketing. The processing of the abaca fibre can be done manually or mechanically. Fibre extracted manually commands a lower price than that processed mechanically, which is of higher quality. *Umbak* and the stripped abaca are sold as raw materials for handicraft making. Copra and rice, if marketed, do not receive further processing after drying. The most common markets for these farm products are Plaridel, Hilongos and Poblacion Inopacan.

Sanctuary/Fisheries/Coastal Description

A total of 14.34ha of marine sanctuary were established to conserve the marine resources in the barangay and prevent the rampant illegal extraction of marine products, such as by fish poisoning. The sanctuary was established in 1996, organised by PhilDHRRA and turned over to the barangay for maintenance. The barangay has delegated fish wardens to look after the sanctuary. People in the barangay are also responsible for reporting any illegal activities inside the sanctuary to the barangay captain. The barangay conducted mangrove rehabilitation but the survival rate was low. Nearby the rehabilitation area, is a mangrove area that is still in good condition.

There is a wide range of fishing practices in the barangay, from using hook and line (multiple or single hook) to nets and fish traps. Fishing may take from 3 hours to an entire day, depending on the fishing gear used. Fish traps are usually

harvested every 3-4 days. The duration and type of fishing activities depend on the abundance and type of fish that the fisherman wants to catch.

Off Farm Activities/Livelihood

Farming and fishing are the main source of livelihood of the people in the barangay however, there are some individuals who are working in the municipal office of Inopacan, in Manila, or in Cebu. Other sources of livelihood for the people are laundry washing, clearing of farm lots, weeding, and masonry. Most of the women in the barangay are selling snack items in public schools and barbecued foods on the roadside every afternoon. Some individuals are driving passenger vehicles (tricycles, jeepneys, buses and, motorcycles), some of which are owned and some rented.

Resources (Income) to Hand

The economic situation in the barangay has a similar situation in barangay Esperanza. People with stable economic status are those with permanent jobs in the municipality, those working in different regions in the Philippines, whose children are working in Manila, Cebu or in other parts of the region, those with large land holdings and farm lots, and those working as Overseas Contract Workers (OCW). They have decent houses and can spend money on leisure commodities.

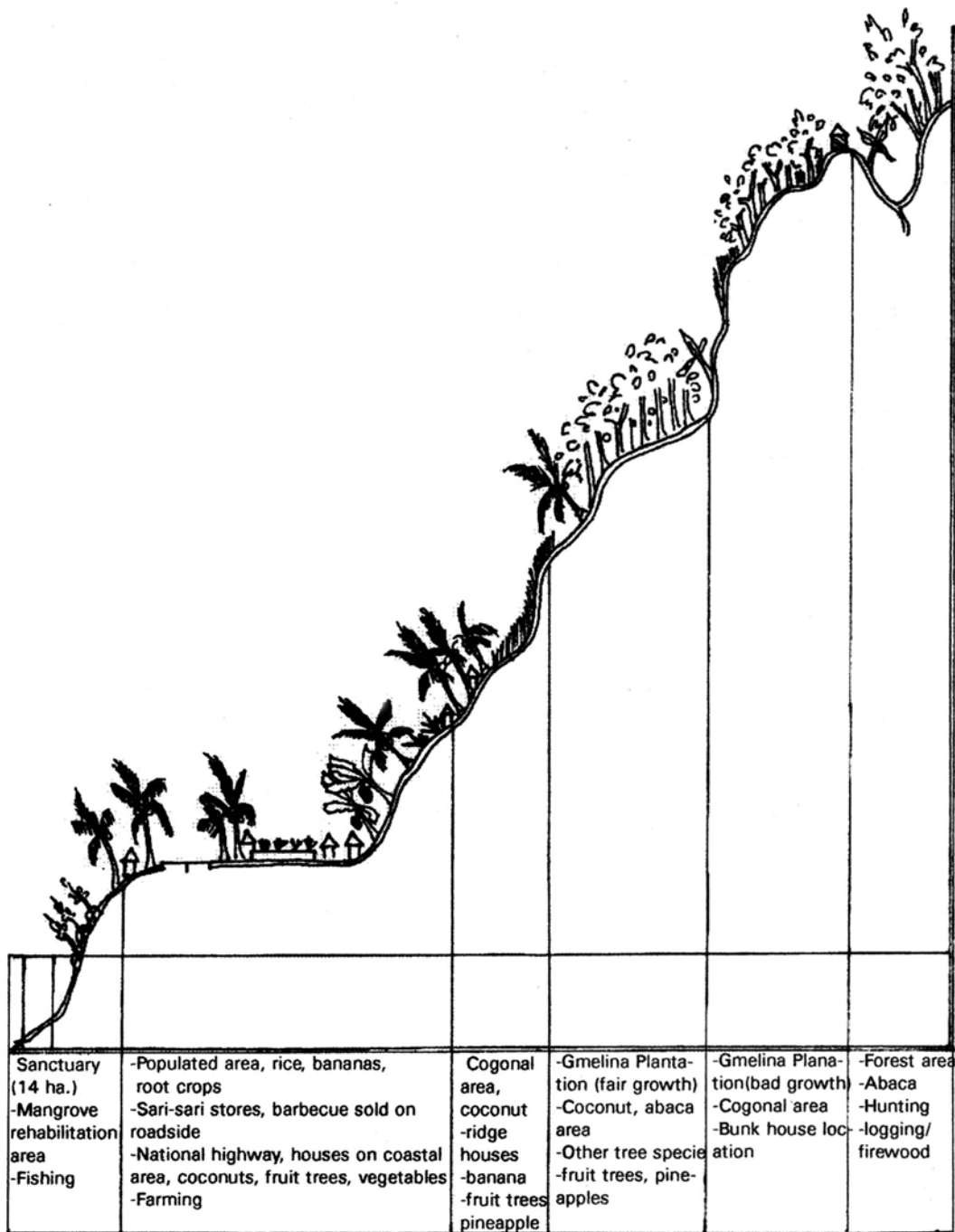
Barangay Conalum, in comparison to Esperanza, has a marginally higher standard of living.

Brief Description of Houses

Most of the houses in the barangay are made out of light materials. Some are concrete or semi-concrete (light materials for the upper portion of the house and the base is reinforced with concrete). Houses beside the road are more decent than the houses in the barangay interior. Some people say that the houses that are well built are those owned by rich or above average income earning people.

Transect

Figure 6: Transect of barangay Conalum



Annex 1c: Barangay Palanog (103, 37-a, 12), Tacloban City

Introduction

Tacloban City is the fastest growing municipality and the centre of the rural hinterland of Region 8. The city has a total land area of 100 square kilometres with 187,000 inhabitants. There are places in the city where squatters dwell. The areas where these individuals are staying are in the possible commercial areas. The city government decided to relocate the squatters to a settlement area. Barangay Palanog was the option.

Palanog is composed of three barangays, namely: 103, 37-a and 12. The barangays are in between the mountain and river. The houses are constructed on the ridge and some across the barangay road adjacent to the river. Most of the inhabitants in 37-a and 12 are resettled individuals from the urban city, especially from the coastal area (Anibong and Cancabato Bay), Magallanes, Sto. Niño, and other areas in Tacloban City. These squatters were resettled because the government was making use of the area in which they used to dwell. In 103, some are resettled squatters and some are from Samar, Alang-alang, Biliran, and other neighbouring municipalities.

The City Government initiated the relocation of the squatters in 1978. The City Planning and Development Office (CPDO) assigned the Department of Social Welfare and Development (DSWD) to do the selection of the families that were qualified to be resettled. The criteria that DSWD have are: the family does not own a lot in the city, has a very low income, and has been staying in the urban areas as squatters for the past 10 years. The criteria should be met before declaring the family as squatter. The unqualified families are sent back to their place of origin, provided with either fare or a vehicle ride by the city government. The site provided for the squatters is for residential purposes only.

Barangay Profile

Population and Dominant Age Level

Palanog has three barangays, which are dependent on one another. The first barangay upon entering the Palanog area is Barangay 12. This barangay has 256 households and a total population of 1,411. The dominant age group is young, ranging from 5-14 years old. To the north is barangay 37-a, with a total population of 752 and 156 households. Barangay 103 is next to 37-a. The total

population in the barangay is 1,395 and the total number of households is 258. The dominant age group in the barangay is 15-30 years old.

Livelihood

There are distinct sources of livelihood in each of the three barangays. Their sources of livelihood are quite dependent on the sources and the former occupation of the resettled individuals. In Palanog 12, most of the people are employed or working in the nearby city. Some households also have “sari-sari” stores within the barangay. The common occupation of the people in barangay 37-a is rendering labour services to other people (laundry washing, cleaning of farm lots, and rendering general services to other people). Some individuals are also working in offices in the city. In barangay 103, most of the people are farming, some as tenants, in barangay Paglaum, the next barangay to Palanog. Harvesting alagasi trees for firewood is also a source of income. Poultry and backyard swine raising is another alternative source of income.

Agriculture

Barangays 12 and 37-a are mainly engaged in farming for subsistence. The people are growing root crops in small parcels of land. Farming for subsistence is mainly caused by the unsuitable condition of the land for cultivation and inaccessibility to big farm land. In barangay 103, farming is the main occupation of the people. The individuals who are pioneers have declared land in the barangay and also in barangay Paglaum many years ago. Barangay 103 is situated in an area possible for agriculture. People harvest firewood in the sloping areas for sale. After harvesting, *kaingin* will follow and the clearing is planted with root crops, various vegetables, and pineapples. Expansion of small farms is continuing through *kaingin* to create larger areas for future cropping. There are also individuals who are tenants of rice lands in the next barangay.

Market Description

The common marketable product from the barangay is firewood (Alagasi). This product is transported to the city and to other neighbouring barangays through passenger jeepneys. Individuals and businessmen who order firewood often bring along their transport vehicle to demand lower prices in the trading. Vegetables and fruits are sold in the city when there is a considerable surplus of production. There are few coconut trees in the area and copra production is consid-

erably lower. The farmers of Barangay 103 commonly market these farm products.

Fisheries/River Condition

Though the barangay is upland, some individuals from barangay 12 are still adhering to their previous livelihood, marine fishing.

The Palanog creek traversing the side of the settlement is not in good condition. Both the quality and quantity of water is quite low. The inhabitants have mismanaged their river resources by throwing garbage and dead animals into it and by using it as a toilet. To stop the misuse of the river, the officials in the barangay have created a barangay ordinance with corresponding penalties for the violators.

Off Farm Activities/Livelihood

The barangays were provided with livelihood projects by the city government in the past, but most of these failed. "Sari-sari" stores are also present in the barangay. Laundry washing in the city and driving passenger vehicles serves as a daily livelihood for some individuals. The common off farm livelihood in the barangays come from the buying and selling of fruits, vegetables and assorted goods in the city. In barangay 103, there are individuals who are making folding beds using plastic "nito" and recycled frames from damaged folding beds.

Resources (Income) to Hand

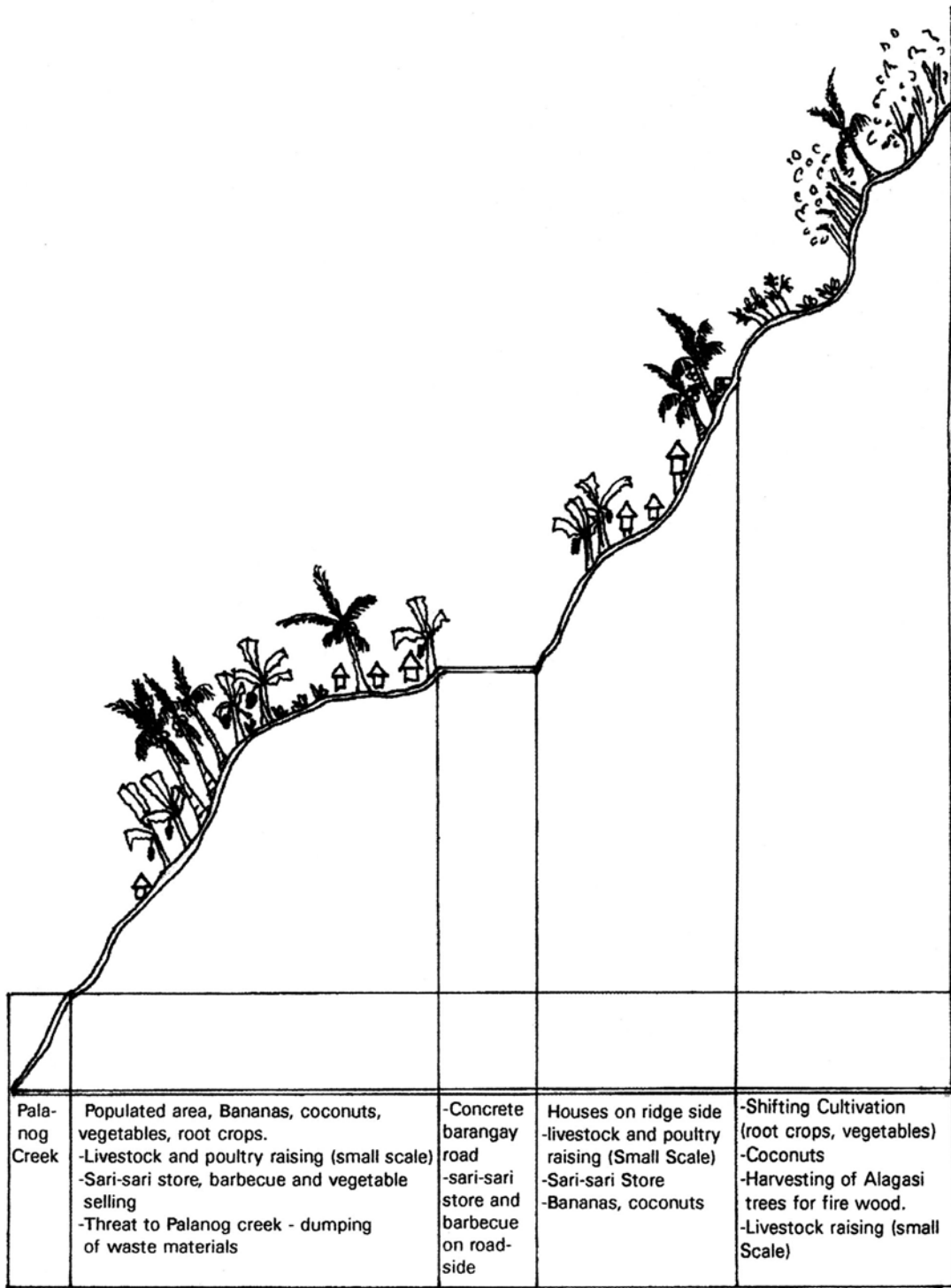
Household incomes in the three barangays do not differ much. Most households are generating income enough for consumption for the day. A days work in the city means a lot to the people in the barangay. Individuals who are working in some institutions in the city have higher incomes.

