ANTIQUE INTEGRATED AREA DEVELOPMENT (ANIAD)

A Community-Based Program

ANTIQUE STRATEGIC UPLAND STUDY

Volume I
ASSESSMENT REPORT

Prepared by:

ORIENT INTEGRATED DEVELOPMENT CONSULTANTS, INC.

OIDCI

Commissioned by:

ANTIQUE INTEGRATED AREA DEVELOPMENT FOUNDATION INC. (ANIAD)

PREFACE

The Antique Strategic Upland Study was commissioned by the Antique Integrated Area Development (ANIAD) Foundation as a vital component of the ANIAD Community-Based Program, whose Phase I Plan of Operations (1991-1993) commenced in January this year. The ANIAD Program is assisted by the Government of the Netherlands (GON) in accordance with a bilateral agreement with the Philippine Government (GOP) signed on 29 November 1990.

In line with the national goal to improve the quality of life of every Filipino, ANIAD aims "to make a significant contribution to the improvement of the socio-economic condition of the population of Antique." To accomplish this goal, its overall strategy is the enhancement of local capabilities for sustainable development thru a community-based program that simultaneously seeks to alleviate poverty and to rehabilitate and conserve the natural resource base.

Hence, the rationale for the high priority given to the conduct of this study -- the uplands of Antique, defined as slopes greater than 8%, comprise 85% of its total land area and sustain about one-third of the total population consisting mostly of marginal farmers; it is an ecological region where the circular causation of poverty and environmental degradation has advanced significantly.

It has become evident that the strategies and intervention programs of the past had not fully addressed the critical issues underlying poverty and environmental degradation of the uplands of Antique. Therefore, this study was commissioned by ANIAD Foundation, through its Project Management Office, in recognition of the urgent need to (re)formulate a medium and long-term strategy of uplands development in Antique that effectively addresses these twin concerns in a simultaneous and integrated manner.

The study conducted by OIDCI can be considered an important contribution to ANIAD's conceptualization of an uplands strategy. A number of elements of the study were already part and parcel of ANIAD's approach, while new elements as indicated in the OIDCI study are being incorporated in ANIAD's concept and future plans. However, it has to be emphasized that this study does not in itself constitute the whole of ANIAD's upland strategy and comprehensive plan for the coming years.

The exchange of ideas and discussions held between the OIDCI, the ANIAD Project Management Office, the ANIAD partner implementing agencies involved in the uplands of Antique helped in shaping this final report.

Antique Integrated Area Development (ANIAD) Foundation
San Jose, Antique
September 1991

UPLAND STRATEGIC PLANNING PROCESS

The Orient Integrated Development Consultants, Inc. (OIDCI) organized a team of consultants to undertake the Upland Strategic Planning Study. This team was composed of the following:

E. Pacardo	-	Farming Systems Specialist/Team Leader
N. Briones	-	Economist
L. Hidalgo/R. Lopez	-	Institutional Development Specialists
E. R. Gaon	-	IAD Planner/Technical Backstopping
Celso Espaldon	-	Researcher

Backstopping Team:

Luzviminda Cornista (Institutional)
Antonio Alcantara (Soils/Land Use)
Leonardo Florece (Forestry)
Carmelo Villacorta (Project Management)

The following Resource Persons who are familiar with the Antique situation provided significant information and insights to the study team:

Gov. Jovito Plameras
P. Nietes
P. Sajise
R. Concepcion
Rod Fuentes (Regional Executive Director, Region 6 - DENR)
Ramona de la Vega (EBJ-UDP)
Elizabeth Venigas (AFON)
Edith Antolino (AFCCUI)
Teodolfo Abiera (DAR) and other DAR staff
Tidon (DA) and other DA staff
Manuel Polido (PENRO-DENR) and other DENR staff
ANIAD PMO led by PM Rosello Macansantos

Secondary information were gathered from different government institutions operating in the province/region (DA, DAR, NIA, DPWH, etc.), the Provincial Government (PPDO, OPA, PEO) and other local government units (LGUs), and Non-Government Organizations (NGOs).

Maps were obtained from NAMRIA and BCGS. Thematic information were mostly taken from the Bureau of Soils and Water Management (BSWM) of the Department of Agriculture and the DENR. Barangay boundary maps were provided by National Statistics Office.

The two ICRA (1982 and 1983) studies and Zenaida Tapawan's Masteral Thesis (1981) were used in the Farming Systems Analysis. These studies provided very significant data which have been validated and compared with recent observations and findings by the team. Other studies like the ones undertaken by ARMDEV, Seño, RSDF, John Lamb and other ANIAD-PMO sponsored studies provided useful references (see Bibliography).

An NGO consultative meeting was also undertaken at the EBJ-UDP office. It was attended by representatives of the six (6) NGOs and its umbrella arm, the Antique Federation of Non-Government Organizations. GOs were visited and lead officials were consulted on issues, problems and opportunities in both the province and in the ANIAD operation.

The Rapid Rural Systems Appraisal (RRSA), an iterative research methodology, was used to generate site level information particularly for the two Concentration Areas (I and II). Through this process, the situation in the project area was assessed using not only secondary information but actual interviews with key informants in the community (including site visits of some model farms) triangulated with actual field observations.

The Draft Report was submitted and distributed to the ANIAD-PMO, Netherland Supervising Party and concerned GOs and NGOs for their review and comments. This was followed by a formal presentation of the report by the consultant's team where comments and suggestions have been made for consideration in the next report. The comments have been subsequently addressed in the Draft Final Report which was submitted and subsequently presented to the client. Except for some minor comments, the Draft Final Report was well accepted. This report incorporates the comments on the Draft Final Report.

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ASSESSMENT REPORT

LIST OF ACRONYMS

A & D	Alienable and Disposable Land
ABC	Association of Barangay Councils
ADB	Asian Development Bank
ADF	Antique Development Foundation
ADS	Agricultural Development Specialist
AFCCUI	Antique Federation of Cooperative Credit Unions, Inc.
AFDAP	Antique Farmers' Development Assistance Program
AHDP	Antique Human Development Program
AMSI	Antique Mountaineering Society, Inc.
ANIAD	Antique Integrated Area Development, Inc.
ANIADFI	Antique Integrated Area Development Foundation, Inc.
ARPTs	Agrarian Reform Program Technologists
ASI	Asian Social Institute
AT	Agricultural Technologist
AUDP	Antique Upland Development Program
BARC	Barangay Agrarian Reform Council
BAS	Bureau of Agricultural Statistics
BHS	Barangay Health Station
CARP	Comprehensive Agrarian Reform Program
CD	Community Development
CDA	Community Development Assistant
CDO	Community Development Officer
CENRO	Community Environment and Natural Resources Office/Officer
CIDA	Canadian International Development Agency
CIDP	Communal Irrigation Development Project
CIPS	Community-based Information Planning Systems
CIS	Communal Irrigation System
CLA	Certificate of Landownership Award
CO	Community Organization
CSC	Certificate of Stewardship Contract
DA	Department of Agriculture
DAR	Department of Agrarian Reform
DA-MAFC	Municipal Association of Farmer's Cooperative
DBM	Department of Budget and Management
DECS	Department of Education, Culture and Sports
DENR	Department of Environment and Natural Resources
DLG	Department of Local Government
DOF	Department of Finance
DOH	Department of Health
DPWH	Department of Public Works and Highways
DTI	Department of Trade and Industry
EBJUDP	Evelio B. Javier Upland Development Project
EMS	Environmental Management Sector
EP	Emancipation Patents
FMS	Forest Management Sector
FMT	Farm Management Technicians

FRI	Forest Resources Inventory
GDP	Gross Domestic Product
GFI	Government Financing Institution
GO	Government Organizations
HE-HIC	Hublag Evelio-Hantique Igcabuli Center
IEC	Information, Education and Communication
IFAD	International Fund for Agricultural Development
IIRR	International Institute for Rural Reconstruction
IR (IRRI)	International Rice (Research Institute)
IRA	Internal Revenue Allotment
ISBDP	Integrated Small Business Development Program
ISF	Integrated Social Forestry
LBP	Land Bank of the Philippines
LGU	Local Government Unit
LMS	Lands Management Sector
LRM	Local Resources Management
LRMP	Local Resources Management Project
M & E	Monitoring and Evaluation
MAO	Municipal Agricultural Officer
MARO	Municipal Agrarian Reform Office
MGS	Mines and Geo-Sciences Sector
MHC	Municipal Health Center
MPDC	Municipal Planning and Development Council
MPDO	Municipal Planning and Development Officer
MSL	Mean Sea Level
MT	Metric Ton
NCSO	National Census and Statistics Office
NEDA	National Economic Development Authority
NFP	National Forestation Program
NGO	Non Government Organization
NIA	National Irrigation Administration
NLRC	National Land Reform Council
NPA	New People's Army
NSO	National Statistics Office (formerly NCSO)
O & M	Operation and Management
OECF	Overseas Economic Cooperation Fund
OIDCI	Orient Integrated Development Consultants, Inc.
OLT	Operation Land Transfer
OPA	Office of Provincial Agriculturist
OPPDC	Office of the Provincial Planning and Development Council
OSCC	Office of the Southern Cultural Communities
PACD	Presidential Assistance on Community Development
PAGASA	Philippine Atmospheric, Geophysical and Astronomical Services Administration
PAO	Provincial Agricultural Officer
PARO	Provincial Agrarian Reform Office
PBSP	Philippine Business for Social Program
PCA	Philippine Coconut Authority
PDC	Provincial Development Council
PEACE	People's Alliance for the Cause of Evelio Development Foundation

PEC	People's Economic Council
PENRO	Provincial Environment and Natural Resources Office/Officer
PEO	Provincial Engineer's Office
PIO	Provincial Infrastructure Office
PMO	Project Management Office
PNB	Philippine National Bank
PO	People's Organization
PPA	Pangkabilugan Pangkauswagan sang Antique
PROCESS	Participatory Research Organization of Communities and Education in the Struggle for Self-Reliance
PTRC	Provincial Training and Research Center
RDC	Regional Development Council
RENRO	Regional Environment and Natural Resources Office/Officer
RRDP	Rainfed Resources Development Project
RRSA	Rapid Rural Systems Appraisal
SALT	Sloping Agricultural Land Technology
SOP	Standard Operating Procedure
SSSTF	Self-Sufficient Small-Time Farmer
USAID	United States Agency for International Development
VOS	Voluntary Offer of Sale
WID	Women in Development

EXECUTIVE SUMMARY

1.0 PROVINCIAL PROFILE

1.1 The province is one of the four provinces of Panay Island in the Western Visayas Region in the Philippines. It consists of 18 municipal subdivisions. It has a total land area of 252,200 hectares of which 85% are hilly and mountainous and only 15% are lowland and coastal areas.

1.2 The province has two agroclimatic regions, a Southern region with distinct equal dry and wet season and a Northern region with even rainfall throughout the year.

1.3 Land is classified into 53% Alienable and Disposable and 47% public forestlands. The vegetative cover consists mainly of agricultural croplands, forests and pastures. Degradation of soil and forest cover is moderate to high in large portions of the upland areas.

1.4 Population was counted at 406,361 in 1990, giving a density of 1.58 persons per hectare. Population growth rate in the last 10 years is estimated at 1.6% which is significantly lower than the national average of 2.4%.

1.5 The population is relatively young with 68.2% falling within the 23 years-and-younger bracket. Males constitute 50.35% while females constitute 49.65% of the total population. However in the more urbanized population centers, females outnumber males at 100 to 92.

1.6 Of a total labor force (15 years old and over) of 262,000 in 1991, 94% were employed. Employment rate was higher among males than females in both rural and urban areas. The main sources of gainful employment were agriculture including fishery and forestry (63.2% of labor force), community, social and personal services (22%), wholesale and retail trade 12%, and others (15%).

1.7 Agriculture is the main source of income of the province's population (42.8%) followed by other sources including remittances from family members working outside the province and gifts (34.2%) and non-agricultural sources such as wages and profits from business (23.0%).

1.8 Households who are dependent on agriculture for livelihood fall within income brackets below of ₱40,000 and are poorer compared to those engaged in business or receive regular salaries or wages (brackets between P10,000 to above P60,000).

1.9 Average family income amounts to P27,000/annum while average family expenditure amounts to P23,533, giving an average savings of P3,743. Food consumption uses up 70% of income of families in the below-P15,000 bracket. The remaining 30% is spent on fuel, light and water. Almost nothing is spent on education, recreation, etc.

1.10 Educational situation is characterized by high enrollment in the primary and low survival rate at the intermediate level. Average educational attainment is Grade V. Nevertheless literacy is high at 83.7, recorded in 1990.

1.11 The health situation is characterized by relatively high morbidity and mortality rates especially among infants. Most common diseases are viral infections, respiratory ailments and others which manifest nutritional deficiencies.

1.12 Lack of potable water supply, and related problems such as sanitation, poor hygiene and improper waste disposal is a perennial threat to family health.

1.13 Family planning programs has little impact on the uplands because of seeming lack of commitment of the implementors and the difficulty of gaining acceptance of contraceptives by a predominantly Catholic population.

1.14 Major developmental infrastructures include roads and bridges, irrigation, social infrastructure for health and education. These are generally below the requirements based on criteria of density, population-facilities ratios and physical accessibility.

2.0 UPLAND RESOURCES

2.1 Areas with slopes of 18% and over are defined as the upland areas. They constitute 72% of the area and contain 31% of the population.

2.2 Seven major watersheds serve as source of water for one national and some 15 communal irrigation systems in lowland areas.

2.3 The uplands are the source of food and cash crops in addition to rice planted in terraced areas or merely clearings in moderate slopes. It is also the source of raw materials for existing cottage industries such as bamboo, palm and bariw leaves, vines, clay for pottery, etc. In addition the uplands provide grasslands for the province's livestock production.

2.4 The uplands are not self-sufficient in rice and depends on the lowlands for part of its requirement.

2.5 Limited employment opportunities bring uplanders to the lowland for off-farming season employment or intermittent petty jobs.

2.6 Forest cover has dwindled to a mere 12% of the land area. Occupation and continuous cultivation of steep slopes has resulted in soil erosion, flash floods and drought affecting lowland areas.

2.7 Migration to urban centers and other places is high because of the decline in agricultural productivity on the one hand and the rising aspiration for a better life of the uplanders on the other.

2.8 Most farmers do not enjoy security of tenure because of the presence of claims of absentee landlords, and due to absence of formal ownership documents by owner tillers.

2.9 Unstable peace and order situation also affects upland production and the very security of upland dwellers leading to abandonment in extreme cases.

2.10 The Negritos, a cultural minority group in the hinterlands are the poorest group but they are extremely inaccessible and little is known about their number, location and patterns of living.

3.0 FARMING SYSTEMS

3.1 Approximately 85% of all upland farms are less than 3 hectares.

3.2 Farms are parcellized and fragmented with parcels in different locations. Tenure is by parcel, partly tenanted through lease or share, and partly owned though largely informal, hereditary and undocumented.

3.3 Several ISFP areas exist in the province, which gives forest occupants a 25-year stewardship contract (CSC) renewable for another 25 years. Conditions of appropriate land use and development are attached to the agreement.

3.4 Farming technology is basically traditional particularly in unterraced areas. Rice and corn, root crops and vegetables are cultivated in the slopes without fertilization/other inputs. IR varieties are planted on terraced fields. Fruit trees are planted in backyards.

3.5 Farm investment is minimal. Seeds are sourced from own harvest. The only major investment is the draught animal (carabao). Aside from the plow, farm equipment consists of a variety of handtools.

3.6 Cooperative farm labor called "dagyaw" is practiced during field preparation, harvest and postharvest activities.

3.7 Technical extension from GOs is weak and the presence of extensionists is hardly felt in the uplands. Only OPA and EBJ-UDP is popularly recognized as support agency.

3.8 Rural infrastructure consists of feeder roads to barangay centers, and foot trails to the slope areas; a few developed springs for potable water supply, and social infrastructure such as primary schools, health stations, village halls and multi-purpose pavements.

3.9 Market support and agricultural credit for rainfed upland areas are extremely limited.

4.0 DEVELOPMENT INSTITUTIONS

4.1 The government agencies with upland development/services functions are DA, DENR, DAR, DTI and the provincial government-based OPA-EBJUDP. The effectiveness of these agencies is constrained by limited resources and staff capability, a strong lowland orientation, and other policy mis-orientations.

4.2 The provincial government has an important role to play in upland development pursuant to the policy of full decentralization under the Local Government Code which is in the final stages of enactment by Congress. OPA-EBJUDP can be its technical and operational arm in this respect.

4.3 NGOs have the potential to work in tandem with GOs in assisting upland communities achieve self-reliance. Their role will focus on CO, HRD and empowerment.

4.4 A hundred or so POs exist in the uplands and their organization has been mostly through the efforts of NGOs and EBJUDP. Almost all POs are organized around farming and livestock raising activities.

4.5 Coordination of field activities of GOs and NGOs are constrained by limited resources and personnel, "turf" orientation of agencies, and the absence of a unified plan and management framework that should define roles and guide the activities of these agencies.

5.0 SYNTHESIS AND CONCLUSIONS

5.1 The assessment of the bio-physical, socio-economic, human and institutional resources was designed to enable planning to focus on poverty groups and improve strategies for poverty alleviation. At the same time interventions should be environmentally-sound to ensure long-term sustainability of development.

5.2 The poverty groups identified include small farmers (with less than 3 hectares landholding), landless workers, upland kaingineros and cultural communities (Ati).

5.3 Upland resources are presently underdeveloped and environmental degradation has resulted from improper farming systems and land uses, but opportunities for improvement are not lacking. Indications of successful technological changes have been observed in upland agriculture which can be disseminated on a wider scale.

5.4 The present farming systems are hampered by a number of problems including insecurity of tenure, low technology levels, lack of trained extension personnel, capital, infrastructure and market support.

5.5 The most important institutions with mandates to assist upland development are DA, DENR, DTI, DAR, OPA-EBJUDP, LGUs and the members of the Antique Federation of NGOs. Their complementary roles are critical for an effective upland development program.

5.6 Under the Local Government Code which is in the final stage of enactment by the Philippine Congress, the Provincial Government will have a pivotal role in policy, planning and management of community-based upland development programs.

5.7 Finally areas for further studies to improve the data base planning have been identified including among others institutional-cultural research, engineering studies, crop, market research, role of women, credit, etc.

1.0 PROVINCIAL PROFILE

1.1 Introduction

This section deals on the current general physical features, socio-economic situation and infrastructure condition of the province. The general feature will provide baseline information necessary for the formulation of the strategic plan. How these general characteristics relate to the uplands and how each component influence the others and vice-versa will be drawn and discussed in the succeeding sections.

1.2 Physical Features

1.2.1 Geography and Land Resources

1) Land Area

Antique is among the five provinces comprising Western Visayas (Region VI). It is an elongated stretch of land along the entire west coast of Panay Island bounded by the province of Aklan on the north and northwest, Capiz on the east, Iloilo on the south and southeast and the Cuyo East Pass (arm of the China Sea) on the west. The province is about 155 kilometers long and 35 kms. at its widest point. The total land area is 252,200 ha. of which 95 percent or 239,345 hectares are located in the mainland (Antique Profile, 1987). It has a rugged terrain and a narrow coastal plain. An estimated 85% of the total land area with slopes greater than 8% has been defined as representing the upland zone. The lowland zone represents only around 15% of the total land area.

2) Hydrometeorology

Rainfall

The mean annual rainfall recorded over 31 years (1956-1986) at the PAGASA station in Valderrama, Antique is 3,388.6 mm, ranging from a low of 1,946.1 mm (1984) to a high of 4,750.0 mm (1956). The mean monthly rainfall ranges from 8.2 mm for the month of February to 617.9 mm in August. The maximum monthly rainfall recorded is 1,286.8 mm during July of 1969 (Table 1.1).

Table 1.1. Monthly Rainfall (In Millimeters)

Station: Valderrama, Antique

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
1956	19.1	5.1	41.9	265.3	331.5	244.0	922.8	783.7	917.6	405.2	133.2	680.6	4,750.0
57	209.3	0.0	11.4	71.9	48.0	379.5	750.3	864.8	975.9	421.1	101.2	5.1	3,838.5
58	3.9	24.1	34.3	14.0	92.8	268.3	487.6	581.9	528.2	365.9	185.8	7.5	2,594.3
59	1.3	0.0	57.1	7.6	227.3	498.9	487.9	558.1	418.3	263.8	271.7	126.0	2,918.0
60	68.6	22.8	54.6	38.1	565.5	510.6	415.6	503.1	424.9	824.0	117.8	7.6	3,553.2
61	0.0	0.0	8.8	11.7	506.1	736.8	423.9	662.9	497.2	428.9	155.5	19.8	3,451.6
62	7.6	6.4	31.6	67.0	307.3	393.4	827.7	612.2	468.2	166.4	184.3	24.8	3,096.9
63	11.4	0.0	3.8	15.3	108.3	745.3	248.1	792.7	642.3	139.8	48.3	165.0	2,920.1
64	0.0	0.0	0.0	42.0	374.9	541.1	380.5	601.9	499.6	274.0	723.8	48.2	3,486.0
65	71.1	0.0	47.0	115.6	642.7	615.9	788.1	508.0	491.7	152.4	130.2	36.8	3,599.5
66	0.0	2.5	2.5	6.3	857.2	532.4	429.6	419.5	500.9	217.6	199.2	158.5	3,326.2
67	95.3	17.9	57.0	34.3	123.8	567.9	1,026.4	977.3	576.6	674.7	362.0	0.0	4,513.2
68	16.5	0.0	0.0	29.0	407.6	347.4	634.3	1,090.1	531.8	409.0	187.4	3.8	3,656.9
69	16.5	0.0	0.0	40.6	271.5	636.1	1,286.8	418.5	868.5	150.6	98.2	170.8	3,958.1
70	0.0	0.0	0.0	36.9	265.1	534.6	742.9	555.9	430.7	627.2	282.6	100.3	3,576.2
71	25.6	60.9	85.8	64.8	423.4	1,001.2	1,281.8	550.8	313.7	561.1	105.4	26.0	4,500.5
72	243.3	0.0	23.3	14.0	355.2	559.9	686.9	367.2	527.0	145.1	104.2	125.0	3,151.1
73	0.0	0.0	0.3	57.0	209.7	201.8	358.2	740.9	476.3	411.1	244.7	34.1	2,734.1
74	61.0	0.0	1.0	72.4	147.2	565.8	531.2	497.1	171.0	678.1	0.0	212.8	2,937.6
75	0.0	12.2	0.0	281.5	434.4	460.9	331.0	344.2	381.1	554.8	53.3	91.2	2,944.6
76	53.3	47.0	97.9	14.7	578.8	649.1	515.6	568.8	526.1	108.8	147.3	48.5	3,355.9
77	51.6	17.8	16.8	8.6	267.9	323.3	888.0	678.5	1,102.0	132.8	126.7	2.5	3,616.5
78	31.5	0.0	5.1	139.7									
79						255.9	1,115.9	702.6	402.9	557.0	86.1	57.2	
80	29.0	21.8	129.5	38.6	119.2	515.7	762.9	567.1	782.4	337.7		169.5	
81	81.8	0.0	0.0	56.2	339.1	612.4		371.3			105.5		
82	0.0	0.0	150.3	98.3	391.4	720.4	351.0	591.6			0.0	0.0	
83	0.0			0.0	340.1	907.4			760.0	174.0	596.2	0.0	
84	0.0	0.0	0.0	185.9	0.0	507.6	3.6	528.5	616.9	0.0	103.6	0.0	1,946.1
85	0.0	0.0	0.0	422.1	89.4	715.3	351.4	586.5	13.2	857.9	116.5	0.0	3,152.3
86	0.0	0.0	0.0	15.5	58.7	90.8	267.2	892.6	329.3	0.0	594.5		
MEAN	36.6	8.2	29.7	75.5	306.3	521.3	617.8	617.9	541.9	358.5	191.9	82.9	3,388.6
S.D.	59.07	15.11	41.20	96.60	200.25	204.73	319.31	181.30	235.04	238.25	174.55	134.50	636.10
C.V.	1.61	1.84	1.39	1.28	0.65	0.39	0.52	0.29	0.43	0.66	0.91	1.62	0.19
SKEW	2.454	2.208	1.622	2.284	0.714	0.099	0.500	0.816	0.423	0.468	1.885	3.476	0.21
C.S.	0	0	0	0	0	0	0	0	0	0	0	0	0
N	30	29	29	30	29	30	28	29	28	28	29	28	24

Source: National Irrigation Administration, Valderrama.

Evaporation

In the absence of evaporation data in the province, observation recorded in Pototan, Iloilo for 9 years (1957 - 1965) were used in this study (Table 1.2). The average annual evaporation is 1,960.9 mm, ranging from 1,855.7 mm (1962) to 2,133.6 mm (1958). The monthly maximum occurs during the month of April at 211.7 mm.

Temperature

The mean annual temperature recorded is estimated at 27.4 degree centigrade. The coolest period occurs in the months of December, January and February. The province abruptly warms up in April and May, the latter highly influenced by the North Pacific Trade winds with surface temperatures of 28 degree centigrade. Further, the warming up in April and May is a consequence of the dry and cloudiness months of February, March and April. In general, Antique experiences high day temperatures and very slight temperature declines at night.

Wind

The three main air currents in the Philippines are the northeast monsoon, trade winds and southwest monsoon. The northeast monsoon brings NE wind and rains in the province during the months from October to March. In the months of April and May, wind blows mainly from the NE under the air current of the trade winds. The SW monsoon is a strong air current which brings SW wind and rains, but locally the wind blows west or SW from June to September. Generally, wind velocity and direction over the province tend to be north or northeasterly with an annual average velocity of 13 kilometers per hour.

Typhoon

The frequency of tropical cyclones affecting different regions varies according to geographical location. The southern part of the archipelago up to 8 degrees north latitude is nearly free from typhoons with a frequency of occurrence of only 1.0 percent. The province of Antique is subject to about 7% frequency. The Bicol Region, which is from 11 to 17 degrees north latitude is subject to about 18% frequency. The northern portions of the country are the most typhoon-prone areas with a 32-percent frequency.

Table 1.2. Monthly Evaporation (In Millimeters)

Station: Pototan, Iloilo

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
1957	-	-	229.7	197.6	236.1	171.9	139.9	151.1	139.0	157.4	158.3	174.0	-
58	157.6	177.8	248.6	242.7	228.2	181.0	166.3	150.4	171.8	141.4	135.6	132.2	2,133.6
59	147.4	187.1	204.2	225.8	189.9	217.4	152.1	142.9	142.4	138.9	130.4	132.4	2,010.9
60	156.6	150.6	184.5	210.8	186.2	159.9	149.5	146.6	-	144.5	110.1	132.4	-
61	141.3	147.6	215.1	218.6	188.4	139.7	160.6	138.6	149.9	151.6	147.6	140.4	1,939.4
62	123.7	113.5	185.9	213.0	226.9	146.1	148.8	130.4	119.1	156.1	144.9	147.3	1,855.7
63	133.2	133.2	172.8	232.2	226.0	149.0	171.1	-	145.1	119.7	132.9	141.2	-
64	183.7	155.3	242.0	208.2	174.5	160.7	137.6	178.4	125.2	146.0	122.2	122.2	1,964.0
65	142.9	164.4	182.7	156.6	209.7	161.2	150.2	177.9	139.2	-	-	-	-
MEAN	148.3	153.7	207.3	211.7	207.3	166.1	152.9	152.0	141.5	144.5	135.3	124.7	1,980.7
S.D.	18.21	23.59	27.96	24.70	22.88	23.31	11.23	17.45	15.95	12.01	15.16	15.60	102.34
C.V.	0.12	0.15	0.13	0.12	0.11	0.14	0.07	0.11	0.11	0.08	0.11	0.11	0.05
SKEW	0.952	-0.309	0.346	-1.371	-0.129	1.356	0.337	0.798	0.613	-1.234	-2.176	1.577	0.533
C.S.	0.0	-0.0	0.0	-0.0	0.0	0.0	0.0	0.0	0.0	-0.0	-0.0	0.0	0.0
N	8	9	9	9	9	9	9	8	8	8	8	8	5

Source: PAGASA, Iloilo.

Table 1.3 summarizes the climatological data of the province.

Major River Basins

The province has 7 major river basins with a total drainage area of about 1,286 sq. kms. and mean annual run-off of 2,508 million cubic meters (mcm), broken down as follows:

Majors Basins	Drainage Area, Sq.km.	Mean Annual Run-off, mcm
1. Sibalom	564	942
2. Cangaranan	234	546
3. Paliwan	206	421
4. Dalanas	119	274
5. Ipayo	71	122
6. Cairawan	51	109
7. Hamtic	41	94
Total	1,286	2,508

3) Soils

There are 11 soil types all over the province and one undifferentiated mountain soil found in the highly elevated areas near the Iloilo and Capiz boundaries (see Table 1.4). Alimodian sandy loam dominates most of the upland areas with slopes of 8-30 percent. This soil type is described as moderately good and can be cultivated safely if a carefully planned combination of conservation practices is employed. The undifferentiated mountain soils would be better off if left uncultivated and forest cover is maintained.

The low lying areas are covered with various soil types such as Sta. Rita clay and Umingan clay loam. Sta Rita clay can be cultivated safely but needs good drainage in addition to good farm management practices. Umingan clay loam is deep, well drained and easily worked soil.

4) Mineral Resources

The Department of Environment and Natural Resources (DENR) reported prospect, producing, explored and abandoned metallic and non-metallic mine deposits within Antique.

Table 1.3 CLIMATOLOGICAL DATA
Province of Antique

PARTICULARS	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEP	OCT	NOV	DEC	TOTAL
RAINFALL													
AVERAGE (mm)	37	8	30	76	306	521	618	618	542	359	192	83	3,390.0
MAXIMUM (mm)	243	61	150	282	857	1,001	1,287	1,090	1,102	858	724	681	694.7
MINIMUM (mm)	0	0	0	0	0	91	4	344	13	0	0	0	113.0
NUMBER OF RAINY DAYS	3	1	3	4	14	20	22	20	19	15	9	5	135.0
RELATIVE HUMIDITY (%)	83	80	76	74	79	83	85	84	85	84	84	84	81.8
TEMPERATURE (Degree Centrigrade)													
MEAN	26	26	27	29	29	28	28	27	28	28	27	27	27.4
MEAN MAXIMUM	29	30	31	33	33	31	31	30	31	31	31	30	30.9
MEAN MINIMUM	23	23	23	24	25	25	24	25	24	24	24	23	23.9
EVAPORATION (mm)	148	154	207	212	207	166	153	152	142	145	135	140	1,960.9
PREVAILING WIND DIRECTION	NE	NE	NE	NE	NE	SW	SW	SW	SW	SW	NE	NE	NE
WIND VELOCITY, Km./Hr.	17	17	17	15	11	10	12	12	10	10	13	15	13.0
NUMBER OF TYPHOONS	1			1							2	2	6.0

Note: Period of Observation from 1950 to 1986 at Valderrama, Antique and Iloilo City

Table 1.4. Soil Types by Municipality, Antique Province

ANINI-Y

Alimodian Sandy Clay
Mountain Soils, undifferentiated
Patnongon Sandy Clay Loam
Magcalon Sandy Loam

BARBAZA

Mountain Soils, undifferentiated
Alimodian Sandy Clay
Umingan Sandy Loam
San Miguel Loam
Beach Sand

BELISON

Mountain Soils, undifferentiated
Alimodian Sandy Clay
Magcalon Sandy Loam
Sta. Rita Sandy Loam
Umingan Sandy Loam
Beach Sand

BUGASONG

Beach Sand
Alimodian Sandy Loam
Umingan Sandy Loam
Mountain Soils, undifferentiated
San Miguel Loam

CALUYA

No data available

CULASI

Mountain Soils, undifferentiated
Beach Sand
Alimodian Sandy Clay
Umingan Sandy Loam

HAMTIC

Alimodian Sandy Clay
Mountain Soils, undifferentiated
Sta. Rita Clay
Hydrosol
Umingan Sandy Loam

LAUA-AN

Beach Sand
Umingan Sandy Loam
Patnongon Sandy Clay Loam
Alimodian Sandy Clay
Mountain Soils, undifferentiated

LIBERTAD

Alimodian Sandy Clay
Mountain Soils, undifferentiated
Beach Sand
Sta. Rita Clay

PANDAN

Umingan Clay Loam
Beach Sand
Macalon Sandy Loam
Hydrosol
Patnongon Sandy Clay Loam
Alimodian Sandy Clay
Sta. Rita Clay

PATNONGON

Mountain Soils, undifferentiated
Alimodian Sandy Loam
Umingan Sandy Loam
Sta. Rita Sandy Clay
Beach Sand
Magcalon Sandy Loam

SAN JOSE

Beach Sand
Sta. Rita Clay
Magcalon Sandy Loam
Umingan Sandy Loam
Sta. Rita Sandy Loam

SAN REMIGIO

Mountain Soils,
undifferentiated
Alimodian Sandy Clay
Umingan Sandy Loam
Sta. Rita Clay

SEBASTE

Uminag Clay Loam
Alimodian-Bolinao Complex
Beach Sand
Mountain Soils, undifferentiated
Patnongon Sandy Clay
Alimodian Sandy Clay

SIBALOM

Mountain Soils,
Undifferentiated
Alimodian Sandy Clay
Umingan Sandy Loam
Sta. Rita Sandy Loam

TIBIAO

San Miguel Loam
Alimodian Sandy Clay
Mountain Soils,
undifferentiated
Umingan Sandy Loam

TOBIAS FORNIER

Alimodian Sandy Clay
Mountain Soils,
undifferentiated
Sta. Rita Clay
Beach Sand
Patnongon Sandy Loam
Magcalon Sandy Loam

VALDERRAMA

Umingan Sandy Loam
Mountain Soils, undifferentiated
Alimodian Sandy Clay

The metallic mines are copper, chromite, pyrite, iron, manganese and ferro alloy. Copper deposits were spotted and explored by the Multi-Ore Mines Inc. in Lumbuyan, Barbaza and Electro-Copper, Inc. in San Remigio. The Barbaza site and the San Remigio site were reported to contain 36,255 MT and 59,445 MT respectively.

On the other hand, non-metallic deposits identified are sulfides, clay, sulfur and gemstones among others. Marble deposits are estimated at 31,600 MT and 378,000 MT in Libertad and Pandan respectively. The 16,442,945 MT coal deposit in Semirara, Caluya yielded 700,000 MT annually (DTI, 1989).

Table 1.5 shows the mineral deposits, current status and relative locations of some important mineral reserves in Antique.

1.2.2 Land Classification and Use

Under the present DENR system of land classification, lands 18% in slope and over remain in the public domain and either declared as permanent forest such as national parks, critical watershed areas, civil and military reservations or any other special purposes. Lands under 18% slope are normally declared as alienable and disposable (A & D).

Land classification in Antique indicates the following:

Alienable and Disposable	132,915 ha
Forest Land	119,285 ha
Total Land Area	252,200 ha

About 53% of the total land area of the province are certified A & D areas while the remaining 47% are classified as forest or public lands. Land classification by municipality indicates that the concentration of forest lands are in Valderrama, San Remigio and Culasi with a combined forest land of 49,973 representing 42% of the total. Large A & D areas, on the other hand, are mostly found in Sibalom, Laua-an, Hamtic and Tobias Fornier. San Jose and Tobias Fornier are 100% alienable and disposable (see Table 1.6).

Ninety-nine percent of lands classified as A & D are utilized for various agricultural uses. Others are brushlands, residual forest and mossy forest.

Table 1.5. Mineral Deposits in Antique and their Respective Locations

o Pyrite and Sulfur Deposits

- Igtoog, Patnongon (Igtoog Pyrite Deposit) Pyrite
- Carmen, Patnongon (Carmen Mines, Inc.) Pyrite
- Carawisan, Sibalom (San Remigio Copper Mines) Pyrite
- Sibalom-Valderrama (VMG Project) Pyrite
- Southern Antique (Rosarion Mines) Pyrite
- Bongabon, Sibalom (Bato, Hayao Deposits) Pyrite

o* Copper Deposits

- Lumbuyan, Barbaza (Multi-Ore Mines, Inc.)
- San Remigio (Electro-Copper, Inc.)

o Gemstone and Decorative Materials

- Upper Sibalom River, Sibalom-Green Schist/Jasper
- San Remigio, Belison-Jasper/Blue Schist
- Nagdayao, Sibalom-Jasper/Blue Schist/Petrified Wood/ Jadeite
- Maoit River, Sibalom and Bagumbayan, San Rafael-Jasper/Blue Schist/Quartz
- Fabrica, Hamtic - Blue Schist/Jasper/Green Schist
- Tipuluan River, Panlagangan-Jasper/Blue Schist

o Clay Deposits

- Atiotis, Dao (T. Fornier)

#o Marble Deposits

- Libertad, San Roque, Pajo and Bulanao (Tudor Mineral Expl. Corp.)
- Pandan Marble Prospects (Pan Marble Corp)

Legend: o - Producing/Abandoned
* - Explored
# - Prospect

Table 1.6. Land Classification Status by Municipality, Antique

Municipality	Forest Land	Alienable & Disposable	Total Land Area
Anini-y	292	5,228	5,520
Belison	-	3,750	3,750
Barbaza	7,270	4,630	11,900
Bugasong	9,499	3,481	12,980
Caluya	2,369	9,331	11,700
Culasi	11,275	7,925	19,200
Hamtic	2,180	11,780	13,960
Laua-an	8,034	12,746	20,780
Libertad	5,355	2,245	7,600
Pandan	6,487	7,213	13,700
Patnongon	5,019	7,591	12,610
San Jose	-	2,560	2,560
San Remigio	16,489	10,001	26,490
Sebaste	6,104	3,586	9,690
Sibalom	7,199	17,471	24,670
Tibiao	9,504	5,076	14,580
Tobias Fornier	-	11,170	11,170
Valderrama	22,209	7,131	29,340
Total	119,285	132,915	252,200

Source: CENRO San Jose and Culasi, DENR, Antique, 1991.

Majority of classified forest lands (70%) are already cultivated to various crops while the remaining areas are mostly brushlands (13%). Dipterocarp residual forests only occupy about 10% of the total forest area and the rest comprising of mossy and sub-marginal forests account for around 8 percent. The land use category is presented in Table 1.7.

Table 1.7. Land Use Category, Antique Province (RP-German FRI, 1987)

CATEGORY	Forest Lands (ha)	Certified A & D (ha)	Total Area (ha)
Dipterocarp Old Growth (above 800 m)	-	-	-
Dipterocarp Old Growth (below 800)	-	-	-
Dipterocarp Residual Forest	12,396	477	12,873
Pine Forest closed	-	-	-
Pine Forest open	-	-	-
Submarginal Forest	95	-	95
Mossy Forest	9,535	95	9,630
Mangrove old growth	-	-	-
Mangrove reproduction	-	-	-
Brushland	15,542	477	16,019
Plantation forest	-	-	-
Croplands	83,336	130,248	213,584
Total	120,904	131,297	252,201

1.2.3 Important Crops Grown and Tree Species

Antique grows a variety of agricultural crops. Palay, corn, peanut and mungbean are the most commonly preferred crops. Rice for instance is planted almost year round in irrigated areas. Corn, peanut and mungbean are popular for second and third cropping because of the limited water available. Some barangays, however, have reported to abandon the third cropping because of unavailability of water supply.

With regards to perennial crops, there are a total of forty three species (43) being cultivated in the barangays studied by the Community Facilitators (1989). Most common/dominant agricultural crops planted include banana, coffee, mango, jackfruit, coconut, coffee, starapple, avocado, oranges and cacao (Table 1.8). Areawise, only limited portions of most farms are devoted to perennials. Their produce are not even sufficient to supply household consumption needs.

Table 1.8. List of Perennial Crops Grown in Antique.