Brief Description of Houses

Most of the houses in Palanog are made of light materials and some are built mainly with concrete. Individuals, who decided to separate themselves from their parents, especially new couples with children, have established makeshift houses. Other houses are occupied by two families and some with extended families. The houses that are well constructed are of those individuals who have stable jobs in the city or those who have children working in the city and other regions of the country.

Transect

Figure 7: Transect of barangay Palanog



Annex 1d: Barangay Kahupian, Municipality of Sogod

Introduction

Kahupian is one of the 45 barangays covered by the Municipality of Sogod. Kahupian is an upland barangay with four *sitios*, namely: Jagna, Silao Bato, Bal-ingtulay and Bernal. Kahupian was previously a *sitio* of Barangay Pancho Villa and was converted into a barangay in 1972. The distance of the barangay from the centre of the municipality of Sogod is 18 Km.

Barangay Profile

Population and Dominant Age Level

The total population of the barangay is 1,400 out of 270 households. The dominant age in the barangay ranges from 5–14 years of age.

Livelihood

The main source of livelihood of the people in the barangay is farming. Other sources of livelihood of the people are selling firewood and working as tenants for other farm owners. Some people perform jobs such as weeding, clearing, and preparation of other farm lots for their daily source of living. Members of the Kahupian Upland Farmers Association (KUFA), a People's Organisation (PO), are benefiting from the Community Based Forest Management (CBFM) programme of the Department of Environment and Natural Resources (DENR).

Agriculture

The people in the barangay are mainly growing abaca, bananas, root crops, coconuts, and to some extent rice. Abaca and coconut are grown in large parcels of land in the sloping areas. Bananas, root crops, and fruits are grown in small areas and are intended for personal consumption. Farmers are adopting *kaingin* to open land for cultivation. Intercropping of bananas, root crops, and pineapples between coconuts is a common practice. Some individuals have also adopted backyard vegetable production. Others are harvesting wild abaca.

Sitio Hagna is the only *sitio* in the barangay producing rice, primarily for personal consumption. The area is well suited for rice production since the barangay is located in the valley with flat, irrigable terrain. Rice growers have an average area of 0.5ha. The use of mechanical and animal tillers is minimal since the area

to be cultivated has large dead trees lying therein. Where carabaos can not plow, the work is done manually.

Market Description

The production of rice, root crops, fruits, and vegetables is mainly for personal consumption. Only the farmers who need to regain their farm input expense and who want to purchase other goods will sell a small volume of these crops. Copra and abaca are mainly sold to traders to repay debts. Only when the value of the harvest exceeds the total amount of their debts do the farmers have extra income. The process of extracting abaca fibres can either be done manually or mechanically. *Umbak* is produced in greater volume if the traders inform the abaca growers that the demand and price is high.

Upland Situation

The barangay has a CBFM site managed by a PO. The CBFM site has a total area of 2,152ha, and the establishment was initially funded by the Asian Development Bank through DENR. There were four *sitios* inside the area long before it was proclaimed as CBFM site. Some inhabitants of the *sitios* are members of the PO and some are not. Non members are also utilising some of the resources of the CBFM. *Kaingin* is still practised within the site to open land for cultivation of root crops and abaca.

Off Farm Activities/Livelihood

Other sources of livelihood for the people are backyard hog raising, laundry washing, passenger motorcycle and jeepney driving (owned or rented), and daily labour. In some households, some members of the family are working in the municipal office or in business establishments in the municipality of Sogod. Some are working in other regions of the country. Some individuals are also working for the traders. Selling barbecued foods on the roadside every afternoon is also a source of livelihood. Sari-sari stores are another source of livelihood.

Resources (income) to Hand

The income of the people in the barangay is dependent upon the amount of their harvested crop. Income from their day to day work as labourers is utilised to purchase goods for the next day. Individuals who are working in Sogod have more income and can afford a higher standard of living. Households with family mem-

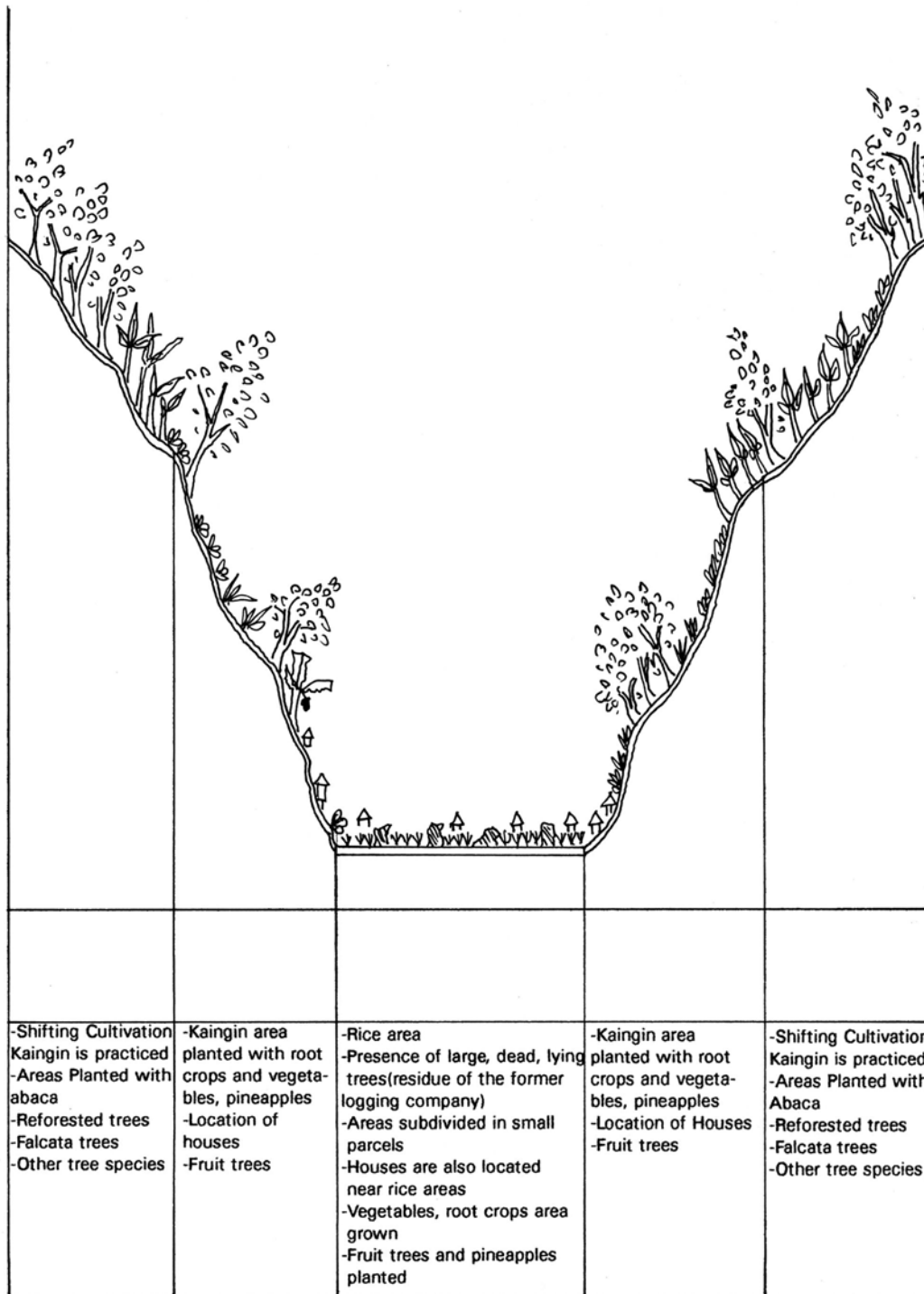
bers working in other regions in the country have the highest standard of living in the barangay.

Brief Description of Houses

Most of the houses in the barangay are made of light materials. There are also houses that are concrete or a mixture of both. Some of the houses in the *sitios* (in the CBFM site) are made of slabs of wood and lumber. In this part of the barangay, makeshift houses are also present. Families that have been living in the area for many years have better houses.

Transects

Figure 8: Transect of sitio Hagna / barangay Kahupian



Annex 1e: Barangay Calag-Itan, Municipality of Hinunangan

Introduction

Barangay Calag-Itan is the second northernmost barangay of Hinunangan. The barangay is three Kms from the Poblacion of the municipality. Calag-Itan has a total land area of 1,507.74ha. The barangay can be described as both coastal and upland. One of the *sitios* in the upland is covered by the Southern Leyte Settlement Project (SLSP). The barangay has five *puroks* namely; Mamagan, Sampaguita, Rose, Orchids, and Violeta. Most of the *puroks* have beach resorts as their source of business.

Barangay Profile

Population and Dominant Age

The total population of the barangay is 1,037 in 218 households. It is observed that the common age level in the barangay ranges from 15–35 years old. The population density is 1.45 persons per hectare.

Livelihood

Farming is the main livelihood of the people. Fishing is another source of livelihood. In fact, most farmers in the area are also fishermen. The latter type of occupation of individuals is dependent on his ability to do so. If an individual is capable of doing both as a source of living, he has to divide his time and resources to do both. Fishing at night is one option of farmers who want to engage in fishing. If agricultural activities are slow, the farmer will spend more time fishing for an additional income. The number of individuals who rely mainly on fishing as their source of livelihood is low. Other individuals are employed in the institutions of the municipality.

Agriculture

Coconut is the main crop planted in the area, and is considered the main source of livelihood for the people. Coconuts are planted both in the uplands and lowlands. Farmers are also planting rice in areas averaging 1/3 of a hectare for consumption and, sometimes, for marketing. Rice areas are not situated near the roadside like in other barangays, rather, they are in the interior areas of the barangay. Bananas are also grown in small areas and often as an intercrop for co-

conuts. Root crops are also grown in small parcels of land for consumption. Abaca is growing in some parts of the upland of the barangay but is not very common. Some individuals harvest wild abaca from the uplands for sale. Other crops grown in small areas are vegetables and pineapples. One upland *sitio*, Tabjon, is growing rice. The area, though upland, has a suitable site for rice farming since the area is flat and irrigable. Most crops grown in the upland are root crops and coconuts.

Market Description

The most commonly marketed good of the people of the barangay is copra. The main market is in the Poblacion. Rice, root crops, and vegetables (in small volume) are sold in the barangay or in the Poblacion. Fish is sold in the barangay through vending. Marketing in the barangay is done in the early mornings and late in the afternoons. Every Sunday is market day for some individuals from the two islands, barangay San Pedro and San Pablo (barangays under Hinunangan). The inhabitants from these neighbouring barangays are buying goods from the Poblacion and are selling fish from the islands.

Sanctuary/Fisheries/Coastal

In 1999, a sanctuary was established to conserve the marine resources. Before the sanctuary was established, a mangrove rehabilitation project was undertaken. (For more information, refer to Annex 2)

Off Farm Activities/Livelihood

Every afternoon in the interior of the barangay women sell barbecued bananas. Other individuals raise swine for a livelihood. Sari-sari stores selling basic goods are also present in the barangay.

Tailoring of clothes is another source of income. Some are driving passenger vehicle such as multicabs, tricycles, motorcycles, and buses. Some have their own vehicle, while others hire. There are also individuals employed in the municipal offices. Some owners of lots, especially those on the coast are making good business with mini resorts. The owners of the resorts are paying taxes to the barangay and the municipality. Labour work like cleaning and boat making are also providing a good alternative income source. In addition, some people have a small scale cottage industry of mat and bag making, they make the products from romblon leaves (*Pandanus.sp.*).