Crop	Frequency
A. Horticultural Crops	
1. Coffee	28
2. Banana	28
3. Mango	34
4. Jackfruit	34
5. Coconut	37
6. Starapple	24
7. Cashew	12
8. Avocado	20
9. Orange	16
10. Cacao	19
11. Breadfruit	3
12. Papaya	5
13. Guyabano	8
14. Tiesa	8
15. Macopa	1
16. Achuete	7
17. Siniguelas	9
18. Tamarind	1
19. Atis	2
20. Pineapple	1
21. Balimbing	1
22. Lanzones	2
23. Guava	7
B. Forestry Crops	
1. Ipil-ipil	12
2. Batwan	3
3. Madre de cacao	5
4. Duhat	13
5. Narra	5
6. Gmelina	4
7. Mahogany	8
8. Payhod	4
9. Bamboo	25
10. Camachile	3
11. Acacia	1
12. Santol	12
13. Tipol	1
14. Aratilis	1
15. Doldol	2
16. Bariw	3
17. Bayuko	1
18. Toog	4
19. Buri	3
20. Kapok	2

n = 38 barangay
Source: Community Facilitators, 1989.

In the forestry area, a total of twenty species were recorded with bamboo (Bambusa blumeana var. spinosa) as the most commonly harvested resource owing to the abundance of wild growing plantations from north to south of the province. It has also been observed to thrive well in degraded mountains of the watersheds in association with cogon and along major river banks and tributaries. Bamboo extraction has become popular as raw material for cottage industry and as a major house construction component due to limited lumber available in the province.

Most of the forestry species identified are growing wildly in the area except mahogany (Swietenia macrophylla) and yemane (Gmelina arborea) which have been introduced as reforestation species. There are species that are indigenous while some are introduced but have already adapted to the site. The indigenous species are uncultivated or allowed to regenerate by themselves until such time that they are harvested mainly for fuelwood.

Despite the abundance of indigenous forestry species in Antique, the choice of reforestation species are only confined to mahogany, gmelina and narra when in fact "payhod" (Albizia procera), madre de cacao (Gliricidia sepium) and duhat (Syziqium cuminii) are excellent species because they are relatively fire resistant and exhibit good coppicing characteristics. Their acceptance by the local populace is high as they have been part of their traditional agriculture system.

With regards to minor forest products available in Antique, the forest resources inventory in CENROs Culasi and San Jose identified the following species: bamboo, rattan, anahaw, nito, hipgid, hagnaya, resins, pandan, banban, bariw, buri and others. However, just like the wood resources, these too have to be protected from over utilization. Some of these thrive under the canopy of residual forests so that destroying their habitat will likewise endanger them.

Based on the RP-German Forest Resource Inventory in 1987, Antique's forest cover was estimated at 22,600 hectares. The comparison between the first inventory in 1969 and the second inventory in 1987 showed a forest decline of 9,500 ha over an 18-year period (from 31,500 ha to 22,000 ha) or an annual decline of around 528 hectares.

As pointed out by key informants, the combined effects of indiscriminate firewood gathering, carabao logging and shifting cultivation have caused the destruction of Antique's forest. This condition has resulted in the acute shortage of wood in the province. It has to import most of its lumber as far as Palawan and sources in Iloilo City (Table 1.9). The high cost and unavailability of lumber in the province paved the way for the utilization of substitute

construction material mostly bamboo. This is very apparent in most houses from south to north of Antique which are made of light materials particularly bamboo.

In 1987, there was an average of 34 common hardwood and 30 construction and furniture wood trees per ha that fall in diameter class 40 cm dbh (diameter breast height) and up. The corresponding volume amounts to 54 m^3/ha and 27 m^3/ha respectively (below Philippine average). The number of saplings and poles, however, reflects average Philippine conditions. In about 30% of all residual stands, more than 200 common hardwoods between 5 cm and 55 cm dbh were recorded (one of the requirements for successful timber stand improvement). In order to harvest any of the future crop trees, however, the present deforestation rate of 8,900 ha per year at the regional level has to be stopped. The total bole volume for Region 6 is shown in Table 1.10. The existing volume of timber in Antique is not enough to supply the present demand even if sound silvicultural management practices are applied (RP-German FRI, 1987).

1.2.4 Livestock Raised

The combined 1991 livestock population in Antique consist of 122,893 animal heads. Forty one percent of this are swine, 25% carabao, 23% cattle and the rest are goats. Most of this are backyard or small scale. Poultry, on the other hand, consists of chicken and ducks which are also mostly of the backyard scale.

Raising of animals is an integral component of farming in most of rural Antique. The Community Facilitators Study revealed that chicken, carabao, cattle, swine, goat, duck and turkey are the most popular domestic animals raised in the studied barangays.

There are various reasons with regards to the preference for a particular type of animal. Goat is preferred because of (a) ease in management, (b) less care and maintenance applied, and (c) wider range of adaptability. For carabao, the major reasons include (a) draft animal and (d) great endurance. Interest in cattle raising is due to high market potential and high price. In the case of chicken, duck and swine some reasons for domestication include: (a) relatively shorter production maturity, thus readily available when the need arises, (b) ease in management, (c) less care and maintenance needed and (d) lower capital investment required.

Table 1.9. List of Lumber Dealers/Retailers (CENRO, San Jose, Antique)

Name of Lumber Dealer	Proprietor	Permit No.	Supplier/Address	Date Issued	Expiry Date	Address
1. Aguilar Sons Mktg. Co.	Eugene Aguilar	6-2-LR047-063091	Go Pun Lumber and Hardware Ilo. City	10-18-90	6-30-91	San Jose Antique
2. Antique Commercial	Querico Pe	6-2-LD008-051192	Pagdanan Timber Products Inc.	5-21-90	5-11-92	"
3. Elcat Native Products	Jose Delfin	6-2-LD042-063093	-do-	11-6-90	6-30-93	"
4. Jenny's Store	Jorge Padudera	6-2-LR039-033191	Iloilo Avenue Lumber Iloilo City	9-25-90	3-31-91	Sibalom Antique
5. KARL Enterprises	Carlos Jayme	6-2-LR014-123093	Iloilo Central Lumber Iloilo City	2-4-91	12-31-93	San Jose Antique
6. L.A.S.P. Marketing	Alexander Pingoy	6-2-019-0731-91	Antique Commercial San Jose, Antique	7-12-90	7-31-91	"
7. Maxnel Enterprises	Maximiano Santina	6-2-LR020-123193	Yap Chuy Kee HDWR. Inc. I.C. Iloilo Asian Lumber and Hardware	2-6-91	12-31-93	Sibalom Antique
8. Mantos Products	Alex Azurin	6-2-LR056-083093	Antique Commercial San Jose, Antique	11-28-90	8-30-93	San Jose, Antique
9. Robert Trading	Nimfa Uy	6-2-LR006-123191	Iloilo Central Lumber Iloilo City	1-21-91	12-31-91	"
10. Susana Marketing	Alex Lino	6-2-LR0055-043091	-do-	11-23-90	4-30-91	"
11. St. Nicolas Lumber	Soledad Harmay	6-2LD048-053191	Liberty Forest Inc.	12-17-90	5-31-91	"
12. Alfredo Niety Ent.	Alfredo Niety	-	EC Lumber, San Pedro Puerto Princesa City	-	-	"
13. Aquamarine Lumber and General Merchant	Juancho Sadio	-	-	-	-	-

Table 1.10. Total Bole Volume in Region 6 by Province and Commercial Group.

Province	Common Hardwoods		Const. & Furn Woods		Light Hardwoods		Softwoods		Others		Total	
	DBH>=15cm	DBH>=55cm	DBH>=15cm	DBH>=55cm	DBH>=15cm	DBH>=55cm	DBH>=15cm	DBH>=55cm	DBH>=15cm	DBH>=55cm	DBH>=15cm	DBH>=55cm
Aklan	.847	.445	.705	.102	.043	.003	.045	.034	.325	.056	1.965	.640
Antique	.705	.371	.587	.085	.036	.003	.037	.028	.270	.046	1.635	.533
Capiz	.378	.198	.314	.045	.019	.001	.020	.015	.145	.025	.876	.284
Iloilo	.264	.139	.220	.032	.013	.001	.014	.011	.101	.017	.612	.200
Neg. Occidental	1.190	.658	.934	.145	.054	.004	.081	.062	.428	.075	2.687	.944
Total	3.384	1.811	2.716	.409	.165	.012	.197	.150	1.269	.219	7.775	2.601

Source: RP-German Forest Resources Inventory, 1987.

1.3 Socio-Economic Background

1.3.1 Population

The total population of Antique in 1990 was counted at 406,361 persons, giving an increase of 28,732 over the 1980 figure of 377,589. The computed growth rate over a ten-year period is 1.6% which is significantly lower than the national average of 2.4%.

The total number of households in the province in 1990 was counted at 77,432, indicating an average household size of 5.2 or nearly equal to the national average of 5.3. This clearly indicates that the low population growth rate is largely due to outmigration rather than reduction in family size.

A comparison of the population growth rate in the Western Visayas Region and the country indicates that the entire region is an out migration area. The 1960-1990 figures are as follows:

Census Year	Antique	Region VI	Philippines
1960 - 1970	1.9	1.6	3.0
1970 - 1975	1.3	2.8	2.8
1975 - 1980	2.4	1.8	2.7
1980 - 1990	1.6	1.8	2.4

Source: Seño, 1990; NCSO, 1990

Settlement Pattern and Density

The provincial population is the aggregate of the population of 17 mainland municipalities and that of the island municipality of Caluya. The settlement pattern consists of an urban center in each municipality called the "poblacion" and an agricultural hinterland. The largest urban center is found in San Jose, the provincial capital. As deduced from the Provincial Profile prepared in 1987 by the Provincial Government, urban dwellers were estimated to constitute a mere 21.41% of the provincial population, making Antique one of the most predominantly rural provinces in the country.

Population concentration is in the lowlands accounting for a population density of about 742 persons/sq. km. compared to the upland's 59 persons/sq. km. Average population density provincewide is 163 persons/sq.km. Southern Antique is more populated compared to the northern and central areas. Of the total 776 barangays in the province, about 228 are in the uplands (Table 1.11).

Age-Sex Structure

As of 1990, the age structure of the province exhibits the same general pattern as that of the country (Figure 1.3). It is predominated by the young generation as follows:

Age Level	Percent Distribution
14 and below	40.4
15 - 23	27.8
24 - 64	27.1
65 and above	4.7

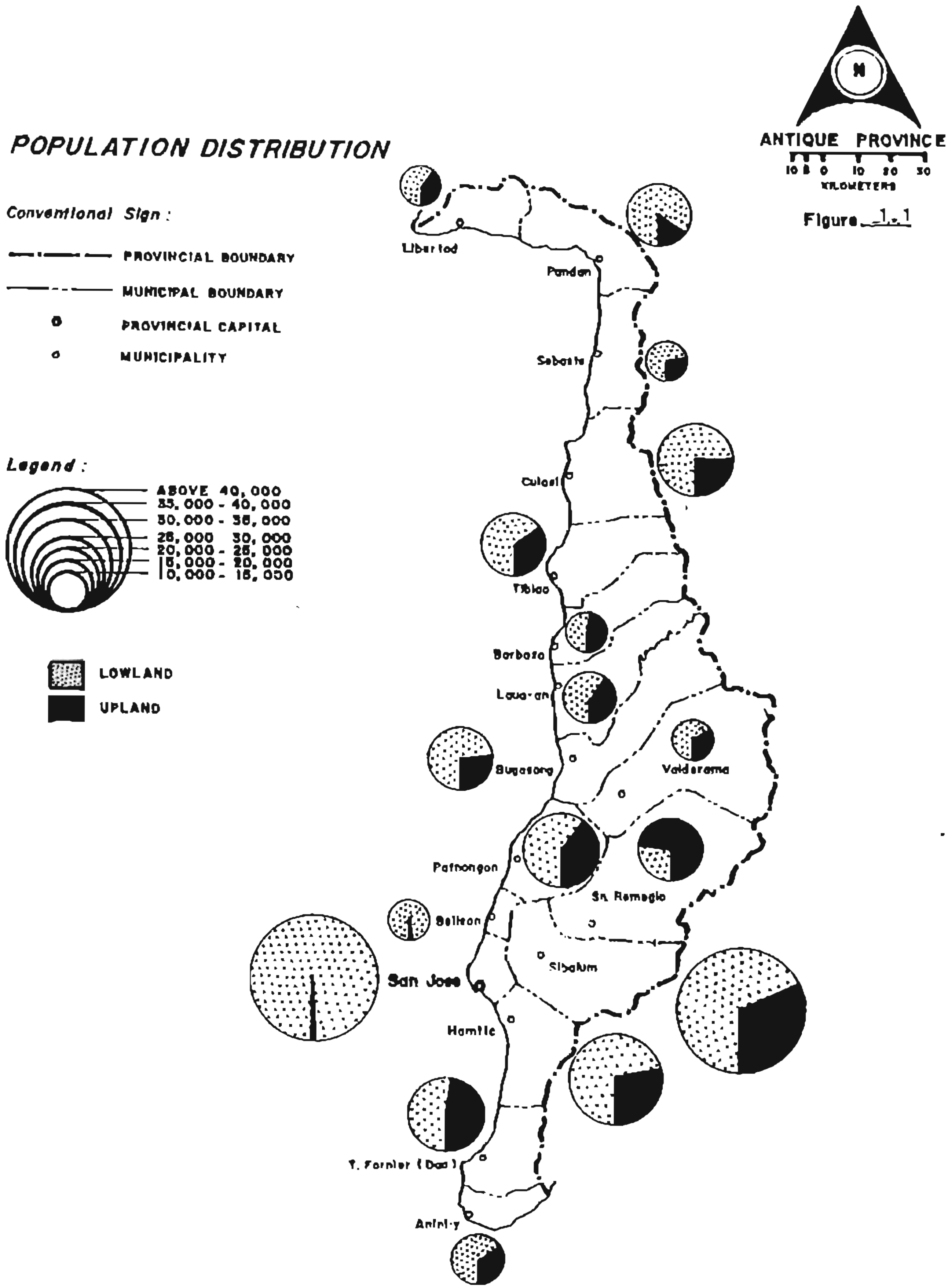
Dependency ratio (ages 0-14 plus 65 and above divided by ages 15-64), however, is 82.1 which is already lower than the 90.4 in 1980 and 93.44 in 1975 (Profile, 1987). In one sense, this means increasing number of potential labor force to support the supposed dependents. In another sense, this implies growing number of potential employment-seekers who refuse or who could not get out of the province to seek employment outside for one reason or another.

Males constitute 50.35% while 49.65% are females in an almost equal distribution of sexes provincewide. Based on available 1988 estimates, around 80% of the total population live in the rural areas, while 20% in the urban areas. The females outnumber the males in the urban areas by a ratio of 1000 females for every 923 males, particularly noted among ages 15 and above. In the rural areas, the males outnumber the females by a ratio of 1000 males for every 996 females. In the upland, male predominance is especially noted at ages 19 and below, at a ratio of 1000 males for every 980 females.

Male and female predominance in the rural and urban areas, respectively, is a common observation in the country and is largely attributed to migration pattern. Females from the rural areas tend to go to the urban centers while the men tend to go to pioneer agricultural zones, either due to their respective work orientations or capabilities which make them feel comfortable in venturing to their preferred places of destination.

Table 1.11. Population, Population Density, Number of Barangays, and Area by Zone
Province of Antique

AREA/MUNICIPALITY	TOTAL				LOWLAND						UPLAND					
	No of Bgys	Pop.	Area km²	Density Pop/km²	No of Bgys	Pop.	% Pop.	Area km²	Density Pop/km²	% Area	No of Bgys	Pop.	% Pop	Area km²	Density Pop/km²	% Area
NORTHERN ANTIQUE	107	77,215	472.54	163	74	56,649	73%	63.26	895	13%	33	20,566	27%	409.28	50	87%
1. Libertad	19	11,049	78.26	141	14	6,661	60%	5.25	1,269	7%	5	4,388	40%	73.01	60	93%
2. Pandan	34	23,894	123.76	193	24	18,549	78%	20.00	927	16%	10	5,345	22%	103.76	52	84%
3. Sebaste	10	12,553	101.51	124	8	9,185	73%	9.14	1,005	9%	2	3,368	27%	92.37	36	91%
4. Culasi	44	29,719	169.01	176	28	22,254	75%	28.87	771	17%	16	7,465	25%	140.14	53	83%
CENTRAL ANTIQUE	149	93,775	920.07	102	79	62,535	67%	89.47	699	10%	70	31,240	33%	830.60	38	90%
1. Tibiao	21	20,192	137.94	146	12	13,666	68%	18.07	756	13%	9	6,526	32%	119.87	54	87%
2. Barbaza	39	14,984	138.75	108	17	8,881	59%	16.05	553	12%	22	6,103	41%	122.70	50	88%
3. Laua-an	40	19,865	172.99	115	19	12,213	61%	16.36	747	9%	21	7,652	39%	156.63	49	91%
4. Bugasong	27	24,537	183.63	134	18	18,101	74%	24.37	743	13%	9	6,436	26%	159.26	40	87%
5. Valderrama	22	14,197	286.76	50	13	9,674	68%	14.62	662	5%	9	4,523	32%	272.14	17	95%
SOUTHERN ANTIQUE	316	219,128	1,000.84	219	191	150,528	69%	210.89	714	21%	125	68,600	31%	789.95	87	79%
1. Patnongon	36	27,376	143.32	191	17	15,738	57%	24.38	646	17%	19	11,638	43%	118.94	98	83%
2. San Remigio	45	21,682	281.19	77	12	6,017	28%	20.95	287	7%	33	15,665	72%	260.24	60	93%
3. Belison	11	10,095	19.78	510	10	9,876	98%	15.44	640	78%	1	219	2%	4.34	50	22%
4. San Jose	28	40,267	42.15	955	28	39,723	99%	37.56	1,058	89%	-	544	1%	4.59	119	11%
5. Sibalom	76	42,647	237.84	179	50	29,490	69%	64.22	459	27%	26	13,157	31%	173.62	76	73%
6. Hamtic	47	34,394	125.14	275	31	25,046	73%	30.32	826	24%	16	9,348	27%	94.82	99	76%
7. T. Fornier	50	25,816	101.42	255	26	13,422	52%	11.89	1,129	12%	24	12,394	48%	89.53	138	88%
8. Anini-y	23	16,851	50.00	337	17	11,216	67%	6.13	1,830	12%	6	5,635	33%	43.87	128	88%
Sub-Total (Mainland)	572	390,118	2,393.45	163	344	269,712	69%	363.62	742	15%	228	120,406	31%	2,029.83	59	85%
Caluya Island	18	16,243	124.12	131	18	16,243	100%	67.68	240	55%	0	0	0%	56.44	0	45%
TOTAL	590	406,361	2,517.57	161	362	285,955	70%	431.30	663	17%	228	120,406	30%	2,086.27	58	83%


POPULATION DISTRIBUTION
ANTIQUE PROVINCE
10 5 0 10 20 30
KILOMETERS
Figure 1.1
Conventional Sign :
PROVINCIAL BOUNDARY
MUNICIPAL BOUNDARY
PROVINCIAL CAPITAL
MUNICIPALITY
Legend :
ABOVE 40,000
35,000 - 40,000
30,000 - 35,000
25,000 - 30,000
20,000 - 25,000
15,000 - 20,000
10,000 - 15,000
LOWLAND
UPLAND
Libertad
Pandan
Sebaste
Culasi
Tibiao
Barbaza
Laua-an
Bugasong
Valderrama
Patnongon
Sn. Remegio
Belison
San Jose
Sibalom
Hamtic
T. Fornier (Dao)
Anini-y

POPULATION DENSITY

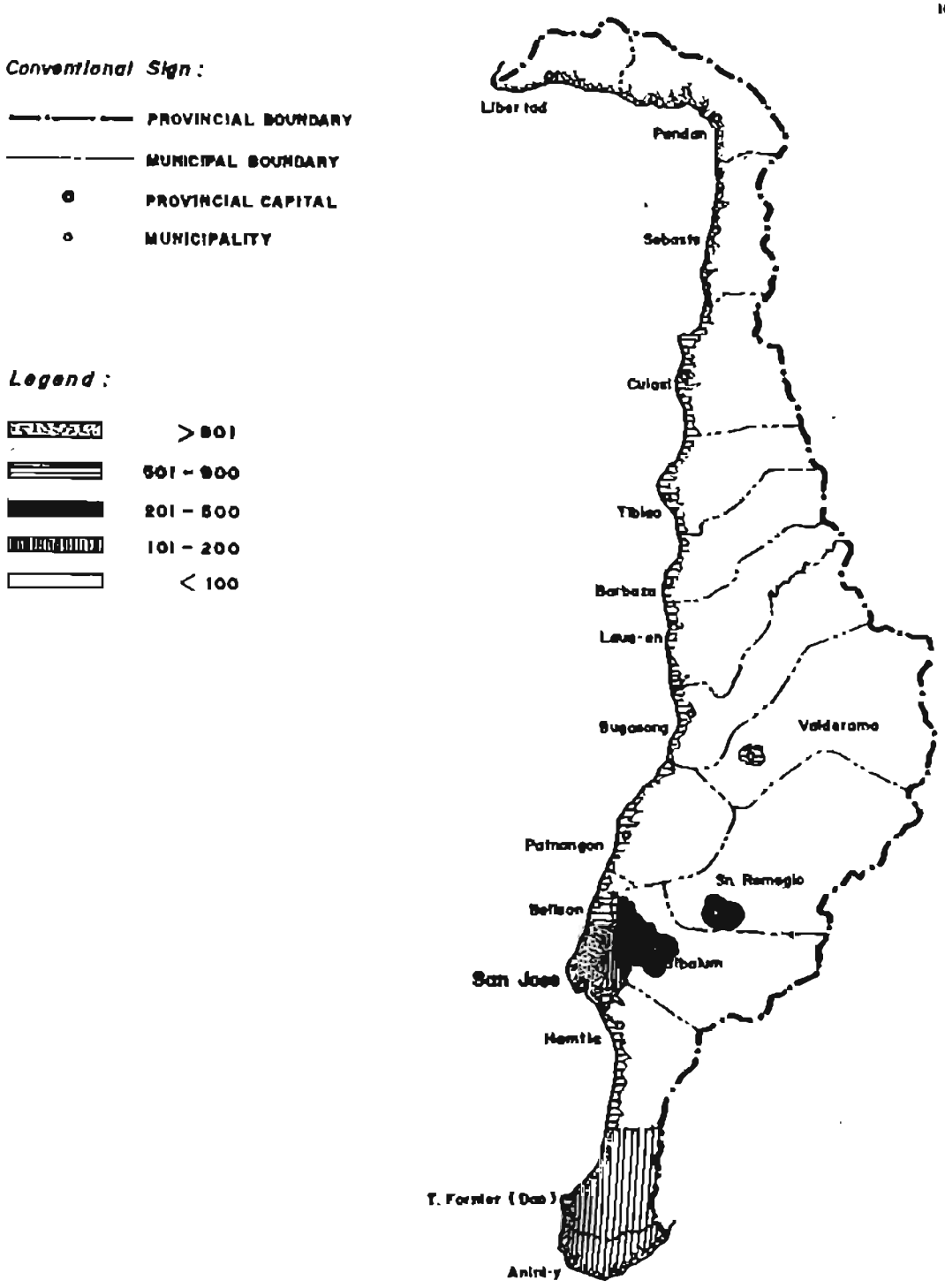


Figure 1.2

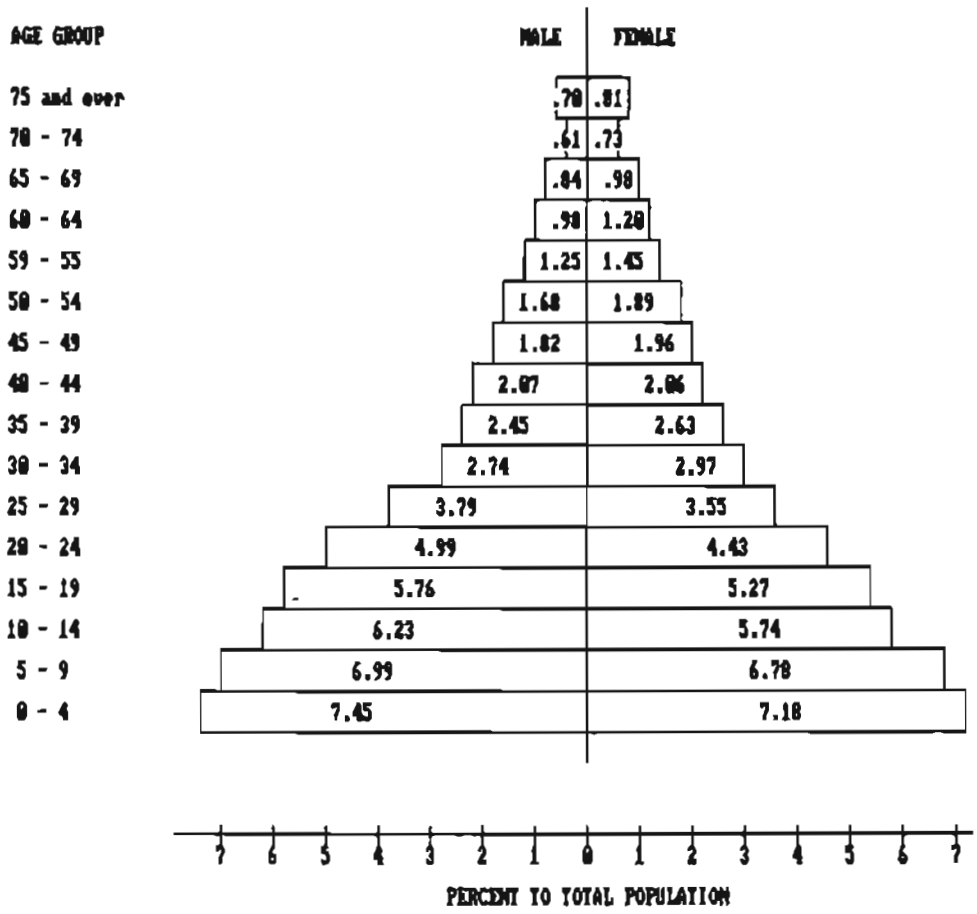


Figure 1.3 Age-Sex Composition of the Population, Antique, 1990

It may be important to note the pattern of male predominance in the upland at ages 19 years and below. As this predominance disappears at 20 and above, it means that the male upland population are likely to move out when they reach the age at 20 or thereabout. In the case of the females in the rural area as a whole, including the uplands, they seem to start the outmigration trail at a much younger age of 15.

1.3.2 Labor Force and Employment

Comparable figures show (Table 1.12) that as of January 1991, the potential labor force in the province already consists of about 261 thousand persons, indicating 7.9% increase within the last two years 1988 - 1990. There is a noticeable decline in the percentage of the population who do not participate in the labor force defined as those who are not interested to work or have other pre-occupations preventing them from being gainfully employed, such as the plain housewives, students and retirees. However, the province has still the lowest labor force participation rate of 62.4%, compared to the 65.9% of the region and 64.5% of the country.

Table 1.12. Comparative Employment Status, January 1991

	Antique	Region VI	Philippines
Total Population 15 yrs & over (000)	262	3,430	38,274
Labor Force Participating Rate (LFPR)	62.4	65.9	64.5
Employment Rate (ER)	94.5	91.6	91.3
Unemployment Rate (UR)	5.5	8.4	8.7
Visible Underemployment Rate (VUS)	13.0	20.1	11.2

Source : NSO, 1991

In the urban areas, non-participation rate among the male population has increased, an exception to the trend in the province (Table 1.13). Moreover, an unemployment rate of 11% among those who want to be employed is already experienced. Among the women, the unemployment rate of 7.7% already experienced two years ago has markedly increased to 13%. These figures indicate that unemployment problem is growing in the urban areas. These also reflect the increasing inability of the urban areas to absorb employment seekers who keep moving in from the rural areas.

Table 1.13. Total Household Population, 15-64 Years Old and Employment Status, Urban and Rural: 1988 & 1991 (In Thousands)

	1988					January 1991				
	Both Sexes	Male		Female		Both Sexes	Male		Female	
		Rural	Urban	Rural	Urban		Rural	Urban	Rural	Urban
Total Population										
15 yrs and over	242	93	25	93	31	262	110	27	96	29
- In the Labor Force (LF)	137	78	18	28	13	163	94	18	36	15
Employed (% of LF)	94.5	100	100	85.7	92.3	94.5	98.9	88.9	88.9	86.7
Unemployed (% of LF)	3.6	0	0	14.3	7.7	5.5	1.1	11.1	11.1	13.3
- Not in the Labor Force	105	15	7	65	18	98	15	8	60	15
(% of Total Population)	(43.3)	(16.1)	(28.0)	(69.9)	(58.1)	(37.6)	(13.6)	(29.6)	(62.5)	(51.7)

In the rural areas, unemployment is beginning to be experienced by the men who used to be fully employed, at the frequency of 1.1%. This means that the available employment opportunities in the farms -- the primary source of employment in the area -- are no longer sufficient to meet the needs of the expanding male population. Unemployment problem is still severely affecting the women who want to be gainfully employed in the rural areas, at the rate of 13.3%, although this has subsided a little bit these past two years, probably a result of the development programs undertaken by the various government and non-government agencies addressing this particular problem of the women in the province.

1.3.3 Income and Expenditure

Major Occupation

Agriculture is the main source of employment of those who are gainfully employed in the province. Sixty-three percent (63.2%) of them are engaged in agricultural employment, including fishery and forestry, of which 92.9% are located in the rural areas. The rest (36.8%) are engaged in non-agricultural employment wherein 49% are located in the urban areas and 51% in the rural areas (See Table 1.14).

Non-agricultural employment alternatives exist in the rural areas, providing employment to nearly one-fifth of those employed there. However, these still seem insufficient as alternative to farming as shown by the 1.1% unemployment rate in these areas as mentioned above.

Table 1.14. Employed Persons by Major Industry Group by Sex, Urban and Rural: 1988

Industry	Both Sexes	%	Male (%)		Female (%)	
			Rural	Urban	Rural	Urban
Agriculture, Fishery, Forestry	84	63.2	77.4	7.1	15.5	0.0
Wholesale and Retail Trade	12	9.0	25.0	25.0	16.7	33.3
Community, Social and Personal Services	22	16.5	18.2	22.7	22.3	31.8
Others	15	11.3	46.6	26.7	20.0	6.7
TOTAL	133	100.0	59.4	14.3	17.3	9.0

Source: NCSO (1990); Profile (1987)

Main Source of Income

While agriculture is the main source of employment of the 63.2% of the employed population almost all of which are in the rural areas, it is the main source of income of only 42.8% of the entire household population in the province (See Table 1.15).

Non-agricultural industries are the main source of income of 23.0% of the entire household population while the remaining 34.2% have such other main sources of income as remittances from abroad and domestic sources, goods and services received as gifts, and others.

Those whose main source of income is agricultural employment fall mostly within the income class bracket below ₱10,000 to ₱39,999, almost all of whom therefore are living below the poverty line. The most depressed farming group of families are those who rely mainly on agricultural wages and salaries, 22.72% of whom are in the income bracket below ₱10,000 annually and 63.64% between ₱10,000 - ₱19,000. Only a small fraction of 13.64% reach the highest income bracket ₱20,000 - ₱39,999 attained by this group.

Table 1.15. Main Source of Household Income by Income Class, 1988

Main Source of Income	Total Number of Families	Income Class (% to Total No.)					
		Below 10,000	10,000-19,999	20,000-39,999	40,000-59,999	60,000-above	Total %
Agricultural	33,486						
(% of Total)	42.8%						
Wages/Salaries	4,604	22.72	63.64	13.64	-	-	100
Entrepreneurial	24,906	10.09	54.64	31.08	4.2	-	100
Net Share of Crops and Livestock	3,976	-	52.62	31.59	15.79	-	100
Non-Agricultural	17,982						
(% of Total)	23.0%						
Wages/Salaries	13,382	4.69	28.17	37.49	10.93	18.72	100
Entrepreneurial	4,600	-	13.65	49.96	22.74	13.65	100
Other Sources	30,767						
(% of Total)	34.2%						
Remittances from Abroad	7,534	8.34	8.34	47.23	-	36.09	100
Remittances from Domestic Source	12,769	34.43	49.19	9.84	6.54	-	100
Gifts	1,884	66.67	-	33.33	-	-	100
Others	4,604	13.64	27.28	36.36	9.08	13.64	100
TOTAL	78,259						

Source : NSO

Household Expenditure

Thirty-six percent (36.1%) of the total number of families in the province, consisting of 28,261 families, belong to the income bracket ₱14,999 and below. Out of this number, 54.1% are those engaged in agriculture, notably the landless and those farmers with very limited farm production. No matter how hard probably do they try to make both ends meet, they experience inability of their income to meet their needs. Those with income below ₱10,000 suffer a negative net income amounting to ₱665, while those between ₱10,000 - ₱14,999 lack ₱1,555 to cover for their expenses (See Table 1.16).

Table 1.16. Total No. of Families and Average Family Income and Expenditure by Income class : 1988

Income Class and Area	Total No. of Families	Average Income	Average Expenditure	Average Net Income
ANTIQUE	78,258	27,276	23,533	3,743
Under P10,000	11,095	7,147	7,812	(665)
10,000-14,999	17,166	12,485	14,040	(1,555)
15,000-19,999	14,025	17,274	17,192	82
20,000	16,320	25,569	22,887	2,682
30,000	7,737	34,459	28,188	6,271
40,000	5,435	45,905	40,233	5,672
60,000	6,481	102,651	71,382	31,269

Families with income which barely breaks even with expenditures are in the income bracket ₱15,000 - ₱19,999. They constitute 17.9% of the total number of families in the province.

Among the different income classes, those in the bracket below ₱10,000 - ₱14,999 spend the largest bulk of their income on food, the most basic of all the necessities and so the item that is given top priority. Food constitute 66.9% and 70.0% of the expenses of these two groups (with income below ₱10,000 and ₱10,000 - ₱14,999, respectively). After food, the expense items to which considerable part of their income is spent are on fuel, light and water. These two groups spend almost nothing for education and nothing at all for recreation, indicating the least priority they have for these in terms of expenditure.

Average net per capita income appears to vary, depending on the size of the family (Table 1.17). Families with 6 members register the highest computed average net per capita, followed by those with 5 members. They constitute 11.5% and 17.4% of the total number of families in the province. Those families with lower or less than these number of members appear to have lower average net incomes. It is interesting to note that the average household size in the upland is somewhere within the range of 5 and 6 members, as is, too, for the whole province. Its implication to the family planning program of government is quite clear. Under present conditions, the ideal number of children to be promoted per family is in the range of 3 to 4.

Table 1.17. Total Number of Families, Total and Average Family Income and Expenditure by Size of Family, 1988

Size of Family and Area	Total No. of Families	Average Income	Average Expenditure	Average Net Income
ANTIQUE	78,258	27,276	23,533	719.81 *
1	4,814	7,538	6,841	697.00
2	8,583	23,391	21,548	921.50
3	8,158	23,079	21,087	664.00
4	10,674	21,199	18,824	593.75
5	13,600	35,063	27,378	1,537.00
6	8,997	45,990	31,738	2,375.33
7	10,249	27,646	25,617	289.86
8	6,277	22,022	21,274	93.50
9	3,976	25,932	28,966	(337.11)
10	2,930	23,058	27,876	(481.80)
REGION	956,611	31,164	27,162	727.64 *
PHILIPPINES	10,533,927	40,408	32,521	1,488.11 *

* Computation of per capita is obtained by dividing the average net income by the total number of persons (obtained by multiplying families with average household size).

1.3.4 Education and Literacy

The educational system in the province is characterized by a high enrollment rate at the primary level and a low survival rate at the intermediate level. In 1984, the number of out-of-school youth is estimated at 20,000 or an increase of 40 per cent since 1981.

Literacy rate in the province, nevertheless, has steadily increased from a low 70.8% in 1970 to 77.84% in 1980, and 83.7% in 1990 (Profile, 1987; NSO 1990). This reflects steady improvement in the delivery of educational services by the government as well as the interest, probably, of the people to have some kind of formal education. Still, the percentage is rather low, much lower than that of the whole region which is 87.7%, and 89.8% nationwide. The economic situation must be the main reason for this.

Although not confirmed by any formal surveys,the literacy rate in the upland areas is likely to be lower than the provincial average for the rural areas. It is obvious that the relative isolation of the uplands has limited the access of the population to basic education as well as information materials that would promote literacy.

1.3.5 Health, Nutrition and Family Planning

Mortality and Morbidity

The leading causes of mortality in the province are respiratory ailments like pneumonia and pulmonary tuberculosis;degenerative ailments as hypertension; stab and gunshot wounds; cardio-vascular afflictions; water-borne diseases like diarrhea; and, nutritional deficiencies. Incidentally, violence accounts for a significant number of deaths which can either be crimes against person or killings associated with crimes against property.

The leading causes of morbidity in upland communities, such as viral infections (measles, influenza and hepatitis) and pulmonary-related diseases (bronchitis, pneumonia and tuberculosis), manifest deficient nutritional status of the population and inadequate or inaccessible preventive services. The occurrence of diarrhea and parasitic infection, on the other hand, indicates poor sanitary practices like water contamination and improper food handling and disposal of wastes.

Infant Mortality

Mortality among infants in 1987 indicated 42.11 per one thousand live births. The high incidence of mortality arising from broncho-pneumonia, congenital debility and diarrhea, indicate the frail health status of the province which is compounded by a threatening environment.

On the other hand, prematurity, asphyxia, measles and tetanus neonatorum are manifestations of depressed state of prenatal health care and poor gynecological and obstetric practices. Likewise maternal mortality rate of 1.05 per 1,000 live births due to enclampsia, post partum hemorrhage, taxemia of pregnancy and placenta praevia highlights the inadequacy of maternal health care.

Health Manpower and Services

The job of professional medical practitioners is significantly facilitated by the presence of trained paramedics who provide substantial support by attending to the primary health care of 590 barangays in the province. The paramedics are composed of 106 rural health midwives and 2,300 volunteer barangay health workers. While there may be significant number of village health workers in the province, this, however, may not adequately reflect the actual state of health of the upland populace. A great majority of these health facilities, services and practitioners are based in the urban and lowland areas which are not readily accessible to the upland population.

Moreover, access to health is also premised on the income capability of the population which is sufficient to support their health requirements. In the absence of such income (as in the case of the subsistence economy of the upland population), it is inevitable that health care will be relegated to the last position in a number of more basic priorities. This practice is observed in several instances. For example, when a member of the household suffers from any disease, the first recourse is the herbolario (quack doctor). However, this does not preclude the household from seeking assistance from government hospitals, private clinics and rural health units (in the order of priority). This is also noted in cases of child birth. Among the registered live births, majority (49 per cent) have been attended to by trained hilot while 31 per cent by midwives.

This situation highlights the importance of support provided by paramedics and the need to develop extensive outreach health and nutrition services.

Potable Water Supply and Sanitation

Potable water supply is a perennial problem of the upland areas of Antique. This constitutes the core of the problem on personal hygiene, health and sanitation which is compounded by improper food handling and waste disposal. Over half of the upland population depend on a combination of rain and surface water from rivers and streams for sources of water for cooking and drinking. Considering the improper waste disposal and other forms of demographic pressure on the environment, surface water is likely to be contaminated.

Family Planning

At the provincial level, family planning may not be too much of a concern considering that the average family size is lower than the national average. However, with the scarcity of resources and high incidence of poverty, insuring a better quality of life requires appropriate planning of the number of children each family should ideally have. The upland pressure caused by poverty is magnified in households larger or smaller than the average size of six. Thus, family planning assumes an increasing importance in the social and economic life of upland communities.

Presently, the momentum of the family planning program is stymied by ambiguous policies, lack of firm commitment from official quarters and its lackluster performance. Since 1983, there has been a decline in the number of family planning acceptors to 2,001 or a decrease of 44 per cent from 1981. In 1986 however, an upturn was reported with the increase of acceptors to 10,017. But this was hardly sustained nor its effects properly monitored. It is important that development planning for the upland

communities should carefully consider a more practical, acceptable, realistic and effective approach.

1.4 Infrastructure

1.4.1 Roads

The total road network in the province (excluding the island municipality of Caluya) is about 1,255 kilometers. The road density is only about 0.52 km/sq.km. which is far below the ideal of 1.0 km/sq. km. About 683 kilometers (54%) of these roads however are unsurfaced/dirt roads and are usually unpassable during the wet season. Most of these roads are classified as barangay roads located mostly in the uplands of the province. The concrete, asphalt and most of the gravel roads are located in the lowlands and coastal areas where population densities are highest. The southern part has the most roads relative to Northern and Central Antique.

Table 1.18 shows the length of roads and density by level of improvement and by municipality.

1.4.2 Irrigation Systems

The National Irrigation Administration (NIA) identified a total of about 19,000 ha. as potentially irrigable areas. The existing irrigation systems however serve only a total of about 14,000 hectares. Some of the existing systems need rehabilitation and improvement to be fully efficient. Considerable areas are still rainfed and can only produce one paddy crop per year due to the absence of sufficient irrigation systems. The NIA is presently rehabilitating two CIS under the ANIAD project both of which are in the lowlands. These are the Libertad CIS (80 ha.) and the Tigmamale CIS (57 ha.). Two other systems (Panganta and Ilaures) will be fully developed in subsequent years under the ANIAD program. In addition, NIA has identified several potential communal irrigation systems in the uplands with an aggregate service area of about 400 ha. located mostly in Valderrama.

Table 1.19 presents the status of irrigation development in the mainland province of Antique by municipality and administrative classification.

Table 1.18. Length of Road by Level of Improvement and Density by Municipality
Province of Antique (Mainland)

AREA/MUNICIPALITY	LAND AREA km²	CONCRETE ROAD		ASPHALT ROAD		GRAVEL ROAD		DIRT ROAD		TOTAL	
		Length	Density	Length	Density	Length	Density	Length	Density	Length	Density
NORTHERN ANTIQUE	472.54	9.56	0.02	4.31	0.01	107.83	0.23	97.67	0.21	219.37	0.46
1. Libertad	78.26	2.01	0.03	-	-	22.27	0.28	20.20	0.26	44.48	0.57
2. Pandan	123.76	3.76	0.03	1.98	0.02	38.67	0.31	21.89	0.18	66.30	0.54
3. Sebaste	101.51	0.10	0.00	-	-	24.55	0.24	21.86	0.22	46.51	0.46
4. Culasi	169.01	3.69	0.02	2.33	0.01	22.34	0.13	33.72	0.20	62.08	0.37
CENTRAL ANTIQUE	920.07	13.91	0.02	21.22	0.02	67.84	0.07	194.48	0.21	297.45	0.32
1. Tibiao	137.94	4.29	0.03	2.03	0.01	20.50	0.15	36.64	0.27	63.46	0.46
2. Barbaza	138.75	2.21	0.02	-	-	18.14	0.13	45.81	0.33	66.16	0.48
3. Laua-an	172.99	1.74	0.01	1.10	0.01	10.15	0.06	38.62	0.22	51.61	0.30
4. Bugasong	183.63	3.41	0.02	18.09	0.10	3.31	0.02	26.00	0.14	50.81	0.28
5. Valderrama	286.76	2.26	0.01	-	-	15.74	0.05	47.41	0.17	65.41	0.23
SOUTHERN ANTIQUE	1,000.84	69.16	0.07	58.52	0.06	219.26	0.22	391.23	0.39	738.17	0.74
1. Patnongon	143.32	25.65	0.18	10.45	0.07	5.91	0.04	58.62	0.41	100.63	0.70
2. San Remigio	281.19	3.27	0.01	0.46	0.00	72.42	0.26	136.25	0.48	212.40	0.76
3. Belison	19.78	0.43	0.02	5.78	0.29	13.74	0.69	11.17	0.56	31.12	1.57
4. San Jose	42.15	8.68	0.21	17.79	0.42	23.51	0.56	41.35	0.98	91.33	2.17
5. Sibalom	237.84	7.92	0.03	5.52	0.02	42.48	0.18	72.94	0.31	128.86	0.54
6. Hamtic	125.14	21.00	0.17	17.41	0.14	19.42	0.16	27.72	0.22	85.55	0.68
7. T. Fornier	101.42	1.21	0.01	1.11	0.01	18.14	0.18	25.61	0.25	46.07	0.45
8. Anini-y	50.00	1.00	0.02	-	-	23.64	0.47	17.57	0.35	42.21	0.84
TOTAL	2,393.45	92.63	0.04	84.05	0.04	394.93	0.17	683.38	0.29	1,254.99	0.52
PERCENT		7%		7%		31%		54%		100%	

Source: DPWH and PEO, Antique.

Table 1.19. Status of Irrigation Development
Province of Antique

	POTENTIAL IRRIGABLE AREA,(ha)	EXISTING SERVICE AREA, (ha)				POTENTIAL AREA FOR DEV'T
		Nat'l.	Comm'l	Others	Total	
NORTHERN ANTIQUE	4,348		2,241	259	2,500	1,848
1. Libertad	350		100		100	250
2. Pandan	894		609	52	661	233
3. Sebaste	952		391	38	429	523
4. Culasi	2,152		1,141	169	1,310	842
CENTRAL ANTIQUE	5,498		3,449	397	3,846	1,652
1. Tibiao	1,582		850	72	922	660
2. Barbaza	1,198		630	78	708	490
3. Laua-an	570		479	91	570	0
4. Bugasong	1,497		1,180	110	1,290	207
5. Valderrama	651		310	46	356	295
SOUTHERN ANTIQUE	8,828	5,400	860	1,347	7,607	1,221
1. Patnongon	806	27	205	229	461	345
2. San Remigio	453	100	150	134	384	69
3. Belison	501	429		36	465	36
4. San Jose	1,878	1,565		313	1,878	0
5. Sibalom	2,972	2,591		301	2,892	80
6. Hamtic	1,393	688	140	250	1,078	315
7. T. Fornier	571		260	71	331	240
8. Anini-y	254		105	13	118	136
TOTAL	18,674	5,400	6,550	2,003	13,953	4,721

Source: NIA, Antique

1.4.3 Domestic Water Supply

Domestic water supply systems are categorized into Levels I, II and III. Level I facilities derive water from point sources like deep and shallow wells with pumps. Level II are piped distribution systems with communal faucets, while Level III are waterworks systems with household connections. About 53% of the population in the province are served by Level I systems. Most of the serviceable facilities are privately-owned by individual households. About 25% or some 97,000 people depend on open dug wells, springs, creeks and rivers as sources of drinking water, the potability of which are undetermined. This type is more often found in the upland areas. The remaining 22% of the population are served by Levels II and III waterworks systems.

Table 1.20 shows the population served by each level of existing water supply facilities in the province.

1.4.4 Public Health Facilities

Each municipality has a Main Health Center (MHC) manned by a complement of Municipal Health Officer (Physician), Public Health Nurses and Rural Health Midwives. All of the MHC's, except one, are structurally in good condition, requiring only minor repairs. The MHC's are generally built with mixed materials of concrete hollow block walls, concrete flooring, wooden and concrete partitions, and galvanized iron roofings. Most of them, however, receive very little maintenance such as a fresh coat of paint and sealing of leaks in roofs and gutters. The San Remigio MHC requires roofing, doors, windows, and partitions repairs.

There are a total of 81 BHS, serving 474 barangays. Each BHS is manned by a Rural Health Midwife. The number of barangays being covered by a RHM ranges from a low of 3 to as high as 10. The RRSA results indicate that upland barangays are seldom visited by public health personnel, even by the RHM. One major reason is inaccessibility. The population ratio per BHS/RHM ranges from about 2,181 to 6,807.

Table 1.21 shows the barangay and population ratio of each BHS/RHM by municipality and by zone.

Table 1.20. Existing Domestic Water Supply Facilities by Municipality
Province of Antique, 1990

AREA/MUNICIPALITY	TOTAL POPULATION	WATER SUPPLY FACILITIES								POP. SERVED BY OTHER SOURCES
		LEVEL I		LEVEL II		LEVEL III		TOTAL		
		No.	Pop. Served	No.	Pop. Served	No.	Pop. Served	No.	Pop. Served	
NORTHERN ANTIQUE	77,215	4,551	53,487	15	3,974	7	6,315	4,573	63,776	13,439
1. Libertad	11,049	497	7,129	4	904	3	905	504	8,938	2,111
2. Pandan	23,894	1,279	17,911	4	628	2	3,053	1,285	21,592	2,302
3. Sebaste	12,553	831	8,124	2	500	1	878	834	9,502	3,051
4. Culasi	29,719	1,944	20,323	5	1,942	1	1,479	1,950	23,744	5,975
CENTRAL ANTIQUE	93,775	1,800	36,650	63	21,873	4	9,670	1,867	68,193	25,582
									0	0
1. Tibiao	20,192	502	5,863	12	7,527	1	4,358	515	17,748	2,444
2. Barbaza	14,984	249	4,032	14	4,185	1	2,144	264	10,361	4,623
3. Laua-an	19,865	389	9,316	11	2,344	-	-	400	11,660	8,205
4. Bugasong	24,537	493	14,275	9	2,284	1	2,389	503	18,948	5,589
5. Valderrama	14,197	167	3,164	17	5,533	1	779	185	9,476	4,721
SOUTHERN ANTIQUE	219,128	4,964	117,589	42	20,724	12	22,348	5,018	160,661	58,467
1. Patnongon	27,376	445	9,508	9	2,886	1	1,264	455	13,658	13,718
2. San Remigio	21,692	134	3,844	4	5,063	1	1,418	139	10,325	11,357
3. Belison	10,095	683	8,170	1	381	1	192	685	8,743	1,352
4. San Jose	40,267	1,322	26,725	-	-	1	13,420	1,323	40,145	122
5. Sibalom	42,647	1,425	31,307	10	2,560	5	2,755	1,440	36,622	6,025
6. Hamtic	34,394	468	20,993	3	898	-	-	471	21,891	12,503
7. T. Fornier	25,816	163	8,049	9	6,141	2	2,760	174	16,950	8,866
8. Anini-y	16,851	324	8,993	6	2,795	1	539	331	12,327	4,524
TOTAL	390,118	11,315	207,726	120	46,571	23	38,333	11,458	292,630	97,488
% POP. SERVED			53%		12%		10%		75%	25%

Source: DPWH, Antique

Table 1.21. Population Served by Barangay Health Station with Rural Health Midwives, Province of Antique

AREA/MUNICIPALITY	No. of BHS	Total Bgys Served by BHS	Brgy Ratio per BHS	Total Pop Served by BHS/RHM	Pop. Ratio per BHS/RHM
NORTHERN ANTIQUE	19	90	5	64,811	3,411
1. Libertad	4	15	4	8,723	2,181
2. Pandan	6	29	5	20,380	3,397
3. Sebaste	3	8	3	10,042	3,347
4. Culasi	6	38	6	25,666	4,278
CENTRAL ANTIQUE	21	119	6	75,673	3,603
1. Tibiao	4	17	4	16,346	4,087
2. Barbaza	4	31	8	11,910	2,978
3. Laua-an	3	30	10	14,899	4,966
4. Bugasong	6	23	4	20,902	3,484
5. Valderrama	4	18	5	11,616	2,904
SOUTHERN ANTIQUE	41	265	6	184,032	4,489
1. Patnongon	5	30	6	22,813	4,563
2. San Remigio	5	38	8	18,309	3,662
3. Belison	3	8	3	7,342	2,447
4. San Jose	8	25	3	35,953	4,494
5. Sibalom	7	67	10	37,597	5,371
6. Hamtic	4	38	10	27,229	6,807
7. T. Fornier	5	41	8	21,601	4,320
8. Anini-y	4	18	5	13,188	3,297
TOTAL	81	474	6	324,516	4,006

Source: DOH, Antique

About half of the existing Barangay Health Station (BHS) are irreparable. Some are of mixed materials, however, construction are yet to be completed. Several BHS, particularly those in the uplands, are made of light materials like bamboo walls and flooring with nipa or cogon roofs.

1.4.5 Elementary School Buildings

Elementary school buildings are made from mixed materials, generally, semi-permanent to temporary houses. The inadequacy of the DECS support confines the upland school system to Grade III and multi-grade levels in a single room. Others have to walk 2 to 4 kilometers to the neighboring barangay schools where higher elementary grade levels are being offered.

2.0 UPLAND RESOURCES

2.1 Introduction

The upland is operationally defined along the text to be the areas 18% slope and above with the shoreline elevation as the point of reference. It covers the low hills and flat areas (plateaus and valleys) situated in higher elevations.

The uplands play a significant role in the economy of the province by providing an economic base for some 30% of the population, and as source of food and cash crops as well as forest products. This chapter is devoted to the characterization of upland resources and the analysis of the factors that contribute to or deter its long-term sustainability. These include physical, demographic, socio-economic and institutional factors.

Because of the undifferentiated lowland-upland operations of many agencies, with the exception of DENR, a broader provincial context is used in the analysis of these institutions. For this reason a separate chapter is assigned for the discussion of these institutions.

2.2 Physical Profile

2.2.1 Topography, Land Classification and Land Use

The province is predominantly hilly to mountainous with very narrow coastal plains. The highest peak is found in Madia-as, Culasi, elevated about 1,337 meters above mean sea level (MSL). Elevation within the watershed zones range from 88-2,040 meters above MSL with high elevation areas found in Paliwan, Dalanas and Cairawan.

Upland areas are composed of low limestone hills (5,385 ha), slightly dissected (4,839 ha) and moderately to severely dissected high basaltic hills (58,426 ha), high metamorphic hills (12,630 ha), metamorphic mountain (10,831 ha) and moderately to severely dissected complex volcanic mountain.

Analysis of slope, soils, land use and land capability will indicate physical properties of the land that contributes significantly to the soil and water holding capacity of vegetative growth and physical barriers. For instance, the type of canopy that obstructs heavy precipitation from directly hitting the ground surface thereby preventing soil erosion contributes to natural conservation.

Forty-two percent of the entire province have very steep slopes greater than 50 percent. Areas with 18-50% slope covers some 76,915 ha. accounting for about 30% of the provincial area. Only 26% fall within 0-18% slope (Figure 2.1). By zone, percentage of 18% and above slopes is highest in Cangaranan, Dalanas, Paliwan and Sibalom.

The land classification map (Figure 2.2) of DENR superimposed on the slope map showed a significant portion of certified A & D lands being located in the very steep slopes (50% and above) which are highly susceptible to erosion. Similarly, watershed zones are mostly within steeply-sloped A & D areas particularly a big slice of Sibalom and Cangaranan which are also ANIAD concentration areas. Hamtic watershed is entirely located within A & D areas with greater than 50% slope. The implication of this is that if erosion-prone areas are declared A & D, they will be subject to cultivation which will significantly disturb the soil and cause severe erosion. These areas are better left uncultivated. Ironically, most areas classified as timberlands are those that fall within moderate slopes (18-50 percent).

The dominant vegetation in the uplands with 30% and above slope are grasses, shrubs, secondary dipterocarps and mosses, although there are areas that have been cultivated and are being cultivated. In the accessible and relatively lower slopes, coconut, fruit trees and patches of kaingin crops and grasses abound.

Slope map combined with land classification and land use map (Figure 2.3) reveal the following:

- Most A & D areas with 50% slopes are cultivated to various crops mixed with brushlands and grasslands. This type of land use is the most prominent all throughout the province.

- A big portion of timberlands are cultivated mixed with brushlands and grasslands indicating people occupying the uplands despite banning entry of people in these areas.

- Only a very insignificant portion of timberland areas are forested compared to cultivated areas. This is supported by recent statistics indicating only about 12% remaining dipterocarp residual forest in forest lands. Most forest areas are now predominantly vegetated with "cogon" (Imperata cylindrica).

It can also be inferred that the predominance of grassland areas indicate continued opening up of residual forest for upland cultivation. Moreover, fire occurrence gives an indication of the type of cultivation and the extent of opened areas invaded by grasslands.

SLOPE MAP

Conventional Sign :

- PROVINCIAL BOUNDARY
- MUNICIPAL BOUNDARY
- PROVINCIAL CAPITAL
- MUNICIPALITY

Legend :

- 0 – 18 %
- 18 – 50 %
- 50 % UP

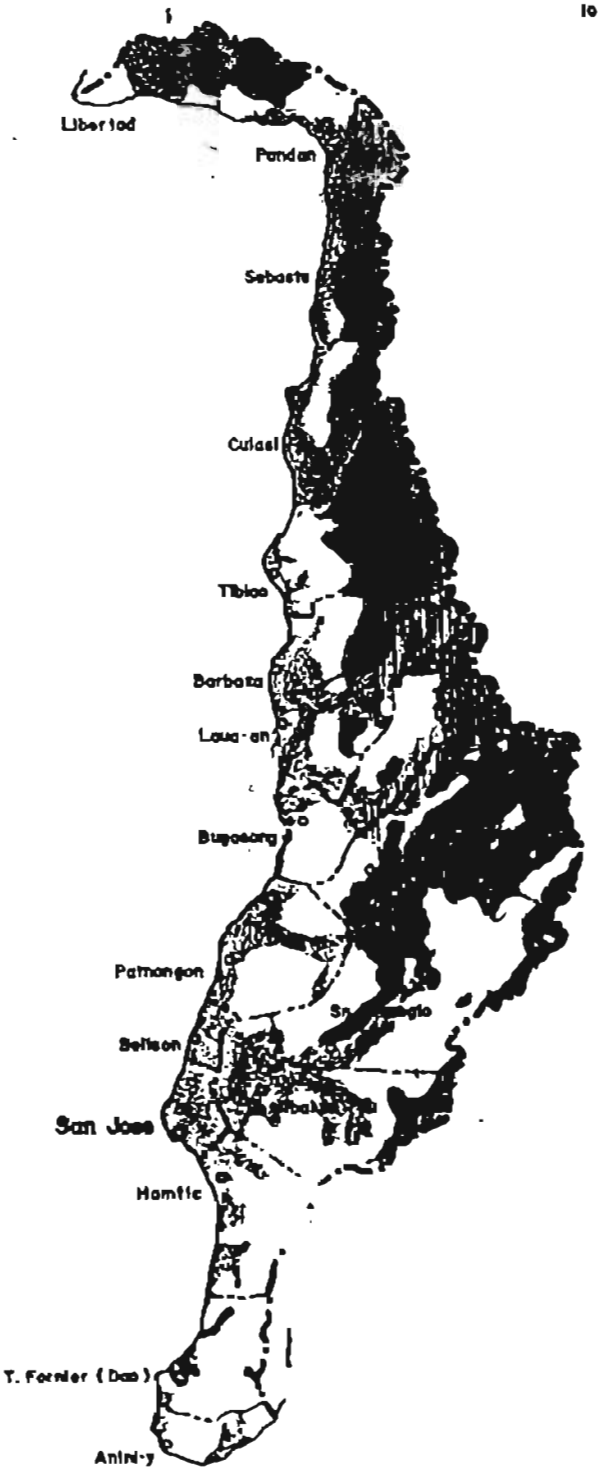


Figure 2.1

LAND CLASSIFICATION

Conventional Sign :

- PROVINCIAL BOUNDARY
- MUNICIPAL BOUNDARY
- PROVINCIAL CAPITAL
- MUNICIPALITY

Legend :

- FOREST LANDS
- A & D LANDS

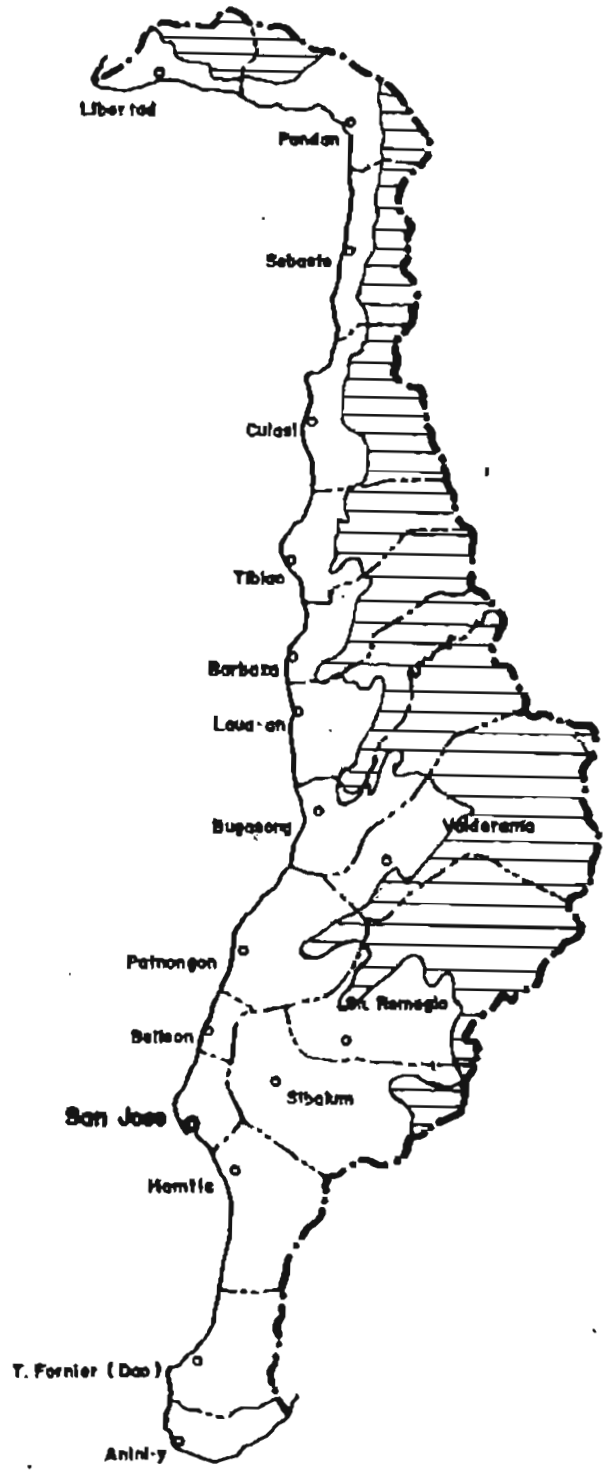


Figure 2.2

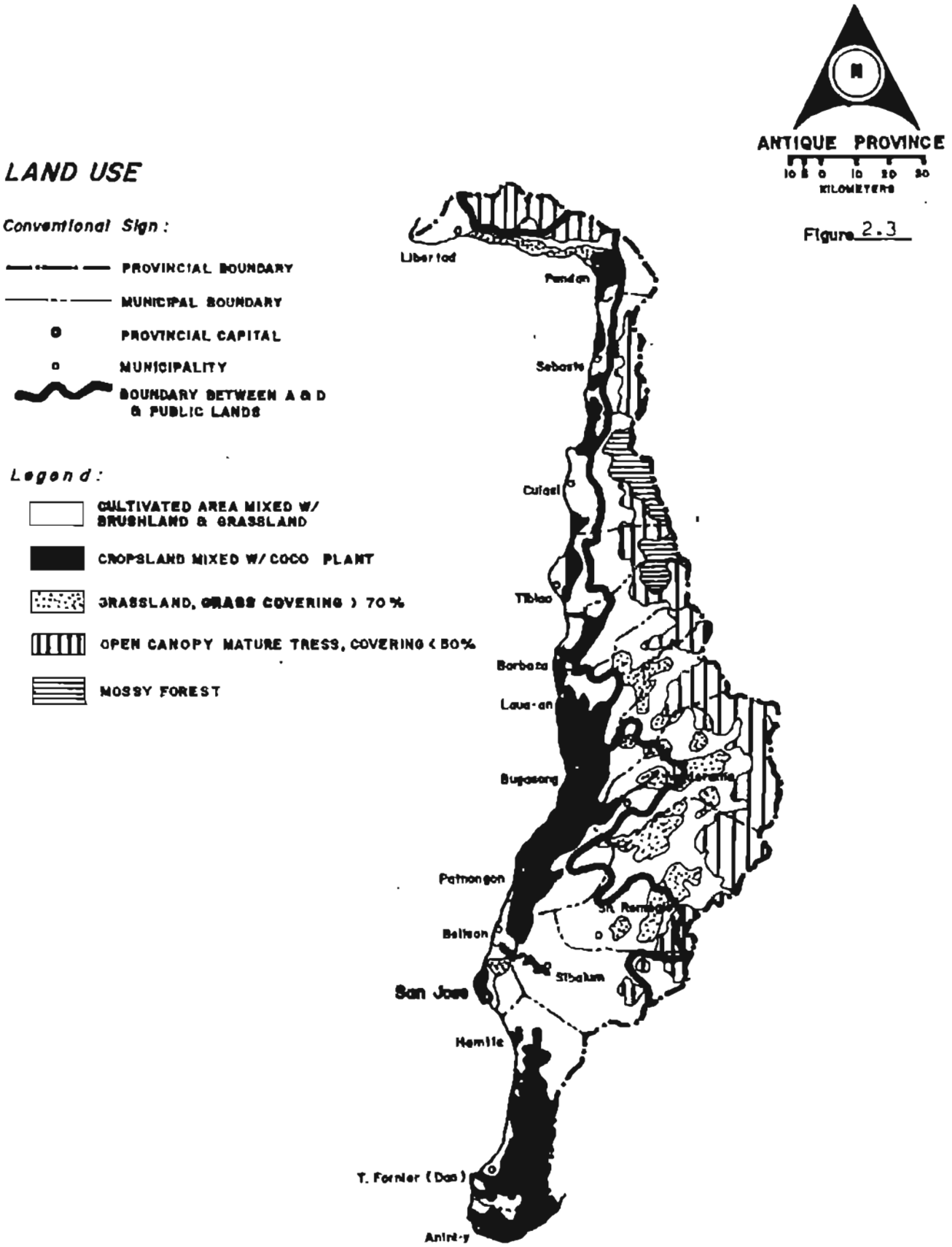

ANTIQUE PROVINCE
10 5 0 10 20 30
KILOMETERS
LAND USE
Conventional Sign :
PROVINCIAL BOUNDARY
MUNICIPAL BOUNDARY
PROVINCIAL CAPITAL
MUNICIPALITY
BOUNDARY BETWEEN A & D & PUBLIC LANDS
Legend :
CULTIVATED AREA MIXED W/ BRUSHLAND & GRASSLAND
CROPSLAND MIXED W/ COCO PLANT
GRASSLAND, GRASS COVERING > 70 %
OPEN CANOPY MATURE TRESS, COVERING < 50%
MOSSY FOREST
Libertad
Pandan
Sebaste
Culasi
Tibiao
Barbaza
Laua-an
Bugasong
Patnongon
Belison
San Jose
Sibalum
Hamtic
T. Fornier (Dao)
Anini-y

Figure 2.3

Soils/Land Use

Given the soil characteristics in the province and in the watershed zones in particular, only Dalanas has a combination of good and moderately good upland soils. Most areas need proper farm management practices and conservation measures for cultivation. There are also areas which are not suited for cultivation due to their high soil erodibility.

Soil Erosion

The confluence of the above physical factors provides an indication of the extent of degradation in the uplands as shown by the magnitude of soil erosion.

As gleaned from Figure 2.4, widespread soil erosion is evident in the province. An estimated 75,190 ha. or 30% of total area were identified as severely eroded and 44,150 hectares (18%) as moderately eroded.

Slope map overlaid with erosion and land use map revealed severe and heavy erosion occurring in areas where intensive cultivation in steep slopes are practiced. On the other hand, the eastern boundary of Antique with higher degree of slope experiences very light erosion occurring due to a relatively good and undisturbed forest cover. In the watershed zones, almost all areas suffer from moderate to severe erosion caused by the combination of high slope, erodible soil and land utilization. Severe soil erosion is particularly evident in the Sibalom-Cangaranan areas.

Rainfall Intensity

The magnitude of rainfall intensity (the amount of rain that occurs per unit time) is a major cause of soil erosion. The higher the magnitude of rainfall, the more surface soil erosion will occur. The surface run-off with high velocity due to a steep slope carries down the unconsolidated soil to the drainage channels. The sudden surge of surface run-off from short periods of high precipitation causes flash floods downstream. This in turn washes out the susceptible riverbanks, widening the river width and causing sedimentation extending up to the coastal areas. This is evident in almost all of the rivers in the province. The physical appearance of the water shows the extent of soil erosion and the characteristics of the watershed area.

SOIL EROSION

ANTIQUE PROVINCE

10 5 0 10 20 30
KILOMETERS

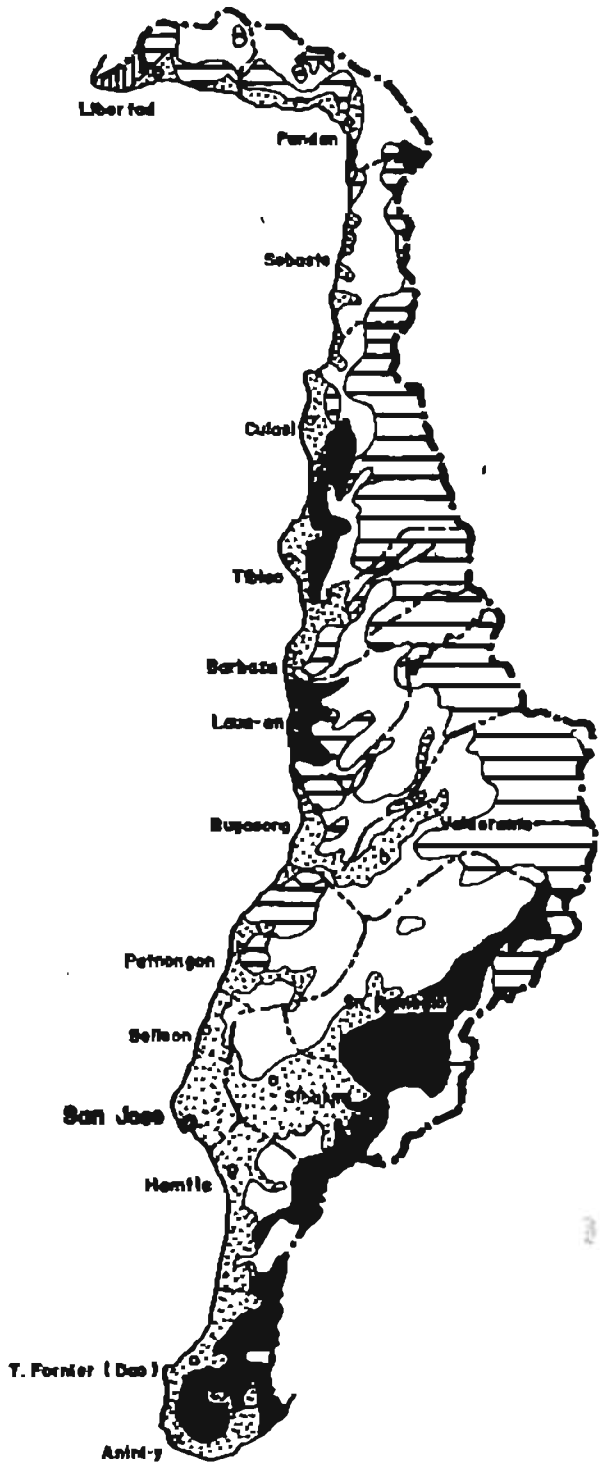
Figure 2.4

Conventional Sign :

- PROVINCIAL BOUNDARY
- MUNICIPAL BOUNDARY
- PROVINCIAL CAPITAL
- MUNICIPALITY

Legend :

- NO APPARENT EROSION
- SLIGHT EROSION
- MODERATE EROSION
- SEVERE EROSION
- UNCLASSIFIED EROSION



Agroecological Zones

There are five distinct agroecological zones which could readily be identified: rainfed agricultural lands, irrigated flatlands, grasslands/brushlands, forest lands, and river systems (Figure 2.5). The rainfed agricultural lands is characterized as having a wide range of slopes from 8 to 30 percent and continuously used for crop production. It consists of low hills, high hills, and some relative flat lands in-between lands. The critical constraints in crop production in these areas are: (1) eroded soil; (2) inappropriate technology; (3) inadequate water supply; and (4) long dry season.

Most of the agricultural lands have been declared alienable and disposable lands, but no land titles have been issued yet.

The grasslands and brushlands constitute the largest area in the upland. They consist of low hills, high hills and mountain and generally covered by cogon (Imperata cylindrica), talahib (Saccharum spontaneum) and scattered shrubs. Some of the grasslands are actually undergoing fallow periods after many years of continuous cropping. Others are used as grazing areas and the rest are permanently abandoned lands due to the loss of top soil. The biophysical constraints common to the different types of grasslands are the periodic burning and extensive eroded soils.

Fire occurs every dry season. It may be a useful energy input in grazing lands as it assures a new re-growth of grasses for the grazing animals. It is however inappropriate in areas which are undergoing fallow period and in abandoned lands.

Irrigated flatlands surrounded by denuded high hills and mountain are found in the town of Valderrama. The area is relatively flat and being traversed by a peripheral river. It is devoted mainly to rice production. The major problem is flooding of the riceland at the peak of the rainy season and inadequate water supply for irrigation during the dry season. These ironical events are brought about by the condition of the watershed which is in bad shape. Unabated fire during dry season prevents the regrowth of tree seedlings and also burns the reforested areas.

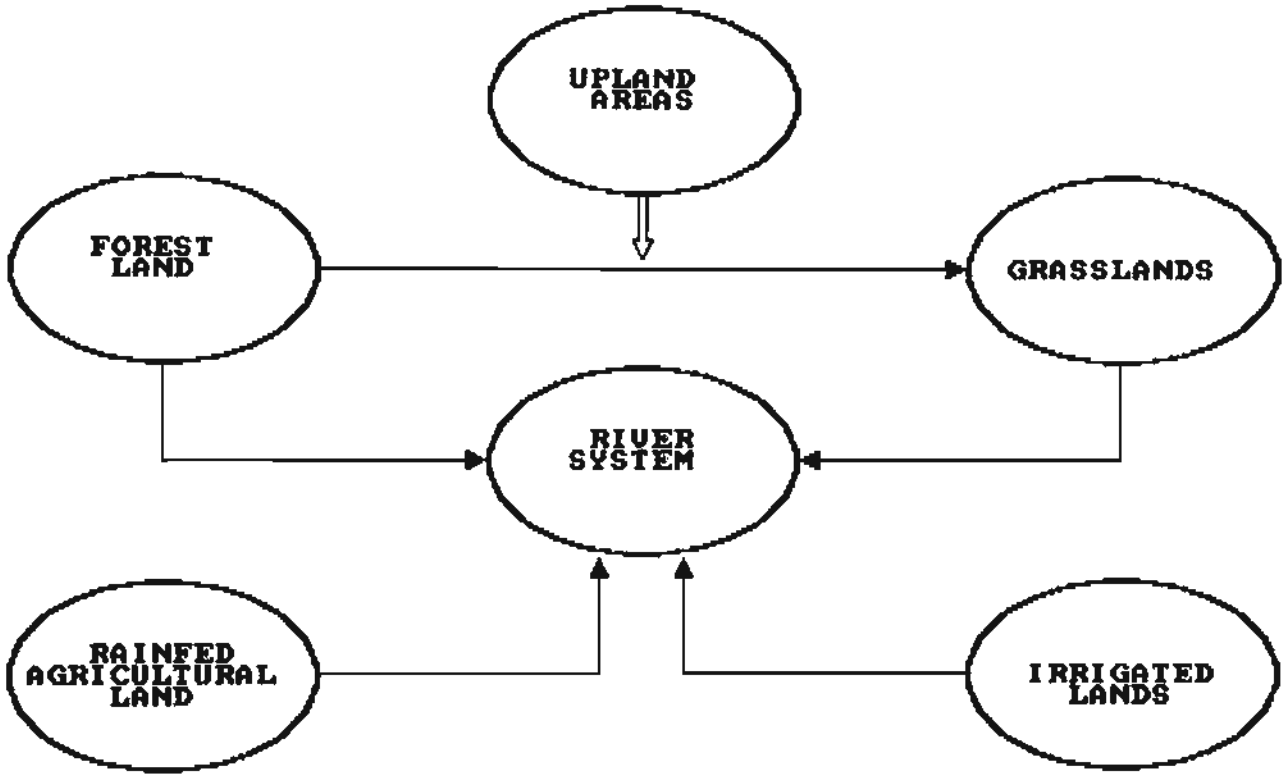


FIGURE 2.5. THE FIVE INTERACTING MAJOR AGROECOLOGICAL ZONES IN THE UPLANDS OF ANTIQUE

The two major river systems in Southern Antique are the Sibalom river and Cangaranan river. Both river systems drain large watershed areas which subsume two ANIAD concentration areas (1 and 2). During the early days when the forest cover of the watershed was still intact, the two rivers provide navigational transport, which is not possible now in their present condition especially during dry season. Heavy soil erosion from watersheds has raised the riverbed due to sedimentation. Flash floods which produce scouring effect on river banks and drying up of rivers are the major problems in the river system.

The forest agroecological zone is confined in the mountains which lie at the boundaries between Antique and Iloilo, Capiz and Aklan. In its present condition, the mountain is the only area where forest could still be found. With undifferentiated soil, the mountain is the headwater of major river systems in Antique. As a life support system, the forest is also under sieged from lowlanders. In fact, grasslands have already invaded the base of most mountains indicating man's continued onslaught on it.

2.3 Socio-Economic Assessment

2.3.1 Population Characteristics

The Antique uplands has an estimated population of 120,406 persons representing 30% of the total population as of 1990. Fifty-one percent of this population is found in the eight (8) municipalities where two ANIAD concentration areas (I and II) are located, namely, Bugasong, Valderrama, Patnongon, San Remigio, Belison, San Jose, and Sibalom (See Table 1.11).

Based on the figures obtained from the ANIAD concentration area, the average growth rate in the upland is 1.3% (Table 2.1). In terms of household size, the average in the upland has a slightly larger than the national and the provincial average, being 5.9, 5.3 and 5.2 persons per household, respectively.

Table 2.1. ANIAD Concentration Areas: Population Size by Upland Categories

Categories	No. of Barangay	1980 Population	1990 Population
Upland	61	26,434	29,604
Upland-Lowland	20	12,911	14,981
Upland-Lowland Coastal	2	2,347	2,831
Upland-Coastal	3	1,677	2,166
TOTAL	86	43,369	49,582

Assuming that household size is an indicator of prolificacy, other things being equal, the upland population ought to have a relatively high rate of natural increase which, under condition of zero migration balance, would redound to a commensurately high population growth rate. However, while the upland has a relatively large household size, its population growth rate is inversely low.

This implies negative net migration rate where outmigration overwhelms inward population flow.

This same explanation applies to the phenomenal growth rate decrease in the province accompanied by corresponding increase in the region (1970-75). This is attributed to the migration of sugarcane workers (sacadas) from Antique to Negros Occidental. When the sugar industry collapsed in the

second half of the decade, the workers went home, causing the increase in the latter's growth rate.

That movement of the Antiqueños involved outmigration from the province. As the province growth rate plunged much too low compared with the regional and the national growth rate in the last decade (1980-1990) another massive outward population flow had, therefore, taken place though of lesser magnitude than in the early part of the previous decade (1970-75). In the case of upland outmigration, the places of destination are not necessarily all outside the province. Some of the upland migrants form part of the internal movement of population within the province, involving upland to lowland flow.

Population Distribution

Distribution of the upland population is highly uneven. Highest count is registered in the interior municipality of San Remigio, followed by another interior municipality of Sibalom, and then by T. Fornier and Patnongon in that order.

Computed relative population densities of the 17 different mainland municipalities readily show the extent of the unevenness of the distribution. Based on the percentage distribution of the population to the total population of the province over the same percentage of the land area, the figures (Table 2.2) measure the extent of how much population a municipality has, relative to its land area. A balanced population-land ratio is reflected by a score of zero.

Thus, highest positive score of 139.5% is obtained by T. Fornier, followed by Anini-y, San Jose, Patnongon and so forth. This means that T. Fornier, has a population size 139.5% more than what it needs to have a balanced ratio with its land area. On the other hand, the highest negative score of -71.5% is obtained by Valderrama, the third interior municipality of the province, followed by Sebaste, Bugasong and so forth. This means that Valderrama has a population size 71.5% less than what the area needs.

A deviation from the supposed balanced ratio (or the score of zero) shows the extent of unevenness. It also reflects possible differences in the resource potentials (as discussed by Lamb, 1985) or in the socio-political factors obtaining in the different municipalities as discussed below.

Two contrasting pictures are observed across the central and southern municipalities embracing the two ANIAD areas of concentration, when the respective relative population densities are compared with the increase of the total municipal population during the last ten years (between 1980 and 1990). See Table 2.3.