Resources (Income) to Hand

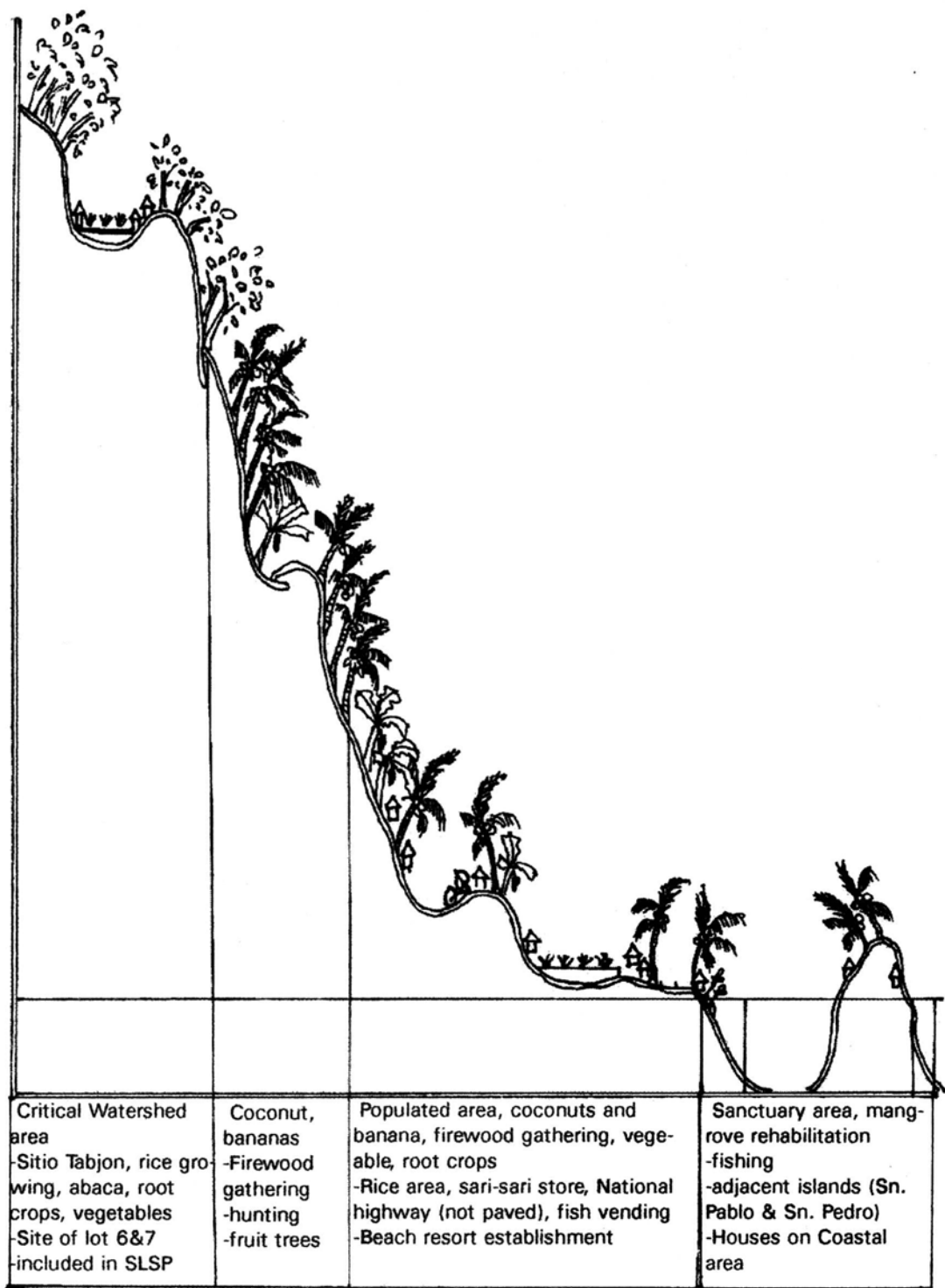
The income situation of households in the barangay does not vary much. The people have the same sources of livelihood. Since most of their alternative sources of livelihood are only for subsistence, what they earn for the day will be the expenditure of that day or the next. Individuals who have stable work in the municipality, in other regions of the country, or are working as an Overseas Contract Worker (OCW) have better and more stable incomes.

Brief Description of Houses

On the roadside, most houses are built with light materials, concrete, or a mixture of both. The houses are fairly strong. Houses situated in the upper part of the barangay, as well as those in the coastal area, are built with a mixture of light materials and concrete. The houses in this barangay are generally in better condition than those houses in other barangays. The people can readily point out the houses of rich people in the barangay by their structure and appearance.

Transect

Figure 9: Transect of barangay Calag-Itan



Annex 2: Aquatic resources and their use in Hinunangan

Introduction

The coastal resources in Hinunangan, Southern Leyte consist of a diverse ecosystem of corals and seagrasses. The Hinunangan Municipal water consists of a narrow area of sand and drops off in a steep slope of sand and isolated coral heads in the north.

Fishing is a common source of income for the residents. Many fishermen benefit from the marine resources, both for local consumption and for livelihood, especially from pelagic and demersal fishes. According to the 1999 Fisherfolk Appraisal, there are 393 fishermen in Hinunangan. 9.4% were full time fishermen while 90.6% fished part time and engaged in farming or other forms of livelihood to supplement their income. On average, fishermen fished five times a week. The average volume of fish caught was 4.08 mT/year⁷³ (per.com. Nguho, J., MAO). Primarily small scale fishing gears such as hook and line, fish traps, spears, gill nets, and bag nets are used to exploit the resources. Anthropogenic activity and the growing population within the vicinity has led to over fishing of various species. Additionally, there was been an increase in fishing effort that brought about the use of illegal fishing gear, such as the “buso”, or speargun (compressor) method. This was often associated with the use of cyanide in the corals to increase catches of large fishes, leaving the small ones behind. Dynamite blasting is not rampant in the area, though the use of fine meshed nets is an ongoing problem. By utilising these illegal fishing methods, fishermen destroy many organisms as well as their habitat, and put further pressure on already exploited resources. Hence, the presence of these illegal fishing activities indicates that the people still lack sufficient knowledge and understanding of the wise utilisation and preservation of marine resources. Most of the respondents said that fish stocks have been depleted heavily for almost three years. Fishermen observed difficulty in catching large fishes near the shoreline and noticed a remarkable decrease in volume of catches.

⁷³ Other sources report that the average volume of fish caught per month is just 340 kilos for the entire municipality of Hinunangan, including both commercial and artisanal fishing. Both data seem to be extreme numbers.

Barangay Tahusan has cultured species of prawn, mudcrab, milkfish, and tilapia. The supply of fish or shellfish is maintained by the aquaculturist, who is responsible for controlling the parameters for their survival. The total area of the fishpond is 3.5ha. The harvested species are then traded to neighbouring municipalities and barangays.

There are 124 motorised boats and 243 paddleboats in Hinunangan, according to the 1999 survey of the Department of Agriculture. These boats are generally owned by the fishermen themselves. There are no fishermen who fish for subsistence only, not even part time fishermen, as there are times when part time fishermen catch large volumes of fish. Although fishing is primarily for consumption, any surplus of fish is sold. Fishing effort (measured by the number of fishermen and fishing vessels) is highest at San Pablo Island, followed by Biasong and Pondol.

Fishing is a year round activity. However, there are certain times of year considered by the fishermen to be unsafe times to go fishing. The peak fishing season is from April to October, while the difficult fishing months are from November to March, which could be due to atmospheric disturbances brought about by the south-west and north-east monsoons. These weather conditions bring tremendous waves that are dangerous for the fishermen when going offshore. During these conditions, they collect edible crustaceans and molluscs as a substitute for fish. The fishing ground is either near the shore or 3-7 Kms away from the eastern side of San Pablo and San Pedro Islands.

Marketing of Fish:

In the Municipality of Hinunangan, fish catches of the fishermen are channelled to consumers through mobile fish vendors or through fish market stalls.

Two market fish stalls were observed in Hinunangan, one in the Poblacion and the other in barangay Canipaan. The fish is stored in Styrofoam with ice to prevent spoilage. Stocking the fish with ice retains its freshness for about 2-3 days and allows fresh fish to be transported to other landing sites. Most of the fish available on the local markets comes from the fishing grounds of San Pablo and San Pedro Islands, Hingatungan, and Anahawan. Competition between mobile and market fish vendors is high, due to the fact that mobile fish vendors are selling to neighbouring houses, providing the opportunity for local consumers to buy fish at their convenience.

The most common fishes available in the market were parrotfish, trevally, scad, grouper, rabbitfish, wrasses, snappers, emperor, sweetlips, fusilier, surgeonfish and needlefish. Fishermen and women and fish vendors were interviewed with regard to fish price per Kg and volume of catch (Kg/week) (Table 11).

Table 11: Average prices and estimated volume of a catch of fish in Hinunangan, Southern Leyte

Common Name	Local Name	Fisherman's Price (PhP)	Regular Fish Vendor Price (PhP)	Public Market Price (PhP)	Estimated Volume of Catch (Kg/week)
Trevally	Mamsa	90	100	130	40
Grouper	lapu-lapu	80	87.50	100	40
Seabream	Kilawan	60	67.50	90	40
Spanish mackerel	Tangigi	70	77.50	110	40
Bullet mackerel	Mangko	50	57.50	70	40
Parrotfish	Mulmol	50	57.50	80	40
Fussilier	Dalagang-bukid	50	57.50	70	40
Rabbitfish	Danggit / ketong	50	57.50	90	40
Surgeon-fish	Labahita	50	57.50	90	40
Scad	Adlo	40	47.50	60	50

Pricing System:

Fisherman's price ----- PhP40 - 90 / Kg

(Price of the freshly caught fish given by the fishermen)

Regular fish vendor ----- PhP50 – 100 / Kg

(Price given by the middlemen to the consumers or to the market vendor with profit from the fisherman's price)

Public Market Place ----- PhP60 – 130 / Kg

(Price given by the market vendor to the consumers with profit from the middleman)

Prices are dependent on fish species.

Conservation of aquatic resources:

Hinunangan is potentially one of the richest fishing grounds in Southern Leyte. In fact, the BFAR has chosen five sites for marine sanctuary establishment, in the barangays of Ingan, Calag-itan, San Pablo Island, San Pedro Island, and one sanctuary in both Biasong and Tahusan. These sanctuaries serve as breeding and nursery grounds for fish and other marine organisms. Fishing is restricted within the sanctuaries. This is meant to increase the fish standing stock and allow them to propagate. Sanctuaries also preserve the coral reefs from destructive and illegal fishing methods.

Of the five fish sanctuaries, three were surveyed, those of barangays Biasong and Tahusan, Calag-itan, and San Pablo Island using a modified quadrat-transect method and snorkelling gear. The quadrat used has a total area of 0.25m² and is divided into twenty-five 0.01m² grids. Live coral coverage was estimated by noting the quadrat number of grids occupied by live corals. The common fishes present were identified. The calculated percentage coral cover is a rough estimation due to time constraints and unavailability of the materials needed. The values need further verification.

Barangays Biasong and Tahusan

The fish sanctuary is bounded at the north-eastern side by a buoy marker with coordinates of 10°23.63' N and 125°13.78' E and at the south-western side with

the coordinates of 10°23.33' N and 125°13.32' E (Alpino, J. and Salazar, J., 1999). The estimated area is 47.5ha with the length of 950m and a width of 500m. Moving 20-30m seaward from the shore, the sea floor consists of a muddy to sandy bottom dominated by seagrass beds, which serve as fish nursery areas, and as a source of food and nutrients for the coastal ecosystem. They are extremely productive, more so than a comparable area of agricultural land (Allen, R. and Steene R., 1994). Water visibility was 15 feet.

The estimated live coral cover is 58% (good). The area has a diversity of corals consisting of branching, massive, encrusting, free living, columnar, and foliaceous growth formations. No one species is dominant.

Fish abundance and average size is small, probably due to overfishing by the local fishermen. The fish families found were wrasses, surgeonfishes, butterflyfishes, flyingfishes, anchovies, snappers, damselfishes, and rabbitfishes.

Barangay Calag-itan

The area is bounded at the eastern side by a marker buoy with coordinates of 10°26.37' N and 125°11.60' E and at the western side 10°26.20' N and 125°10.99' E (Alpino, J. and Salazar, J., 1999). The estimated area of the fish sanctuary is 15.5ha. The seagrass beds are concentrated at the south-western side of the sanctuary. Water visibility can reach up to 40 feet.

The coral reef area has an estimated live coral cover of 75% (excellent). It has a great diversity of species of corals that consists of table forming, branching, massive, encrusting, free living, columnar, and foliaceous growth formations and no dominant species present. The fish fauna is also diverse and larger in size, which suggests that the area has been strictly protected by the barangay. Common fish families include snappers, wrasses, clownfishes, butterflyfishes, angelfishes, fusiliers, surgeonfishes, emperors, triggerfishes, soldierfishes, silver breams, rabbitfishes, groupers, and rockskippers.