Table 2.2. Absolute and Relative Densities of the Upland Population by Municipality *

	Municipality	Upland Land Area (% of Total)	Upland Population (% of Total)	Absolute Density (Persons/km²)	Relative Density (% Population/ % Land Area)
1.	Libertad	3.5	3.6	60	2.9
2.	Pandan	5.0	4.4	52	-12.0
3.	Sebaste	4.4	2.8	36	-36.4
4.	Culasi	6.7	6.2	53	- 7.5
5.	Tibiao	5.7	5.4	54	- 5.3
6.	Barbaza	5.9	5.1	50	-13.6
7.	Laua-an	7.5	6.3	49	-16.0
8.	Bugasong **	7.6	5.4	40	-28.9
9.	Valderrama **	13.0	3.7	17	-71.5
10.	Patnongon **	5.7	9.7	98	70.2
11.	San Remigio **	12.5	13.0	60	4.0
12.	Belison ** 1/	0.2	0.2	50	0.0
13.	San Jose **	0.2	0.4	119	100.0
14.	Sibalom **	8.3	10.9	76	31.3
15.	Hamtic	4.5	7.8	99	73.3
16.	T. Fornier	4.3	10.3	138	139.5
17.	Anini-y	2.1	4.7	128	123.8

* Computation is based on Table 1.11 Figures

** Municipalities which encompass the ANIAD Concentration Areas (Area I and II)

1/ Belison is a major lowland area with relatively negligible uplands thus, neglected in the Strategic Upland Land.

Table 2.3. Total Population Increase in the ANIAD Concentration Municipalities: 1980-1990

Municipality	1980 Population	1990 Population	% Increase (Decrease)
Bugasong	18,569	24,537	32.1
Valderrama	18,941	14,197	(25.0)
Patnongon	28,024	27,376	(2.3)
San Remigio	20,292	21,682	6.8
Belison	9,125	10,095	10.6
San Jose	31,224	40,267	29.0
Sibalom	37,104	42,647	14.9
TOTAL	163,279	180,801	10.7

The sparsely populated Valderrama, registers the highest decrease while Bugasong, with the second sparsest population, registers the highest increase. On the other hand, San Jose, which has the highest upland population concentration, registers a high (second) increase. While Patnongon, which has the second highest concentration, is second highest in terms of population decrease.

These contrasting pictures illustrate the internal population movement and the migration destinations within the province. San Jose, the capital and main urban center of the province, is a logical destination in view probably of its perceived greater number of employment alternatives. The same could be said of Bugasong, the former seat of the provincial government (Profile, 1987).

As in the case of the sugarcane workers, one driving force underlying this internal movement is the search for better economic opportunities. Another possible reason could be peace and order problem, particularly in the upland caused by the presence of rebel NPAs and the military combat forces.

Peace and order has deteriorated in the upland these past few years resulting in the hamletting of villagers in nearby but safer places as part of the military strategy, or the voluntary evacuation of people to avoid getting caught in the crossfire. Examples of hamletting and evacuation of upland villagers were encountered near the center of Barangay San Rafael, San Remigio, and in the relocation site at the town's periphery of Valderrama.

A third reason, which likewise applies to both this internal movement as well as that outside the province, could be socially motivated as pointed out in the ANIADFI-ASI report (1989). This pertains to the aspiration in the family to

improve its social and economic standing in the community, either by having a member get a wage-earning job outside the community, or send a member to college and get a high-paying job later on, and then expect this member to share his earnings with the family. As observed in the upland, remittances sent in by working members of the family provides the latter with cash to, say, improve the house or acquire prestige items that enhance its status in the community. Recently, these remittances include those coming from abroad like the Middle East.

Education

In the upland, sample survey shows that 36% of the population has attained some elementary schooling; 20% has at least attended the grade school; while 24% has got no schooling at all (ARMDEV, 1988).

The low educational level of the upland population is attributed to the following:

a. conflicting agricultural and household demands

b. inability of parents to provide for school needs of children and youth including clothes and school supplies

c. roads and trails rendered impassable because of rains and landslides

d. little incentive for completing the elementary level as complete elementary schools are mostly situated in the lowland

e. inferior quality of education due to multi-grade classroom teaching which is cumbersome for teachers and confusing to students.

f. most of the school buildings are in a state of deterioration.

Special attention is needed for the education of children of families with income levels below ₱10,000 - ₱14,999. This is especially more so considering the fact that unemployment problem is already beginning to be felt in these areas.

Health

Crude birth rate in the province is reported to be in the decreasing trend, in the same way as the crude death rate. This is considered to be favorable to the economic growth of the province and attributed to the health and planning program launched by the government at the barangay level (Profile 1987).

However, a large frequency of the deaths mentioned in the same report occurred among infants at a rate of 42.11 per 1000 live births reflecting deficient natal and pediatric care which may affect the vitality of the population structure in the long run. Another 15.59% of the total deaths recorded were children under one year of age. While majority of deaths (65.02%) fall in fifteen and above age bracket, the age which is supposed to be already in the potential labor force.

Leading causes of death is pneumonia, while bronchitis is the leading cause of illness. These are causes which can be readily associated with poverty and reflects the difficulty of the population to get medical services in the province. This difficulty is felt most in the upland where, apart from highly limited income, geographic remoteness is an added constraint that prevents them from availing of the needed medical attention based usually in the town center.

Nutrition and Sanitation

The upland household daily diet, consists of two (2) regular meals. This is inadequate in terms of required servings and nutritive value. Logically, lack of nutrients and adequate food undermines physical and mental development.

In both meals, rice is served with vegetables or quinamos (shrimp paste) and at times with dried fish. Sometimes, these are supplemented with little rice porridge for children and cassava and camote or corn for adults in the evening. During lean months, root crops or boiled bananas substitute for rice. In their absence, children eat fresh young coconuts.

The nutritional deficiency among children is confirmed by the results of the "Operation Timbang", a weight-for-age measurement conducted annually on under-six children by the Department of Health. The figures for 1986 indicate that the highest incidence of severe under-nutrition was observed in the municipalities of Valderrama (7.29 %), Sibalom (6.57 %) and Sebaste (5.5%), while incidence of moderate under-nutrition was highest for the municipalities of Anini-y (29.05%), Valderrama (28.83%), Caluya (27.25%), Culasi (27.09) and San Remigio (26.29%).

In upland communities, 71 per cent of households have toilet facilities which generally are of Antipolo type or pit privies. Among dwellers in kaingin areas, the toilets are cathole pits. Those without dispose of their wastes along creeks and river banks. The practice, too, of burying the dead anywhere except the public cemetery due to transport constraints (ARMDEV, 1988) is a matter of concern for public health.

2.3.2 Ethnic Group

Antique is one of the few provinces of the country which still has the indigenous group known to be the original inhabitants of the archipelago. Locally known as Ati, this group has a distinctive racial traits generally characterized by small-sized body, kinky hair and dark brown complexion. It is a traditionally hunting and food-gathering group, leading a simple life with a culture attuned to the forest environment, their natural habitat and sole livelihood base.

Data obtained at the provincial unit of the Office of Southern Cultural Communities (OSCC) based in San Jose show that there are some 2,040 Ati individuals per official count in the province. These are scattered in the southern municipalities of Anini-y, T. Fornier, Hamtic and Sibalom. The largest concentration is reported to be in Brgy. Tina, Hamtic, a lowland barangay about 2 kilometers away inland from the highway, with a recorded Ati population consisting of 578 persons.

Some Ati individuals are said to be already engaged in such activities destructive to the forest environment as kaingin and charcoal-making. Others do fishing and the catch bartered with lowlanders for other items they need. Except for the latter form of economic undertaking, the others are alien to the group's traditional culture. The shift to this destructive activities is being attributed to the disappearance of their usual livelihood base, the forest.

Quick verification survey conducted by OIDCI Team last July 1991, together with a Dutch consultant, revealed that the Ati in Tina is not actually an authentic Ati group but one with a generally mixed racial type called kalibugan (Visayan for mixed characteristic), a mix of Ati and lowland Antiqueno physical traits. This group practices the abovementioned activities, except fishing being located away from the sea or big river.

Obviously, the other groups in the OSCC record are similarly situated with those in Tina. They are already assimilated with the lowland Antiqueno groups although rather socially distinguished and living in abject poverty.

But there are still authentic Ati families in the remote forested hinterland in the upland, based on the information obtained during the Tina survey. The older members of the group in Tina, especially those interviewed who have dominant Ati physical features, claimed that these families still cling to the forest-oriented way of life "living like dogs without an owner". This claim is tinged with bias reflecting the attitude of the kalibugan to distance themselves socially or culturally with the authentic traditional Ati group.

Although the remaining Ati groups in the hinterland play no significant role in the economy of the province, their presence in the forested areas and tenacity to cling to the forest-based culture are important factors to consider in the overall development scenario of the province, particularly in the effort to conserve and protect the forest.

ANIAD, especially, cannot afford to ignore the Ati in its current program to develop the upland. This is made even more urgent in view of the following considerations.

- The Ati can be said to be not only the poorest of the poor in the province, but a group whose very survival itself is gravely threatened by forces beyond their control.

- There is no government agency in the province that attends to the development needs of the Ati, in the real sense of the word.

- With underlying philosophy and adopted strategy that is pro-poor and oriented to the absorptive capacity of client groups, ANIAD is the only logical venue with which to initiate efforts addressing the Ati needs.

- During the American colonial rule, some 4,286 hectares of forest land was proclaimed as Negrito (or Ati) Settlement Reservation under Executive Order No. 17 issued February 9, 1914. In the 1982 plan document of the then District Office of the Bureau of Forestry, this is the same area in the Antique forest land being designated as Forest Reserve. As mentioned in the same document, this area is already occupied by "squatters" with no trace at all of the Ati population. Nevertheless, it provides the historical link through which previous government concern for the Ati could now be earnestly resumed.

- The said reservation is the present site of Brgy. Villafont municipality of Sibalom, a comparatively progressive-looking community and a concentration area of ANIAD. Its being so, ANIAD cannot avoid the moral responsibility that it automatically assumes upon taking the initiative of promoting development among the so-called "squatters". For this initiative is tantamount to abetting, albeit unwittingly perhaps, the abuses which have been committed against the prior rights of access of the Ati on the land. ANIAD should be able to anticipate a clamor likely to crop up later on that if it has the capacity to help the "squatters" now, the more it should have so far the long-neglected and abused Ati.

A precedent is established presently which could be used to approach the Ati problem. The long government neglect on the Aetas (a kindred Negrito group) in the forested hinterland of Zambales is being highlighted by the eruption of Mt. Pinatubo whose magnitude of destruction has so much stirred the national consciousness. The DENR finally recognizes the Aetas as its client group, hitherto perceive as forest destroyers. It also plans to prepare relocation sites and involve them in the DENR reforestation program in the area.

Antique need not wait for a devastating event. Neither does it need to develop relocation sites for the Ati. An innovative approach may be tried in the province. All that the Ati need is a forest to live and settle in, free from harm or harassment. The group has a tradition geared towards the conservation of the forest resources, their livelihood and community base, whose protection is, therefore their priority concern.

A true forest settlement could be envisioned for the Ati in the remaining forested areas of the forest land. The Ati should know the status of the forest and the extent to which its present level of resources could support the simple food and other needs of the group, and they should be encouraged to articulate these.

Program intervention could then be directed beyond what the existing forest resources could provide. It should be designed in such a way as to establish, at the same time, a socio-cultural and political link through which the Ati could exist as a normal community within the larger structure and dynamics of the Antique society.

At this stage, however, paucity of information would not allow meaningful formulation of the needed intervention design. It requires intensive follow-up studies of the Ati communities, and could be made part of the immediate concerns of ANIAD.

2.3.3 Land Tenure

Extent of Land Occupation

Government prescribes, as a matter of policy derived from the Constitution, that lands to be alienated and disposed (A & D) for agricultural and human settlement purposes should be confined to areas with slopes 18% and below. This prescription appears to have little effect in Antique. With a total land area having only about 28% of that slope percentage, the province has an A & D area covering 54% of the total area (Profile, 1987).

To date, land occupation and cultivation in the upland, generally characterized by sedentary system of farming, extends from the proclaimed A & D areas to the forest land, the supposed remaining portion of the total land area reserved by the state for the purpose of enhancing ecological balance as well as production of wood and other forest-based materials to support the needs of the population. It is estimated that some 70% of the total land area of the forest land itself is already cultivated (See 1.2.2). This includes the 4,286 hectares forest reserve earmarked for the Ati in Villafont mentioned earlier.

Overlapping of land occupation between areas sanctioned and those not for cultivation creates a problem of defining the extent to which upland agriculture could be developed without aggravating disconformities to the existing policy. The upland folk could no longer see the justification for this distinction. Yet the concerned government agencies must deliver the services and continue to enforce restrictions on them depending on which side of the slope they are found.

Official recognition of the status of land occupation, particularly in the forest land, is ambivalent and, to a large extent, vague. DENR, the national government agency entrusted to manage the forest land has only recently started to recognize and legitimize this occupation and only for landholdings covered by the Certificate of Stewardship Contract (CSC).

Long before the DENR redirected its policy, other national government agencies have been already delivering basic government services to the said occupants. Barangay Councils, the lowest units of government, are established along with schools and barangay-level network for delivering educational and medical services to the people albeit still quite inefficiently.

Most significantly, the local government issues tax declaration to those who possess land in the forest land through which taxes are collected to boost government revenue. This instrument does not legally bestow private landownership rights to the occupant as the area occupied is not A & D. But this makes no difference at all to the upland folk. Although far inferior than the title, tax declaration can be used by its possessor to testify possession of the land; and in legally recognized transactions involving pledging, encumbrances, mortgage or outright transfer of possession, which are acts of exercising the inherent right of private property.

Occupation of land in the upland particularly in the forest land is governed by the traditional land tenure norms which define the rights of the individual over the land and his relationship with other individual in the exercise of these

rights. Private landownership is recognized under these norms and rights over the land area are bestowed depending on the extent to which the individual deserves.

As far as the upland folk are concerned, therefore, property rights are attached to the land they occupy and cultivate, recognized and respected by the community regardless of whether the land is located in the forest land or A & D area. Against the context of the larger society, however, it is in the level of recognition wherein the efficacy of these rights applies. In the case of the forest land, private property rights are not recognized by the state, hence such efficacy, if at all in this area, is only true to the upland community occupying it and probably the larger community in the province where such rights somehow find legal reinforcement through the issuance of tax declaration.

In the case of A & D areas, private property rights are recognized by the state and represented by the land patent or title issued by the government. Issuance of title to landholders in the Antique A & D areas, however, is a rather tedious and slow process in the upland. To date, only a few are reported to have such title so far.

Mode of Land Acquisition

There are three basic ways to acquire a piece of land and the ownership thereof in the upland. These are, namely: (a) primary occupation or primus occupantis, (b) inheritance, and (c) purchase. In addition, there are also three ways by which a land is acquired and enables the individual to make use of it, but not the ownership rights over it. These are, namely: (a) tenancy, (b) mortgage, and (c) squatting.

Primary occupation is a vestige practice of the kaingin cultural tradition which bestows proprietary rights to the individual over an erstwhile unpossessed and unoccupied piece of land (in this case, the public land) which he turns productive by means of his own initiative and labor. This tradition is associated with the slash-and-burn farming techniques which, despite government ban, still persists in the upland side by side the widely-adopted sedentary farming techniques including, most notably, widespread construction of wet-rice terraces.

Some individuals were reported to be making a kaingin farm as a way to acquire rights over the land and sell it afterwards at the time of fallow, then open a new kaingin for the same objective. But this was effectively stopped. The activities are confined presently to the idle brushland left by the previous kaingeros long time ago.

Primary occupation in the brushland does not involve as much felling of trees nor burning. As such, it could be gradually effected without being noticed by the forest guards or rangers. Environmentally, however, this is the most destructive form of land acquisition. For it involves actual cultivation in steeper gradients and tall mountain tops, locations which make it the least suitable and attractive, in order to prove actual possession of the land. To control this, the activity should not be allowed at the start considering that at this stage, the individual does not yet have a vested interest effected in the land.

Inheritance is a common practice in both kaingin and sedentary farming traditions observed, likewise, in the upland. When an individual dies, his landed property is automatically transferred to his children, if he has, or to his nearest kin. The property is then divided and partitioned into smaller sizes, depending on the number of heirs who then act as the new owners.

Through the practice, fragmentation of land cannot be avoided in the upland. This explains the small landholding sizes in the area. The average size in the upland is 2.2 hectares and ranges from 1.0 hectare in the northern municipalities to 3.0 hectares in the south. The fragmentation continues and the reduction of the farmholdings into an increasingly uneconomic sizes appears inevitable. Its adverse economic effect could be seen in the number of families belonging to the lowest income class in the province, namely, those who have land to cultivate but not enough to support their respective needs.

Purchase is the most convenient way to acquire land in the upland provided that there is money to buy it. Going price of land at the time of survey is somewhere between ₱2,000 - ₱5,000 per hectare for kaingin, and ₱50,000 and above for sedentary and developed farms especially the terraced ones. Through this practice, ownership of land transfers from one hand to another regardless of the relationship of the owner to the buyer.

This practice paves the way for interested buyers outside the community, such as the lowland, to acquire land even if they have no intention to cultivate it personally and simply have it cultivated by the individual under an arrangement called tenancy, or let it stay idle for the purpose of speculation. The practice of purchase also serves as mechanism through which a hard-up family sells the land for lack of alternative to meet very urgent financial needs. This partly explains the presence of landless families in the upland who form part of the lowest income class in the agricultural wage-earning employment sector of the province.

Mortgage is a practice which in many cases lead to a tenure set-up quite complicated to handle from the standpoint of development intervention. Land is temporarily acquired by the individual who act as mortgagee when it is pledged as collateral by the owner to secure loan. It is in the possession of the mortgagee until such time it is redeemed by the owner or mortgagor.

Actual cultivation of the mortgaged land may be done by the mortgagee himself, and the mortgagor will be landless for the time being, that is, for as long as he is unable to redeem his property. In some cases, the redemption period is indefinite, depending on the agreement and the ties between the persons involved. In other cases, the mortgage leads to actual purchase if the owner cannot redeem the land and simply ask the mortgagee to buy it by adding the amount given at the time of mortgage.

If the mortgagee is not interested to cultivate the land, he may have it cultivated by another individual or the mortgagor himself under the tenancy set-up. In the case of the latter, the owner becomes the tenant in his own farm. From the development intervention point of view, this case is not as difficult to handle as when the cultivator of the land is the mortgagee himself or another individual acting as tenant. Here, the problem is to identify the legitimate beneficiary of the intervention being undertaken as in the case of the ISFP.

Tenancy is a practice associated with the sedentary farming cultural tradition which enables the individual to acquire and cultivate a piece of land without owning it, through a sharing agreement with the owner. There are two general types of tenancy practiced in the upland, the first and most common is share-tenancy wherein the agreement is for the farmer to till the land and the harvest is shared equally after deducting the cost of production. The second is leasehold, wherein the farmer shares the owner a fixed amount of the harvest.

Inasmuch as the tenant shares a part of the harvest to the landowner, his realizable income from the farm is lower compared to those who own the land they cultivate. Given limited farm sizes, the tenant families in the upland whose main source of income is the farm itself form another part of the lowest income class among the entrepreneurial group in the agricultural sector of the province.

Squatting is a practice of getting hold of the land and cultivate it without the explicit permission or agreement with the owner. This practice, reported in various parts of the upland, reflects economic hardship and the means with which the squatter could meet the needs of his family. Compared with the other ways of acquiring land, this is fraught with potential danger and conflict on the part of

the squatting families. If the latter have just this land as their main source of income, they do not only form part of the lowest income class. They are the group in the upland with the most insecure status as farmers.

Tenure Status

While the landholding structure in the upland is characterized by small-size farms having an average of 2.2 hectares per family, these are actually in the form of fragmented parcels frequently conforming with the rugged physical terrain of the upland. Thus, a family with a hectare of landholding may have it in more than one and separate parcels. Moreover, a family need not be the owner of all the parcels of land it cultivates but rather have them under other forms of tenure as earlier described.

Under the situation, classification of tenure status on the basis of the farmer will be rather cumbersome. For purposes of development planning, the practical approach is to first classify tenure based on the farm. This way, the possible problem and constraint (or advantages and disadvantages) that a particular tenurial arrangement has compared with the others can be readily identified, as basis for formulating appropriate development intervention and prioritizing target families in the upland.

Based on the farm being cultivated, the tenure status of the farmer may be any of these types: (a) owner cultivator, (b) part-owner-cultivator, (c) mortgagee, (d) share-tenant, (e) lessee, or (f) squatter. Each of these types have known characteristics which generally influence farm practices and farmer's attitude towards adoption of new farming techniques, either for increased production or sustainable farm productivity.

Data on the extent of the farms under these various types of tenure are not readily available to figure out the number of farmers with any or a combination of these types. Previous studies (ICRA, 1982; Tapawan, 1981; ARMDEV, 1989) attempted to classify the farmers by their respective tenure status. Majority of the farmers are owner-cultivators and the share-tenants as the other tenure group of considerable frequency (cf. p. 100).

Identifying the farmers by tenure group in the upland will require a major undertaking similar to what has been done in the agrarian reform program. It could be considered as among the first steps to be taken in the implementation of a development program for the upland.

Priority Tenure Groups

For purposes of defining strategic planning focus, however, the income class classification could serve as a basis to determine the population size of priority group in the upland. As mentioned in the foregoing discussions, this group consists of the landless whose main source of income is farm wage and the tenants, squatters, and those kainqeros and owner-cultivators with much smaller or less productive farms.

It is roughly estimated that there are some 6,229 families constituting this group in the upland. This estimate is based on the number of the upland population constituting 31% of the total population in the province, and the total number of families engaged in agricultural activities whose main source of income falls within the income class bracket below ₱10,000 - ₱19,999.

Within these poverty groups, the plan focuses further on the small farmer sector (3 hectares or less) regardless of tenure status, who have opportunities for improving their agricultural base through the adoption of appropriate technologies and can be capacitated to exercise greater control over resources needed for their development.

2.4 Upland Agriculture

2.4.1 Upland Resource Contribution to the Provincial Gross Domestic Product (GDP)

Antique is generally considered as an upland province wherein most (about 80%) of its total land area is categorized as hilly and mountainous. In terms of population, the uplands provide the economic base of about one-third of the province's population. This sector is the primary source of food crops (cereals, vegetables, root crops, and beans), plantation crops (coconut, banana, and mango), and forest products (bamboo, fuelwood and timber). The bulk of corn production comes from the rainfed, upland areas and about 40-50% palay production is supplied by the uplands. Cattle production mainly comes from the hilly and mountainous portion of Antique as these are good sources of pasture and forage throughout the seasons.

Summing all the resources coming from the uplands, it can be safely noted that about 50-60% of Antique's GDP is contributed by this sector.

2.4.2 Provincial Rice Economy

Area Planted

Based on the latest statistics (1991) provided by the Bureau of Agricultural Statistics in San Jose, Antique, the total rice provincial areas planted to rice in 1990 is 34,280 ha. Almost a third of this area (31%) was devoted to rainfed rice (Table 2.4 and Figure 2.6).

The ten-year analysis (1981-1990) of area planted to rainfed rice showed a continuous decline from a high 62% in 1981 to only 31% in 1990. Irrigated areas, on the other hand, showed an increasing trend. Between 1983 and 1984, the irrigated farms had exceeded rainfed areas implying that the province has increasingly provided irrigation to more areas. Since 1981, the average rainfed area for rice accounted for 47% of the total hectarage.

Table 2.4 Rice (Palay) Area Harvested (ha), Rainfed and Irrigated Farms, Antique, 1981-1990

Year	Irrigated Area (ha)	%	Rainfed Area (ha)	%	Total Area (ha)	%
1981	19160	38	32210	62	51730	100
1982	18940	44	24560	56	43500	100
1983	17090	47	19220	53	36310	100
1984	23380	54	19910	46	43290	100
1985	19280	53	17010	47	36290	100
1986	18450	52	16960	48	35410	100
1987	20400	57	15530	43	35930	100
1988	20350	54	17190	46	37540	100
1989	23950	61	15330	39	39280	100
1990	23820	69	10460	31	34280	100

Source: Bureau of Agricultural Statistics, San Jose, Antique, 1991.

Production and Productivity

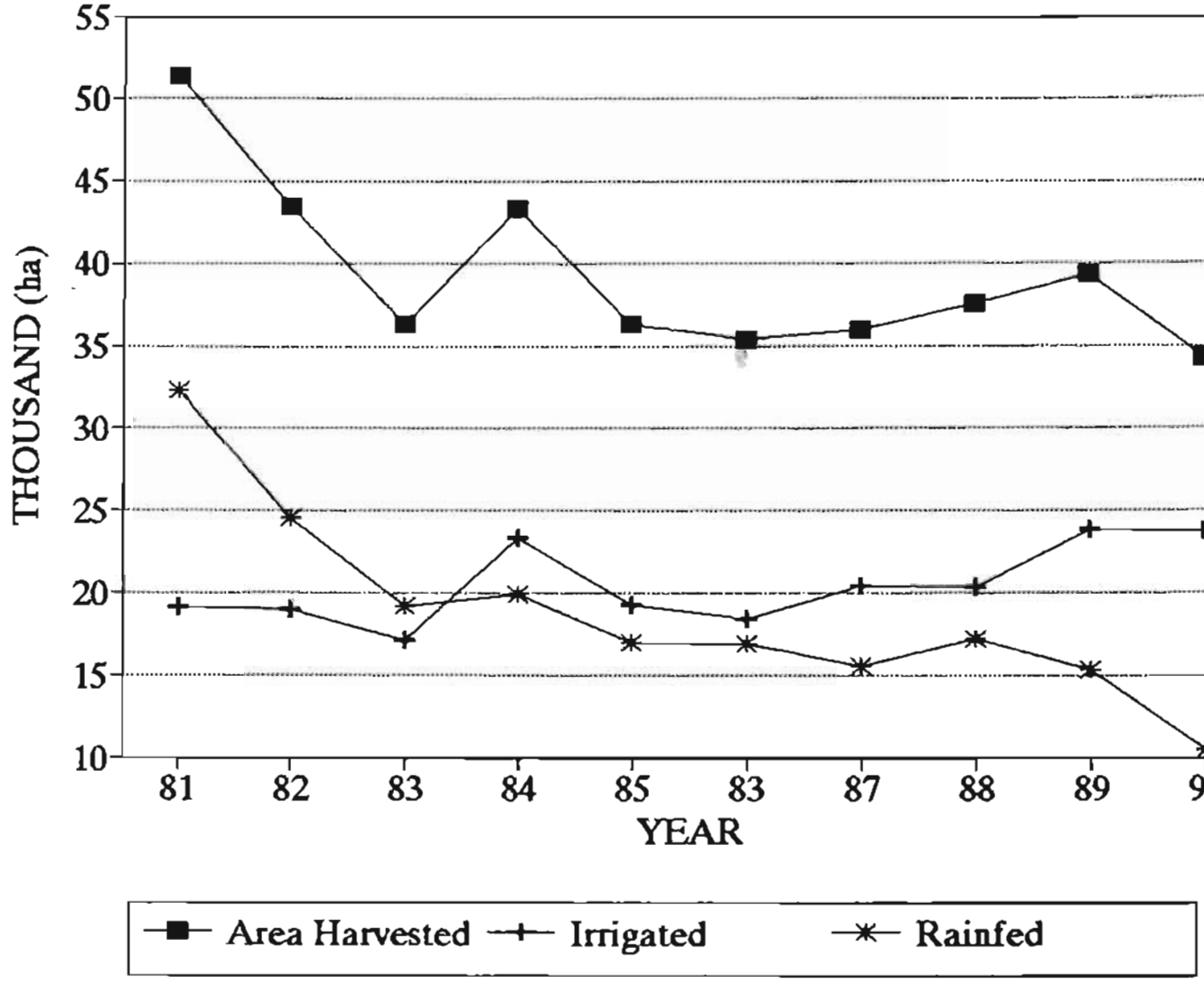
The province's total rice production last year was 85,164 metric tons , 26% of which is contributed by rainfed farms (Table 2.5 and Figure 2.7). Rainfed rice production contribution shows a declining trend since 1981 when it contributed almost half of the total production while last year, only one-fourth had been contributed. This trend can be attributed to the declining hectarage. The low productivity of rainfed farms may also explain partly this declining trend (See Table 2.6 and Figure 2.8). As expected, yield/ha of irrigated farms exceeds those of rainfed areas since water is a very critical input in rice farming.

Table 2.5 Rice (Palay) Production (MT), Rainfed and Irrigated Farms, Antique, 1981-1990

Year	Irrigated Production	%	Rainfed Production	%	Total Production	%
1981	49985	52	46725	48	96710	100
1982	51045	56	40210	44	91255	100
1983	50340	60	33760	40	84100	100
1984	64715	69	29010	31	93725	100
1985	59465	64	33760	36	93225	100
1986	61705	63	36360	37	98065	100
1987	67043	69	30152	31	97195	100
1988	56956	65	30799	35	87755	100
1989	66609	72	25591	28	92200	100
1990	63291	74	21873	26	85164	100

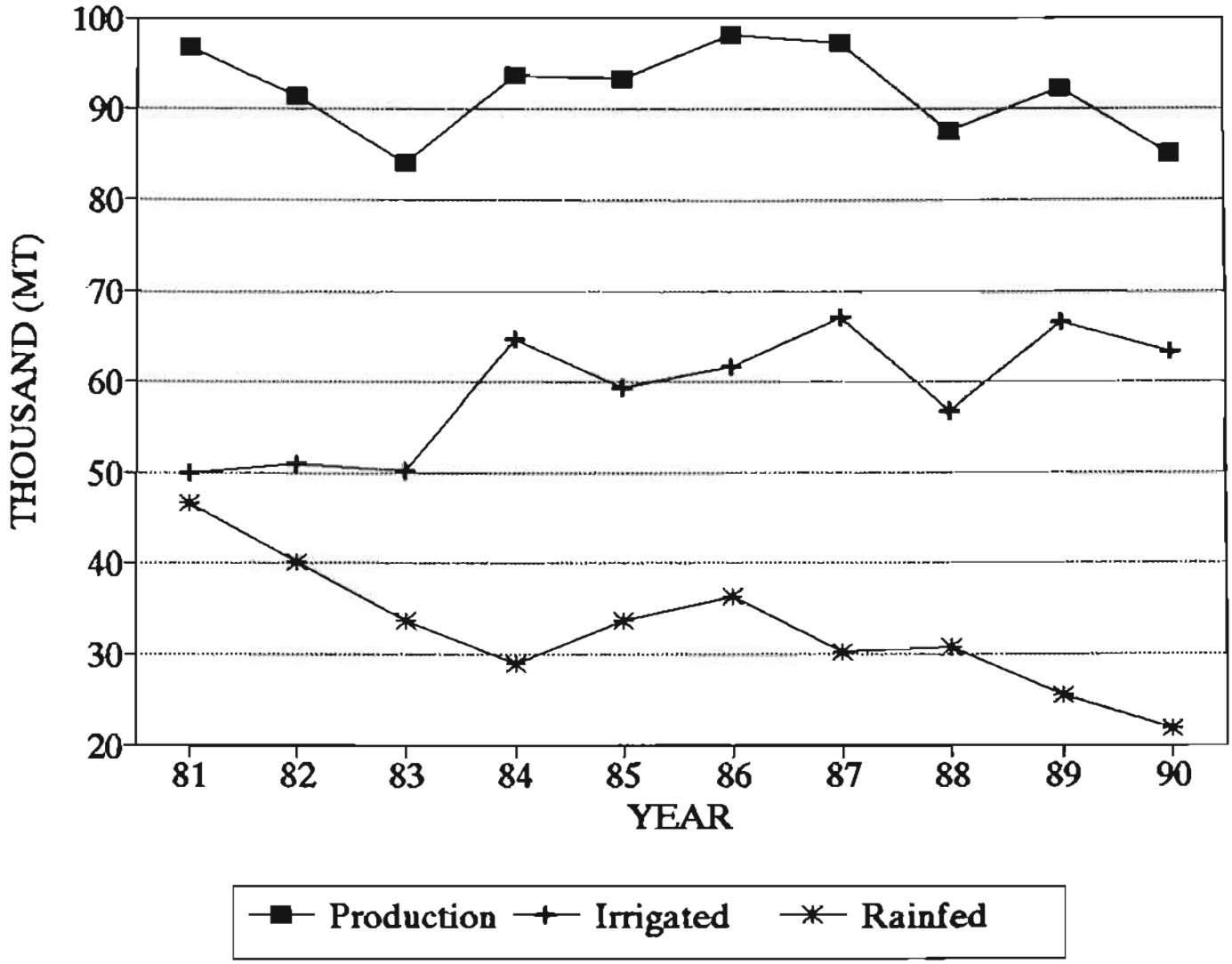
Source: Bureau of Agricultural Statistics, San Jose, Antique, 1991.

Figure 2.6. Rice (Palay) Area Harvested (ha), Rainfed and Irrigated Farms, Antique (1981–1990)



Source: BAS, San Jose, Antique, 1991

Figure 2.7. Rice (Palay) Production (MT), Rainfed and Irrigated Farms, Antique (1981-1990)



Source: BAS, San Jose, Antique, 1991

Table 2.6. Average Yield per Hectare (MT), Irrigated and Rainfed Farms, Antique, 1981-1990

Year	Irrigated	Rainfed	Total
1981	2.61	1.45	1.88
1982	2.70	1.64	2.10
1983	2.95	1.76	2.32
1984	2.77	1.46	2.17
1985	3.08	1.98	2.57
1986	3.34	2.14	2.77
1987	3.29	1.94	2.71
1988	2.79	1.79	2.33
1989	2.78	1.67	2.35
1990	2.66	2.09	2.48

2.4.3 Upland Rice Farming

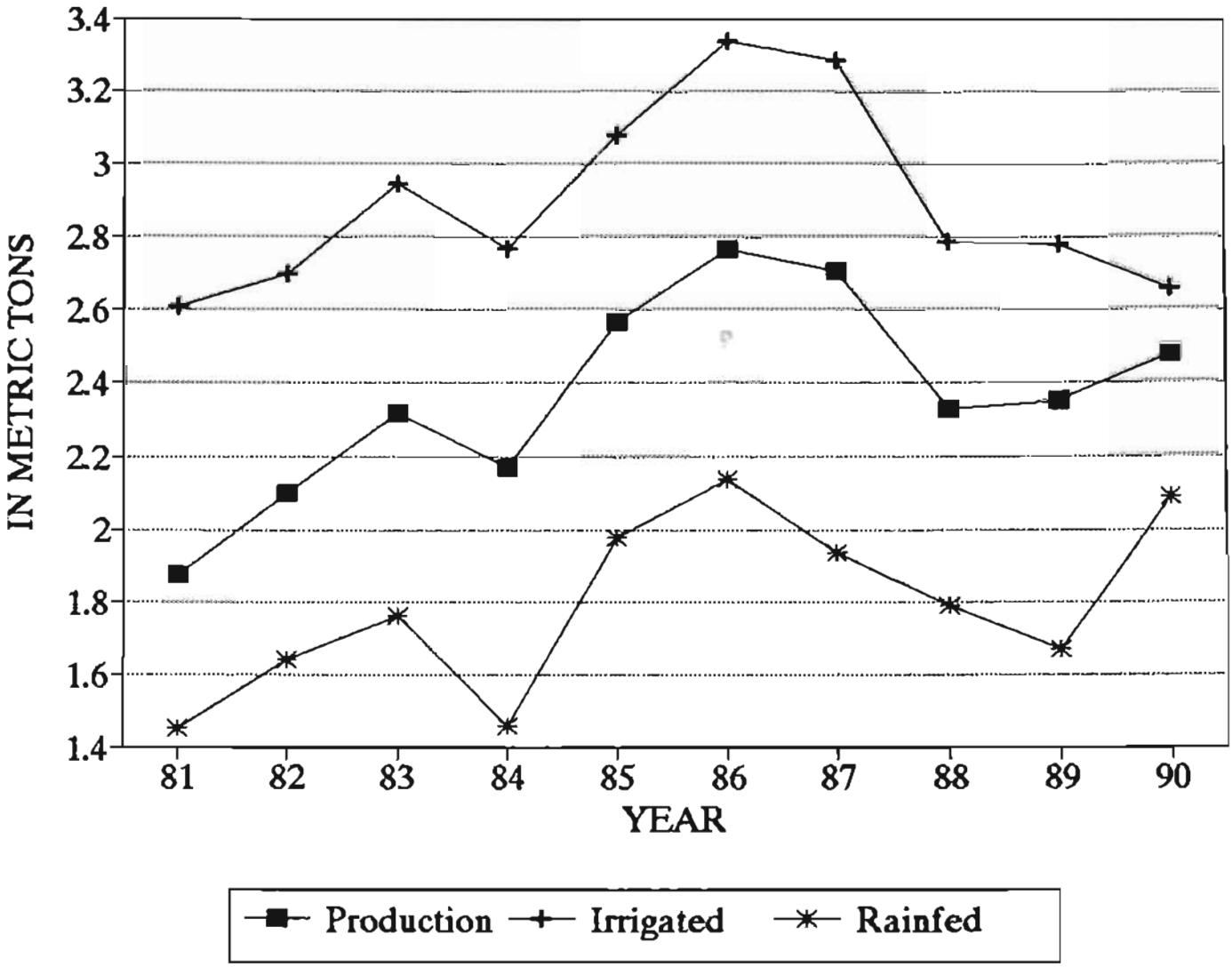
Rice is intensively and extensively produced in the province resulting to a continuous surplus. While the rainfed fields (31%) are planted for over one cropping, the irrigated paddies (58%) are maximized to three croppings per year.

As shown in the 1989-1990 (ten-year period) trend analysis of rice production in Antique, about 35-40% of total production is being contributed by upland rice farming. These figures assume that most of the rainfed farms are in the uplands and some irrigated farms can also be found in the uplands.

In the uplands, however, rice are planted in the relatively limited space areas whether "banglid" or "kahon-kahon". While no aggregate figures are available on total rice production, small farmer profile indicates a subsistence level production and lowland-upland transfers. Rice in the uplands are established in three methods namely dibbling, broadcasting and transplanting (kahon-kahon) in seeding rates at 42, 63, and 42 kgs/ha respectively (ICRA, 1982).

A number of upland rice varieties are still being cultivated in the uplands of Antique. These varieties include locally named varieties such as "kotsyam", "awot", "sadsadan", "dumali", etc., which are usually planted through direct seeding. Cropping season is timed during the rainy months usually from May to August. The average farm area is between 0.5 to 0.75 ha with an average yield of 30 cavans/ha.

Figure 2.8. Average Yield per Hectare (MT), Rainfed and Irrigated Farms, Antique (1981-1990)



Source: BAS, San Jose, Antique, 1991

Some upland areas use modern rice varieties which in turn require inorganic fertilizer and chemicals. The most common pests and diseases of upland rice are army worm, rice bugs, rats, "bukan", cut worms, stemborers, tungro and blight.

Family labor is mainly used in rice cropping although sometimes hired labor is resorted to especially in plowing and planting. The wage rate is about ₱40/manday (1991) and ₱25/manday with food. Harvesting is done 4 months after planting using the "garab", and sharing arrangement of 7:1 in favor of the tiller.

The indigenous postharvest technology prevailing in the hinter-uplands are sundrying, dry storage, "lusong and hal-o" (milling) and winnowing. However, accessible upland barangays mill grains through mobile rice millers for certain service charges.

2.4.4 Other Upland Agricultural Crops

Area Planted and Total Production

Area and production statistics for the ten-year period 1980-1990 were obtained for three types of crops: commercial (plantation) crops, food crops and vegetables (Tables 2.7 and 2.8). The figures were plotted on quantity-time coordinates to assess the changes that occurred during the last ten years (Figures 2.9 - 2.16).

The graphs indicate a general downward trend in both area and production for all crops except coffee among the commercial crops and eggplant among the vegetables. The most drastic changes appear to have mostly occurred during the last three to five years.