Barangay San Pablo

The fish sanctuary is bound at the north-eastern side by a buoy (with coordinates 10°26.12' N, 125°13.35' E), and the south-eastern side (with coordinates of 10°26.01' N, 125°13.31' E); north-western side (with coordinates of 10°26.11' N, 125°13.02'E) and south-western side (with coordinates 10°26.01' N, 125°13.00').

E (Alpino, J. and Salazar, J., 1999). It covers an area of 35ha. Water visibility was 15 feet.

The estimated live coral cover is 44% (fair), which consists primarily of massive, encrusting, table forming, and branching coral growth forms. Bleached corals were also observed, caused by crown-of-thorns (*Acanthaster planci*) infestation. The fish fauna in the area is diverse, and includes parrotfishes, needlefishes, snappers, lionfish, anchovies, silverside, butterflyfishes, fusiliers, wrasses, damselfishes, surgeonfishes, and angelfishes.

Barangay Ingan

The area is bound at the north-western side by Styrofoam buoy markers (with coordinates of 10°27.30' N, 125°11.24' E); at the north-eastern side (10°27.32' N, 125°11.24' E), the south-eastern side, (10°27.09' N, 125°11.43' E) and at the south-western side (10°27.08' N, 125°11.25' E) (Alpino, J. and Salazar, J., 1999). The estimated covered area is 10.75ha, with a length of 430 m and a width of 250 m.

According to the survey of J. Alpino and J. Salazar (1999), the live coral cover, which consist of massive, tubulate, sub massive and branching corals, was only 15%. There is a lot of standing dead corals, which could be the result of crown-of-thorns infestation. The fish families present were fusiliers, black spotted snapper, groupers, angelfishes, damselfishes, soldierfishes, and parrotfishes.

Barangay San Pedro

The estimated area of the fish sanctuary is 40-45ha (per.com. Vanilla, E., DA). The BFAR could not provide the coordinates of the area because of a failure of the GPS (Geographical Positioning System) device. The visibility was 15 feet.

The most dominant growth forms of corals are branching and massive. The families of fishes found were surgeonfishes, damselfishes, butterflyfishes, anchovies, parrotfishes, scorpionfishes, goatfishes, trevally, gobies, sweetlips, and wrasses.

Management of the Sanctuaries

The Barangay Fisheries and Aquatic Resources Council (BFARMC) is one of the programmes of the Department of Agriculture (DA) that aims to preserve and manage the marine and aquatic resources in each barangay. The programme began in 1997 after DA approved the proposal of the Municipality. A public hear-

ing, attended by the municipal and barangay councils, was held before the proposal. The BFARMC was organised by LABRADOR, a NGO (refer to chapter 4).

According to the resolution created by the Sangguniang Bayan of the Municipality of Hinunangan, there is a necessity to have a fishery ordinance regulating the fishing industry in the municipality. Illegal fishing is still occurring and it is a priority to protect the fish sanctuaries in this locality. The ordinance shall be known as the Municipal Basic Fishery Ordinance of the Municipality of Hinunangan, Southern Leyte, which will complement with Republic Act No. 8550. The main objective of this ordinance is to acquire full authority to ensure the rational and sustainable utilisation, development, management, and conservation of fisheries and aquatic resources of the municipality. The Local Government Unit (LGU) is accountable to implement the ordinance after its approval.

Only four barangays have established BFARMCs thus far. These are the barangays Pondol, Calag-Itan, Biasong, and Tahusan. Each barangay has its own fish sanctuary except barangay Pondol, whose area is not suitable for sanctuary establishment. The marine biologist from the BFAR Region 8, which includes barangays San Pedro Island, San Pablo Island, and Ingan, surveyed all of the fish sanctuaries. The barangays submitted a resolution asking the BFAR to survey their coastal areas and to recommend sites where fish sanctuaries should be established. After the approval of the resolution, BFAR Region 8 was to provide 25 buoys and 8kg of nylon #300 rope per fish sanctuary. BFARMCs are responsible for the monitoring and management of the sanctuaries. They have the right to arrest or penalise persons caught violating the rules and regulations of the sanctuaries. Fines for the first offence is PhP500; second offence is PhP1,000; and third offence is PhP2,000 and the confiscation of the fishing gears.

In barangay San Pedro Island, the barangay council passed an ordinance stating that any fishermen from other barangays can utilise their barangay water, provided they pay PhP35 per person if they use gill nets or spears. Additional fines of PhP50 will be charged to persons caught with fish from gill nets. The barangay council will collect this money, which will be used for activities such as mangrove planting.

Not all sanctuaries display a strict implementation of the rules and regulations. Such is the case of the Biasong and Tahusan fish sanctuary. It was observed that the local fishermen fished inside the core of the sanctuary using spears and

gill nets. This can be attributed to the fact that the area is not adequately protected and poorly managed by the BFARMC.

Types of fishing gears used in Hinunangan, Southern Leyte

Hand Instruments: instruments exclusive are those made of textile, which are manipulated by a single man.

Spears (pana): instruments provided with pointed, barbed blades at the straight tip which are not detachable from the handle or shaft, are generally thrown by hand although sometimes shot from a gun or bow like device.

Hook and Line: device consisting of baited hooks attached to a line or lines which fish on the principle that fish fall victim to bait.

Simple Hand lines / Drop Lines (pasol): a single vertical line carrying one or two barbed hooks and worked by simply dropping it into the water and waiting for the fish to bite.

Multiple Hand lines (palangre): a single vertical line with a length of 20 to 500 meters and series 6 to 1000 small series of barbed hooks attached to it.

Traps: traps for capturing reef fishes and crustaceans

Fish Pots (bubo): usually baited enticing devices made of bamboo, rattan, or chicken wire in the form of regular receptacles with a non return valve which provides easy entrance but difficult to exit.

Nets: all fishing gear principally made of woven or knitted fabrics with openings or meshes of uniform, or almost uniform sizes (at least in the individual parts of the net).

Gill Nets (pukot): used to capture benthic species by gilling or entrapping.

Bag Nets (basnig): conical or cubical bag nets operated with the aid of light during the dark phase of the moon, and the capture effected by a lifting motion.

Photo 7: Subsistence fisherman on San Pedro Island



Photo 8: Fish market in Hinunangan



Map 5: Location of fish sanctuaries in Hinunangan, Southern Leyte

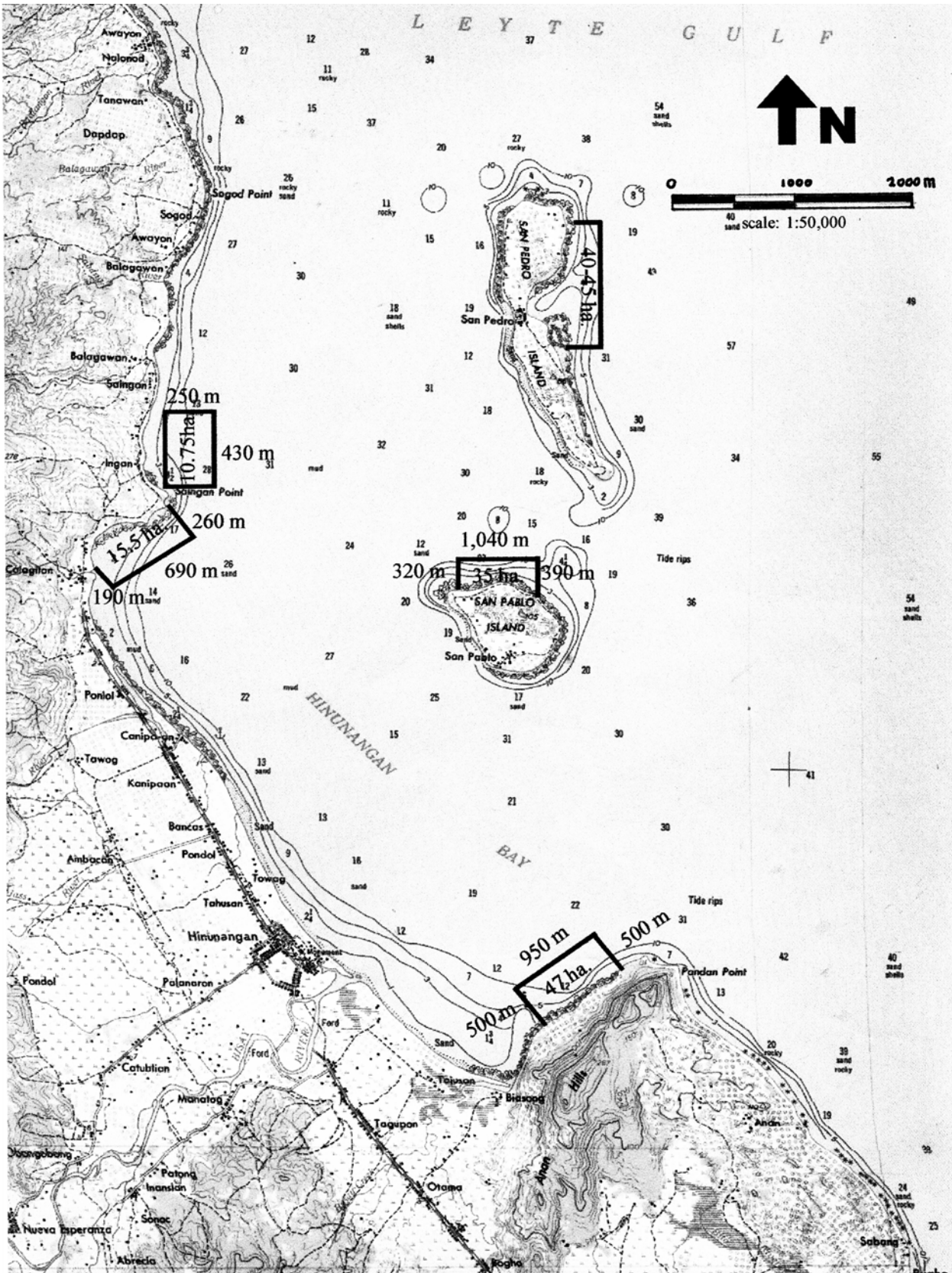


Table 12: Fishes that are commonly found in Hinunangan, So. Leyte

Family	Common Name	Local Name
Holocentridae	Soldier Fish/ Squirrel Fish	baga-baga / suga- suga
Exocoetidae	Flying fish	bangsi / barongoy
Belonidae	Needle fish	balo
Engraulidae	Anchovy	bolinaw
Acanthuridae	Surgeonfish	labahita / indangan
Apogonidae	Cardinal fish	suga
Caesionidae	Fusilier	dalagang-bukid / su- lid
Carangidae	Pompano / Trevally	mamsa
Carangidae	Scad mackerel	budboron
Chaetodontidae	Butterfly fish	alibang-bang
Haemulidae	Sweet lips	labian / lipti
Lethrinidae	Emperor/Large eye bream	katambak
Sparidae	Seabream	gapas-gapas / kila- wan
Lutjanidae	Snapper	maya-maya
Mullidae	Goat fish	timbang
Nemipteridae	Threadfin bream/ Monocle bream	lagaw / silay
Pomacanthidae	Angel fish	alibang-bang
Pomacentridae	Damsel fish	pata-pata
Priacanthidae	Big-eye	baga-baga / suga
Scaridae	Parrot fish	loro-loro / mul-mol
Scrombridae	Mackerel/Tuna	barilis / tulingan/ mangko / tangigi
Serranidae	Grouper	lapu-lapu / pugapo
Siganidae	Rabbit fish	danggit / ketong/ tagbago
Scorpaenidae	Scorpion fish	noo-noog / layong
Syngnathidae	Pipefish	dagum-dagum
Labridae	Wrasse	mameng / labayan
Balistidae	Trigger fish	pakol

Table 13: Corals that are present in Hinunangan, So. Leyte

Family	Genus	Common Name
Milleporidae	<i>Millepora</i>	Fire coral
Poritidae	<i>Porites</i>	Lobate coral
Acroporidae	<i>Acropora</i>	Staghorn coral
Xeniidae	<i>Xenia</i>	Hand coral
Fungiidae	<i>Fungia</i>	Mushroom coral
Pocilloporidae	<i>Stylophora</i>	Creamy coral
Pocilloporidae	<i>Montipora</i>	Pore coral
Agariciidae	<i>Coeloceris</i>	Tombstone coral
Caryophyllidae	<i>Plerogyra</i>	Brain coral
Poritidae	<i>Goniophora</i>	Tentacle coral
Dendrophyllidae	<i>Turbinaria</i>	Plate coral
Pocilloporidae	<i>Seriatophora</i>	
Agariciidae	<i>Pachyseris</i>	Serpent coral
Faviidae	<i>Favia</i>	Knob coral
Fungiidae	<i>Herpolitha</i>	Slipper coral
Pocilloporidae	<i>Stolopora</i>	Creamy coral
Pectiniidae	<i>Mycedium</i>	
Helioporidae	<i>Heliopora</i>	Blue coral
Faviidae	<i>Echinopora</i>	
Faviidae	<i>Favites</i>	Mosaic coral
Faviidae	Goniastrea	Lesser star coral
Faviidae	Platygyra	Brain coral