The following general inferences can be deduced from the results but these are not conclusive and have to be checked and validated:

1. Declining productivity per unit area of commercial and food crops which are generally planted in the uplands may be attributed to the cultivation of already marginal lands or the use of unsustainable production practices. It has been found that most upland areas suffer from moderate to severe erosion which, overtime, rendered the lands less productive;

2. There is an apparent shift from and/or increase in area of food crops/vegetables to commercial crops. This may be attributed to the promotion of commercial/perennial crops in the 1980s by EBJUDP and other development programs;

Table 2.7 Crop Area by Type of Crop, Antique Province, 1980-1990

	AREA (Hectares)										
	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990
COMMERCIAL (PLANTATION) CROPS											
Cashew	10	9	9	10	8	9	7	8	6	7	5
Coffee	38	39	43	46	48	55	58	58	62	62	
Mango	203	206	206	208	209	209	210	210	211	216	217
Cacao	8	10	15	15	19	20	23	24	25	25	26
TOTAL	259	264	273	279	284	293	298	300	304	310	248
FOOD CROPS											
Sweet Potato		642	641	615	621	630	628	615	596	626	522
Mongo		2,598	2,607	2,443	2,470	2,450	2,480	2,235	2,675	2,443	2,520
Cassava	537	535	526	519	520	524	518	506	505	318	
Peanuts	190	200	210	204	188	210	208	216	225	135	
TOTAL	727	3,975	3,984	3,781	3,799	3,814	3,834	3,572	4,001	3,522	3,042
VEGETABLES											
Radish	1	1	1	1	1	1	1	1	1	1	
Squash	94	112	110	80	79	91	88	82	67	54	
Eggplant		58	56	50	56	62	64	66	80	85	87
Pechay	10	8	8	9	12	14	16	16	10	10	11
Tomato	67	73	72	65	73	81	87	89	80	78	
TOTAL	172	252	247	205	221	249	256	254	238	228	98

Source: Bureau of Agricultural Statistics, DA, Manila.

Table 2.8 Production by Crop, Antique Province, 1980-1990

	AREA (Hectares)										
	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990
COMMERCIAL (PLANTATION) CROPS											
Cashew	7	6	6	5	5	5	5	4	4	3	
Coffee	34	33	43	43	48	55	65	60	68	69	
Mango	822	858	1,385	1,307	1,246	1,222	1,395	939	1,040	1,130	
Cacao		11	11	11	13	16	19	23	16	0	
Total	862	908	1,445	1,366	1,312	1,297	1,484	1,026	1,127	1,202	
FOOD CROPS											
Sweet Potato	3,038	3,039	2,245	2,228	2,316	2,408	2,445	2,254	1,419	1,537	
Mongo	1,141	1,150	1,014	951	883	1,248	1,187	1,422	1,344	1,404	
Cassava	1,765	1,637	1,615	1,716	1,724	1,761	1,725	1,964	1,135	1,136	
Peanuts	89	98	73	54	69	74	91	82	59	64	
Total	6,033	5,923	4,947	4,949	4,992	5,491	5,448	5,721	3,957	4,142	
VEGETABLES											
Radish	6	6	6	4	4	5	5	5	4	4	0
Squash	903	1,079	1,051	761	719	845	853	783	626	495	0
Eggplant	0	69	66	48	88	100	102	108	123	137	150
Pechay	57	45	48	49	68	86	97	95	62	62	69
Tomato	193	212	210	168	223	277	285	296	218	215	0
Total	1,158	1,412	1,381	1,029	1,102	1,313	1,341	1,286	1,034	913	219

Figure 2.9. Crop Area by Type of Crop
Antique Province (1980-1990)

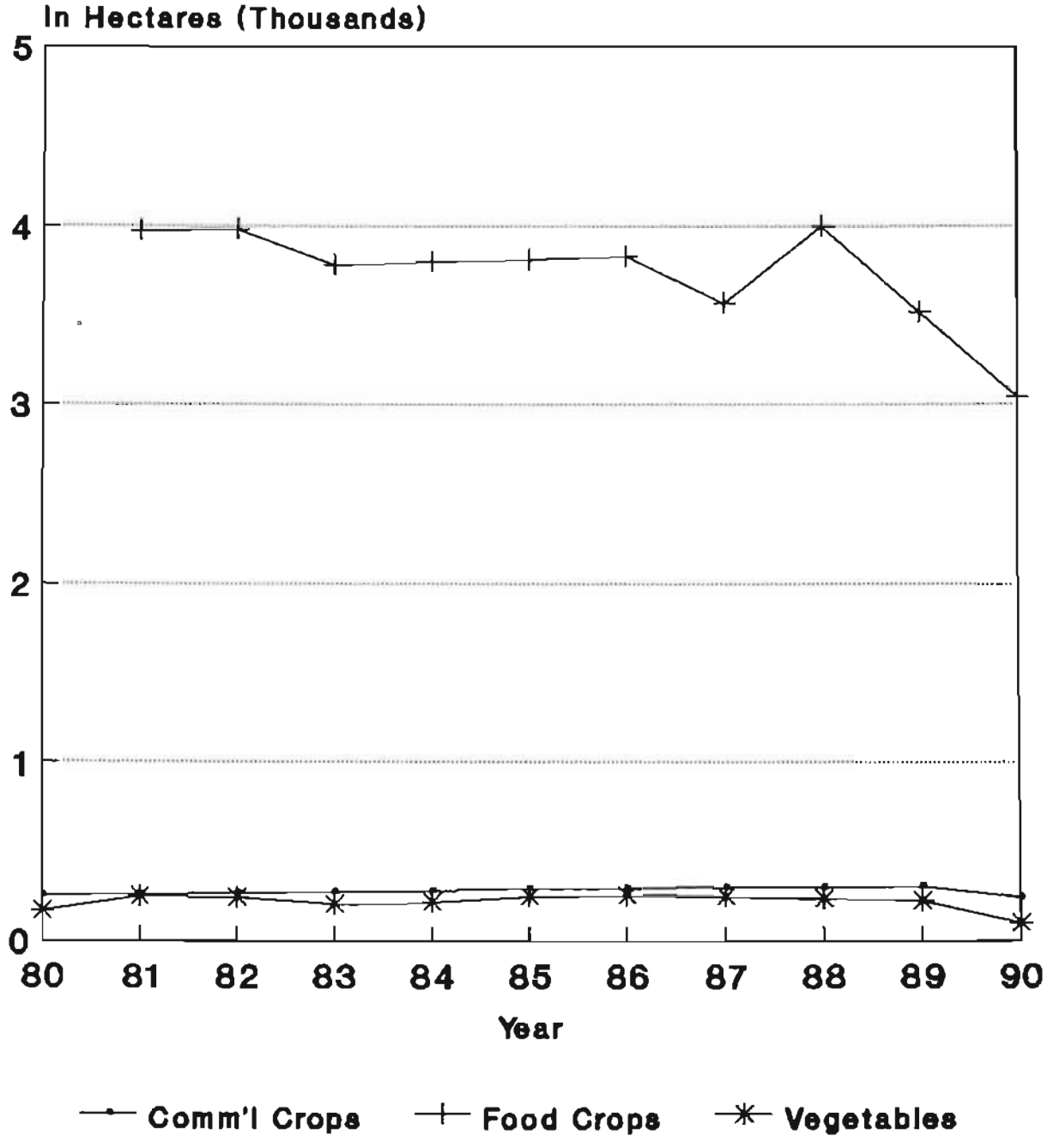


Figure 2.10. Crop Area by Type of Crop
Commercial Crops (1980-1990)

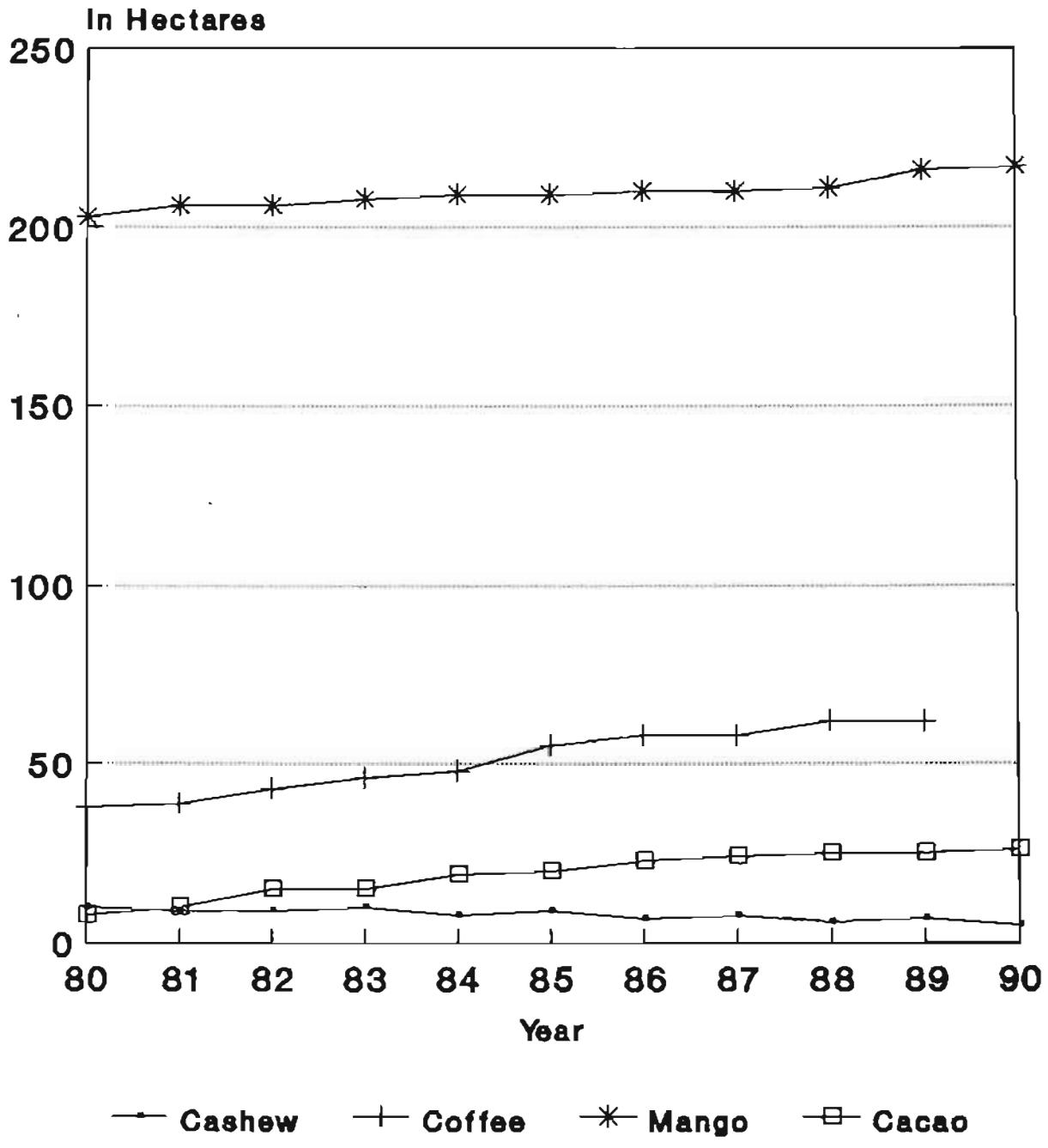


Figure 2.11. Crop Area by Type of Crop
Food Crops (1980-1990)

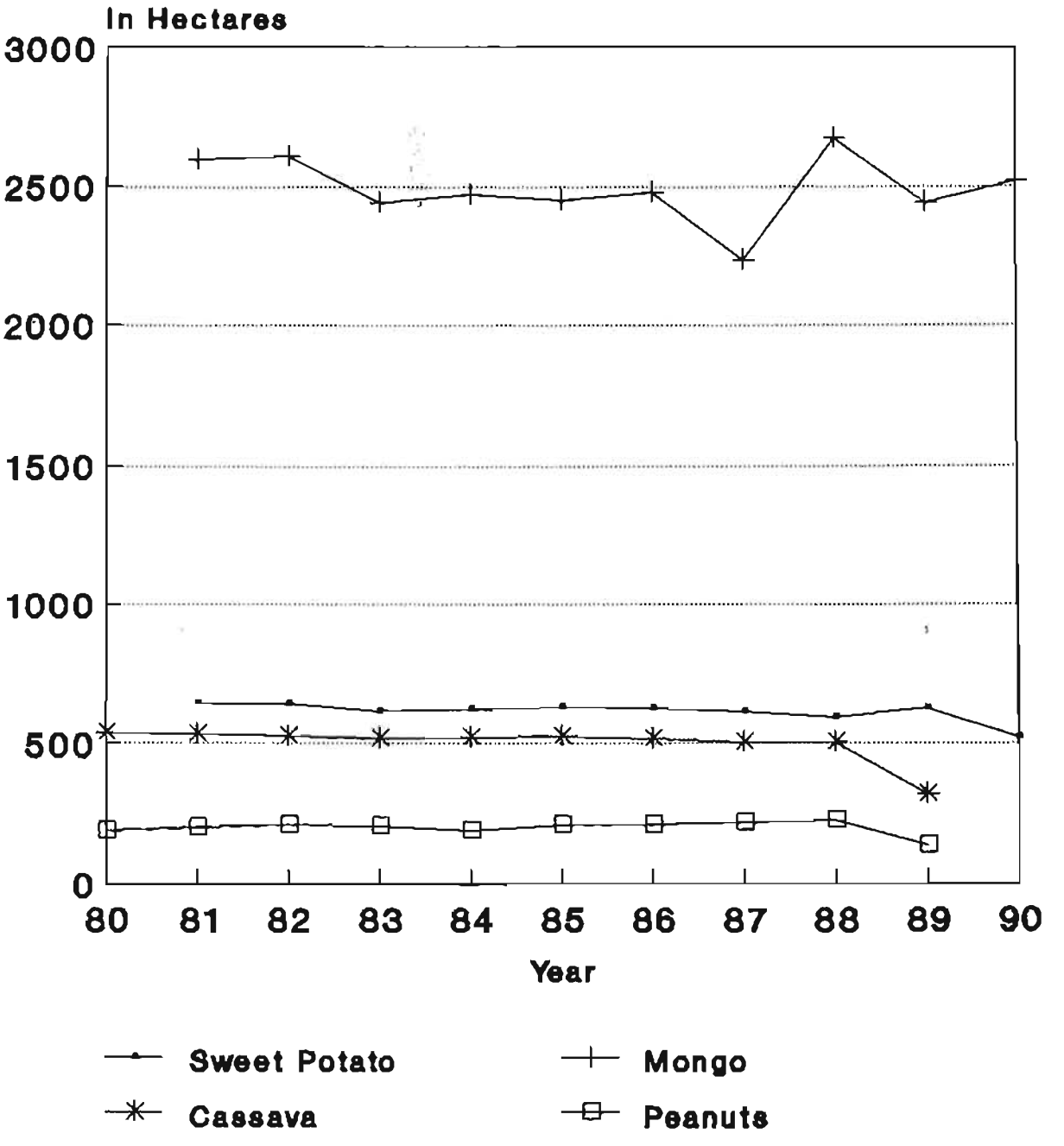


Figure 2.12. Crop Area by Type of Crop
Vegetables (1980-1990)

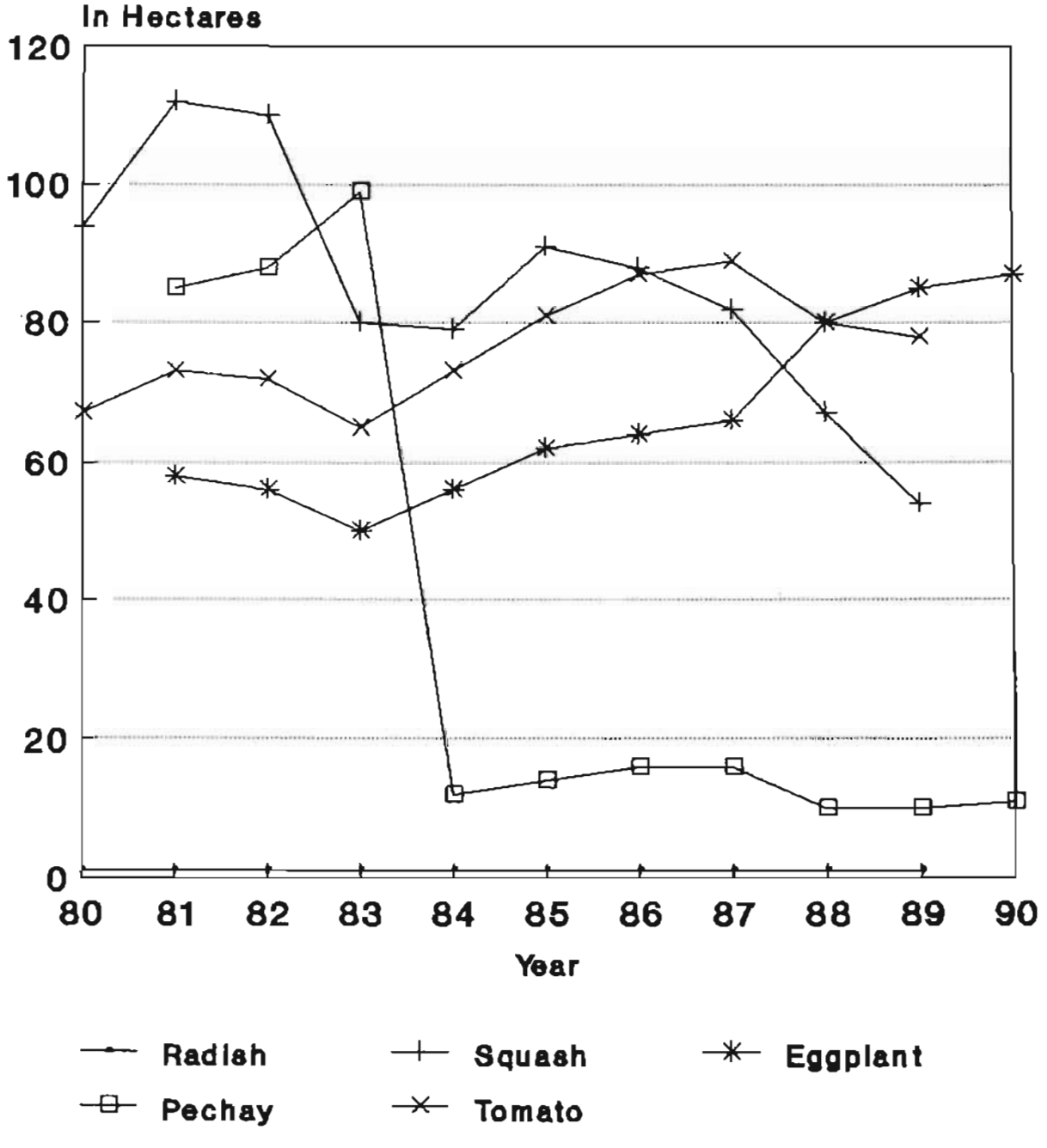


Figure 2.13. Production by Crop
Antique Province (1980-1990)

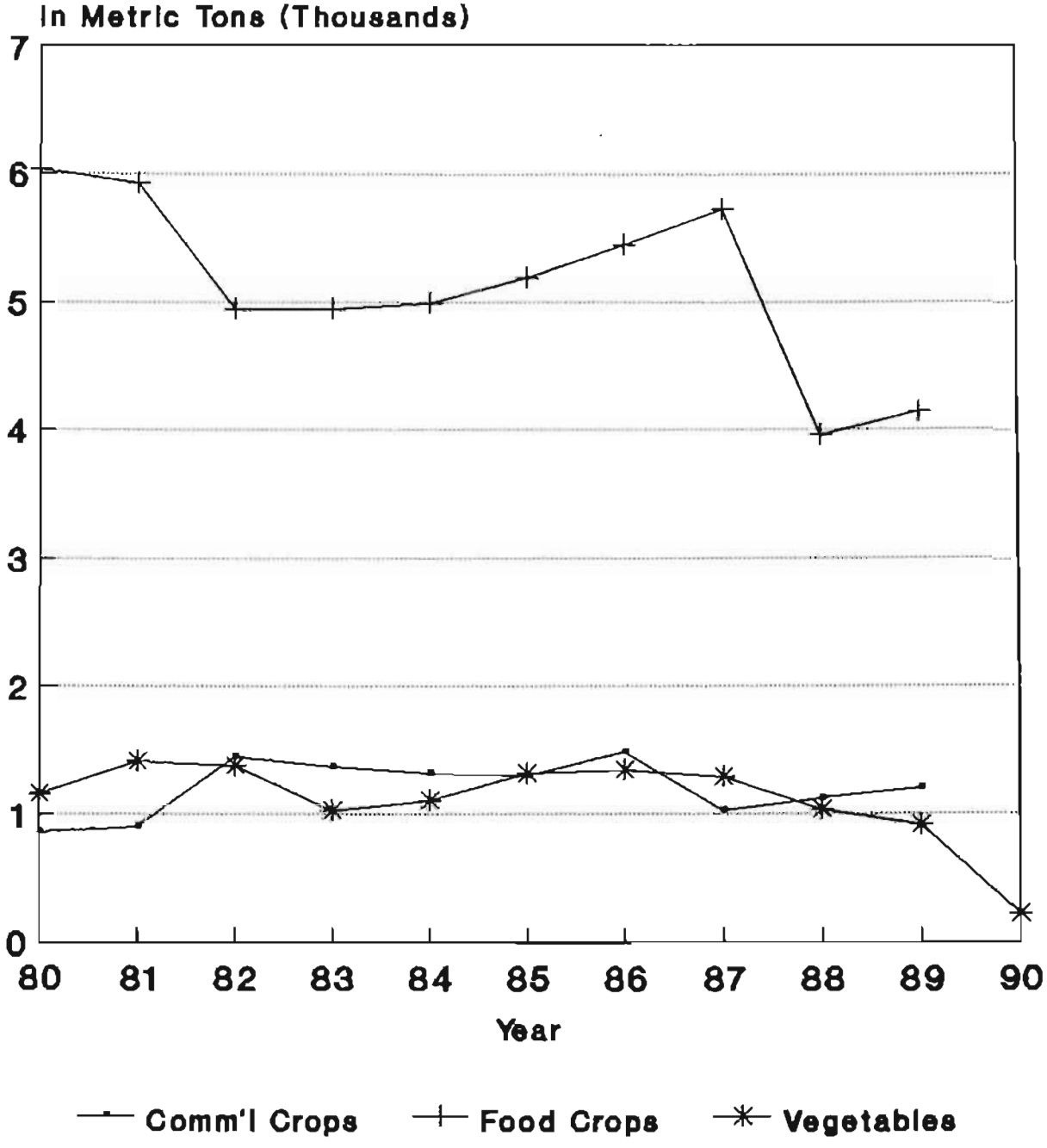


Figure 2.14. Production By Crop
Commercial Crops (1980-1989)

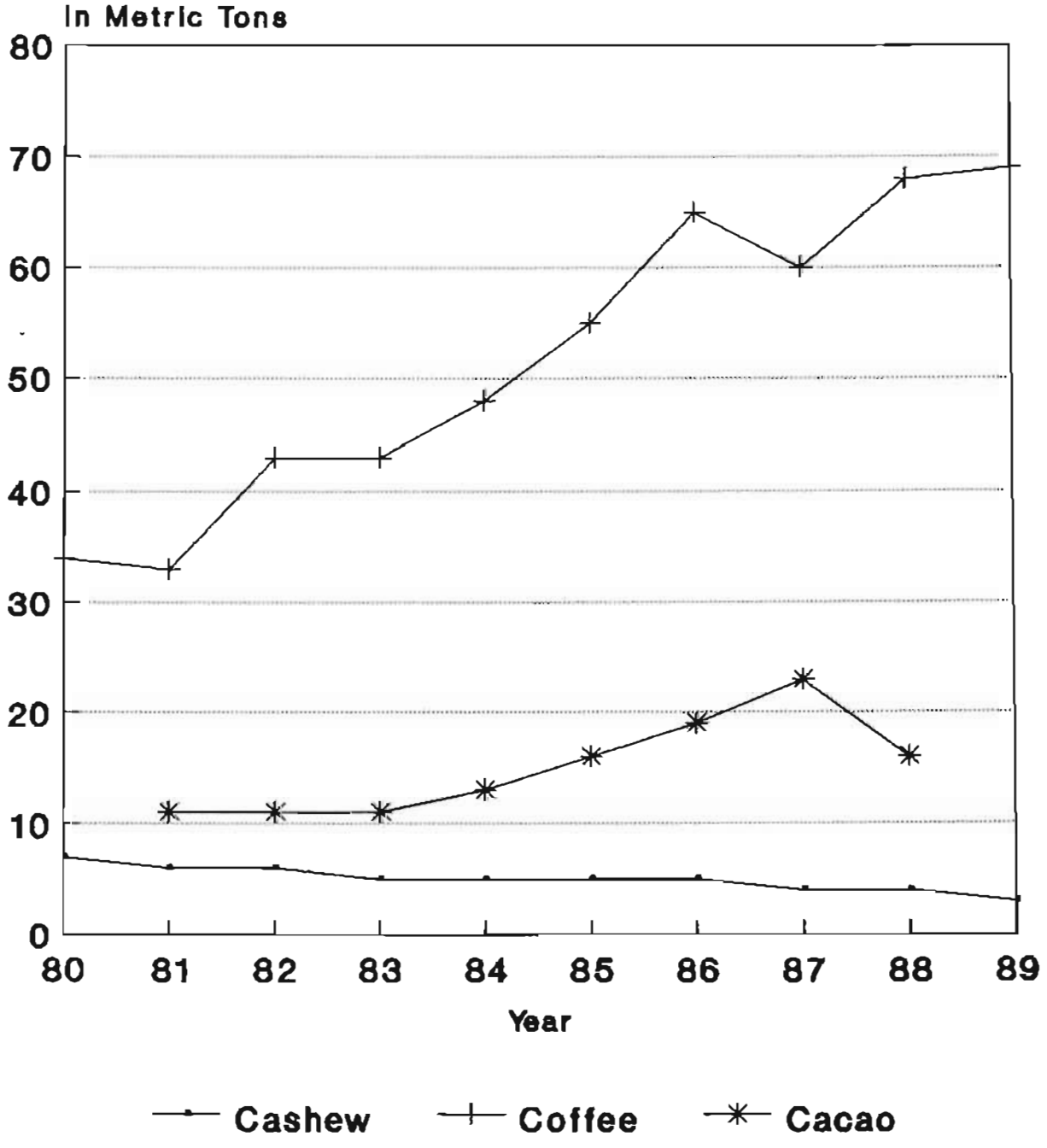


Figure 2.15. Production By Crop
Food Crops (1980-1989)

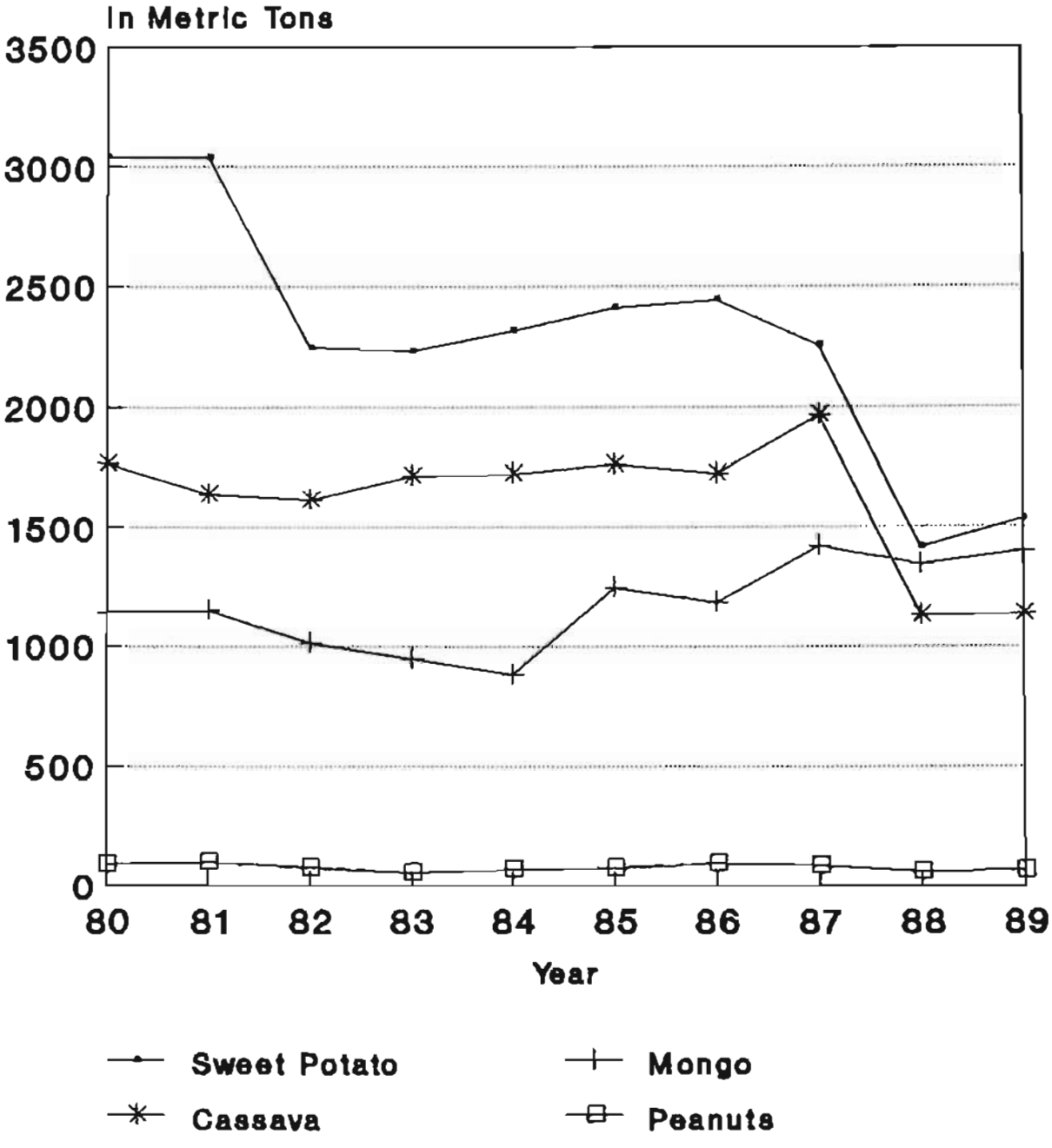
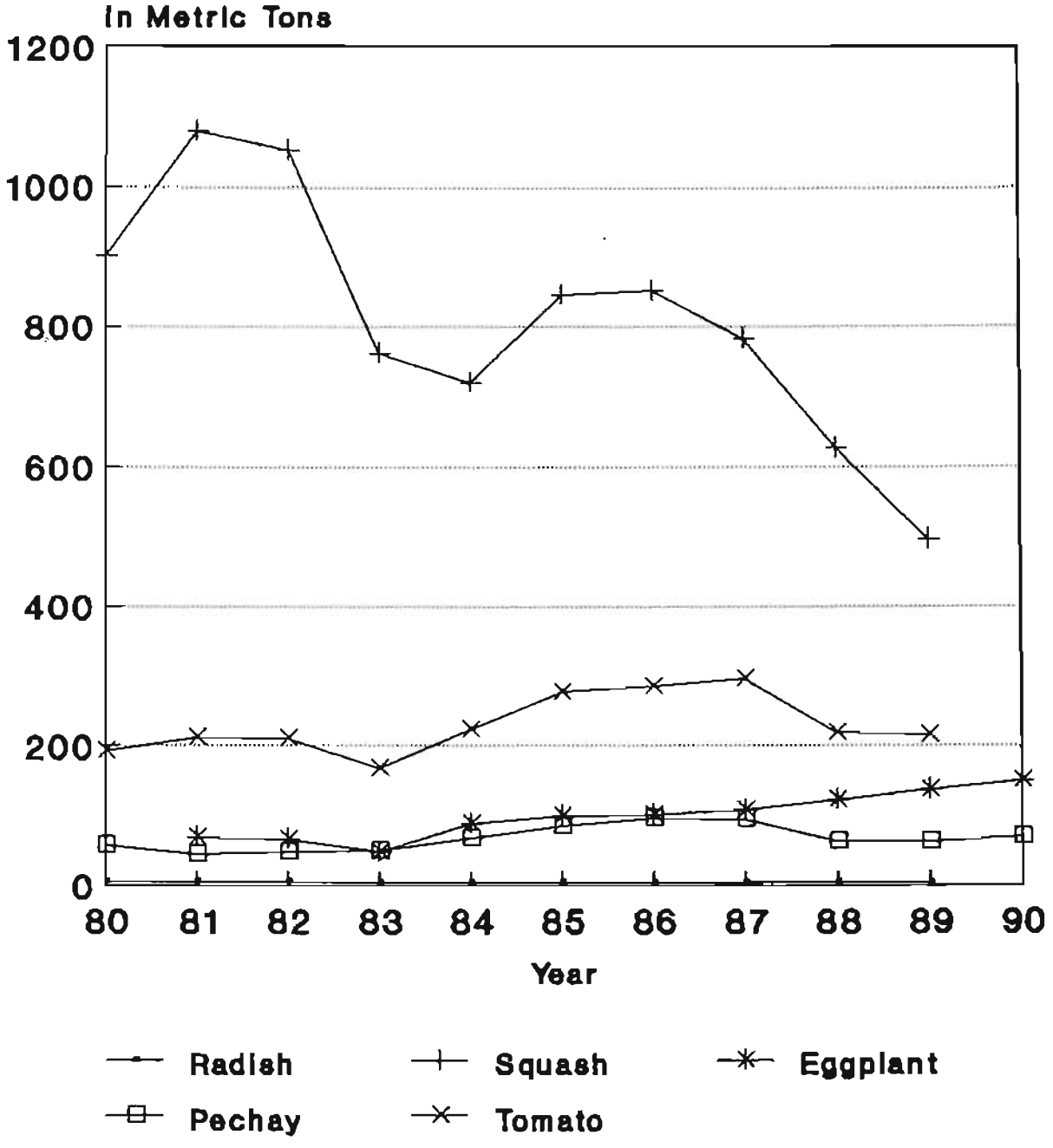


Figure 2.16. Production By Crop
Vegetables (1980-1990)



3. Fluctuations in yield may be indicative of the effects of seasonal droughts and floods occurring in the province; and

4. There appears to be an increasing acceptance of coffee and cacao as shown by a sustained increase in area planted. Production is more or less increasing overtime except in 1987 when there was a drought.

Plantation crops

The commercial (plantation) crops included in the analysis are cashew, coffee, mango and cacao. Except for mango, the three other crops are grown in limited hectarage. For the period 1980-90, the area planted to mango averaged 210 ha/year producing about 1100 tons of fruits per year (please see accompanying figures and tables).

Coffee, cacao and cashew are planted in small scale in Antique showing only 56 ha in 1980 and increased to about 310 ha in 1990 or an increment of 35 ha per year. Cashew remains to have the smallest share with only 5 ha planted in 1990. Coffee and cacao areas are steady at an average of 62 and 25 ha/year, respectively.

Food crops

Food crops are sweet potato, mongo, cassava and peanuts. Mongo hectarage has been the dominant crop planted among the food crops analyzed showing an average of 2500 ha per year. The yield indicated an increasing trend, from 0.44 t/ha in 1981 to 0.57 t/ha in 1989. Correspondingly, the total production increased to about 1.404 ton in 1990 from 1,141 tons in 1981 (the change can be attributed to the change in area planted and the increase in yield per hectare).

Relatively, the hectarage for sweet potato, cassava and peanuts did not change much for the last 8 years. Sweet potato remains at about 620 ha/year; cassava, at 500 ha/year but declined to 318 in 1989; and peanuts at 200 ha/year (although the area also decline drastically in 1989). Productionwise, the three crops showed a general decline in total production. Comparing 1981 productivity with that of 1989, there is a big decline in yield per hectare for sweet potato: 1981 yield was 4.7 tons/ha while 1989 yield is only 2.4 tons/ha. Peanut also showed a decline: 1981, 0.49 tons/ha and 1989, 0.47 tons/ha. For cassava, there was a slight increase in yield, from 3.06 tons/ha in 1981 to 3.5 tons/ha in 1989.

Vegetables

The most important vegetable crops in 1989 in terms of hectarage planted in Antique is eggplant followed by tomato, squash, pechay and raddish, in that order. However, in terms of production, squash contributed the biggest share followed by tomato and eggplant. The production from pechay and raddish are not substantial. Pechay hectarage fluctuated wildly with a big decline in 1983 when 100 ha was planted but nosedived to about 15 ha in 1984 onwards. Squash and tomato hectarage is also declining with tomato peaking in 1985 and continuously declining afterwards while squash is decreasing since 1986. Eggplant seems to be gaining popularity as indicated by the increase in area planted for the last five years.

Rootcrops like cassava are planted in typhoon periods and low rainfalls. This could be explained by the fact that cassava cuttings rot under wet soils. Planting is timed for the onset of the dry season which is agronomically justifiable. Rootcrops consume the remaining surface soil moisture. However, as a shrubby plant, cassava can decline its yield because of wind stress.

Corn is planted in January to May after the second rice cropping or after the rice fallow periods in cases of single rice cropping schemes. Note that corn is grown at low rainfall months and ascending temperature gradient.

Legumes (mongo, beans and pods) are planted as cash crops during the rice fallow periods (August to December). However, some farmers grow legumes with rice.

2.4.5 Livestock Production

The preferred livestock species in the uplands of Antique are cattle, water buffaloes, chicken, swine and goat. About 68% to 73% of upland households of southern Antique and about 47% of the northern households raise cattle (ANIAD, 1990).

Two existing livestock production systems were identified; one is farmer-owned and two is through a "pasagod" system wherein female animals are raised by a farmer-caretaker and the offsprings are alternately shared by the owner (investor) and the caretaker. It was reported that half of the cattle currently grown in the uplands are under "pasagod" system.

The EBJUDP-LRM however has developed a farmer-biased or more equitable "pasagod" production scheme. Cattle, swine and goats are dispersed among beneficiaries for reproduction. The beneficiary is given the option whether to return two offsprings immediately to EBJUDP or alternate sharing for

three consecutive births. Unlike the traditional "pasagod", the parent animal goes to the beneficiary after two offsprings have already been returned to the investor. The offsprings are dispersed among volunteers in radiation manner. In cases of male animals, caretakers collect ₱10 (for goats) and ₱30 (for cows) per successful siring. A successful siring is determined by live birth, thus the caretaker can collect the dues only after births.

Water buffaloes and goats are raised in backyard levels only (Bureau of Agricultural Statistics, Antique, 1991). This is so because water buffaloes are purposely raised for draft, as a matter of fact, 70% of the total upland households own this draft animal.

While Figure 2.17 shows the production behavior of Antique's livestock pattern, limited conclusions could be drawn because of the inavailability of secondary information that had been gathered. For example, the decline of carabao production in 1982 and the total animal production in 1986 need intensive research on other factors that could have influenced the trends.

Notably from the figure, only the goat deviates from other livestock production trends.

Goats are generally adaptable in the uplands and dry locations. It is the most prolific among livestocks and as a ruminant, it is recommended by the Sloping Agricultural Land Technology (SALT) for meat and milk, thus is expected to alleviate or boost the upland household. Ironically, however, ANIAD (1990) and BAS (1991) records show that it is the least preferred among backyard farm animals. The rejection is inferable.

The sense of farm properties in the Antique is loose. Farms are only bound by either natural boundaries, or as a consequence of the dominant backyard agriculture are fenced with temporary materials that are too weak against stray animals especially goats. Goats are voracious herbivores, that when left astray become pests because they possess extraordinary appetite to a very wide range of plant species. Besides, it has a narrow and occasional market demand.

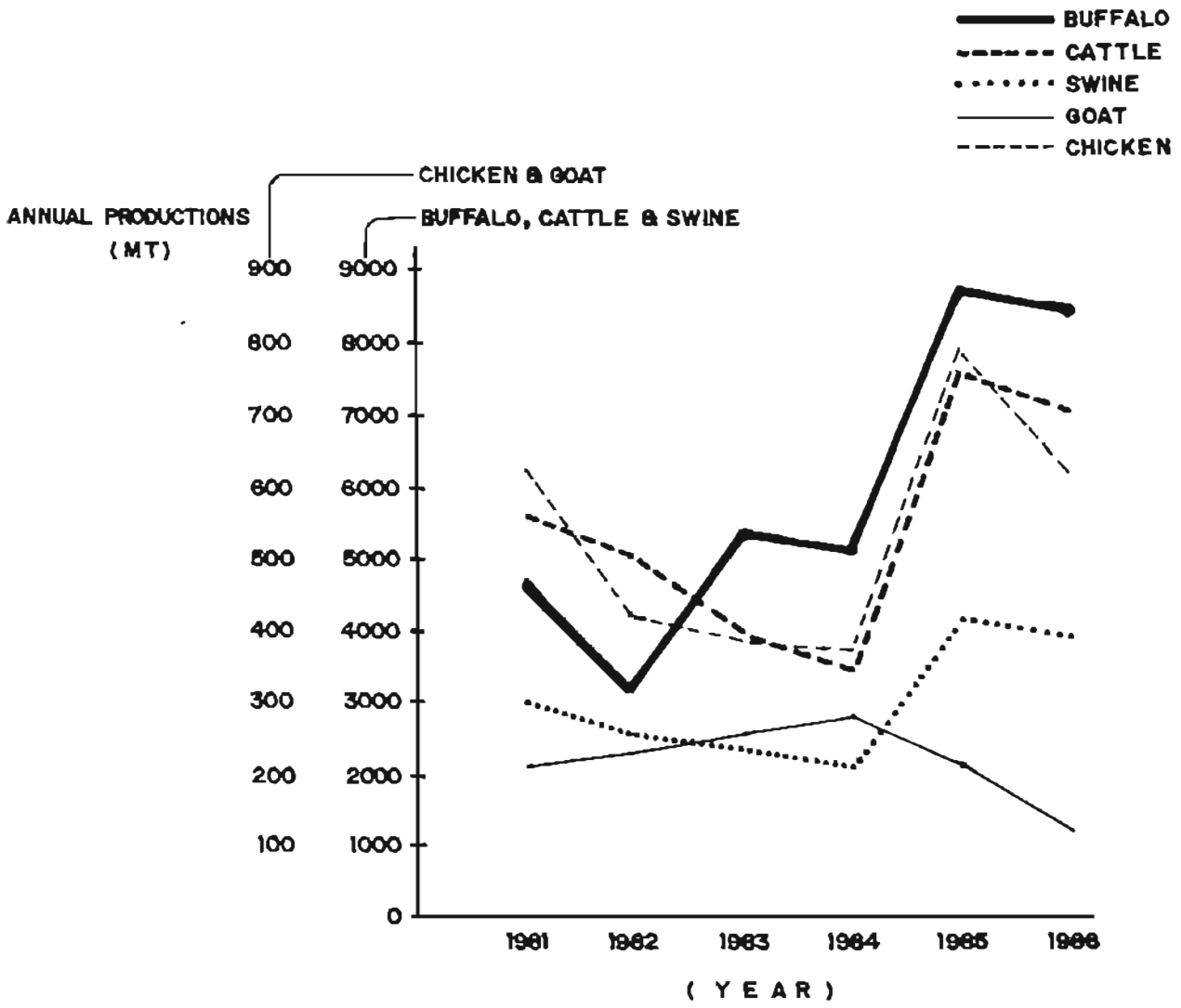


Figure 2.17. Annual Production of Backyard and Commercial Livestock Species

2.4.6 Product Flows

Generally, Antique is traditionally linked commercially with its neighboring provinces in terms of trade for agricultural and non-agricultural products. The province exports and imports commodities to and from these surrounding provinces. Most of Antique's products are primarily traded with Iloilo and Aklan although a substantial portion also reach Palawan, Mindoro, and Metro-Manila (please see Figure 2.18). Iloilo serves as the main supplier of consumer durables, groceries, farm inputs, and other commodities for the residents of Antique. On the other hand, most products of the province find their way to Iloilo which serves as the major outlet center. This is made possible by the good highway system connecting the two provinces. Transport vehicles regularly ply the Iloilo-San Jose route.

Within the province, the capital town of San Jose serves as the main trading and distribution center. The nearby town of Sibalom is also an important market center especially serving the central district of Antique. In the north, Pandan serves as a major marketing area whose influence extends up to the province of Aklan. The island town of Caluya mostly trades with the Mindoro province although it also conducts limited marketing with the towns of Culasi and Libertad.

Trading in the province is mainly done in public markets in town centers. During market days, farmers/producers, middlemen, buyers and consumers converge in market centers for product buying and selling.

The major market areas of the province are easily accessible by land transport due to the extensive road system. Products are moved primarily by buses, trucks and jeepneys. A port in San Jose also helps the shipping in and out of bulk commodities. The airport is still inoperational but this is a potential resource for moving in and out some of Antique's products.

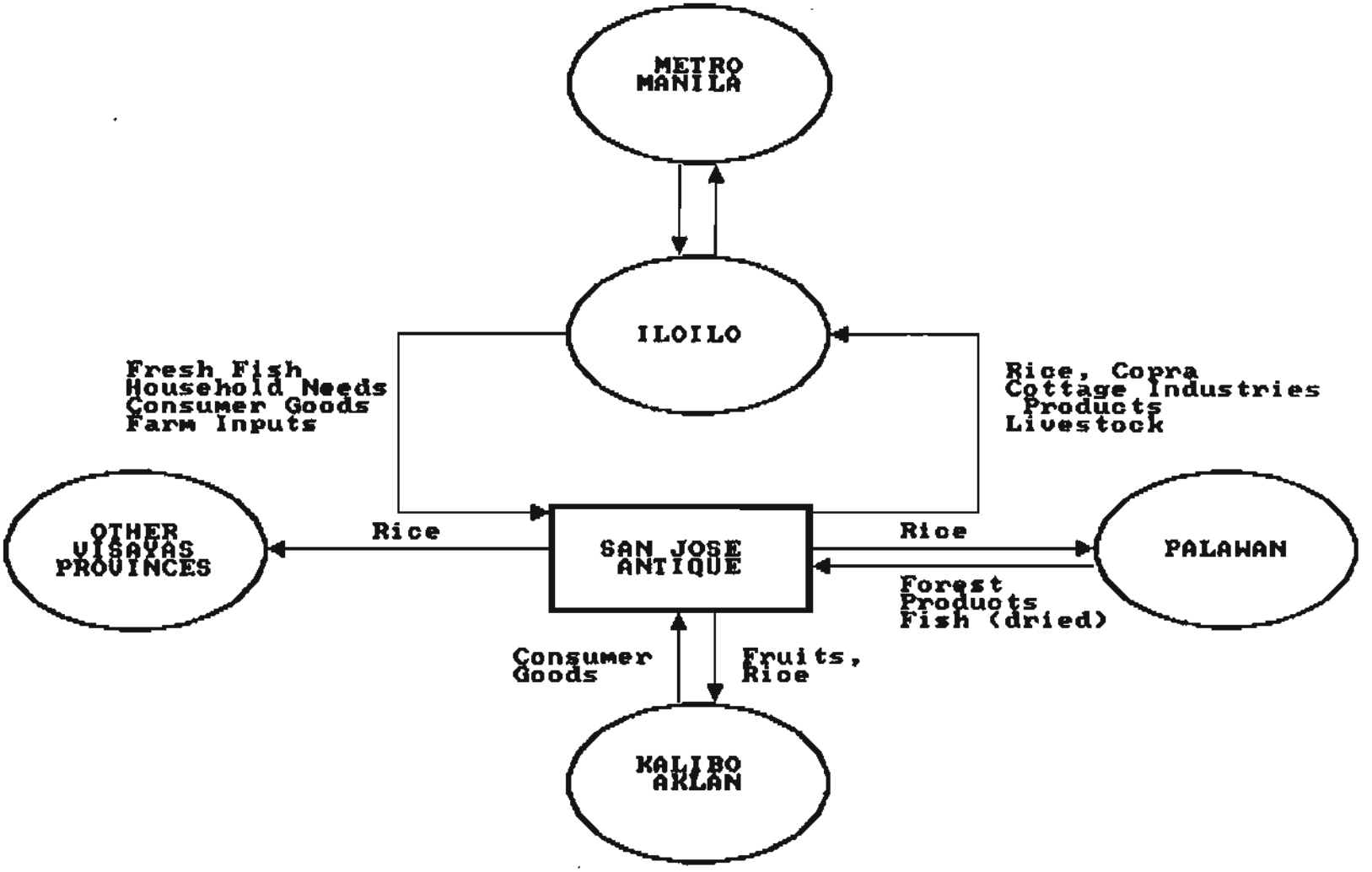


Figure 2.18 Product Flow, Antique Province

Upland Product Flow

a. Major upland products

Antique's upland economy is generally considered subsistence wherein the main output of the economic activity is just enough to meet the household needs. Whenever possible, however, any surplus production is usually sold in the nearest town market and, in some instances, bartered. For example, the Atis living in Sitio Timbubog, Sagua, Anini-y, catch "urang" (small shrimps) from the creeks to be exchanged for rice or they gather rootcrops to be bartered for clothes in the poblacion or in the neighboring barangays. Barter is usually practiced in the upland areas due to the difficulty of transporting the goods to the market centers.

In San Remigio, the upland residents gather wild orchids and ferns in the hinterlands and peddle them in San Jose. In Bugasong, honey collection is done by some uplanders and sell the honey in the town. The upland barangays of Hamtic are quite accessible by roads such that the farmers can easily bring their produce to and buy farm inputs from major market centers both in Antique and Iloilo.

The middlemen still play a major role in the marketing system in Antique. The buyers (middlemen) buy agricultural products at the farms, roadsides, market place or right at their houses, stores and warehouses. When the buyers go around the barangays, they usually buy livestock and firewood at farmgate prices. Livestock bought in this manner are then transported to auction markets either in Sibalom or at San Joaquin, Iloilo. When the farmers bring their products to the merchant's place, a corresponding cost for transport and hauling is added to the price.

For upland farmers who have big farms, the usual marketing practice is called pundo or deposito. Favorite middlemen (suki) are already contacted for the advanced sale of the products. During harvest seasons, these farmers deposit their produce to their suki middlemen and the payment is not usually taken out. The farmer will decide when to get the total payment of his produce. This suki system usually arises when the farmers have already developed a very strong relationship with the middlemen to the extent that they can borrow money anytime from the latter when need arises.

Agricultural products such as rice, corn, peanuts, vegetables, fruits and other upland products are mainly channeled through the middlemen. In San Remigio, the farmers and middlemen usually meet and transact business in Bogo, a progressive barangay where farmers bring their farm products and middlemen haggle for the wholesale price.

For pig production, hogs were solely raised as a source of cash, hence, every pig raised is sold by the household. Hogs and chicken are sold only within the municipality and between barangays.

Antique has traditionally been a rice-exporting province due to its surplus production. Rice (milled and unmilled) goes to the other Visayan provinces such as Iloilo, Negros, Cebu, Leyte and Bohol and as far as Palawan, Zamboanga and Metro-Manila. For the period 1987-89, Antique's palay output exceeded its demand by as much as 51% annually. This output, however, is mainly contributed by lowland rice production. Upland rice production contributes very little (about 10%) to the total province rice output and is solely used for home consumption.

b. Other Upland Products

Bag weaving is a popular home industry in such municipalities as Pandan where raw materials from bariw, a thorny palm belonging to the Pandan family, are in abundant supply. Bag weavers come primarily from three barangays of Pandan. The bags are accentuated with buli, another palm to emphasize the difference in colors and also to serve as a design material. Experienced bag weavers working full time can finish 1 bag (of any size) per day while beginners may take 2-3 days.

Finished products are marketed in San Jose (Antique), Kalibo (Aklan), Iloilo City, and as far as Rustan's in Quezon City. At the weavers' place, a small bag is sold at ₱65, medium-sized at P75, and large at P85. With accessories and new designs, a bag costs a minimum of ₱125.

In some upland barangays, buri leaves are used for weaving hats. A hatmaker can make 8-10 hats per week at an estimated production cost of ₱1.50/hat and sell these in the poblacion for ₱2-3/hat (1989 prices). Buri leaves are gathered and then dried before the start of the rainy season.

Coconut leaves and midribs are made into pawod for roofing and siding materials. Mostly children and women are engaged in pawod-making and they get about ₱0.60/piece. It takes about 2 days to make 100 pieces and the cost of production is ₱0.20/pc. The pawods are usually sold locally at the barangay or at the town market.

Bamboo is abundantly growing in most upland areas. Bamboo is usually split and then woven into amakan which is used for drying palay. Others make sawali and tabangos (baskets) or bilao. The market outlet is usually local or in the poblacion or sometimes in San Jose. Finely split bamboo is woven into sawali and sold in San Jose and even in Iloilo.

Wood is processed into charcoal and is done throughout the year. Wood comes from nearby hills and charcoal is sold locally. Charcoal is usually bought by the households although a big bulk of the supply is channeled to the bakeries in town centers.

2.4.7 Credit Flows

Formal credit in the province is being provided by 3 government banks (Land Bank, DBP and PNB), 3 private commercial banks and 9 rural banks. San Jose serves as the center of banking transactions as indicated by the presence of the 2 government banks and 2 private commercial banks. The rural banks are in Barbaza, Bugasong, Culasi, Hamtic, Libertad, Pandan, Sebaste, Sibalom and Tibiao.

The formal banking system is supplemented by the presence of 20 credit cooperatives. The combined membership is about 12,910 and total current assets in 1989 was P9.574 million. The Bugasong Credit Cooperative has the largest membership with 2,123 members but the Belison Credit Cooperative has the biggest current assets with P2.424 million.

Consumers cooperatives are also found in 7 municipalities, namely, Barbaza, Belizon, Libertad, Patnongon, Tibiao, Tobias Fornier, and Valderrama. The Philippine Coconut Authority provides credit to coconut farmers.

The bulk of lending in the uplands, however, comes from the informal (private) sector since financial institutions rarely serve upland farmers (Figure 2.19). The usual sources are the relatives, neighbors, and landlords. The farmers acquire the credit in the form of alili or terciahan.

Alili is a credit system practiced in the province which is prevalent among rice and sugarcane farmers. During the planting season (which also the lean months) the farmers get money from the middlemen for production or household needs. For the repayment, sugarcane (muscovado) farmers have two options either pay the middleman in cash with 50% interest or pay with muscovado at a predetermined price and weight. For example, in Iloilo 1 picul is 63 kg but in this instance, the middlemen requires that 1 picul must be 69 kg. Based on this arrangement, the borrower is disadvantaged due to the onerous repayment scheme. But in the absence of a ready and tolerable credit source, farmers have no options but to take what is available in the community.

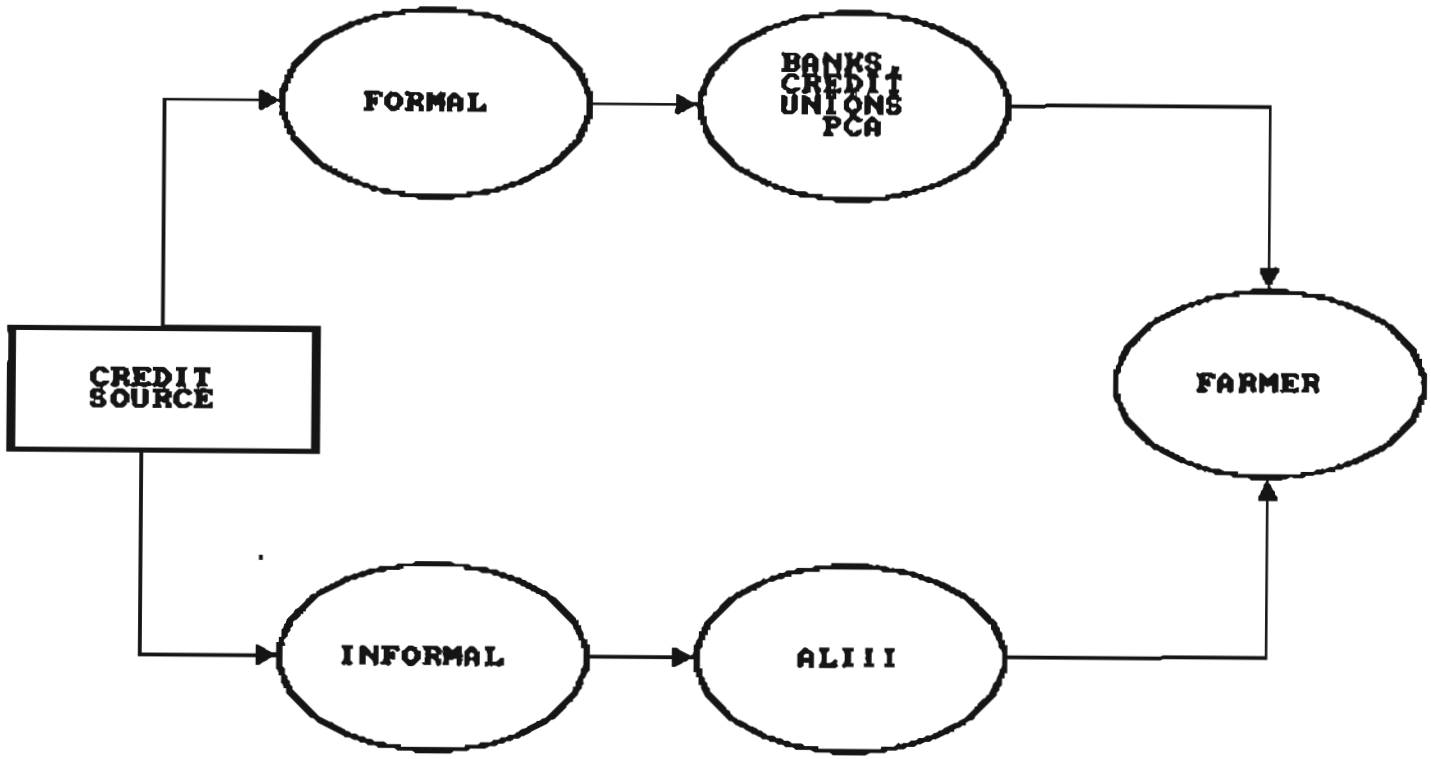


FIGURE 2.19 CREDIT FLOW, UPLANDS, ANTIQUE

2.5 Summary of Major Findings

The topography and other geographic characteristics of the province make the uplands a critical resource base for its present and future population. Limited lowland areas for agriculture and settlements point to the slopes and highlands as the logical catchment for population spill and expanding economic activities. The most important findings of the foregoing analysis relative to the problems and potentials of the uplands are summarized in the following discussions.

2.5.1 The Uplands vis-a-vis the Lowlands in the Provincial Economy

a) Areas with slopes of 18% and over constitute 72% of the area and contain 30% of the population of the province.

b) Seven major watersheds serve as source of water for one national and some 15 communal irrigation systems in lowland areas.

c) Because of the relatively monocrop rice farming system of the lowlands, the uplands provide the major portion of all other food and cash crops specifically fruits and vegetables, rootcrops and livestock. Movement of livestock from lowland to upland is also a common practice when field grazing is no longer possible in rainfed ricelands.

d) The uplands is the only source of raw materials for existing cottage industries utilizing indigenous raw materials such as bamboocraft, basket weaving, pottery, woodcraft, etc.

e) The uplands are not self-sufficient in rice and depends on the lowland areas for part of its requirements for this staple crop.

f) Limited employment opportunities bring uplanders to lowland farms during work season or to the settlement centers for construction labor or petty jobs.

2.5.2 Environmental Problems

a) Forest cover has dwindled to a mere 12% of the land area, a condition of severe ecological imbalance.

b) Occupation and continuous cultivation of steep slopes result in soil erosion, flash floods and drought affecting lowland farms.

2.5.3 Socio-Economic Assessment

Fifty-one percent of the 120,000 upland population of the province live within two major watersheds, the Sibalom-Maoit-Tipuluan Watershed (ANIAD Area of Concentration I) and the Cangaranan Watershed (ANIAD Area of Concentration II).

Aspiration for a better life among the active labor force alongside the deterioration of the productivity of upland agriculture cause uplanders to migrate to urban centers within the province and outside.

Most upland farmers do not enjoy formal/legal tenure on their farm because only part of the upland areas (San Jose and Hamtic) have been surveyed and titled. Ownership by inheritance is represented by tax declaration certificates. Upland tenancy, whether by leasehold or sharehold is predominant as well as squatting on land of absentee claimants or public forests. A new tenure system introduced by DENR for forest occupants under the ISF Program is a 25-year renewable CSC. A consequence of insecurity of tenure is the reluctance of farmers to plant long-gestation tree crops and forest species.

The negritos, an aboriginal cultural minority still inhabit the interior. Although there are no formal record of their number, socio-economic condition and economic activities, they are reported to be the most deprived upland group. Their existence has been noted and more information need to be generated about this group.

The socio-economic condition of the upland households has been affected by peace and security problems which is another reason why people leave their upland homes. Pasturing of livestock has practically disappeared because of poaching and rebel problems in the Antique-Iloilo boundary.

2.5.4 Upland Agriculture

The average upland farmer generally regards rice as a mandatory crop and will plant it in the slopes if he has no terraced lot. Rice production cannot meet the self-sufficiency requirements resulting in lowland-upland transfers. Terracing is done wherever feasible, a lowland culture brought to the uplands which would allow the use of HYV such as IR 36.

Upland crops are diverse and are planted in rotation or intercropping. Technology is traditional and use of inputs and improved varieties is practically nil. Long-tern farm planning and purposive planting of trees and other perennials is rare among the upland farmers. In recent years, however, through the efforts of EBJ-UDP, cacao, coffee, ipil-ipil and other forest species have proliferated somewhat in selected areas in Hamtic, Tobias Fornier, Sibalom and San Remigio.

An integrated support system incorporating technology transfer, farm input, credit and market assistance is necessary to improve the performance of the upland agriculture sector.

3.0 FARMING SYSTEMS

3.1 Introduction

This section attempts to provide a comprehensive assessment of the prevailing farming systems in Antique. Farming system is assessed in its entirety which takes into note the complex interaction of technical and human elements that the farmer has to contend with in making allocation decisions under various production system options available to him that would maximize socio-economic returns to the household. How the various elements that come into play in the farmer's milieu influence success and failure will be analyzed as a basis for determining the attendant problems and constraints that inhibit their development including the opportunities and entry points for improvement and further development as the case may be.

3.2 Climatological Determinants of Upland Farming Systems

The analysis of climatological records and the farming practices in the uplands of Antique suggests that the seasonal patterns influence the preferences and decisions in farming activities.

In relation to the natural and agricultural vegetation, temperature affects diurnal variations. Diurnal difference is directly proportional to net photosynthesis or the higher the diurnal difference the greater the net photosynthesis among plants. Unfortunately, Antique possesses the least differences compared to agriculture-based island economies in the Philippines. As a matter of fact, the mean diurnal difference of Masbate ($7.57^{o}C$) and Legaspi ($7.53^{o}C$) are much higher than Antique's ($5.84^{o}C$). This also explains the criticality of forest cover in the province. Antique lags over agricultural production compared to Cabanatuan ($10.50^{o}C$) and Tuguegarao ($10.83^{o}C$) and vegetative or forest cover with Davao ($9.18^{o}C$), Malaybalay ($10.46^{o}C$) and Zamboanga ($8.85^{o}C$).

As indicated by the area under the evaporation and rainfall curves shown in Figure 3.1, there is a pronounced moisture deficit from mid-November to mid-April which suggests a six-month drought period while there is a moisture surplus from May to November.

This physical phenomenon creates constraints to farming especially the upland farmers, thus farm activities are scheduled according to this seasonal pattern.

Upland farmers prefer rice to be their main crop mainly for subsistence. Rice farm activities start at the onset of rainy season which comes normally late April or early May. During this period the soil is not damp nor dry which eases plowing.

There are two techniques by which upland farmers of Antique plant rice, one is by direct-seeding while the other is through pre-germinated transplanting. Direct seeding usually proceeds as soon as the rain comes; on the other hand, a rice seed bed is prepared simultaneously with the onset of the rainy season to germinate the rice seeds for transplanting. Upland rice (traditional varieties) are seeded in 1.5 to 2 inches deep hills, a practice that prevents the seeds from getting washed-off from the slopes. Moreover, pollination is enhanced by the favorable wind speeds (11.5 kph) during fluorescence (Figure 3.2).

Corn is planted in January to May after the second rice cropping or after the rice fallow periods in cases of single rice cropping schemes. Note that corn is grown at low rainfall months and ascending temperature gradient.

Legumes (mongo, beans and pods) are planted as cash crops during the rice fallow periods (August to December). However, some farmers grow legumes with rice.

The cropping calendar generally followed by farmers in the two agroclimatic zones in Southern Antique is presented in Figure 3.3.

3.3 Farming Systems Structure

Farming households in the uplands generally operate within two major production system categories: on-farm and off-farm. On-farm refers to production activities on specific cultivated area or areas. Under this category, the tenure aspect of the farmer does not count for in so long as he is the cultivator. Off-farm, on the other hand, pertains to production systems and/or other livelihood opportunities undertaken outside the confines of his farm. The interaction and/or complementation of the two comprise what is called as the farming systems in Antique. Production systems within the two broad categories may consist of crops, livestock and other livelihood enterprises or a combination thereof.

For purposes of this analysis, on-farm production systems in the uplands are further disaggregated into subcategories based primarily on the most prominent/observable farming characteristics. In this case, they include are the terraced and unterraced on-farm production systems.

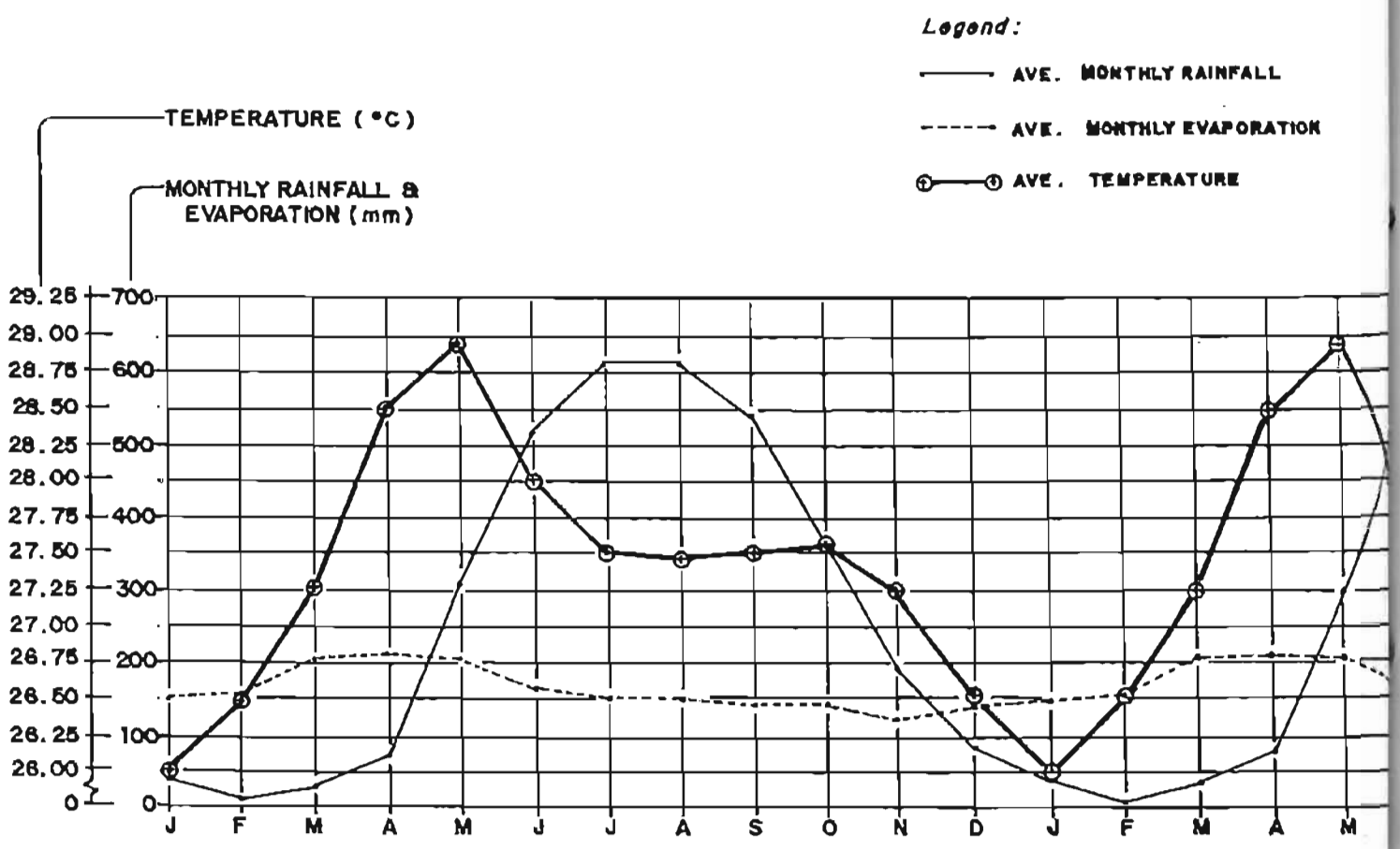


Figure 3.1 Climatic Chart, Antique Uplands

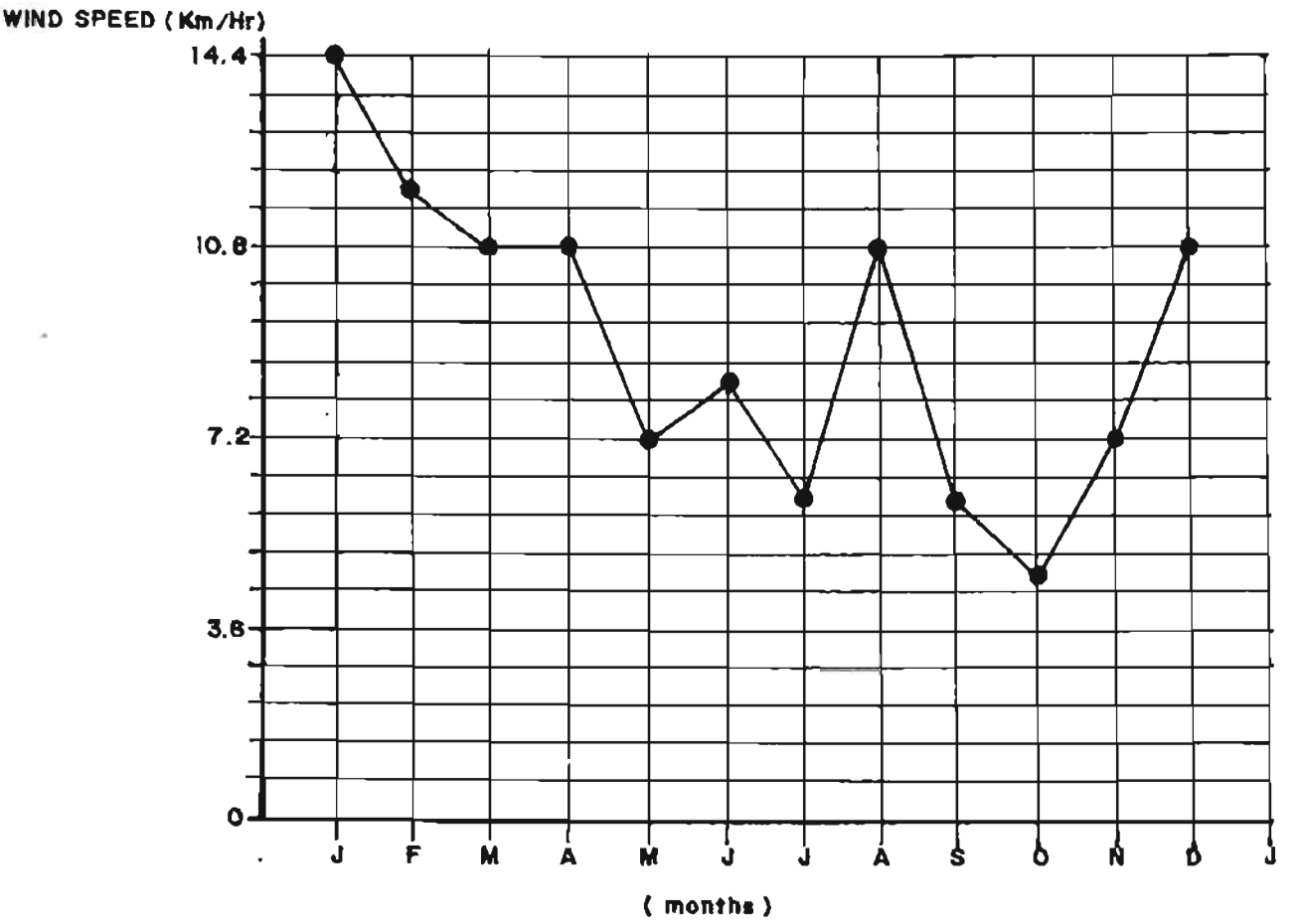


Figure 3.2. Average Wind Velocities (Iloilo Station, 1981-1985)

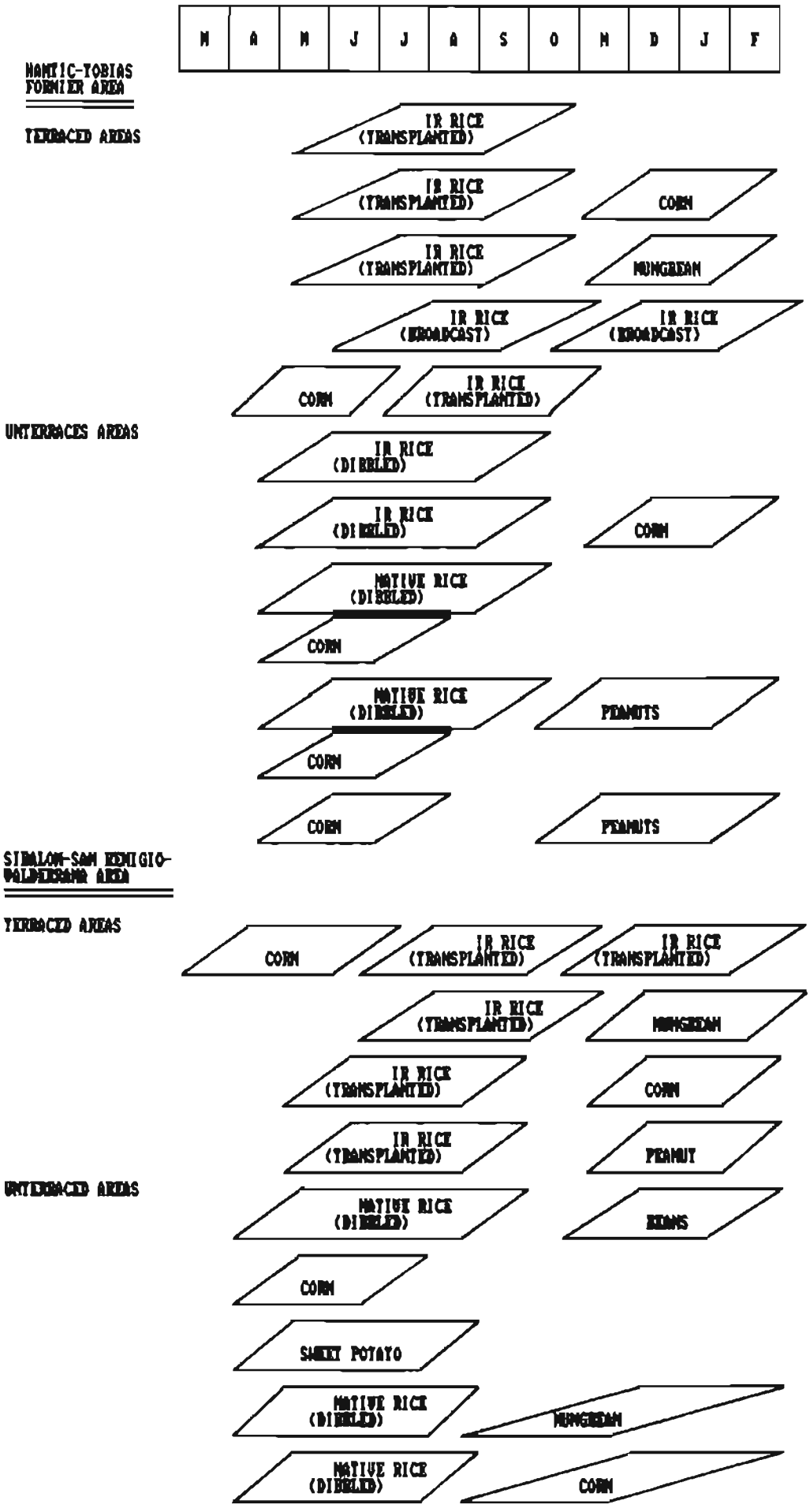


FIGURE 3.3. CROPPING CALENDAR, SOUTHERN UPLANDS OF ANTIQUE

The off-farm production system is also further disaggregated to farm-based and non-farm activities. The former may include farm-labor, fuelwood gathering and charcoal making, livestock (pasagod) and agro-based processing industries. The latter refers to wage labor in non-farm activities including employment in government or business institutions and engagement in other business enterprises like a small sari-sari store, trading, and others.

Majority of the upland farming households are engaged in one or more combination of the two categories. On the whole, the farming systems as exemplified by the combined on- and off-farm production systems exhibit different levels of sophistication and development. The extent in which these production systems are pursued vary from one farmer to the other depending on many factors as will be discussed in the succeeding sections.

3.4 Factors Influencing the Farming System

3.4.1 Landholding and Tenure

Land is considered a very critical factor in a farming system. In the context of Antique which is predominantly upland, there is a dearth of arable land for cultivation. The utilization therefore of hilly areas for cultivation is something that can no longer be avoided especially with the growing population. It is generally known that farmers operate several small parcels of land normally situated in different locations within the same barangay or municipality. Some parcels are located in the flatland areas while others are in hilly areas. Most often the farmer lives in the barangay or town center and commutes to and from his farm. There are also farmers who reside in their farm parcels. However, with the growing insurgency problems particularly north of San Jose, farmers are encouraged or forced to relocate in barangay centers for security reasons.

The cultivation of several farm parcels is indicative of the fragmentation of existing farmlands which may partly be explained by the inheritance system (as attested by the number of farmers claiming to be part-owners of lands still under their parent's name). Moreover, this is also indicative of a declining farm size that can be explained by factors that operate on the demand side. The increase in population and, in turn, the labor force in any area exerts pressure on the available land. This situation has prompted many farmers to look for additional parcel of lands to cultivate to maintain more or less an economically viable land size. In the Tapawan, ICRA and Bureau of Soils studies undertaken at different time periods, the average farm size of around 3 tend to be maintained over the years. If this

pattern persists, there will be tremendous pressure to further cultivate physically constrained lands like the open, hilly and mountainous areas. With the very strong bias of farmers towards rice-based farming, the implication on the ecological viability of these fragile areas is alarming.

Land Tenure

The cultivation of several farm parcels per farmer has a direct bearing on the tenure status of farmers. Tenure tend to vary by parcel. It is common for one farmer to have multiple tenure status. He may be an owner-operator in one parcel, a tenant in another parcel and a mortgagee in still another parcel. In another case, a farmer owns a small parcel of land and at the same time squats on another land with no claimant. This condition has persisted for some time now. In the 1981 Tapawan study in Hamtic, findings indicate that on the average, a farmer owns about 61% of his landholdings; he is a tenant in 24%; and a lessee and mortgagee in 5% and 10% of his total farm area, respectively. The 1982 ICRA study also showed more or less the same pattern except that majority have single tenure status as owner-cultivators followed by share tenants. Share tenancy is more often practiced in irrigated flatland or terraced areas cultivated to rice and seldom in rainfed hilly areas. The prevailing sharing arrangement is 2:1 in favor of the tenant-cultivator.

As the landholding structure is fragmented, it is difficult to ascertain the exact size and boundaries of landholdings of farmers. In the entire province, only the municipalities of San Jose, Sibalom and Hamtic have approved cadastral surveys eligible for issuance of land patents or titles (cf p. 59). Even with tax declaration, only estimates of landholdings is indicated.

In the absence of complete official data on tenurial status in the province, a very rough estimate of the distribution of farmers by tenure is made combining various information from previous studies and some field observations:

Owner/Part-Owner	-	60%
Leaseholder	-	4%
Share Tenants	-	12%
Owner-Leaseholder	-	4%
Owner-Mortgagee	-	6%
Owner-Share Tenant	-	9%
Other Combinations	-	5%

The above estimate showed the predominance of owner/part-time owner cultivators even among those with multiple tenure. Share tenancy is more a problem in the lowland farms than in the uplands.