Table 14: Other invertebrates that are present in Hinunangan, So. Leyte

Family	Genus	Common Name
Tethyidae	<i>Aptos sp.</i>	
Chalinidae	<i>Haliclona sp.</i>	
Petrosiidae	<i>Petrosia sp.</i>	Basket sponge
Spongiidae	<i>Phyllospongia sp.</i>	
Chiropdropidae	<i>Chiropthalmus sp.</i>	Box jellyfish
Cassiopeidae	<i>Mastigias papua</i>	Papuan jellyfish
Cassiopeidae	<i>Cassiopeia sp.</i>	Up side-down jellyfish
Acanthasteridae	<i>Acanthaster planci</i>	Crown of Thorns
	<i>Linkia sp.</i>	Blue starfish
Ophiotrichidae	<i>Ophiactis sp.</i>	Brittle star
Diadematidae	<i>Diadema setosum</i>	Long-spined sea urchin
Toxoneustidae	<i>Tripnuestes gratilla</i>	Gracious sea urchin
Echinometridae	<i>Echinometra mathaei</i>	Rock boring sea urchin
Brissidae	<i>Brissus sp.</i>	Heart urchin
Synaptidae	<i>Synapta sp.</i>	Maculated synaptid
Synaptidae	<i>Synaptula sp.</i>	Pygmy snake sea cucumber
Holothuridae	<i>Holothuria sp.</i>	Sea cucumber
Tridacnidae	<i>Tridacna sp.</i>	Giant clam

Annex 3a: Leyte Bufferzone Forest Management and Reforestation By Smallholder Communities Project (BUFOM)

CP Agencies: Department of Environment and Natural Resources (Region 8)
Provincial Government of Leyte
Provincial Government of Southern Leyte

Project Period: 1st planned phase, March 2000 – Aug. 2002, 2.5 years
total period approx. 10 –12 years⁷⁴

Location: Island of Leyte

Funding: DM 3.5 million

Background

Ruthless logging operations of national and international companies have led to a drastic reduction in Leyte's tropical rainforest since the 1940s. While forest still covered some 42% of the island in 1939, it has now decreased to less than 90,000ha, which translates to less than 12%. Despite the de facto moratorium on commercial logging now in place, the forested area continues to shrink. This can be attributed to the high upland population growth and the pressure these people exert on the land, the largely uncontrolled, non sustainable use of the forest, and illegal commercial logging operations.

Today it has largely been accepted that the majority of the smallholder families have no other alternative than to earn their living and the illegal use of designated forest areas as one of the few additional income opportunities is generally tolerated. However, the cultivation practices employed generally are not sufficiently adapted to the site. Major constraints preventing an improvement in living conditions include a poor supply of agricultural inputs, the inadequate (or lack of) access to credit, extension and other services, and poor links to the market.

The core problem is therefore, that most of the smallholder families living in the Leyte uplands, who run small scale subsistence farms, are finding it increasingly difficult to satisfy their basic needs using their own resources sustainably, and without a destructive impact on the natural resources available.

⁷⁴ Actual starting date for the project was July 2001.

Objective:

The specific purpose of this project has been determined as:

Smallholder families living in selected upland areas of the island of Leyte earn sufficient income while sustainably managing their natural resources.

Key result areas

- Economically viable farming and agroforestry management systems have been elaborated and are being tested on a pilot basis in the uplands.
- Potentials of additional or alternative income generating activities have been screened and promising approaches are being tested.
- Upland farming families access to markets, credit and other relevant agricultural and non agricultural services have improved.
- Sustainable systems for the rehabilitation of forests using indigenous tree species based on participatory management have been tested as pilot projects and are being progressively introduced.
- Upland farmers, farmer's organisations, local government units and other relevant institutions have been upgraded such that they are able to apply the principles of sustainable land use.

Service package

The German contribution to the 1st phase comprises: the secondment of two long-term experts (up to 30 person months each) and of short-term experts; the supply of equipment and expendable materials; the financing of training and upgrading of extension officers and target groups; the production of teaching materials and publications; local subsidies for self help measures; and the assumption of a share of operating and administrative costs.

Since the project aims to strengthen local government and non government initiatives, it will largely support participatory planning and implementation processes that aim at amalgamating public long-term interests of preservation and maintenance of productivity of natural resources with short-term needs for smallholder households.

Since the project has just recently begun, the detailed activities are not yet well defined and will require further consultations with the households and counterpart

institutions concerned. Initially, improved communication and participatory planning between households, LGUs, and regional administrative bodies shall be one of the key areas of attention. Based on thorough analysis and consultation, prospective sustainable management practices will be tested at a number of pilot sites.

Annex 3b: Tacloban Urban Development and Environmental Management Project (TUDEM)

CP Agencies: The Municipality of Tacloban

Project Period: 1st planned phase: January 2001 – June 2003, 2.5. years
total period approx. nine years

Location: Tacloban Municipality

Funding: DM 4 million

Background:

Tacloban's strategic location on the Maharlika Highway, its international port and airport will continue to be conducive to above average economic development. However, economic growth brings not only positive impacts but also significant undesirable side effects in its wake. These include the uncontrolled expansion of urban and peri-urban industrial and residential areas (partly slums) with the associated rapid increase in environmental degradation in an ecologically sensitive coastal region.

Objective:

The specific purpose of the project is set as:

Local environmental management in Tacloban is planned and implemented in a participatory manner, taking due account of the economic and social needs of the urban population.

Key result areas:

- The capabilities of the LGU Tacloban City with respect to local self-government and the steering of sustainable urban development have improved.
- Activity areas have been identified in the field of environmental management and small scale demonstration projects have been implemented in the upland, urban, and coastal zones of Tacloban.

- The pre-requisites for improving solid and liquid waste management and the drainage systems have been clarified and initial measures have been launched.

Service package

The German contribution for the first implementation phase comprises: the secondment of an international long-term expert (up to 30 person-months) and of international short-term experts (up to 10 person-months); the financing of one local/regional expert (up to 30 person-months) and local short-term experts (up to 30 person-months). It also covers the funding of local training and information campaigns, the provision of equipment and materials, the assumption of a share of the operating and administrative costs, and subsidies for small scale projects in the field of environmental protection and income generation.

Annex 3c: Integrated Community-Based Coastal Zone Management - Silago Bay (ICOM)

CP Agencies: Department of Environment and Natural Resources (Region 8)
Provincial Government of Southern Leyte

Project Period: 1st planned phase from Nov. 2000 to Oct. 2002, 2 years
total period approx. 10 –12 years⁷⁵

Location: Island of Leyte

Funding: DM 3.5 million

Background:

In Southern Leyte roughly 80% of the population lives in rural regions. The people primarily earn their livelihood by utilising renewable natural resources in the fisheries, agricultural, and forestry areas.

In recent years, catches landed by artisanal and commercial fishing operations have remained constant or decreased. There are practically no controls. Illegal fishing practices (such as the use of dynamite, cyanide and fine mesh nets) deplete the stocks and damage the coral reefs.

The 58,500ha of classified forest land (almost a third of the total surface area) are government property and include extensive coconut plantations which are cultivated by the local population under stewardship contracts. No other form of agricultural land use is permitted. Nevertheless, mismanagement, neglect by the responsible authorities, illegal logging, and rampant overexploitation led to irreversible damage to Southern Leyte's forestry resources up to the 1990s. Of the total official provincial forest area, less than half is actually covered with woody vegetation at present.

The economic situation of the province is characterised by a low level of industrialisation and poor infrastructure. It will deteriorate even further if the marine, agriculture, and forest resources continue to be overexploited.

⁷⁵ Actual starting date was July 2001.

Objective:

The specific purpose of the project has been set as:

Households in the project area rehabilitated and using their coastal resources sustainably

Key result areas:

- The foundations for the sustainable utilisation of community marine and freshwater resources are secured.
- The potentials for applying sustainable land use systems have been surveyed and concepts for increasing production based on upland and lowland resources have been developed and are being tested.
- Community self organisation and the capacity of municipalities and barangays to provide services are strengthened.
- The performance capability of the responsible specialised authorities and the provincial government in the field of coastal zone management is strengthened.
- Projects to promote new and additional income generating opportunities have been identified and are being tested on a pilot basis.

Service package

In accordance with the project agreement GTZ will field one long-term technical advisor, it will recruit national and international short-term experts as required, and will provide equipment, material and training for the personnel in the counterpart institutions to enhance human capacity.

According to the project design aquatic resources are to be integrated into a multi-sectoral management system for coastal zones. Great importance is attached to the rehabilitation of aquatic resources. Hence, the project will make a major contribution to resource conservation, which was one of the priority areas agreed upon during the bilateral negotiations of 1999.

Annex 4: Scientific and common names of main trees and crops on Leyte Island

Table 15: Tree species and fruit trees commonly found in the study sites

Common name	Scientific name	Local name	Family name
Abaca	<i>Musa textilis</i> Nee.	Abaca	Musaceae
Alagasi	<i>Luekosityke capitellata</i> Wedds	Anagasi	Urticaceae
Anii	<i>Erythrina fusca</i> Lour.	Anii	Fabaceae
Anilau	<i>Colona serratefolia</i> Cav.	Anilaw	Tiliaceae
Avocado	<i>Persia gratissima</i> Gaerth	Abocado	Lauraceae
Banana	<i>Musa ornata</i> Roxb.	Saging	Musaceae
Citrus	<i>Taphasia aurantiola</i> Lour.	Lemonsito	Rutaceae
Coconut	<i>Cocus nucifera</i> L.	Lubi	Palmae
Durian	<i>Duruis zibetinus</i>	Durian	
Jackfruit	<i>Artocarpus hetero- phylla</i>	Nangka/langka	Moraceae
Lanzones	<i>Lansium domesticum</i> Corr.	Bubuwa	Meliaceae
Mahagony	<i>Swientenia macrophyla</i>	Mahagony	
Mangium	<i>Acacia magium</i>	Mangium	
Mango	<i>Mangifera indica</i> L.	Mangga	Anacardia- ceae
Mollucan sau	<i>Albizia falcataria</i> L.	Falcata	Mimosaceae

Common name	Scientific name	Local name	Family name
Narra	<i>Pterocarpus indicus</i> Wild.	Naga	Fabaceae
Raintree	<i>Paraserianthes sanan</i>	Acacia	
Rattan	<i>Calamus sp.</i>	Uway	Palmae
Santol	<i>Sandoricum kodiape</i> Merr.	Santol	Meliaceae
Spike piper	<i>Piper aduncum</i> L.	Muyubuyo / korokawayan / Imelda tree	
Taro	<i>Colocassia sp.</i>	Takudu	
Ulayan	<i>Lithocarpus llanosii</i>	Uwayan / Philippine oak	
White lauan	<i>Shorea contorta</i>	Lauang puti	Dipterocarpaceae
Yemane	<i>Gmelina arborea</i>	Gemelina	Verbenaceae

Table 16: Other common species present in the study sites

Common name	Scientific name	Local name	Family name
Baliw	<i>Pandanus sp.</i>	Baliw	Pandanaceae
Cogon	<i>Imperata cylindrica</i>	Cogon	Graminae
Corn	<i>Zea maize</i>	Mais	Graminae
Nipa	<i>Nipa fruticans</i>	Nipa	Palmae
Sugar cane	<i>Saccharum officinale</i>	Tubo	
Cassava	<i>Manihot esculenta</i>	Camoteng ka- hoy	

Common name	Scientific name	Local name	Family name
Sweet potato	<i>Iponea batatas</i>	Camote	
Pineapple	<i>Ananas comosus</i>	Pena / Penya	
Rice	<i>Oraiza sativa</i>	Palay/humay	Graminae
Romblon	<i>Pandanus sp.</i>	Romblon	Pandanaceae
Talahib	<i>Saccharum sponta- neum</i>	Tigbao/bugang	Graminae

Annex 5: Offices and officials in the municipalities and barangays

The Local Government Code of 1991 includes the descriptions of functions, powers and duties of the numerous offices, positions and services, which were either newly created or redefined. Besides the new regulations regarding legislative and executive powers of the local governments, the devolution of basic services constitutes a large portion of the process, including services such as:

- field health and hospital services and other tertiary services,
- social welfare,
- community based forestry,
- projects on agricultural extension and on site research,
- public works funded by local fund,
- school building programmes,
- tourism facilities,
- promotion and development, and
- telecommunication services and housing projects for provinces and cities and other services such as investment support.

(LGC, 1991, Book I., Chapter 2, Section 17)

Arrangements of the LGC for some of the governmental bodies are described in the following:

Municipality

The functions, powers, and duties of the **mayor** are as follows:

- General supervision and control over all programmes, projects, services and activities of the municipal government which includes: the determination of policy guidelines, appointment of all officials and employees whose wages and salaries are mainly charged against the municipal funds and the representation of the municipality in all its business transactions;
- Law enforcement and implementation of approved policies, programmes, projects and services of the municipality;

- Generation of resources and revenues for development plans including the adoption of adequate measures to safeguard and conserve the natural resources of the municipality;
- Ensure the delivery of basic services

The **Sanggunian Bayan** is composed of:

- the Vice Mayor, as the presiding officer,
- the regular sangguniang members who are elected every three years,
- the president of the municipal chapter of the liga ng mga barangay⁷⁶,
- the president of the pambayang pederasyon ng mga sangguniang kabataan⁷⁷, and
- sectoral representatives⁷⁸.