In the case of San Remigio in Concentration Area 1 and other ISF areas, they are better off because their land tenure status is defined by their CSC. This entitles the beneficiaries land for cultivation in addition to their other small land parcels. It is however noticed that in times of economic pressure, the land is the readily available source of immediate cash through the mortgage system which is common all throughout the province. Even ISF lands have not been spared from this although technically, this is not allowed.

Positive correlation between landownership and cultivation of perennial crops has been noted, even though the status of such ownership is merely recognized by traditional norms. In some areas in Sibalom, farmers are planting coffee in lands that are actually within the forestland. In the case of tenanted land, the farmer is almost always interested only in annual crops. The planting of perennials is at the discretion of the farmer and more often the owner only waits for whatever the farmer would give him during harvest.

Landholding Types

The farmer's landholding in the uplands is either terraced or unterraced. In addition to this is the homelot which is either separate from the farm or within one of the farm parcels. The extent of terracing is normally dictated by the physiography of the area and the available labor or the peso equivalent investment required to undertake the activity. In addition, the presence of creeks and other water source in nearby areas is an important deciding factor for farmers to construct terraces. If water is assured, the returns to investment is perceived to be higher especially that in terraced areas the use of high yielding varieties with corresponding fertilizer input is getting popular.

Of the total landholding of farmers in the upland areas, the ICRA studies estimated that only about 27-38% is cultivated to annual crops. The rest are either fallowed, idle or planted to perennials. Based on the latest observation, there appears to have some improvement in the land use due to the gradual adoption of perennial and other root crops in hilly areas. Roughly around 60% of total farm area is cultivated to various annuals and perennials. Uncultivated areas representing some 40% may be on fallow or simply idle. There may be also a minimal reduction in the farm area as a result of terracing.

Terraced areas in Hamtic accounts for about 25% of total farm area and around 60% of cultivated area (Tapawan 1981 and ICRA 1982). There appears to be a significant increase in terraced areas over the years due to the recognition of its value and the farmer's desire to maximize production of rice which is the primary intent for its construction. All throughout the province, gently rolling areas are terraced

and fully maximized for planting of rice. Depending on the availability of water, 1-3 croppings of rice a year can be realized. Some 80-90% of farmers practice terracing with varying degrees of refinement.

The unterraced areas, on the other hand, occupy a larger area compared to the terraced portion representing about 75% of total farm area. Of this, however, only about 40% is devoted for annual cultivation and the rest are either allocated for perennials, left to fallow or simply idle. The unterraced farms are the only remaining potential areas for agricultural expansion. However, any interventions in these zones should carefully consider its bio-physical limitations.

3.4.2 The Farming Household

As indicated in the socio-economic section, the average family size in the upland is composed of six members. This has a bearing on the potential labor force that can help in the farm as will be elaborated in the analysis of labor utilization for various farm activities.

The literacy rate in the uplands is very low as indicated in the ARMDEV study. With practically 80% of those surveyed reported no schooling at all or attended only some elementary education, this underscores the limited capability of farmers to perhaps understand and appreciate innovations in their farm. Moreover, this also bespeaks of a limited capability to effectively manage and maximize the gains from the farm particularly in the light of farmers having to take care of several farm parcels.

Studies made by Tapawan (1981) shows that an average of three adult members constitute the potential labor force (ages 15 and above) of the upland farm household. At least a member is engaged in non-farm activities and, in most cases, an unmarried adult member works outside the province such as Iloilo and Manila.

Average age of the household members is 29.6 years old. They seldom study beyond the elementary level and less than 10% of them reached high school. The farm operators have ages ranging from 25-76 years old, with an average of four years of formal schooling. Most of them have been residing in the barangay ever since and have an average farming experience of 26 years. The number of years they have been operating their respective farms range from 1-49 years.

While as farm operators, the husbands concentrate their productive time cultivating the farm, the wives are more involved in planting, weeding and harvesting in other people's field, paid in cash or is promised deferred share in next harvest (Seño, 1989). The latter also resort to other activities for supplemental income, such as poultry

and swine raising, vegetable gardening and small-scale trading.

Symbiotic purposive interaction are male-dominated (Seño, 1990). This includes attending meetings and trainings, interacting with community organizations, and coordinating planting schedule. The wives' roles in symbiotic activities revolves around asking, returning and exchanging goods with relatives, neighbors and an intimate circle of friends. They are responsible for domestic chores like house cleaning and maintenance, food preparation and child care, assisted by older children.

3.4.3 Farm Investment

The level of investment in a typical upland farm in Antique is generally low and consist mainly of draft animal and simple farm implements. Although land is in itself the biggest and most important farm investment, this is taken as given when inherited. If mortgaged, leased or working as a share tenant the level of farm investment is affected depending on whether there is a net gain to them.

The carabao is considered a most important investment to an upland farmer. It serves as the main workhorse (plowing and harrowing) in the farm particularly for the terraced areas. In addition, the relative distances between and among farm parcels and residence make the carabao and carabao drawn-sleds critical not only in the operation of the farm (draft animal) but as a means of transport for farmers and farm products. The high demand for carabao is reflected in its buying price which is even higher than cattle. Because of its high market value, the carabao is a readily disposable asset in times of emergency need of cash. One farmer interviewed stated that he was able to pay for the mortgage of a neighboring farm by selling his carabao. A carabao costs between ₱8,000-₱12,000 depending on the age and quality.

Around 60-70% of farmers own a carabao and the rest hire from fellow farmers on a man-animal day basis including farm implements.

Other livestock raised which includes cattle, swine, goat and poultry though not directly contributing to farm production are nevertheless considered as farm investment which the farmer can readily convert to cash and use for farm and domestic needs. Besides, in some integrated farms, livestock and poultry are important components of the farm because they supply part of the organic fertilizer requirement and feeds on soil conditioning legumes and other para-grasses. Most farmers have one or two livestock and poultry raised in the backyard.

Investment in farm implements mainly consist of plows and harrows and on a very few cases knapsack sprayer and blowers.

The relatively low level of investment poured in the farm is indicative of subsistence agriculture that characterizes most of the upland production systems in Antique.

3.4.4 Source of Farm Capital

Farm capital usually connotes the availability of finances that the farmers can draw for farm operations; others interchange it with credit. The lack of capital is oftentimes seen as one of the limiting factors of an efficient smallscale farming both in the uplands and the lowlands. However, this problem is more pronounced in the uplands due to low priority given by past government efforts to credit extension.

The upland farmers of Antique rely on various capital sources to support their farm activities. Like any other small farmers in the country, the Antique upland farmers cannot fully support the financial requirements of farming operations so much so that they invariably rely on borrowing from all sorts of lenders. This can be attributed partly to the low (and even negative) savings rate of households in the uplands since farming is at the subsistence level.

At the height of any farming season, most farmers turn to such money sources as neighbors, relatives, traders, middlemen, and landlords. These informal sources of credit charge high costs of borrowing but they are still preferred by the farmers due to such reasons as ease of getting the needed amount, no collateral is required and payment in-kind is allowed.

3.4.5 Labor Utilization

Labor represents a major component of the upland farming system. Since the upland terrain precludes use of mechanized equipment, farming is done utilizing human and animal labor. The system of labor utilization comes in two forms: family labor which also includes exchange labor and hired labor. The latter could include man-day labor or man-animal day labor. The most common draft animal is the carabao which possesses about 0.25 draft horsepower.

The Tapawan study indicated that annual crop production is highly labor intensive compared to perennial crops production (61% for annuals as against 4% for perennials).

Average labor utilization for a one-hectare farm planted to annual crops (rice-based) was estimated combining the Tapawan and ICRA studies. An average of around 61 man-days labor is utilized for production. Of this, some 49% is

provided by family labor and 51% is hired labor. The latter is prominently used during the planting and harvesting seasons. The total estimated labor cost per hectare is ₱3,265.00 inclusive of imputed family labor cost. This is still conservative since hired labor cost used does not include food normally provided by the farm operator (Table 3.1).

Table 3.1. Analysis of Labor Utilization for Annual Crop Production (One Hectare)

FARM OPERATION	Total Man-Days	Labor Allocation		Labor Cost	Cost Allocation	
		Family	Hired		Family	Hired
LAND PREPARATION *	19.50	10.34	9.16	975.00	516.75	458.25
PLANTING	13.90	5.70	8.20	347.50	142.48	205.03
WEEDING	9.25	4.72	4.53	231.25	117.94	113.31
FERTILIZING	2.45	2.18	0.27	61.25	54.51	6.74
HARVESTING/THRESHING	16.15	7.11	9.04	1,650.00	726.00	924.00
TOTAL	61.25	30.04	31.21	3,265.00	1557.68	1707.33
PERCENTAGE (%)		49.04%	50.96%		47.71%	52.29%

* Man-animal day

The analysis of labor utilization and allocation for annual crop production tend to somehow show the lack of family labor to cope up with seasonal farming activities. The high rate of hired labor, on the other hand, may indicate the presence of readily available landless farm laborers for hiring.

For a sloping agricultural land technology, a quick case study was made to determine its labor requirement. Two spot checks of contour establishment were made to determine the labor requirements of SALT. The activities include 1) clearing, (2) leveling, 3) staking and 4) furrowing. In both cases mentioned, the traditional "dagyaw" system was observed.

The "dagyaw" is usually done on weekends when farm wage laborers and individual tillers are off from the fields. Thus, it utilizes the local labor force in voluntary form. It is also deemed as a reunion of the neighborhood therefore, a sort of social occasion among groups.

For SALT, labor is divided but not limited to age and sex. As shown in Table 3.2, the small children run errands to and from the site while the weak and old cook and prepare food. Women do almost all tasks except draft furrowing which requires extra skill. In the absence of draft animals, furrowing is shared among all sectors.

Table 3.2. Division of Labor for a 20-man Dagyaw Team

	SECTORS		
SALT Activity	Farmers	Women	Children
Clearing	All	All	All
Leveling	1	2	None
Stake Gathering	1	2	2
Staking	2	2	None
Furrowing	All & 1 + draft	All	All

Actually, there is no clear cut division of labor only that the core skills required must be present. For example, one A-Frame leveling hand, one draft animal operator are necessary and the rest may be recruited indiscriminately.

As shown in Table 3.3, the total expenses incurred by a simple farmer in establishing 1/4 hectare farm is ₱456 involving a 20-man team for one day. In other words, the upland farm operator spends an average of ₱22.80 per manday (dagyaw equivalent).

The upland farmers of Antique do not consider family labor as an input to production, nevertheless, the mandays spent in the farm may be deduced, as what was done in this study. It must also be noted that the labor-efficiency in the dagyaw system is far less than waged farm labor. In terms of man-hours, the effective working hours is only about six. Since "dagyaw" is based on voluntary labor, the work quality is loose. However, authority of the farm operator is still honored.

Table 3.3 A Sample of a 20-Man Dagyaw Budget
(1/4 hectare Upland Contour Establishment)

Items	Unit	Unit Price (Peso)	Total (Peso)
a) Snacks	2x		
bread	150 pcs	0.50	75.00
instant coffee	25 grams	18.00	18.00
brown sugar	1 kilo	9.00	9.00
b) Lunch	1x		
rice	5 kilos	9.80	49.00
native chicken	2 kilos	35.00	70.00
ingredients & condiments	-	20.00	20.00
c) Liquor and Beverages			
beer	3 liters	17.00	51.00
red whiskey	1 (320 ml)	14.00	14.00
gin	4 (320 ml)	12.00	48.00
softdrinks	4 liters	13.00	52.00
d) assorted cigars & cigarettes	-	-	50.00
TOTAL			456.00

The social aspect of the "dagyaw" is much favored in community-based programs like the ANIAD. Although it may be less labor-effective, it binds local farmers, it becomes a venue of ideas, a market of technology and a weekend past time. Leisure in the uplands is scarce especially during the planting season.

Combining the total utilization and allocation of family labor in various on-farm and off-farm activities as studied by Tapawan, the effective labor utilization rate arrived at was estimated at only 15.2 percent. Given the potential adult man-units available in the family, this rate is indicative of a very high underemployment rate in the uplands. The result confirms the employment pattern earlier analyzed at the provincial level. This underscores the limited opportunities in the uplands under their present farming system. On the other hand, this may indicate also a good entry point for further improvement of their production system to fully maximize the potentials of the available labor.

3.4.6 Farm Inputs

Planting Materials/Seeds

Planting materials/seedlings for annuals are often obtained from the farmer's production or through exchanged arrangement. Part of production is allocated for seeds and stored for the next season's planting. In most cases, therefore, no cash is involved. Perennials, on the other hand, are often purchased from the nurseries.

In terraced areas, majority of the farmers (around 60%) use the IR 36 variety which is high yielding, early maturing and has higher tillering capacity. These are often acquired through exchange of improved varieties with native varieties and select seeds from farmer's fields. Farmers who produce their own seeds store them until the next cropping season. The cost of IR varieties is not known since purchase of certified seeds is seldom done.

Seedlings for native varieties of rice is also obtained from farmer's field from out of their production. The use of the native varieties is still very popular due to resistance to drought, minimal fertilization, resistance to weeds and palatability.

Corn planted are the traditional short season varieties which matures in 75 days, the most common of which is the glutinous type (pilit). The seedlings come mainly from the farmer's production or through exchanged arrangements. The use of high yielding varieties of corn is not popular because of the long growing cycle and high fertilizer and pesticide requirement.

Seeds used for mungo and peanuts are generally the traditional varieties. The new varieties are more prone to insect infestation and compete with the weeds. In addition, there is no readily available source of seedlings for improved varieties.

Mungo seeds are often purchased because of storage problem. It is susceptible to weevil if not properly stored. Peanut seedlings are mainly obtained from previous harvest. Peanuts loss viability in three months.

Planting materials for perennials come from the government nurseries (DA and DENR), EBJ-UDP and ANIAD established nurseries and some farms of private individuals. Some of these are given free while others are purchased.

Fertilizer

Fertilizer is generally used to address nitrogen deficiency of most soils in the province. Thus, the most common type of fertilizer applied are N-based which includes ammonium

sulphate (21-0-0) and urea (45-0-0). Sometimes T-14 (14-14-14) and (16-20-0) ammonium phosphate is also applied. The level of fertilization varies for each type of production area. In terraced parcels, fertilizer application among farmers is high and with relatively higher rate of fertilization (about 80% use fertilizer)compared to non-terraced farms. Urea is the more preferred fertilizer in these areas. In non-terraced parcels, about 60-70% use fertilizer with preference to ammonium sulphate. It should be noted that fertilizer input is applied only in so far as rice is concerned. Fertilizers are seldom applied to other crops although there are those who use them on a limited scale for corn and some other annuals and for coffee.

Non-organic fertilizers applied by most farmers fall short of the recommended dosage. The problem is basically availability of cash for purchase of fertilizer. Fertilizer input is a major cost item for farmers and most of them cannot afford to buy the recommended proportion. It is enough that they apply a small dosage of fertilizer per cropping. Moreover, other farmers who may have the means are not aware of the correct proportion to be applied or they do not know the exact size of their parcel which is commonly the basis for the proportion to be applied. In many instances, farmers would prefer to use the less cheaper ammonium sulphate. The nitrogen content of urea which is twice as much that of ammonium sulphate is taken for granted.

There are no indications of problems relating to commercial fertilizer input availability. The problems lies mainly on its transport.

The use of organic fertilizer has not been well explored despite the seeming economic difficulty to purchase the commercial type. Only a handful of farmers really try to maximize the use of organic fertilizer through composting (animal dung + debris + soil). The more common practice done separately is gathering of animal feed refusals applied on crops, rice straws/corn stalks left/recycled in the fields or use of ipil-ipil leaves.

Improved crop varieties particularly rice are highly susceptible to pests and diseases. Pesticides mainly used include insecticides to control rice bug, stemborer in rice and podsucking insects in mungbean. Herbicides are seldom used including rodenticides despite complains of rat infestation. In Hamtic area, many farmers cannot harvest rice, corn and other crops due to rat infestation. They cannot also afford to buy rodenticides.

3.5 Farming System Categories/Types

3.5.1 On-Farm Production System

The on-farm production system that has evolved in the province today has already shown traces of influences of various development efforts in the past particularly that of the AUDP/EBJ-UDP. Although the traditional methods are still practiced in many areas, the combination of both the traditional and new technological advances is becoming apparent. This is particularly evident in the widespread use of high yielding varieties of rice in even remote upland areas. For instance, the IR 36 variety which was developed for lowland areas are as well tried under upland condition.

The degree of development of a farm varies for different areas and farmers. Hamtic which is the original site of AUDP appears to have more farmers adopting the modern methods including other places where the strong presence of EBJ technicians are felt. There are other areas, however, were a few enterprising farmers on their own initiative (without AUDP or government assistance) have experimented on integrated farming and agroforestry like in Culasi and Libertad. Some of these enterprising farmers have unknowingly turned extension agents assisting other farmers and providing/selling seedlings to other interested farmers.

On-farm production system as mentioned earlier focuses on two areas: the terraced farms (irrigated or unirrigated) and unterraced farms (mostly rainfed). The homelot which may either be part of the farm or outside can also have a distinct role in the farming systems. The cropping pattern and cropping practices is largely influenced by these land conditions. It should, however, be noted that the on-farm production system in the upland cannot be divorced from that of the lowland since the latter greatly influence the kind of cropping system in the uplands.

The primary unit of on-farm production is the farm parcel. Production enterprises includes annual crops, perennial crops, livestock and combinations thereof. The more common crops and livestock/poultry raised are as follows:

1) Annuals

Rice
Corn
Mungbean
Sweet Potato
Peanuts
Stringbeans
Pigeon Pea
Pineapple
Onions

Squash
Gabi/Yam
Sugarcane
Other vegetables (eggplant, ginger, tomatoes, etc.)

2) Perennials

Coconut
Coffee
Cacao
Banana
Mango
Breadfruit
Jackfruit
Starapple
Mahogany
Ipil-ipil
Gmelina
Bamboo

3) Livestock/Poultry

Chicken
Swine
Carabao
Cattle
Goats

Terraced Farms

The production system in terraced areas are of two types: the irrigated and rainfed. Irrigation in these areas mainly refers to water diverted from rivers, streams and creeks to provide the water requirement of the crops planted. In both cases, the cropping system is oriented towards annual crops.

Irrigated terraced farms exhibit a typically lowland cropping system which is mainly mono cropping, rice-based. Where water flows yearround, 2 to 3 croppings of rice is practiced. The IR 36 is the most widely used variety planted through transplanting method. The use of fertilizer is considered necessary when improved varieties are used. The rate of application varies from 3 kg-180 kg per hectare. Variations in rice yield in the terraced irrigated farms may be attributed , among others, to the level of fertilizer application since IR varieties are highly fertilizer dependent. The ICRA 1983 study showed some indications of this.

The carabao as the draft animal is indispensable to the farmer in an irrigated terraced cropping as the animal-labor requirement for plowing and harrowing is more demanding compared to the lowlands.

In non-irrigated or rainfed terraced areas, there is a tendency to diversify annual crops as shown by the presence of several major cropping patterns observed:

IR Rice (transplanted)	-	Fallow
IR Rice (transplanted)	-	Corn
IR Rice (transplanted)	-	Mungbean
IR Rice (broadcast)	-	Peanut
Corn	-	IR Rice (transplanted)

There are other combinations but in all cases rice is always part of the cropping pattern. In some areas in Sibalom the new upland varieties developed by IRRI like RI 5 and RI 7 are already being tried.

In terms of priority, rice is definitely the most important crop followed by corn. Both are basically cultivated for subsistence. Mungbean or peanut as second crop are considered cash crops intended for marketing.

Obviously, the advantage of terracing to farmers is seen in terms of greater soil and water holding capacity which is translated into increased cropping intensity and better yields. It is seen also as an extension of the lowland cropping system which they have gotten used to for a long time. However, construction of new terraces is now limited due mainly to lack of capital: the farmer does not have enough money to pay the labor needed to construct the terraces. If the farmer utilizes family labor to construct the terraces, it takes months or even years before they can be fully established. In addition to this, annual maintenance to repair the terraces is also needed prior to planting.

Non-Terraced Farms

Non-terraced areas are found on hillsides and mountain areas where terracing is a lot more difficult to undertake. This may also be small parcels which are not practical to terrace since it would only further reduce the effective area for cultivation. In these landscapes are found the marginal areas, brushlands and grasslands, and erosion-prone areas. Crop diversification is more evident in these farm parcels compared to terraced ones. Crops cultivated by rotation, mixed cropping, intercropping and multistory cropping generally characterize the cropping systems in the unterraced lands.

Cropping patterns in these farms is a mixture of annuals and perennials. Farm parcels can be divided into three types: those planted to annuals or a mix of annuals either by rotation or intercropping; those planted to a mix of annuals and perennials or agroforestry; and lastly those areas which are purely planted to a mix of perennials. A carabao may or may not be part of the production system

depending on the type of cultivation practiced. The presence of one or two cattles may be noted grazing in patches of grasslands either within or outside the farm.

Cultivation of annuals or a mix of annuals may be noted in unterraced lands, sometimes in even steep areas. The more prominent crops and cropping pattern in their order of priority are as follows:

Native Rice (d)	-	Fallow			
Native Rice (d)	-	Peanut			
Native Rice (d)	-	Corn			
Native Rice (d)	+	Corn	-	Fallow	
Native Rice (d)	+	Corn	-	Peanuts	
Corn - Peanuts					
Native Rice (d)	+	Corn	-	Mungbean	

As shown above, the prominence of rice-based farming even extends to unterraced farm parcels. The difference between rice cultivation in the terraced and unterraced farm is mainly the variety used. In most hilly areas, the native rice variety is planted through the dibbling method. In many small parcels, only one cropping of native rice is practiced (planted around mid-April-May and harvested around September-October) and the area is fallowed for the rest of the year. Other farmers try to maximize the use of the land by intercropping with mostly corn and followed by a leguminous crop like mungbean or peanuts. In other farms, rootcrops and vegetables serve as the second crop.

The more common practice under the first type is the intercropping of rice and corn followed by either corn, peanuts and mungbean. In some cases after rice + corn, the area is allowed to fallow and cultivated the following year. The rice + corn - peanut combination is particularly gaining popularity not only because peanut is considered as an important source of cash but also because of its significance as a soil-enriching crop, so with other leguminous crops like mungbean.

The second type consisting of a combination of annuals and perennials or agroforestry is more prominent now compared to the first type. In one farm for instance, only one-fourth of the area is devoted to annuals (rice + corn - peanuts) and the rest are planted to coffee and other fruit and timber species. In another case, the periphery is planted with perennials and the rest of the area is planted to various types of annuals including rootcrops. There are varied combinations under this type. The more prominent ones are:

Annuals (rice+corn-peanuts) + coconut, banana, fruit trees
Annuals (rice+rootcrops-vegetables) + coffee, banana, mango and other fruit trees, bamboo
Annuals (corn-peanuts+rootcrops) + ipil-ipil, bamboo, other fruit trees, kakawati

This type of production system in unterraced areas is an improvement over the first type and more suitable in this landscape. The technology applied for this cropping, however, is still to be highly desired. Although the SSSTF and SALT technologies have already been introduced in many areas, i.e. EBJ-UDP, ISF areas, the level and degree of adoption is still low. Thus, even if agroforestry is practiced, the suitable farming practices like contour farming (many annuals do not follow the contours particularly corn) and appropriate crop mix depending on the land suitability have not really been well considered. In other instances, farmers do not know what to plant and just leave the area idle. There is little assistance to farmers in terms of providing them guidance on what suitable crops can be grown in their fields given their biophysical characteristics. This can be looked at as symptomatic of the limitation of the farmer given his socio-economic background as well as the effectivity of the institutional (extension) support system.

It should be noted that the decision of the farmer to adopt the agroforestry type of farming appears to be dependent on his having other cultivated parcels devoted primarily to rice farming. If his rice supply is assured, then he is willing to gamble on perennial crops that would provide food supplement, fuelwood and additional source of cash income for the household. Also since areas under this type are mostly marginal, they are better planted with tree crops rather than just leaving them idle. Some of these areas used to be under pasture lands. With the growing insurgency problem however there were pasture/grazing areas abandoned. Most farmers who have herds of cattle before now only maintain one or two heads in their backyard (cut and carry feeding).

The third type of on-farm production system in unterraced areas is solely devoted to a mix of perennials - tree crops and timber species. Parcels devoted to this type of cultivation are generally the upper hilly and mountainous areas although there are also patches in the moderate terrains.

Like the second type, the farmers who opt for cultivation of pure perennials are generally those that have other parcels devoted to rice farming. The percentage of farmers adopting this production system is still relatively low and have been largely influenced by EBJ-UDP and other government agencies (DENR, DA) promoting this technology in higher terrains. In some areas in Libertad, some farmers are planting forestry species in timberland areas through the initiative of a one time DA technician who is now in private business.

Some kind of multi-storey cropping has been observed in several farm parcels in Hamtic, Sibalom, Culasi and Libertad. Some more common crop combinations include the following:

Cacao under coconut + banana + ipil-ipil and fruit trees
Coffee under mahogany trees or ipil-ipil trees
Mahogany + Gmelina + kakawate + black pepper
Mango + banana + other fruit trees
Bamboo + other timber species

In some areas in Sibalom, farmers prefer the combination of coffee and ipil-ipil with the latter serving as nurse tree and at the same time providing natural fertilizer to the soil. The growth of coffee is apparently better if shaded with ipil-ipil. Besides, a 3-year old ipil-ipil can already be harvested to provide fuelwood for home consumption or for sale. The more matured ones are harvested as source of lumber. Mahogany is the most popular forestry species and are planted largely along farm boundaries all over Antique. It takes some 15-20 years before it can be harvested as sawtimber although after 5 years thinning operation can yield some fuelwood.

The basic combination of cacao under coconut + other perennials appear to be very profitable. In a model farm in Hamtic, the owner said his income is 4 times higher than when he just relied on coconut. His farm is well attended to and supported by extension workers from PCA as an entry to a nationwide competition for which he won. It was noted however that the farm has been well kept before with the assistance of PCA. Now that they have pulled out, it appears that the farm is already neglected. The farmer said that he is now old with no hired help so he could not maintain the productivity of his farm anymore. It could be said that the close assistance of the PCA extension workers played a significant role in his success.

One disturbing observation however is that there seems to be no one in the neighboring farms who have adopted the same technology as demonstrated by this successful farmer. This maybe partly explained by the fact that the model farmer is more educated, enterprising, relatively better off and a hard worker. Of course the particularly strong support and subsidy of PCA helped a lot. This kind of treatment was not available to the neighboring farmers.

Coconut, mango and banana are planted by most farmers as cash crops but fruiting was affected by Typhoon Ruping. Bamboo, on the other hand, is indigenous to the area and has good market as housing/construction material and raw material for cottage industry.

Farmers prefer planting of perennials because once established this requires less management and inputs.

The Homelot

The homelot is in itself a production system more often not by design but by mere circumstance. Where the homelot is an integral part of the farm, most farmers utilize the areas around the house for planting various types of fruit trees and vegetables like eggplant, stringbeans, ampalaya and others including rootcrops like sweet potato and gabi and some fruit trees. Some vegetables and fruit trees grow simply from seeds thrown in the backyard. A number of chickens and swine are also sometimes raised in the backyard. Cases of a fully maximized home garden integrated in the farm are rare. The more typical is the simple backyard garden with a few mix of vegetables and fruit trees plus some poultry and livestock. Where homelots are located in barangay/municipal centers, there are also some home gardens but more of ornamental plants. The latter has also very limited area for production.

3.5.2 Off-Farm Production System

Farm-Based

Most upland farmers would work as farm hand in other farms to augment their income. The most common type of farm labor engaged in are repair of terraces and/or land preparation, planting, and harvesting. They are either paid in cash plus meals or in kind (share like in harvesting). Sometimes they work as exchange labor so that instead of hiring, he renders the equivalent effort of those who helped him in their farms (See labor utilization)

Another form of common off-farm production enterprise is the gathering of fuelwood mostly in public forest and charcoal making. These are both for home consumption and for sale.

Livestock raising for others (pasagod) is an important source of cash for a typical upland farmer. This can be easily translated into cash income which ties them up through lean months and sometimes even provide for some farm expenses (See details on livestock).

Some women particularly in Area 1 engage in the gathering of forest-based raw materials for processing into mats, baskets and the like. With the technical assistance of DTI and some NGOs they produce handicraft items which are sold to the market.

Non-Farm Based

This includes mainly the wage earners and those engage in retail business or trading activities. The wage earners may be working in the province or outside but they remit money as contribution to the household.

3.6 General Farming System Types

Based on the foregoing discussions, an attempt was made to generally typologize the different households by the type of farming systems practiced (see Table 3.4).

Table 3.4. Farming System Typology

Production System Category	Farming System Types				
	FS1	FS2	FS3	FS4	FS5
A. ON-FARM					
1. Lowland	R-R				
2. Upland					
a. Terraced					
Irrigated		R-P	R-R	R-P	
Rainfed	R-C		R-Mung	R+C-P	
b. Unterraced		NR-C-Peanut Coffee + Banana + Coco	NR + C - P Banana + Mango + Coco + Rootcrop	Ipil-ipil/ Mahogany + Coffee Bamboo	C-Peanuts
c. Homelot	Few fruit trees; vegetable	Root crop	vegetables		Few trees + Root crops
d. Livestock	carabao, cattle, chicken	chicken cattle carabao	chicken old carabao	swine chicken	
B. OFF-FARM	wage earner	carpentry	Farm Labor Fuelwood gatherer	Wage Earner Handicraft	Farm Labor

Legend:

R - IRRI rice variety
NR - Native rice variety
C - Corn
P - Peanut
F - Fallow

Crop/livestock combinations may vary from one household/ parcel to the other including the type of off-farm activities engaged in. But as a whole, the typology presents an indicative picture of the farming systems as practiced in the Antique uplands.

Farming System 1

The farm household typified is a land owner whose land holdings include about 1/3 rainfed lowland and 2/3 upland. He engages in double rice cropping using IR-36 variety transplanted in early May or the onset of rainy season and harvested towards the end of August. The second crop is transplanted in early October and harvested in mid-January. Both crops are fertilized with ammonium sulphate.

In the terraced upland, IR-36 is planted followed by corn. Few fruit trees (Indian mango, etc.) and vegetables (alugbati and ampalaya) are found around the house. There is one carabao owned and used mainly as draught animal, one cattle for fattening and undetermined number of chickens.

One or two household members work/s as wage earner/s in urban Antique or other cities.

The major constraints in this farming system are the following:

1) Uncertainty of rainfall at the beginning and tail end of rainy season. If the rainy season ended earlier, his second crop suffers from water stress during the reproductive stage.

2) The feed for carabao and cattle is mainly cogon which is not nutritious. If dry season is prolonged, feed becomes a problem and the livestock loses weight at the end of summer.

3) This farm household is far from the poblacion and has difficulty in bringing products to the market including bags of fertilizer for the farm.

4) Soil erosion on unterraced land.

Farming System 2

This farming system is confined to the upland. Of the total landholding, about 1/4 is terraced and 3/4 is unterraced. The terraced portion is devoted solely to one rice cropping using IR-36 variety. No fertilizer is applied because the household could not afford the cost of fertilizer.

In the unterraced area, intercropping dibbled native rice variety with corn is practiced. This is followed by peanut as a second crop.

Coffee and banana occupy a significant portion of the unterraced sloping land. Coffee is already bearing fruits. Rootcrops such as ubi and palawan are raised around the house. Livestock production includes one carabao, 2 heads

of cattle under "pasagod" system, undetermined number of stray chickens, and one pig.

During off season, some family members engage in carpentry and other petty jobs in the poblacion.

Major constraints are:

1) N and P deficiency of the soil
2) Unreliability of rainfall (beginning and tail end)
3) High fertilizer cost
4) Feed for livestock especially during dry season.
5) Fluctuation in market price of swine and cattle.
6) Soil erosion

Farming System 3

This farming system consists of two separate parcels. One parcel is about 1/4 ha terraced land under leasehold arrangement and about 1 & 1/2 has. of unterraced sloping land which is owned. The cropping pattern on terraced land is rice followed by mungbeans. On the unterraced land, intercrop of native rice with corn is practiced. The rest of the land is devoted to perennial crops such as banana, mango, coffee and cacao. Fertilizer is applied only to rice crop at the rate well below the recommended rate.

The area surrounding the house is planted mainly with vegetables like eggplant, ampalaya, alugbati and malunggay and mainly managed by the wife. These are sold in the market as the farm is about 2 km. only from the poblacion.

They raise chicken, 1 cattle and 1 carabao. The husband gathers fuelwood from a secondary forest and works occasionally as farm labor.

The constraints in this farming system are similar to farming system 2. In addition, pests and diseases on IR-36 and stem borer in corn are present.

Farming System 4

This farm household is a tenant in about 1/4 ha parcel of terraced land and an owner of 2 has. unterraced steep upland. Double rice cropping is practiced on the irrigated terraced land and an intercrop of rice and corn on rainfed terraced. The 2 ha unterraced land is devoted to permanent trees such as ipil-ipil, mahogany, and coffee underneath. Bamboos occupy a significant portion of the land.

The household is engaged to some extent on vegetable growing around the homelot mainly for home consumption. Few stray chickens are found in the farm.

The other main preoccupation of the household is handicraft, "amakan" and "tabongos" - all made of bamboo. Here the farmer sometimes run out of bamboo poles. He buys his additional supply from neighboring barangays.

The farm household is supported by a daughter/relative who works as a wage earner.

Farming System 5

The farmer in this farming system is a tenant in an irrigated terraced land with an area of about 1/5 hectare. He is also a tenant in another parcel of unterraced land where his house is situated. He has no carabao. He is engaged in single rice cropping (IR-36) on irrigated terraced land and relay cropping of corn followed by peanuts on unterraced sloping land. He does not apply fertilizer because of high cost. The farm is far from the poblacion. His homelot is planted with few fruit trees and rootcrops underneath.

Much of his time is utilized as farm labor in neighboring farms while his wife handles the swine and chicken production.

Major constraints:

1. Share tenancy. The system of sharing is 50:50
2. Low N & P supply in the soil
3. No carabao. This causes delay in field operation.
4. Far from the poblacion
5. Pest and disease for crops.
6. Insufficient food supply.

3.7 Production and Income

Yield and income levels of farming households vary for different production systems. Tables 3.5 to 3.8 show rough cost and return analyses of typical annual production systems in terraced and unterraced uplands. Except for irrigated paddy rice in terraced areas, returns from most annual crops are barely subsistence particularly in the unterraced farms. Rice and corn yields are very low and mainly produced for home consumption. Compared to the average upland farm in the country, production in the Antique uplands is marginal with only 7-10 cavans of upland rice produced per ha. as against the national average of around 20-30 cavans per hectare. Peanut production, however, appears to show good potential for commercial production even under the present technology used.

Table 3.5. Cost and Return Analysis of One-Hectare TR-Mungbean Cropping System, Terraced Rainfed (IR Variety)

ITEM	
A. RETURNS	10,076
1. Yield	
Paddy Rice (kg)	1,500
Mungbean (kg)	161
2. Income	
Paddy Rice (P5/kg)	7,500
Mungbean (P16/kg)	2,576
B. INPUTS/COSTS (P)	5,622
1. Seeds	
Paddy Rice	250
Mungbean	192
2. Fertilizer	
Paddy Rice	350
Mungbean	0
3. Insecticides	
Paddy Rice	0
Mungbean	0
4. Labor	
Paddy Rice	3,320
Mungbean	1,510
C. NET RETURNS	4,454

Table 3.6. Cost and Return Analysis of One-Hectare Rice-Based Cropping System, Terraced Irrigated (IR Variety) Two Croppings

ITEM	
A. RETURNS	30,000
1. Yield	
Paddy Rice (kg)	3,000
2. Income	
Paddy Rice (P5/kg)	30,000
B. INPUTS/COSTS (P)	8,190
1. Seeds	500
2. Fertilizer	1,050
3. Insecticides	0
4. Labor	6,640
C. NET RETURNS	21,810

Table 3.7. Cost and Return Analysis of One-Hectare Rice + Corn - Fallow Cropping System, Unterraced Area

ITEM		
A. RETURNS		2,748
1. Yield		
Upland Rice (kg)	.75 ha.	375
Corn (kg)	.25 ha.	30.75
2. Income		
Upland Rice (P7/kg)		2,625
Corn (P4/kg)		123
B. INPUTS/COSTS (P)		1,247
1. Seeds		
Upland Rice		210
Corn		7
2. Fertilizer		
Upland Rice		0
Corn		0
3. Insecticides		
Upland Rice		0
Corn		0
4. Labor		
Upland rice		830
Corn		200
C. NET RETURNS		1,501

Table 3.8. Cost and Return Analysis of One-Hectare Rice-Peanut Cropping System, Unterraced Area

ITEM	
A. RETURNS	8,540
1. Yield	
Upland Rice (kg)	500
Peanuts (kg)	420
2. Income	
Upland Rice (P7/kg)	3,500
Peanut (P12/kg)	5,040
B. INPUTS/COSTS (P)	3,052
1. Seeds	
Upland Rice	280
Peanut	72
2. Fertilizer	
Upland Rice	0
Peanut	0
3. Insecticides	
Upland Rice	0
Peanut	0
4. Labor	
Upland rice	1,500
Peanut	1,200
C. NET RETURNS	5,488

The availability of water in terraced areas mainly accounts for the high net returns because it allows for double or triple cropping and the farmer generates enough income to afford higher rate of fertilization. Marginal returns in unterraced farms maybe attributable to a combination of low soil fertility, low input usage and technological limitation of the farmer.

Production and income from annuals are normally supplemented by cash income from perennials. Costs and returns from perennial production, however, are difficult to get because they are in varying stages of development. Some indications of yield and income for coffee and banana are as follows:

1. Coffee plantation (arabica) consisting of 200 trees yields an average of 30 kg per harvest at ₱35 per kilo. Harvest is irregular.

2. Before typhoon Ruping, farmers raising banana harvest every week and get an average income of ₱300-₱500 per week.

Sale of livestock provides additional cash income for a typical upland farming household. A cattle costs around ₱8,000-₱10,000 per head. Poultry, swine and goat are also sold when there is immediate need for cash.

Combining various cash and non-cash receipts for on-farm operation, an average upland farming households gets around ₱2,300 (Tapawan, 1980) annual net returns or roughly around ₱11,000 in current prices. Sixty-five percent of the computed income, however, is non-cash which means that most of the produce are consumed/used by the household. Only about 35% of total on-farm income is in cash.

Off-farm income from farm-based operations may include farm labor which earns around ₱25/day; income from charcoal making which generates about ₱20-40/sack; pawid making for ₱50/100 pieces and other small scale processing like hat, mat and bag makings.

Off-farm income from non-farm activities may consist of salaries and wages from regular employment of family members which include remittances from relatives who are out of the country; income from petty jobs like carpentry and other seasonal jobs; small business like sari-sari store, trading and others.

The estimated average annual off-farm income based on the Tapawan study is about ₱7,000 in 1990 prices or 64% of on-farm income.

Based on the above estimates, the total average income of a farming household would amount to only ₱18,000 per year or ₱1,500 per month. This is way below the national poverty threshold income level of ₱2,381 per month. The low income earned by the upland farming households reflects the widespread poverty in the uplands and at the same time also indicate the marginal condition of the resource base.

3.8 Summary of Major Findings

3.8.1 Farm Size, Structure and Tenure

a) Approximately 85% of all upland farms are less than 3 hectares.

b) Farms generally consist of 2 or three parcels located in different places and one of which is a terraced parcel of around 1 hectare and planted purely to rice. The other parcels are unterraced and generally located in steep slopes.

c) Tenure is by parcel. The percentage of owned and leased/tenanted parcels are more or less the same for all farm types. Full ownership predominates in upland areas. However ownership documents are generally lacking, and claims are mostly traditional and reinforced by tax declarations issued by the local government.

d) Actual land occupation and cultivation in the forestland is now recognized by the government through the issuance of the CSC whose real value to the upland farmers in Antique, however, cannot or yet be ascertained.