According to the powers, duties and function stated in the LGC, the Sanggunian Bayan shall:

- Approve ordinances and pass resolutions, including those to protect the environment and impose appropriate penalties for acts which endanger the environment, such as dynamite fishing, illegal logging and slash-and-burn cultivation,
- generate and maximise the use of resources and revenues with particular attention to agro-industrial development and countryside growth and progress, including the adoption of a comprehensive land use plan,
- enact ordinances levying taxes, fees and charges for the municipality's revenue,
- regulate activities regarding the use of land, buildings and structures, and
- approve ordinances to ensure the efficient and effective delivery of basic services.

⁷⁶ Organisation of all barangays, represented mostly by the barangay captains. Chapters of the *liga* exist on municipal, city and provincial level.

⁷⁷ Elected members of the league of barangay youth organisations *sangguniang kabataan*

⁷⁸ The three sectors proposed in the LGC are women, workers and optional indigenous cultural communities, disabled persons or any sector recommended by the Sanggunian.

Characteristics of the **Municipal Development Council (MDC)** are:

- It shall assist the sangguniang in setting the direction of economic and social development and in coordinating development efforts.
- It consists of all the punong barangays (barangay captains), the congressman or his representative, delegated members of the sangguniang and representatives of local NGOs (constituting at least $\frac{1}{4}$ of the council).
- Its main functions are the formulation of social and economic plans and policies and to coordinate, monitor and evaluate the implementation of development programmes and projects.

Main functions of the **Municipal Planning and Development Coordinator (MPDC)** are identical to the MDCs. Furthermore he/she is responsible for:

- formulating comprehensive and other development planning documents,
- conducting continuing studies, research and training programmes,
- monitoring and evaluating of the different development programmes, projects and activities,
- analysing the income and expenditure patterns, and formulating fiscal plans and policies, and
- promoting peoples participation in development planning.

The functions of the **Municipal Agricultural Office/r (MAO)** are defined through the general powers and attributes of the LGUs according the delivery of extension and on site research services and facilities related to agriculture and fishery activities (LGC, Section 17). Accordingly, essential duties and functions of the MAO are:

- to ensure the extension of assistance and access to resources in agricultural/ fisheries production, processing and marketing to farmers, fishermen and local entrepreneurs,
- to conduct location specific agricultural research and provide necessary technical input for the dissemination of its results,
- to enforce agricultural and aquacultural rules and regulations, and
- to coordinate with government agencies and NGOs in related activities.

The **Environmental and Natural Resource Officer (ENRO)** is an optionally appointed official whose responsibilities are:

- to develop plans and strategies for implementing programmes and projects dealing with environment and natural resources that the LGU's are empowered to implement;
- to establish, maintain, protect and preserve communal forests, watersheds, tree parks, mangroves, greenbelts and commercial forests,
- to manage and maintain seed banks and to produce seedlings for forests and tree parks,
- to provide extension services to the beneficiaries of forest development projects⁷⁹,
- to promote small scale mining and utilisation of mineral resources, particularly mining of gold , and
- to coordinate with line agencies and NGOs involved in natural resource management with DENRs assistance.

Generally the ENRO is supposed to be on the frontline of delivering services concerning environmental and natural resources, particularly the renewal and rehabilitation of the environment during and in the aftermath of man made and natural calamities and disasters.

The **Department of Interior and Local Government (DILG)** and its local officer perform the following functions:

- It supervises all municipal and barangay activities and assists the LGU in performing designated duties according to prescribed moral, ethical and professional standards.
- It imposes national directives and monitors the devolution of line agencies such as DA, DOH or DSWD.
- It monitors the office of the local budget officer and the standardisation of salaries and local prices

⁷⁹ E.g. Section 17 of the LGC includes the transfer of responsibility for implementing community based forest projects like ISF to the LGUs. Supervision, control and review remain the responsibility of DENR

Responsibility for the health sector at the municipal level is given to the **Local Health Officer**, whose appointment is mandatory for the municipalities. His/her main functions are:

- formulating and implementing policies, plans, programmes and projects for the local health sector, and
- enforcing all laws, ordinances and regulations relating to public health.

Hospitals are still under the jurisdiction of the national government represented by the Department of Health (DOH). The Department of Social Welfare and Development, represented at the municipal level by the MSWDO (Municipal Social Welfare and Development Officer), and the public hospitals shoulder the direct costs of health services for indigents and low income patients. There are different strategies, approaches and programmes⁸⁰ that try to improve the medical support in the local level. Consultancy to the sangunian bayan regarding the health sector is given by the **Local Health Board**.

Barangay

Generally, the barangay government is endowed with governmental and corporate powers, which include powers expressly granted and implied by law, as well as those which are necessary, appropriate or incidental for efficient and effective governance. It can also exercise powers needed to promote the general welfare of its constituents. Among others it must ensure support for:

- the enhancement of the pursuit of balanced ecology,
- health and safety,
- full employment of the residents, and
- development of appropriate scientific and technological capabilities of self-reliance.

Other powers the barangays are endowed with are:

⁸⁰ E.g. PHC (Primary Health Care): According to the LGC, Chapter II, Section 17, PHC activities are to be implemented by local chief executives, especially Mayors and Barangay Captains.

- power to create revenue resources such as business taxes, fees, penalties or fines,
- authority to discharge the functions of national agencies, including the duty to deliver the related services,
- police power,
- power to negotiate and secure grants,
- power over roads and parks excluding national roads,
- corporate powers that allow full autonomy in the exercise of its proprietary functions and in the management of its economic enterprises, and
- power of eminent domain that allow them to a certain extent, to obtain private property for public use or welfare of the poor and the landless.

Particular characteristics, powers, duties and functions of various barangay offices and officials are described in the following.

The Punong Barangay or **Barangay Captain** is the chief executive of the barangay government and is elected every three years. His powers and duties are

- enforcement of laws and ordinances applicable in the barangay, including those relating to pollution control and protection of the environment,
- negotiation, entering into and signing contracts for, and on behalf of, the barangay, upon authorisation of the sangguninag barangay,
- appointment or replacement of the treasurer, secretary and other appointive barangay officials,
- preparation of the annual executive and supplementary budgets of the barangay in cooperation with the barangay development council, and
- ensuring the delivery of basic services.

The **Sangguniang Barangay** is the legislative body of the barangay and consists of

- the barangay Captain as the presiding officer,
- 7 elected, regular sangguniang barangay members,
- the sangguniang kabataan chairman.

Powers, duties and functions of the Sanguniang barangay are

- enacting ordinances, as may be necessary to discharge the responsibilities conferred upon it,
- enacting tax ordinances and annual supplemental budgets,
- assisting the establishment of cooperative enterprises that will improve the economic condition and well being of the barangay's residents,
- regulating the use of communal property,
- soliciting and accepting monies, materials and voluntary labour from different sources as well as cooperation as it is made available by national, provincial, city, or municipal agencies,
- conducting fundraising activities for barangay projects without the need of securing permits from national or local offices or agencies,
- providing for the organisation of community brigades or community service units,
- organising regular lectures, programmes, or forums on community problems, including the establishment of a informal education centre.

The **Barangay Development Council** (BDC) is headed by the barangay captain and is composed of

- leaders and representatives of the barangay,
- concerned government agencies, and
- NGOs and POs in charge, along with the LGUs.

The BDC shall:

- mobilise peoples participation,
- prepare barangay development plans, and
- monitor and evaluate the implementation of national or local programmes and projects.

The ***Lupong tagapamayapa*** is an operative arm of the barangay's judicial system (Katarungan Pambarangay). It is appointed by the barangay captain and to be constituted every three years. It is composed of

- the barangay captain as chairman,
- 10–20 members who are expected to be qualified and possess integrity, impartiality, independence of mind, sense of fairness, and reputation for probity, and
- a conciliation panel of three members (Pangkat ng Tagapagkasundo).

Function of the ***Lupong tagapamayapa*** is the conciliation and exchange of ideas for amicable settlement of dispute through the Pangkat ng Tagapagkasundo⁸¹.

The **Sangguniang Kabataan** is a council of the youth organisation that is elected. Characteristics of the council are:

- It consists of a chairman, seven members, a secretary, and a treasurer.
- Its members are 15–21 years old.
- The chairman is automatically a member of sangguniang barangay, having equal rights.
- It shall receive 10% of the barangays fund.

A **barangay assembly** shall take place at least twice a year, composed of all actual barangay residents ages 15 and over. Functions of these assemblies, when conducted, are:

- to discuss, hear and pass upon the semestral report of the sangguniang barangay,
- to discuss problems affecting the barangay,
- to initiate legislative processes, and
- to decide upon the adoption of initiatives as a legal process (registered voters may directly propose, enact or amend any ordinance).

⁸¹ No court case can be filed unless the parties have passed through the barangay justice system.

List of SLE Publications (Centre for Advanced Training in Rural Development)

	No. *= out of print
Klemens Hubert , Georg Dürr, Henrik Einfeld, Sigismund Hadelich, Heinz Haug, Irene Haug, Adolf Kraus, Ludwig Löschner, Claus-Rudolf Spranger, Agricultural Production in Kisii District/Kenya and Proposals for its Development . Berlin, 1972	IV/1*
Manfred Schulz , Ursula Bauhoff, Henning Bosüner, Heinrich Ehlers, Helmut Heumos, Franz Ring, Peter Schimann, Jean-P. Stauss, Rapports du stage 1972 à Madagascar - Aspects du développement . Berlin, 1972	IV/2*
Ramesh Chandra Agrawal , Wilfried Blaschnek, Hellmut Fischer, Andreas Frey, Eberhard Göhsing, Willi Nesselrath, Franz Rauch, A Study of the Working and Impact of Indo-German Agricultural Project, Kangra . (India). Berlin, 1973	IV/3*
Herbert Ströbel , Angelika Schneider, Dietrich Stotz, Engelbert Veelbehr, Annemarie Wäschle, Josef Weber, An Economic Analysis of Smallholder Agriculture in the Kericho District , (Kenya). Berlin, 1973	IV/4*
Hans Gsänger , Michael v. Gemmingen, Bernd Lassen, Bernhard Meier, Manfred Metz, Gloria Petrocivs, Wichard Ziebell, The Marketing System for Fruit and Vegetables in Ibadan - A Case Study -, (Nigeria). Berlin, 1973	IV/5*
Ramesh Chandra Agrawal , Gerhard Anger, Franz Brandner, Günter Dresrüsse, Ilse Fritz, Johannes Kotschi, A Study of the Role of Nationalized Banks in Financing Agriculture in the District of South Kanara , (India). Berlin, 1974	IV/6*
Peter Neunhäuser , Christian Döbel, Ingrid Foik, Hans Häusler, Norbert Jost, Bernhard Labus, Hans Pfister, Survey on Smallholder Agriculture in West Sumatra , (Indonesia). Berlin, 1974	IV/7*
Ursula Hadelich-Bauhoff , Wolfgang Bayer, Hans-G. Danninger, Ludwig Hoffmanns, Reinhild Schepers, Gerhard Schnepel, Aspects of Cotton Production in Ulunga District , (Tanzania). Berlin, 1974	IV/8*
Thomas Teuscher , Elisabeth Hässler, Elmar Locher, Barbara Meyer, Konrad Sandhofer, Reinhold Swoboda, Mona Tammer, Feasibility Study on the Establishment of Smallholder Dairy Colonies in Connection with Cattle Multiplication Units in West Malaysia . Berlin, 1975	IV/9*
Eberhard Grosser , Wolfram Brünger, Christoph Diewald, Niels Hansen, Wulf Killmann, César Maldonado, Maria-Theresia Maldonado, Problemática y perspectivas de desarrollo en la agricultura migratoria de una subregión de la Selva Lacandona , (Chiapas, México). Berlin, 1975	IV/10*
Hans Gsänger , Dorothea Altes, Jürgen Hörner, Friedolf Lau, Günter Raad, Gerhard Vollmer, Karl-Ludwig Zils, How to Make Co-Operative Marketing Viable - The Case of Sweet Orange Marketing in Thailand . Berlin, 1975	IV/11*
Ramesh Chandra Agrawal , Peter Englberger, Peter Munzinger, Norbert Rossler, Ludwig Schatz, A Study of Hill Agriculture in Almora (India) - Present Status and Future Strategy for Development . Berlin, 1976	IV/13*
Bernd Schubert , Wolf Dieter Hartmann, Wolfgang Kunze, Klaus Pilgram, Norbert Walter, Richard Zink, Study and Experiment on Marketing of Fazal-I-Manani Plums in Peshawar/Pakistan . Berlin, 1976	IV/14

- Hans-Jürgen Daunicht**, Annette Bernd, Herbert Jenrich, Rainer Struck, Doris Werner, **Capacidad de uso y de manejo de los suelos del Valle Matehuala-Huizache, San Luis Potosí, México**. Berlin, 1976 IV/15
- Hans-Jürgen Daunicht**, Annette Bernd, Herbert Jenrich, Rainer Struck, Doris Werner, **Nutzungskapazität und Bewirtschaftung der Böden des Tales Matehuala-Huizache, San Luis Potosí, México**. Berlin, 1977 (Deutsche Fassung von Nr. IV/15) IV/16*
- Peter Neunhäuser**, Claus Auer, Gerhard Brandt, Gerhard Fischer, Claus Wagner, Anton Wirth. **Possibilities of the Introduction of Draught Animals in the North-West Province of the United Republic of Cameroon**. Berlin, 1977 IV/18*
- Thomas Teuscher**, Richard Baptist, Dedo Geinitz, Karimul Md. Huq, Rolf Peter Mack, Ernst-Axel Momber, Christiane Rehse, **Further Development of Milk Collecting Centre Jasin, Malaysia, for Smallholder Dairying**. Berlin, 1977 IV/19
- Eberhard Grosser, Jochen Pfeiffer**, Günter Baumann, Frank Bremer, Alhoussène Condé, Michael Götze, Walter Hauth, Delphine Onwumere, **Etude agro-socio-économique de base sur les conditions de développement de la Sous-Préfecture de Paoua, Ouham-Pende, (Empire Centrafricain)**. Tome I, Berlin, 1977 IV/20*
- Eberhard Grosser, Jochen Pfeiffer**, Günter Baumann, Frank Bremer, Alhoussène Condé, Michael Götze, Walter Hauth, Delphine Onwumere, **Etude agro-socio-économique de base sur les conditions de développement de la Sous-Préfecture de Paoua, Ouham-Pende, (Empire Centrafricain)**. Tome II (Deutsche Zusammenfassung, Annexes). Berlin, 1977 IV/20 a*
- Peter Munzinger**, Cornelia Deubler, Ralph Jätzold, Detlev Leitner, Renate Melcher, Ulrich Mey, Gerald Rathert, **The Hindi-Magogoni Settlement Scheme in Lamu District, Coastal Province of Kenya**. Berlin, 1978 IV/22
- Ramesh Chandra Agrawal**, Horst Ammann, Hannelore Gelmroth, S.M. Kaikobad, Eberhard Nau, Ursula Nölle, **A Study of Fertilizer Use in Gandaki Zone of Nepal**. Berlin, 1978 IV/23*
- Thomas Teuscher**, Gerd Addicks, Gerd Bleckmann, Hans-Jürgen Bösel, Michael Holzheimer, Erich Klinger, Josef Niedermayer, **Livestock Development in West Sumatra (Indonesia)**. Berlin, 1978 IV/24*
- Detlev Böttcher**, Hans Diederichsen, Hans-Joachim Esderts, Monika Herz, Hubert Schillinger, Wolfgang Schipprack, **Etude sur le développement de la demande et de la commercialisation de la production maraîchère au périmètre public irrigué de Bou Heurtma, Jendouba, Tunisie**. Berlin, 1979 IV/25
- Eberhard Grosser, Aliou Ibra Ba**, Klaus Berger, Curt von Gossler, Matthias Grunewald, Bernd Kadura, Helga Neumann, **Analyse de situation de la région du Tagant (République Islamique de Mauritanie) avec attention particulière aux aspects socio-économiques**. Berlin 1979/80 IV/26
- Kurt J. Peters**, Georg Deichert, Edeltraud Drewes, Günter Fichtner, Sabine Moll, Fernando Chavarria, Bréhima Diakité, **Goat production in low income economic units of selected areas of West-Malaysia**. Berlin, 1979 IV/27*
- Hannelore Börgel**, Barbara Arend, Carola Jacobi, Samuel Kanyarukiga, Alois Kullaya, Berga Lemaga, Sulemann Mogaeka, Wolfgang Prante, **Production, Marketing and Consumption of Potatoes in the Ethiopian Highlands (Holetta, Awassa, Alemaya)**. Berlin, 1980 IV/29*
- Ramesh Chandra Agrawal**, Eberhard Bauer, Manfred Beier, Julia Böcker, Gerd Juntermanns, Theda Kirchner, Reinhard Woytek, **A Study of Agriculture Credit for Small Farmers in Uttar Pradesh/India**. Berlin, 1980 IV/30

- Thomas Teuscher, et.al., Possibilités d'intensification et d'intégration de l'élevage dans les exploitations agricoles des régions Plateaux et Centrale au Togo.** Berlin, 1980 IV/31*
- Klaus Baumgarten, Norma Bethke, Jutta Lehmann, Hans-Ludwig Mayer, Joachim Schröder, Roland Weckend, Present Situation and Development Possibilities for Smallholder Settlements in the Newly Reclaimed Mariut Area in Egypt.** Berlin, 1982 IV/34
- Bernd Schubert, Herbert Butscher, Christopher Kellner, Oskar Linn, Margot Thomsen, Bernd Wolf, Vegetables in East Kalimantan. Agro-Economic Nutritional and Ecological Aspects of Promoting Vegetable Production and Marketing in Three Districts of East Kalimantan - Indonesia.** Berlin, 1982 IV/35*
- Jürgen Hopp, Gerald Rathert, Regula Egli-Frey, Maria Fiedler, Martin Harder, Stephan Jansen, John Kasonta, Karl-Peter Kirsch, Reiner Radermacher, Melanie Tigges- Ismael, Base Line Survey in Coconut Growing Areas of Tanzania.** Berlin 1983 IV/36*
- Peter Schröder, Sylvia Brunold, Günther Mühlbauer, Martin Orth, Angela Petersen, Richard Preißler, Kai Rehfeldt, Andreas Schumacher, Investigation on Current Yield Potentials on Tax Allotments on the Islands of Ha'apia and Vava'u, Kingdom of Tonga (South Pacific).** Berlin, 1983 IV/38
- Peter Neunhäuser, Herbert Bayreuther, Albert Engel, Michael Friesenegger, Aziz Magelassa, Antonio Monteiro Neves, Verena Renneke, Walter Salzer, Appropriate Land Use Systems for Smallholder Farms - A Survey of Ecological and Socio-Economic Conditions in the Machakos District (Kenya).** Berlin, 1983 IV/39*
- Günter Kleemann, Eberhard Krain, Renate Kuchenreuther, Alfonso Otero Moreno, Heinrich Sauter, Johannes Thaysen, Andrea Warner, Situación actual y Potencial de la Producción Lechera en Explotaciones de Doble Propósito en el Pie de Monte Llanero (Meta, Colombia).** Berlin, 1983 IV/40
- Hessameddin Tabatabai, Karl Friedrich Glombitza, Peter Kowoll, Leon Macioszek, Rupert Othmer, Wilhelm Simons, Production and Marketing of Milk in the Smallholder Sector of the Western Region/Jamaica.** Berlin, 1984 IV/41
- Khosrow Saidi, Heike Kross, Hans-Martin Lorenzen, Peter Pfaumann, Joachim Schwanck, Susanne Welz, Jutta Werdes, Baseline Survey of Agriculture and Living Conditions in Semonkong Region/Lesotho.** Berlin, 1984 IV/42
- Uwe Jens Nagel, Bernd Bültemeier, Andrew B. Dua, Veronika Gruber, Thomas Krimmel, Uwe Prien, Sigfrid Schröder, Andreas Springer-Heinze, The Modified Training and Visit System in the Philippines - A Study on the Extension Delivery System in Region III.** Berlin, 1984 IV/43
- Gerd Ramm, Geert Balzer, Manfred van Eckert, Regina Hugo, Barbara Massler, Rolf Müller, Jürgen Richter, Integration of Animal Husbandry into Transmigrant Farming Systems in the Middle Mahakam Area, East Kalimantan, Indonesia.** Berlin, 1985 84
- Ramesh Chandra Agrawal, Elisabeth Brandt-Gerbeth, Irmgard Hettich, Joachim Jeltsch, Thomas Karasch, Elisabeth Mildeberger, Kadir Mwadin, August Visser, Possibilities of Increasing Rural Incomes in Dhading District, Nepal.** Berlin, 1985 85
- Albert Engel, Miguel Calderón-Hagemann, Wolfgang Herbinger, Waltraud Keipp, Jochen Knoth, Gesa Schoop, Henning Weise, Promoting Smallholder Cropping Systems in Bo-Pujehun/Sierra Leone - An Assessment of Traditional Cropping Development Project.** Berlin, 1985 86
- Frank Bremer, Dietrich Busacker, Alpha Diallo, Hauke Fehlberg, Christine Meyer, Willi Monigatti, Karl-Heinz Spiegel, Les possibilités de promotion des petites exploitations agricoles dans la Province Atlantique, Bénin.** Berlin, 1986 94*

- Anne Valle-Zárate**, Georg-Friedrich Heymell, Manfred Jeebe, Klaus Lengefeld, Hergung Sandhagen, Manfred Szyszka, **Condiciones Actuales y Potencial de la Producción Porcina para Mejorar la Situación del Pequeño Productor en la Provincia Gran Chaco - Bolivia**. Berlin, 1986 95
- Peter Neunhäuser**, Dorothee Aehling, Rainer Droste, Christian Graefen, Hassan Kaya, Rainer Schmidt, Helga Stamm, Kurt Wagner, **Demand for Major Fruit Tree Seedlings including Coconut by Village Farms and Farmers in the Lowland Areas of Tanga Region (Tanzania)**. Berlin, 1986 96
- Bernd Schubert**, Christoph Backhaus, Jochen Humann, Lothar Kleipaß, Klaus Michel, Anne Seyfferth, Petra Windisch, Klaus Zoumer, **Proposals for Farming Systems-Oriented Crop Research of Wawi Highland Agricultural Research Station in Northern Thailand**. Berlin, 1986 101
- Geert Balzer**, Norbert Deipenbrock, Regina Ecker, Martin Eisenbeis, Ulfert Focken, Klaus Gühr, Brigitte Reichelt, Peter Saile, **Shifting Cultivation in West Pasaman, Sumatra (Indonesia)**. Berlin, 1987 102
- César Maldonado**, Richard Bitsch, Ulrich Doms, Herwig Hahn, Gustavo Mejía Yepes, Sabine Preuß, Michael Schucht, **Sistemas de Producción Agropecuaria en dos Zonas del Sur del Ecuador**. Berlin, 1987 103
- Ute Westphal**, Martina Clemens, Karin Gaesing, Uwe Grossmann, Dagmar Kunze, Beate Weiskopf, **Baseline Survey on Smallholders in Nimba County, Liberia - To Facilitate Decision Taking in Project Planning**. Berlin, 1988 109
- Ramesh Chandra Agrawal**, Vera Boerger, Felix Feneberg, Tomas Heintz, Georg Janze, Heike Martin, Pejman Mohseni, **Impact of Cattle Distribution from Governmental Livestock Farms on Smallholders in Sri Lanka**. Berlin, 1988 110
- Reinhard Woytek**, Anette Bähring, Dorothee Dersch, Jutta Habermehl, Peter Kaufmann, Trudy Könemund, Maria Weitz, **Soil Erosion Control and Agroforestry in the West Usambara Mountains - Evaluation of an Extension Approach, Tanzania**. Berlin, 1988 111*
- Heinz-Wilhelm Strubenhoff**, Michael Abel, Ursula Fitzau, Angelika Kemmler, Heidi Mann, Monika Reule, Christel Weller, **Etude socio-économique sur l'élevage traditionnel au Togo**. Berlin, 1988 115
- Theo Rauch**, Karin Janz, Anne Lengemann, Siegfried Mayer, Susanne Michalik, Michael Siebert, Dietrich Suhlrie, **The Sustainability of the Impact of the Integrated Rural Development Programme (IRDP) Zambia/NW-Province**. Berlin, 1988 116
- Frigga Wirth**, Hildegard Brosi, Günther Feiler-Jessensky, Peter Glasauer, Gudrun Krause, Andreas Kunert, Marina Mdaihi, **A Baseline Survey for the Identification of Farming Systems in Zanzibar**. Berlin, 1988 117
- Uwe Jens Nagel**, Karen Ehlers, Ralf Engelhardt, Burkhard Gnass, Christine Martins, Bernd Schwenk, Ronald Siegmund, Gerold Wyrwal, **Focussing Formal Surveys - The Use of Rapid Rural Appraisal for Designing a Survey in Nam Lang (Thailand)**. Berlin, 1989 123*
- Ulrike Breitschuh**, Gabriele Bargel, Ingeborg Grimm, Jörg Haas, Iris Harder, Manfred Noll, Rainer Schwarzmeier, Georg Strunden, **Situation socio-économique et agro-écologique: Etudes de cas dans six villages au Département Tillabéri - Niger**. Berlin, 1989 124*
- Hartmut Müller, Rubén Vinueza**, Ivonne Antezana, Andrea Brechelt, Juan Ceballos-Müller, Ruth Kleefisch, Andreas Kress, Maria Stuckenberg, **El Sistema de Comercialización de Ganado Bovino en tres Cantones del Ecuador: Análisis y Recomendaciones**. Berlin, 1989 125

- Thomas Krimmel**, Thomas Duve, Gerd Fleischer, Gazali Ismal, Maimunah Madjid, Hans-Peter Piepho, Anke Schnoor, Mathias Sommer, Sondra Wentzel, **Towards an Institutionalization of Monitoring and Evaluation of Project Impact - The Example of Projects in the Small-Scale Irrigation Sector in West Sumatra, Indonesia**. Berlin, 1990 130
- Theo Rauch**, Lorenz Bachmann, Sibylle Braune, Bastian Ehrhardt, Gertraud Faltermeier, Rolf Speit, Manfred Störmer, **Small-Scale Processing at Rural Centres in Malawi - Possibilities of Development and Promotion**. Berlin, 1990 131
- Dietrich Busacker**, Volker Bode, Sabine Dorlöchter, Angelika Fleddermann, René Förster, Doris Popp, Birgit Schmook, Khaly Sylla, Horst Wattenbach, **L'analyse socio-économique des systèmes d'exploitation agricole et de la gestion de terroir dans le Bas-Saloum, Sénégal**. Berlin, 1990 132*
- Gabriele Bargel**, Inge Grimm, Jörg Haas, Iris Harder, Manfred Noll, Rainer Schwarzmeier, Georg Strunden, **Desertifikationsbekämpfung und soziale Organisation - Möglichkeiten und Grenzen der Implementierung technischer Maßnahmen zum Erosionsschutz im Niger**. Berlin, 1990 133*
- Peter Neunhäuser**, Ursula Danzer, Hubert Deubler, Andreas Groetschel, Gesa Grundmann, Ricky Alisky Martin, Frank Axel Mayer, Petrus Saigol, Abdul Salam Akup, Beate Scherf, Susanne Schmall, Jeflus Sinajin, **Appropriate Land Use Systems for Shifting Cultivators - Technical and Institutional Proposals for a Rural Community Development Programme Based on a Participatory Approach in Kota Marudu District/Sabah (Malaysia)**. Berlin, 1991 138
- Shifting Cultivation - an Evil Thing? How to Plan a Project for Improving Development Chances of Shifting Cultivators in Sabah/Malaysia (A Manual for the Video)**. Kota Marudu District/Sabah (Malaysia). Berlin, 1991. Beiheft zur SLE-Studie Nr. 138
- Bernhard Hoeper**, Wilfried Gebhardt, Thomas Koenig, Ellen Kramer, Bettina Luise Ruerup, Susanne Thieke, **Crop Diversification and Food Security on Household Level with Special Reference to the Cultivation of Vegetables and Fruit Trees - The Case of Ufipa Plateau, Rukwa, Tanzania**. Berlin, 1991 139
- Dagmar Kunze**, Mathilde von Bergen, Lena Blaudez, Martina Haslwimmer, Juliana Hinterberger, Stefanie Schaefer, Cordula Schmüdderich, **Différenciation de la population-cible du Projet Kabare à la base d'une analyse socio-économique dans la région du Kivu, Zaire**. Berlin, 1990 140
- Uwe Jens Nagel**, Stephan Baas, Patrick Chiyanka, Silke Eckert, Jörg Edsen, Martin Geiger, Reiner Laue, Gertrud Lübke, Holger Marbach, **Developing a Participatory Extension Approach - A Design for Siavonga District, Zambia**. Berlin, 1992 149*
- Barbara Massler**, Heiko Bammann, Franz Haller, Friederike Hansmann, Matthias Hitzel, Andreas Hoffmann, Heiko Luetjen, Sabine Speiser, **El Fomento de Cultivos No-Tradicionales de Exportación: ¿Una Estrategia Viable para Baja Verapaz? (Guatemala)**. Berlin, 1992 150
- Beate Lohnert**, Martin Armbruster, Elisabeth Fetsch, Claudia Freudigmann, Hansjörg Lanz, Fritz Roskopf, Rainer Johannes Schierhorst, **Les Interventions Céréalières comme Partie Intégrante de la Sécurisation Alimentaire dans des Régions Déficitaires - Exemple du Cercle de Bandiagara/Mali**. Berlin, 1992 151*
- Ramesh Chandra Agrawal**, Anette Emrich, Ulrich Fechter-Escamilla, Christoph Goormann, Norbert Kleineidam, Jutta Will, **Economic Analysis for Project Sustainability. Study of Selected Drinking Water and Soil and Water Conservation Projects in the Integrated Food Security Programme Shandong, People's Republic of China**. Berlin, 1993 S160

- Ute Westphal**, Uwe Bergmeier, Gottfried von Gemmingen-G., Martina Hanke, Angela Hinrichs, Beate Holthusen, Monika Schneider, Veronika Schwanz, **Participatory Methods for Situation Analysis and Planning of Project Activities - Experiences with Women and Youth in the Communal Areas of Namibia**. Berlin, 1993 S161*
- Günther Feiler**, Markus Ascher, Susanne Dollmann, Richard Haep, Petra Jacobi, Christiane Jansen, Iris Paulus, Petra Schnadt, **Crop-Livestock Integration in Uva Province, Sri Lanka - Present Role and Potential**. Berlin, 1993 S162
- Bernd Schubert**, Abenaa Addai, Stefan Kachelriess, Josef Kienzle, Martin Kitz, Elisabeth Mausolf, Hanna Schädlich, **Facilitating the Introduction of a Participatory and Integrated Development Approach (PIDA) in Kilifi District, Kenya. Volume I: Recommendations for the Institutionalisation of PIDA Based on Four Pilot Projects**. Berlin, 1994 S164 Vol. I
- Bernd Schubert**, Abenaa Addai, Stefan Kachelriess, Josef Kienzle, Martin Kitz, Elisabeth Mausolf, Hanna Schädlich, **Facilitating the Introduction of a Participatory and Integrated Development Approach (PIDA) in Kilifi District, Kenya. Volume II: From Concept to Action. A Manual for Trainers and Users of PIDA**. Berlin, 1994 S164 Vol. II
- Juan Ceballos-Müller**, Norbert Eulerling, Heidrun Gilde, Ricarda Gregori, Bernhard Leemhuis, Ulrich Storck, Rita Weidinger, **Sostenibilidad Institucional en el Desarrollo Rural Regional: "Reduciendo la Brecha entre Organizaciones y el Grupo Meta". Elaboración de Propuestas para COHASA II, Proyecto Integrado de Seguridad Alimentaria en Lempira, Honduras**. Berlin, 1994 S165*
- Iris Paulus**, Marleine Boueiz, Manfred Fischer, Barbara Kuhn, Jan Papendieck, Silke Stöber, Heike Stumpf, Gerd Ullmann, **Le fonctionnement du marché ovin au Maroc - Approche méthodologique et résultats de l'étude pilote au Moyen Atlas**. Berlin, 1994 S166
- Walter Engelberg**, Kulan Amin, Frank Böning, Anselm Duchrow, Anja Gomm, Georg Heidenreich, Markus Radday, Astrid Walker, **Promoting Self-help Activities of Albanian Farmers - Situation Analysis and Assessment of Potentials**. Berlin, 1995 S168
- Gesa Grundmann**, Miguel Expósito, Ilse Fürnkranz, Carola Kiesel, Claudia Lange, Sabine Lutz, Andreas Weitzel, **De peones a propietarios - Hacia un mejor aprovechamiento de los recursos y potenciales por grupos campesinos en Guamote, Provincia de Chimborazo, Ecuador**. Berlin, 1995 S169
- Karin Fiege**, Gunter Englisch, Regina Frey, Hans-Jörg Kräuter, Anna Kreuzer, Andrea Kutter, Ulrike Weinspach, Axel Weiser, **L'autopromotion paysanne dans la gestion des ressources naturelles dans la zone Mali-Sud. Possibilités d'appui institutionnel dans les Cercles de Tominian et de Bla**. Berlin, 1995 S170
- Peter Neunhäuser**, Barbara Abbenheren, Christian Berg, Djekshen Djamgyrchiev, Samira Kalmakova, Maria Lützenkirchen, Sven von der Ohe, Jeannette Weller, **Möglichkeiten partizipativer Landnutzungsplanung - untersucht im Rahmen des geplanten Biosphärenreservats 'Tengir Too' / Kirgistan**. Berlin, 1996 S171
- Iris Paulus**, Léonie Bonnénin, Elise Amelan Yao, Marcelle Goli, Claus Kogelheide, Elke Proell, Birgit Schäfer, Christine Schäfer, Gerald Schmitt, Monika Soddemann, Adèle Tozegba, Susanne Willner, **La gestion des ressources naturelles dans la périphérie du Parc National de Taï, Côte d'Ivoire. Possibilités d'appui au développement des capacités locales**. San-Pédro/Berlin, 1996 S172
- Eberhard Bauer**, Boris Balkarov, Dominikus Collenberg, Renate Kirsch, Kirsten Probst, Sepp Steinbrecher, Ulrike Süsser, Steffen Weidner, **Qualitative Impact Monitoring of Agricultural Structural Adjustment in Jordan. An Approach based on Rapid Rural Appraisal**. Berlin, 1996 S173

- Christine Martins**, Monika Fischer, Eva García-Castañer, Maren Lieberum, Frank Löwen, Bernd Seiffert, **Indonesian Agricultural Extension Planning at a Crossroads (Indonesia)**. Berlin, 1997 S174
- Ingrid Spiller**, Stephan Bock, Annette Kübler, Anja Kühn, Liselotte Lenz, Marc Sporleder, **L'intégration des approches participative et gender dans un projet du développement rural régional - le cas de l'ODAI, Madagascar**. Berlin, 1997 S175
- Christian Berg**, Christiane Beck, Gabriele Beckmann, Cecilia Chimbala, Chala Erko Arganea, Anja-Katrin Fleig, Matthias Kuhlmann, Heike Pander, **Introduction of a Participatory and Integrated Development Process (PIDEP) in Kalomo District, Zambia, Volume I: Main Report**. Berlin, 1997 S176 Vol. I
- Christian Berg**, Christiane Beck, Gabriele Beckmann, Cecilia Chimbala, Chala Erko Arganea, Anja-Katrin Fleig, Matthias Kuhlmann, Heike Pander, **Introduction of a Participatory and Integrated Development Process (PIDEP) in Kalomo District, Zambia, Volume II: Manual for Trainers and Users of PIDEP**. Berlin, 1997 S176 Vol. II
- Andreas Groetschel**, Uta Feiler, Ingrid Jacobsen, Petra Ruth, Jens Schröder, **From Relief to Rehabilitation: Towards Food Security in Northern Tajikistan**. Berlin, 1997 S177
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- Lothar Kinzelmann**, Jochen Dürr, Dirk Heinrichs, Ruth Irlen, Jan Wendt, **Potentials for Self-Directed Rural Development - Community-Based Organizations and their Networks in Thailand**. Berlin, 1998 S179
- Christian Berg**, Kirsten Bredenbeck, Anke Schürmann, Julia Stanzick, Christiane Vaneker, **NGO-Based Participatory Impact Monitoring of an Integrated Rural Development Project in Holalkere Taluk, Karnataka State, India**. Berlin, 1998 S180
- Jochen Currie**, Bernardine Dixon Carlos, Maike Potthast, Rita Reinhardt, Stefan Schukat, Anna Steinschen, **Posibilidades de protección sostenible de áreas protegidas con la participación de etnias indígenas - un estudio de caso de la Reserva de Biosfera BOSAWAS, Nicaragua**. Berlin, 1998 S181
- Ulrich Alff**, Anka Derichs, Ezekiel O. Kute, Claudia Mayer, Halka Otto, **Decentralised and Participatory Development Planning in Nkomazi-Region and Willowvale-Area, South Africa**. Berlin, 1998 S182
- Eberhard Bauer**, Christine Bigdon, Antonia Engel, Benedikt Korf, Giang Nam Ha, Kerstin Schäfer, Esra Terzioglu, **Food Security and Conflict - A Participatory Development Concept for the Integrated Food Security Programme, Trincomalee, Sri Lanka**. Berlin, 1999 S183
- Edwin Wennink**, Ulrike Bickel, Reinhild Bode, Wolfgang Demenus, Ute Pauer, Norbert Rösch, **Cofinanciamiento en Sistemas de Riego Autogestionados - Análisis de la Capacidad y Voluntad de Pago de los Regantes en el Sistema 'Avisado' (Alto Mayo, Perú)**. Berlin, 1999 S184
- Dominikus Collenberg**, Sandra Dierig, Nikola Küsters, Claudia Roos-Mensah, Eric Vaccaro, Anke Weissenborn, **Service Provision for Smallholder Commercial Farmers in Zimbabwe - Analysis of an Agricultural Service System and Participatory Organisational Analysis of the Farmers Development Trust**. Berlin, 1999 S185
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- Andreas Groetschel**, Ingrid Müller-Neuhof, Ines Rathmann, Hermann Rupp, Ximena Santillana, Anja Söger, Jutta Werner, **Watershed Development in Gujarat - A Problem-Oriented Survey for the Indo-German Watershed Development Programme (India)**. Berlin, 2000. S187
- Ekkehard Kürschner**, Irene Arnold, Heino Güllemann, Gesa Kupfer, Oliver Wils, **Incorporating HIV/AIDS Concerns into Participatory Rural Extension. A Multi-Sectoral Approach for Southern Province, Zambia**. Berlin, 2000. S188
- Gabriele Struck, Fernando Silveira Franco**, Natalie Bartelt, Bianca Bövers, Tarik Marc Kubach, Arno Mattes, Magnus Schmid, Silke Schwedes, Christian Smida, **Monitoramento Qualitativo de Impacto - Desenvolvimento de Indicadores para a Extensão Rural no Nordeste do Brasil**. Berlin, 2000. S189
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