3.8.2 Technology and Farm Utilization Patterns

a) Farming technology is basically traditional particularly in unterraced areas. Where soil allows it, rice and corn is a mandatory crop, using traditional varieties and without fertilization. Terraced fields are planted to one cropping of rice of IR variety with minimal fertilizer application, followed by corn or vegetables.

b) A few farmers have irrigation systems derived from diversion of stream water, resulting in double or triple cropping.

c) During the last few years RI 7, an upland rice variety developed at IRRI was introduced in EBJ-UDP areas, resulting in improved production with minimal

fertilizer application.

d) Fallow is practiced in unterraced open areas called "bantud". Increasing pressure on the land however has resulted in the reduction of the fallow period from the old practice of 14 years to only 2 to three years.

3.8.3 Labor and Investment

a) Farm investment is minimal. Seeds are sourced from own harvest and input usage is done only for terraced paddy at minimal rate.

b) Labor utilization patterns of upland farming households indicate gross underemployment.

c) Cooperative free labor called "dagyaw" is practiced during field preparation in many areas.

d) The carabao is the farmer's major investment, which is also easily converted to cash.

e) Farm equipment used in unterraced areas are handtools of which the "bolo", "bara", "pala" and "asarol" are the most important.

3.8.4 Production Support Systems

a) Technical extension from concerned agencies such as DA and DENR needs to be strengthened in terms of extension workers and technology packages appropriate to the socio-economic and agronomic condition of the areas. Considerable efforts in upland extension has been done by EBJ-UDP with the support of the OPA. Significant traces of technological improvement one can see in the uplands of Antique can be attributed to EBJ-UDP and OPA. With the exception of one or two DENR nurseries, all existing nurseries in upland areas have also been initiated by EBJ-UDP-OPA.

b) Rural infrastructure in support of upland production consists only of a feeder road connecting town centers with the center of the more populated barangays. Connection to the slope areas are by foot trails. Products are mostly carried on the back of men or heads of women.

c) Little can be said about market support and institutional credit to the small upland farmer. Any production of significant scale goes through middlemen, mostly Chinese, and credit, if any, is provided by friends and relatives.

4.0 DEVELOPMENT INSTITUTIONS

4.1 Introduction

This section focuses on the different agencies, both the NGAs and NGOs and their corresponding structure functions, strengths, scope, financial sourcing and capabilities, and limitations relative to the development of the uplands of the province.

Various programs and activities, in line with their institutions objectives are also highlighted. Some jurisdictional, technical, and management issues obtaining in the implementation of program/projects are also discussed.

4.2 National Government Agencies

There are four (4) national government agencies currently pursuing development tasks in the Antique upland. These are: (a) DENR, (b) DA, (c) DAR, and (d) DTI. These agencies perform functions and implement programs and projects designed to achieve any or a combination of the following objectives

- Promote equitable access of people to the country's natural resources, through proper distribution of access rights to the public land and through land reform.

- Promote sustainable development in terms of increased productivity while enhancing environmental conservation at the same time, through extension of technical and other forms of assistance as well as provision of necessary support facilities.

- Promote people's empowerment, especially among the poverty group, through training, community organization, and livelihood development.

Inter-agency coordination is prescribed at least as a policy, to be observed at various operational levels, to ensure effective performance and avoid functional overlaps in actual field operation.

4.2.1 The DENR

Pursuant to the 1987 Constitution and the subsequent Executive Order 192 issued by the President in 1988, the DENR has shifted from a largely regulatory to a development-oriented agency. It is mandated to promote sustainable

development in managing the forest land through a general strategy which democratizes people's access to its resources, institute sound environmental protection and conservation measures, seeks the involvement of the private sector, and coordinates with the concerned agencies of government in the pursuit of its mission.

Consequently, the DENR realigned its functional thrust and put greater emphasis on the people-oriented approach adopted since a few years back. With no logging operation in the province, the agency is responsible for a large denuded although largely cultivated area in the forest land. The DENR in Antique pursues the National Forestation Program (NFP) which now includes contract reforestation schemes involving the private sector, and the Integrated Social Forestry Program (ISFP).

ISFP involves the legitimization of forest occupancy, otherwise known in DENR official documents as squatting, through the issuance of the CSC to deserving occupants. The program includes beneficiary training on hillside farming and organization of the beneficiaries into a formal association to facilitate their participation in the program and the delivery of the services intended for them.

Apart from the NFP and the ISFP, the DENR-Antique also performs activities supportive of the Comprehensive Agrarian Reform Program (CARP). DENR is one of the participating agencies in the implementation of this program. It takes charge of the land survey requirements prior to the issuance of emancipation patents and certificates of landownership award, and the inventory of idle and abandoned lands in the A & D areas consisting of 57,344 hectares to be placed under the CARP. DENR is given these responsibilities, instead of the DAR itself, to avoid duplication of capability and prevent unavoidable inconsistencies in the land records as was experienced in the past.

Under the new organizational set-up, the formal sectoral bureaus are limited to staff function and their field operations are integrated into a single line structure reflected at the different hierarchical levels, that is, the department (Central Office) to the regional (RENRO), provincial (PENRO), and community (CENRO) levels.

Thus in Antique, the PENRO based in San Jose and the two CENROs, one based in San Jose and the other in Culasi, have such corresponding sectoral units, namely, the Forestry Management Sector (FMS), Lands Management Sector (LMS), Environmental Management Sector (EMS), and the Mines and Geo-sciences Sector (MGS).

Deployment and composition of the staff, however, conforms with the program thrusts and activity requirements. It has a reported total number of 288 employees constituting the

management, technical, and administrative support staff. Of the entire personnel force, 45% is assigned to the FMS and 28% to the LMS; or a total of 73% of the work force directly handling the NFP, ISFP and the CARP.

Only one staff works for the EMS, while there is no full-time staff working for the MGS. The rest of the staff (27%) are handling management and administrative support services functions. These include preparation and consolidation of office plans and reports handled by a Planning Officer, one each at the PENRO and the two CENROs. Distribution of the staff to the three offices also reflects comparative workload. Twenty percent (20%) of the staff work at the PENRO, 47% at CENRO-San Jose, and 33% at CENRO-Culasi.

Only about 51% of the DENR staff are regulars, half of whom perform management and technical functions while the other half perform administrative and support services functions. The rest are contractuals and casuals assigned to the same duties and responsibilities of the regulars except for the top management. This proportion puts so much stress on the part of management as it requires caution and care such as in giving specific assignments, to maintain staff morale.

Almost all of the foresters, who are taking charge of the NFP and the forestry-related technical component of the ISFP, are college graduates with long experience in forestry job. The forest rangers have college background some of whom have not graduated yet, in such unrelated fields as mechanical engineering, education, secretarial and commerce. Majority of the CDOs and CDAs who take charge primarily of the ISFP are college graduates in such related field as agriculture, forestry, and agricultural engineering.

Performance of functions and project-level activities are all governed by the policies and guidelines emanating from the Central Office. Planning functions at the PENRO and CENRO levels are limited to implementation schedules, targets and specific requirements of the programs (NFP, ISFP) being conceptualized and planned at the Central Office. Similarly, monitoring of site-level performance is governed by the same SOP issued by the Central Office using various forms characteristic of a large bureaucracy that are, otherwise, too laborious to satisfy.

To a certain extent exempted from bureaucratic rigidities are the special projects and activities undertaken by the Antique-DENR offices, such as the latter's participation in the ANIAD. However, it tends to be also accompanied by a lesser degree of bureaucratic attention and concern than those extended to regular operation, unless the said projects are recognized as Key Result Areas (KRAs) by top-level management of DENR.

To date, DENR has been pursuing the maintenance and protection of its existing 5 major reforestation project areas (VIRP, PRP, ERRP, CIRP, and LRP), involving a total of 767 hectares being maintained and another 9,585 hectares protected, all in all representing 8.6% of the total forest land.

With funding coming from international sources (ADB, OECF), Antique-DENR has reforested a total of 1,734 hectares, representing another 1.4% of the forest land, through contract reforestation. The department has involved the private sector, including NGOs such as the Antique Development Foundation and the Antique Mountaineering Society, Inc. It has also involved local government units (LGUs), mostly the Barangay Councils.

To insure effectiveness in the implementation of the NFP, DENR-Antique conducts periodic monitoring and evaluation, and similarly involves the NGOs to do it, such as the PEACE Development Foundation, Inc. and the PROCESS Foundation, Inc.

For the last two years, ISFP has already covered a total of 5,602 hectares representing 4.6% of the entire forest land, and issued 2,243 CSC to the same number of ISFP participants. The major activities undertaken were site profiling, parcellary survey, CSC issuance, farmers training and area development. It has not been able to formally organize a single ISFP beneficiary association yet in view of the constraints as mentioned below.

Operational constraints encountered by the Antique DENR in the implementation of its programs and special projects include the following:

- Delay and unpredictability in the releases of fund which discouraged the private sector and the upland communities to participate in the contract reforestation scheme; or caused much trouble and tension in the case of those contracted groups who could not be paid on time.

- Lack of the necessary skills and training on the part of the CDOs and CDAs to undertake CO work among ISFP beneficiaries. In the case of the ANIAD special project, the failure of the concerned NGO, the HE-HIC, to conduct the required CO activities per schedule.

- Difficulty of liquidating fund disbursements with respect to the ANIAD funds being obviously given low priority at the DENR-Regionl Office (RENRO) which controls financial transactions of the PENRO and CENROs.

Lack of manpower is also pointed out as a constraint (technician to area ratio = 1:150 ha). But this is a general complaint in all government bureaucracies, reflecting certain problems inherent in the overall management system. Given the present trend to retrench the bureaucracy in the government, this problem is already moot and academic. One way out for the DENR-Antique is to take full advantage of the inter-agency coordination policy and generate wholehearted cooperation from the other agencies. The other is to redefine its program focus taking into consideration the realities in the upland. Here the supposed ISFP beneficiaries are actually established sedentary farmers whose occupied areas should have been already classified as A & D where the crucial government services needed are those of the DA and the DAR.

4.2.2 The DA

Among the various government agencies involved in development undertakings, the DA has the longest experience and largest network nationwide in terms of research, extension, community organizations, stocks (crops, livestocks, poultry, fishery, tools and equipment), development and dissemination, and marketing services, all geared towards agricultural and rural development. DA also used to have separate line bureaus though it was able to unify its operation a year or so ahead of DENR.

But unlike the DENR, the DA did not have the sort of functional shift (from regulatory to developmental) to somehow diffuse the psychological impact that was created on the staff. Its department-wide reorganization was, in a sense, a direct assault to its entrenched bureaucracy requiring an adjustment process quite excruciating especially on the part of those at the middle and lower supervisory levels.

With certain flaws committed in the redeployment of personnel, coupled with changes of staffing pattern and reclassification of position, the problems arising in the process are still felt these days. In Antique particularly, these problems underlie the apparent lack of enthusiasm and initiative on the part of many of its otherwise highly skilled personnel. This is especially more so among those whose ranks and privileged positions are virtually downgraded, or those assigned to areas where they are literally overqualified or their skills cannot be maximized.

Antique-DA has a provincial office based in San Jose, headed by a Provincial Agricultural Officer (PAO) who takes charge of all DA concern in the province or directly supervises the head of all municipal offices, the Municipal Agricultural Officer (MAO). As national agency like the DENR, DA-Antique performs functions and activities governed by policies and guidelines from the Central Office, and uses the same

cumbersome reporting procedures and format like the DENR. Implementation planning and monitoring coordination, as well as preparation of management reports, are primary responsibilities of an equally small planning and monitoring unit at both the PAO and MAO levels. There are two senior staff manning the unit at the PAO, and one each of the MAOs.

With experienced and skilled personnel force, the DA operational structure is characterized by the deployment of two types of staff. The Agricultural Development Specialists (ADS) take charge of specialized technical supervision provincewide, while the Agricultural Technologists (ATs) take charge of general DA concerns within specific geographic areas of coverage.

DA-Antique has a total of 97 ATs distributed in the 18 municipalities to cover a total of 590 barangays both lowland and upland. Each technician has a regular coverage of 6 contiguously located barangays, and tasked to deliver all the regular DA services depending on the needs and potentials in the assigned area. When the demand for such services requires high-level specialization or expertise, such as in case of outbreak of unfamiliar pest or disease, the AT calls in the assistance of the concerned ADS.

DA's set-up looks well-trimmed enough and flexible to meet regular requirements as well as crisis situations that may crop up in the field. The problem, however, is that most of the ATs are specialists in their respective rights, coming as they are from the former line bureaus. As such,they tend to pay more attention to needs and problems along their line of specialization instead of broadly looking at the overall needs of the area.

Due to the preserved sense of camaraderie and group loyalty developed in the previous set-up, the ATs tend to also orient their relationship with the ADS towards those associated with their former office, thus, mutually reinforcing the other tendency to be rather myopic in assessing area needs. Otherwise, the ATs would just tend to forego the services of the ADS and tackle the local problem by themselves.

DA is currently involved in the ANIAD and takes charge of implementing two pilot projects, namely, (a) Integrated Pest Management, and (b) Crop Intensification and Diversification. One regular staff, reinforced by two contractuals are assigned as a team to each project.

Given the experience in handling pilot development projects, problems of such administrative nature as experienced by the DENR could hardly be expected of the DA. It is in the sustainability of the two projects in the long run, as envisioned by the ANIAD, where the likely difficulty may arise. The area-based and specific technical and

administrative requirements of these projects may become an additional workload too much for the present operational structure of the DA to handle especially at the level of concerned MAO. The need for additional regular staff to boost the manpower complement of the MAOs where these projects are implemented may not be satisfied in view of the on-going retrenchment to trim down the large government bureaucracies like the DA.

4.2.3 The DAR

The DAR has evolved from composite teams fielded by member agencies of the former National Land Reform Council operating under a unified concept of administration to a now huge bureaucracy pursuing the expanded version of the country's agrarian reform program which already goes beyond the confines of tenanted rice and corn areas and even as the program is still busy continuing the unfinished work of its immediate predecessor, the Ministry of Agrarian Reform.

DAR's hierarchical pattern is similar to the DA. In Antique, the provincial office is headed by a Provincial Agrarian Reform Officer (PARO). Under it are municipal offices each headed by a Municipal Agrarian Reform Officer (MARO).

It has a conventional organizational structure with the PARO at the top having direct line to the MARO, and a battery of staff units divided along such functional concerns as program development and implementation planning, operations coordination, administrative and finance services, and legal services. The MARO implements the CARP in the assigned municipality, assisted by a personnel force composed basically of the MARO, a clerk, a statistician, and fieldmen called Agrarian Reform Program Technologists (ARPTs).

Being a national agency, the DAR-Antique also performs its functions and activities based on the policies, guidelines and SOPs emanating from the Central Office in Manila. But having just grown to a large organization with a well laid out organizational set-up, the DAR does not experience the difficulties encountered by a reorganized entrenched bureaucracy like the DA. It has a manpower complement of 141 employees, all with permanent appointments. Out of the total personnel force, 45.3% work at the PARO and the rest are distributed to the 18 municipalities including the island municipality of Caluya.

Not all of the municipalities have the complete complement of staff. Two municipalities (Tibiao and Sebaste) merely have a skeletal force consisting of the MARO and a clerk. Four have, in addition, a statistician. The rest have the ARPTs ranging in number from 1-7.

DAR is currently pursuing the land transfer (land acquisition and distribution) program; and such non-land transfer activities as the leasehold conversion operation, organization and maintenance of Barangay Agrarian Reform Councils (BARC), and the ISFP. It also takes charge of preparing the basic requirements for the compensation of acquired landholdings for payment by the Land bank.

Land transfer program has a target coverage as of 1989 involving 7777 hectares, of which 25.2% are leftovers of the Operation Land Transfer (OLT) of the previous administration, 14.7% are owned by government financing institutions (GFI), and the rest (60.1%) are private lands subject to compulsory acquisition or voluntary offer of sale by the landowner. This is envisioned to benefit about 7700 farmer-beneficiaries ultimately each owning an average of 1.01 hectares of land.

Leasehold operation, which involves improvement of farmer's tenure status through the execution of a leasehold contract by the concerned tenant and landowner, has a targeted coverage involving 4,797 hectares and some 5076 farmer-beneficiaries.

As of the first quarter of 1991,or after about two years, the land transfer program has already achieved the issuance of 1,289 Emancipation Patents and three (3) Certificate of Landownership Awards involving a total of 1,292 hectares. On the other hand, the leasehold operation has succeeded in the execution of contracts involving 2,216 hectares.

At the rate the two programs are moving, it will take about two (2) more years for the leasehold operations to accomplish the target; while the land transfer program will still need about eight (8) more years.

Although DAR Antique is considered one of the best performing provinces, it feels it could have moved faster. Its performance is constrained by a number of factors, namely: (a) unresolved protest among landowners whose lands are subject of compulsory acquisition, which is still pending in view of the fact that these lands are of small sizes and fall outside the present priority of CARP; (b) delay in the preparation of survey documents required to support the issuance of the Emancipation Patent and Certificate of Landownership Award, which is a responsibility of the DENR; and (c) delay in the payments of acquired lands on the part of the Land Bank.

DAR's involvement in the ISFP includes funding in the construction of access roads, and establishment of nurseries and other facilities in selected ISFP model project sites.

4.2.4 The DTI

The DTI's primary thrust is to create a conducive environment for investment in industry development. Its program strategies include trade and industry development through investment promotion and generation, small and medium enterprise development (with technical, managerial, financial and marketing and credit assistance) and export assistance in accessing specific market outlets; regulatory and enforcement programs to protect consumers and legitimate business from unfair trade practices; setting up of People's Economic Council as an institutional arm for government and private sector partnership for economic development; and Integrated Small Business Development Program in support of CARP which provides program for agro-industrial processing activities.

DTIs provincial office consist only of 8 technical personnel and 5 administrative support staff. It does not have a network of field personnel at the municipal/barangay level. Given its limited number of staff, its operation is likewise constrained in scope and area. Despite this limitation, it has the advantage of qualified personnel who pass through a screening process.

4.2.5 The DECS-ACA

As one of the six cooperating government organizations, its curricula at the grade and high schools levels and its out-of-school and literacy program is strengthened by its participation in the ANIAD GO-NGO trainings. Their involvement in these trainings is intended to orient and integrate the youth and adults with the upland development program.

Of particular relevance, are the department's curricular offerings at the intermediate level on Bio-intensive gardening; the Agricultural Arts under Home Economics and Livelihood Education for the first two years in high school; tree-planting and food production activities; home-based industry; self-help feeding program in relation to nutrition among others.

At the tertiary level, the DECS project to develop the Antique College of Agriculture (ACA) as one of the Provincial Technical Institutes of Agriculture (PTIAs) in the country, within the framework of the National Agriculture Education System (NAES) and under the auspices of the RP-EEC Agriculture Education Program, should be given ample attention and support.

The main thrust of the project is to convert the tertiary curricula of the ACA from a basically academic to a practical and entrepreneurial one with emphasis on upland situations; and to establish the needed facilities which

will serve as training ground for the students on business-oriented farming operation. These planned facilities include a fully-equipped Farmers' Training Center, post-harvest facilities (for milk, vegetables, fruits, cereals), and laboratories (for analysis of soil, feeds, bacteria, etc.).

To be established during the project's 5-year (1990-95) period, these facilities are also envisioned to serve the needs of the community, such as the training of farmer-leaders and provision of farm inputs, in collaboration with the DA, the DENR, and the NGOs.

The involvement of the DECS through the ANIAD local level coordinating mechanisms such as the clusters, shall ensure the integration of its activities with the ANIAD plan towards the attainment of the upland development goal.

Under the long-term plan, the ANIAD program should consider a broadened participation of the department in upland development with the active involvement of the ACA.

4.3 Local Government Units (LGUs)

The Province, the 18 Municipalities, and the 590 Barangays, are the different LGUs in the entire province of Antique, performing hierarchical roles and bestowed with powers to facilitate the development of their respective areas as prescribed by existing laws and the Local Government Code (Batasan Pambansa Blg. 337, 1983).

Unlike the national government agencies in the province which are merely extension arms of the executive branch, these LGUs represent the government itself at each level, with the Province exercising supervision over the Municipality which, in turn, exercises supervision over the Barangay.

Each LGU does not only have a mandate but the vested interest to deliver the basic government services to its constituent citizenry and to formulate development plans based on their needs and the resources at its command.

An LGU can legislate ordinances and exercise the power of eminent domain to promote or regulate development undertakings. It can raise funds through taxation and imposition of fines, and through solicitation from donors, aside from its regular revenue allotment as well as other financial contributions from the national government. Being a corporate entity, it is empowered to manage its own funds and enter into contract with other entities as may be necessary to pursue its mission.

In addition, an LGU is empowered to coordinate development efforts undertaken by other agencies and instrumentalities of the national government within its geographic boundary, or call on the same for assistance in the implementation of its own development plans.

4.3.1 The Barangay

The Barangay is the lowest unit in the hierarchical structure of the Philippine government whose jurisdiction covers a geographic area, also called barangay, which is the smallest political subdivision in the country.

Government powers of the Barangay are exercised by elective officials composed of the Barangay Captain and six (6) Barangay Councilmen. They run the affairs and take charge of the general welfare of the barangay. They are assisted by the Barangay Secretary, Barangay Treasurer, and Barangay Tanods who are barangay residents like the elected officials, appointed by the Barangay Captain.

The Barangay Captain acts as the Chief Executive of the Barangay and serves as the presiding officer of the Barangay Council. Among others, he enforces laws and ordinances operative in the barangay, and enters into contracts in behalf of the Barangay upon authorization by the Barangay Council (Code, Sec. 88).

The Barangay Council acts as the legislative body, to enact such ordinances as may be necessary and consistent with existing laws to promote, among others, prosperity and general welfare of the inhabitants. It should provide for the construction and maintenance of barangay roads, bridges, viaducts, sidewalks, playgrounds and parks, school buildings, water supply system, drainage, irrigation, sewerage, public toilet facilities, and other public works project and facilities within the barangay and for this purpose, exercise the power of eminent domain with the approval of the Municipal Council (Code, Sec. 91).

Furthermore, the Barangay Council is mandated to assist in the establishment, organization, and promotion of cooperative enterprises that will improve the economic condition and well-being of the barangay residents. Such enterprises may include credit unions, stocks for the sale or purchase of commodities and produce, warehouses, activities relating to agricultural and livestock production and marketing, fishing, home arts, barangay industries,and other activities (Ibid).

To achieve its mission, the Barangay Council is empowered to solicit or accept financial, technical and advisory assistance from municipal, provincial and national government agencies as may be provided for by law. It is also empowered to legislate and enforce tax ordinances,

imposition of fees and fines, subject to review by the Municipal Council within 10 days after enactment.

The Barangay Council may, furthermore, accept or solicit services, materials and voluntary labor for specific purposes from residents, landowners, producers and merchants; services from grants-in-aid, subsidies, contribution and revenues made available from government funds; and services from private agencies and individuals.

Administration and control of Barangay funds are the responsibilities of the Council. Actual disbursements are made by the Barangay Captain while safekeeping of funds and record-keeping of Barangay assets and liabilities are primary responsibilities of the Barangay Treasurer. The latter is under advisory and technical assistance of the Municipal Treasurer, and obtains technical training in finance management under the auspices of the Departments of Local Government (DLG), Finance (DOF), and Budget and Management (DBM).

While the Barangay has the necessary powers to obtain,allocate and expend resources in pursuit of its mission, it also has the powers and, most importantly perhaps, the spontaneous venue to formulate development plans responsive to the needs of the constituency. Identification of development problem in the barangay is initiated during the regular monthly or special meetings of the Barangay Council, or the Barangay Assembly (composed of all barangay residents 15 years old and over) where problems and possible solutions are raised and crystallized.

Depending on the nature of the required plan, it may be prepared by the assigned member of the Council together with the Secretary and the Treasurer. The Council may request for direct assistance from the municipal staff of the DLG, or the Municipal Planning and Development Coordinator (MPDC) through a resolution addressed to the Municipal Council. Again, depending on the nature of the problem and required solution, the MPDC may assist the Barangay Council prepare the plan for immediate implementation, or initiate the elevation of the problem to the Provincial Planning and Development Coordinator (PPDC). The latter may, in turn, act on it for immediate planning assistance or elevate the matter to the Provincial Development Council and, ultimately, the Regional Development Council.

In the subsequent execution of the plan, the Barangay Council may create offices, subject to the availability of funds and the needs of public service. In this case, the DLG provides the standards and guidelines with respect to organizational structure, staffing pattern and other relevant organizational aspects as may be needed for the purpose.

Through the Barangay set-up, a permanent institutional mechanism is thus established by law to facilitate local development initiative and bring outside assistance to the barangay level and down to the individual household constituencies.

Data are not available to show how much of the development in the Antique upland has been achieved through this set-up, such as, namely, the construction of barangay roads, schools, medical services, environmental promotion, livelihood enterprise promotion and so forth. But a cursory observation in the upland readily shows that development is indeed taking place there in this regard though of varying levels of achievement. It appears, by and large, that much still remains to be desired in terms of overall performance, the reasons for which may be stated as follows:

Firstly, the ability of the barangay officials to translate the powers vested in them and perform the responsibilities defined by law is generally still limited. DLG has been mandated to enhance this through appropriate training as well as extend commensurate assistance. But it seems DLG has not been quite sufficient in this regard. Skills development has been focused so far on financial management and preparation of budget to be able to utilize the regular revenues of the Barangay, especially those coming from the mandatory Internal Revenue Allotments. Trainings have also been conducted on parliamentary procedures and on such other concerns as maintaining peace and order and settlement of disputes.

These on-going efforts of DLG are certainly important but still inadequate from the developmental point of view. Present development orientations of barangay officials are generally directed at specific needs and frequently contingent to personal interpretations and influences. Their ability should be enhanced to look broadly and objectively at the problems, and formulate the necessary measures with adequate knowledge on the potential assistance and resources which could be obtained through the proper exercise of the powers vested in them.

Secondly, development programs and projects undertaken in the barangays by such national government agencies as the DA, DENR, and DAR, are conceptualized and designed largely at the Central Office in such a way that they can be implemented regardless of whether or not the Barangay officials would extend cooperation and get actively involved. This practice tends to suppress the initiative of these officials and lead to certain inconsistencies between priorities perceived by these agencies and that of the barangay. It also denies the Barangay the chance to institutionally develop its corporate capability in terms of the experiences its officials and concerned residents could have gained in the process.

It is important to note, however, that there is now a move to devolve much of the powers of the national government to the LGUs to give the latter greater autonomy and effectiveness in achieving development goals in their respective areas. This is the intention of the recently enacted New Local Government Code which transfers the implementing powers and responsibilities of the line agencies of the national goverment (such as the DENR, DA, DAR, DPWH and so forth) to the LGU's giving the latter the degree of control they presently are denied.

In formulating the strategic plan for the development of the Antique upland, therefore the role of the Barangay in a community-based program approach cannot be ignored. The more it might be so once the proposed amendments to the local government code are enacted.

4.3.2 The Municipality

The Municipality is another corporate entity distinct from the Barangay, with territorial jurisdiction covering a geographic area within a political subdivision, also called municipality, of the country and composed of barangay units as discussed above. It has supervisory powers over the Barangay, particularly in terms of enforcing disciplinary measures on erring officers and reviewing the validity of enacted ordinances.

With powers and responsibilities likewise prescribed by law, the Municipality is ran by elective officials composed of the Mayor who acts as the Chief Executive; and the Vice-Mayor and 8 Councilmen who together constitute the Municipal Council which serves as the legislative body of the Municipality. The composition of the Municipal Council is augmented by the inclusion of one Barangay Captain who is elected to represent therein the Association of Barangay Councils (ABC) in the municipality.

Assisting the elective officials in running the affairs of the Municipality are appointive and mostly career officials, namely, the Municipal Secretary whose position is normally co-terminus with the Mayor, the Municipal Treasurer, the Municipal Assessor, the Municipal Budget Officer, and the Municipal Planning and Development Coordinator (MPDC).

These officials take charge of the general welfare and development needs of the constituents in the municipality, exercising powers and responsibilities beyond what could be done by the Barangay Officials, and providing support to the latter as may be called forth in the pursuit of their respective goals.

Representing the interest of a corporate body like the case of the Barangay, the Municipal Council is vested with the powers and responsibilities to adopt plans and secure,

appropriate, and expend resources in behalf of the Municipality, for the development of the municipality.

It is at the level of the Municipality, in the entire hierarchical structure of government, where bottoms-up development planning currently practiced under the overall supervision of the NEDA is provided with a bureaucratic support base. This is represented by the Office of MPDC, a staff unit otherwise referred to as the Municipal Planning and Development Staff, which takes charge of the formulation and preparation of program/project plans of the municipality for adoption by the Municipal Council.

Through the OMPDC, the development needs and requirements of the municipality are identified, and perceived solutions are translated into action recommendations for Council deliberation, incorporating therein the proposals that may have been submitted for consideration by the Barangay Councils. In its effort, the OMPDC is closely assisted by a counterpart staff fielded by the DLG, namely, the Municipal Planning and Development Officer (MPDO) who is mandated to do so and, thus, physically based within the immediate reach of the MPDC or OMPDC staff. Technical trainings are also extended the MPDC either separately or jointly by the DLG, the NEDA and the DBM. Where applicable, the MPDC elevates the planning effort to the Provincial Planning and Development Coordinator for action or subsequent elevation to the Provincial Development Council and, ultimately, the Regional Development Council for appropriate action.

As in the case of the Barangay, development effort in the Antique upland is certainly undertaken through the initiative of the Municipal Council, either in coordination or separately of the Barangay Councils. The extent of achievement cannot be figured out statistically at this point in view of the absence of readily available data.

That such extent falls short of the desired and varies from one municipality to another, however, is generally known. It is attributed to such factors as: (a) inadequacy of revenues for developmental appropriation, (b) inability to generate outside funding assistance, (c) personal and political biases as well as pressures from interest groups influencing development prioritization, and (d) failure of the concerned national government agencies to coordinate with the Municipalities.

4.3.3 The Province

The Province is another corporate entity like the Barangay and the Municipality, and in the same principle vested with the necessary powers and organizational structure to carry out its responsibilities prescribed by law and in accordance with the level it occupies in the entire hierarchy of government. It takes charge of the overall welfare and

provides supervision as well as support to the Municipalities and Barangays within its geographic area of jurisdiction, also called the province.

Corporate affairs of the Province are likewise run by elective officials composed of the Governor who acts as the Chief Executive, the Vice-Governor and Members of the Provincial Board. Together, they serve as members of the Provincial Board, with the Governor acting as presiding officer, serving as the legislative body of the Province similar to that of the Municipal Council and the Barangay Council at their respective levels in the hierarchy.

Assisting these elective officials in running the affairs of the Province are appointive and mostly career officers, namely, the Provincial Secretary, the Provincial Treasurer, the Provincial Assessor, the Provincial Budget Officer, the Provincial Engineer, the Provincial Agriculturist, and the Provincial Planning and Development Coordinator (PPDC).

In terms of development capability, the corporate structure of the Province has more institutional components not mandatorily provided for in the case of the Municipality and the Barangay, which is understandable considering the magnitude of the concerns of the Province and the cost of maintaining the said components.

These additional components are, namely, (a) the Office of the Provincial Engineer which takes charge of the infrastructure needs and problems of the entire province, and (b) the Office of the Provincial Agriculturists which attends specifically to the requirements of the agricultural sector. The mandatory provision of the latter office reflects government orientation towards what sector the Province is expected to give priority attention in the exercise of its corporate powers and responsibilities.

Development undertakings of the Province, therefore, involves three of its duly-mandated offices, that is, the OPPDC, the Office of the Provincial Engineer (OPE) and the Office of the Provincial Agriculturist (OPA).

The Office of the Provincial Agriculturist (OPA)

In the uplands, role of the OPA is represented by the Antique Upland Development Program, otherwise called EBJ-UDP, which has been implemented since the 70's under the auspices of the Province (cf. 4.4). The Provincial Agriculturist who heads OPA is a member of the EBJ-UDP Board of Directors while the Assistant Provincial Agriculturist is concurrently its Executive Director. In fact the only permanent staff of EBJ-UDP are 4 agricultural technicians who are detailed to it by OPA.

Presently, the OPA is composed of 26 permanent employees. Head officers are the Provincial Agriculturist and Assistant

Provincial Agriculturist. Field operations are handled by 2 supervising agriculturists and 16 agricultural technicians. They are complemented by contractual staff who are employed on a project need basis and subject to availability of project funds.

OPA's regular operation merely complements the programs implemented by the DA in the province. It maintains a Provincial Demo Farm which produces 100-150 cavans of rice and corn seeds for distribution to the farmers.

In terms of visibility, OPA is overshadowed by DA in the lowlands and by EBJ-UDP in the uplands.

Involvement of EBJ-UDP office in the ANIAD independently of OPA is rather awkward considering that as the permanent institution providing leadership to EBJ-UDP, OPA is effectively its mother agency. Already in the initial stages of the ANIAD implementation, a certain need to involve more permanent structures draws attention to better possibilities of sustainability of institutional support through direct involvement of OPA itself in ANIAD.

By law, it is the Provincial Agriculturist who is empowered and has the responsibility to review and recommend policies and programs, or change thereof, geared at promoting agricultural development in the province. Under the New Local Government Code, the OPA is likely to perform the devolved functions of the DA. Presently the Provincial Agriculturist serves as the Chairman of the PDC Economic Development Committee and the OPA staff as secretariat.

Office of the Provincial Planning and Development Coordinator (OPPDC)

Planning coordination and preparation of development plans for the province are the primary responsibility of the OPPDC. without overlapping with the inherent functions of the OPA. Corollary to this responsibility is the conduct of monitoring and evaluation of all development undertakings of the Province. With a full complement of staff, the OPPDC appears diligent enough in performing its task. This is except for one thing, however. Based on interviews made with OPPDC key staff, it is in a quandary as to how it could perform its task with regards to the implementation of the ANIAD.

Obviously, there is nothing in the present ANIAD organizational set-up that clearly defines the role of the OPPDC. Considering the novelty of this set-up, which seems to have no precedent yet anywhere in the country, this role must be made explicit if only to enable OPPDC to perform its function as mandated by law and promote overall institutional strength and harmony in the province.

4.4 Evelio B. Javier Upland Development Program (EBJ-UDP)

EBJ-UDP (the structure), like the ANIADFI is an inter-agency organization headed by a Board of Directors chaired by the Governor, with the Assistant Provincial Agriculturist of the OPA serving as Executive Director. Its raison d'etre is to implement the EBJ-UDP (the program) which was conceptualized by the late former governor Evelio B. Javier and established through legislation by the Provincial Board in 1976. The program receives an annual appropriation from the Provincial Development Fund, a lump sum constituting 10% of the province's internal revenue allocation (IRA) which all provinces are required to spend on development projects.

The purpose of the program is to complement the field operations of the DA with a clear focus on upland agricultural areas, specifically those within the 8 - 18% slope. The creation of a structure that was separate from the OPA at the time was to provide a more effective avenue for inter-agency cooperation and flexibility in the disposition of grant funds, specifically a Ford Foundation fund for research and development which was granted to the program.

A brief backgrounder on the decentralization of rural development and agricultural extension will help to explain the rationale for the program. This can be traced to two major grassroots programs of government, the Presidential Assistant on Community Development (PACD) in the 50's (with massive USAID support) and the Agricultural Productivity Commission (APC) in lieu of the Bureau of Agricultural Extension in the 1960's. Under APC, agricultural extension was placed under the supervision of the Provincial Governor and the Provincial Agriculturist was paid partly from national funds and partly from provincial funds and appointed by the Governor.

With the reorganization of the Executive Department in 1973, agricultural extension was reverted to the DA-based line Bureau of Agricultural Extension. PACD became a staff bureau under the newly-created Department of Local Government. However, the Office of the Provincial Agriculturist is retained and made a regular component of the Provincial Government structure.

EBJ-UDP was hailed as a trail blazer in community-based upland resource management through local government initiative. Moreover, while its mandate confined its operations to areas with slight to moderate slopes, its beneficiary communities were mostly in steeper slopes. Its training and research center (Provincial Training and Research Center or PTRC) in Igbucagay, Hamtic is typical of mountainous terrain that, strictly speaking should be the domain of the DENR. Its components included the following:

- Community organizing
- Extension services
- Demonstration centers/nurseries
- Applied crop research
- Training and communications
- Monitoring and evaluation
- Program management

Full support from the provincial government and Ford Foundation during the early years made EBJ-UDP operations very effective in 9 barangays around the Igbucagay center. After the 1980's however, stiff competition for the use of the provincial development funds as counterpart to new grant assistances reduced substantially its financial support to the program. Without adequate funding support, the decision to expand operations to other municipalities makes it extremely difficult for EBJ-UDP not only to start new sites but also to sustain the level of development in its old sites.

At present EBJ-UDP has a personnel complement of 73, a majority of whom (43) are under the ANIAD 3-year program. Of the 30 non-ANIAD funded personnel, only 7 have permanent status and these are detailed personnel from DA (1) and OPA (6). The rest have casual (daily wage) appointment paid from IRA funds or detailed from the Office of the Governor.

Field staff include 25 FMTs and 35 nursery aides. Of these, 16 FMTs and 27 nursery aides are ANIAD-funded and only 9 FMTs and 8 nursery aides are from traditional sources, making the program very weak on its own. Since compensation is relatively low, the turnover of staff has been fast especially for those who have completed a Bachelor's degree in Agriculture and could easily find a permanent job following their EBJ-UDP experience.

The limitations of its organization and staff capabilities vis-a-vis its program thrust has been the major drawback of EBJ-UDP. To begin with, meetings of its policy board, which is responsible for harnessing multi-agency support to the program are rare, if it meets at all. This is especially true for its extension function which would be difficult to pursue on a stable basis given the limited number and fast turnover of its FMTs.

Participation in ANIAD appears to be the mainstream of present operations of EBJ-UDP, and an opportunity to put on the ground many of its original concepts. These include those functions which it has not been able to sustain such as research, demonstration, monitoring and evaluation and training and communication. For a fact the project monitoring system now being followed by EBJ-UDP in all its areas has been recommended by ANIAD.

As a major participant in ANIAD program, EBJ-UDP is constrained to make major adjustments in its role as an extension-cum-CO program which it had been performing, given the entry of NGOs in CO under ANIAD. Such adjustment implies a reorientation of staff capability build-up toward extension and research, something which might be difficult given the present unstable tenure of these employees.

A stable extension and research program can be achieved only if EBJ-UDP is institutionalized. This might not be possible under its present adhoc policy board. The more effective strategy will be to have the program absorbed by the OPA, and given a regular budget and staff. With the enactment of the New Local Government Code, this absorption appears to be already inevitable.

In terms of operational linkaging between the OPA's extension and research arm (the EBJ-UDP), and the Antique College of Agriculture (ACA), the assessment hardly show significant interaction between institutions. The EBJ-UDP absorbs the newly-graduated ACA students. However, this is temporary because the EBJ-UDP cannot maintain (for lack of support funds) staff, and therefore becomes a stepping stone of ACA students in favor of higher paying jobs.

4.5 Non-Governmental Organizations

Developmental activities by NGOs in Antique date back to the 1950s. In the beginning they stemmed mostly from the outreach activities of civic and religious organizations particularly those organized for Catholic action. The diocese which was headed by a Dutch missionary bishop introduced a socio-economic dimension into religious-civic groups for youth formation and family solidarity through the creation of cooperative credit unions throughout the diocese. The credit unions coincided with the cooperative movement which was mainly government-propelled .

Other than the credit unions which are federated into the AFCCUI, no significant NGO-organized groups appeared in the institutional landscape until the last decade. While the province also became the focus of assistance of American and Dutch Peace Corps volunteers, their concern had been in education and extension work and not on community organizing.

The NGO movement in the 1980s, which gathered momentum after the downfall of the so-called Marcos dictatorship was purposively for community organizing for livelihood activities with the main objectives of poverty alleviation and promoting equity and access to credit, land, technology and other developmental resources. The Local Resource Management Project (LRM), a USAID assisted technical assistance project

piloted in Antique and several other provinces adopted a GO-NGO partnership approach which involved the participation of the Philippine Business for Social Progress, a national NGO. Local NGOs were subsequently organized which sought support from grant institutions, international NGOs and foreign governments. Of the 8 major NGOs with beneficiary communities in Antique, 6 are formally tied up with the Netherlands-assisted ANIAD, with the key responsibility for CO in some 150 to 200 barangays over a 3-year period.

The Antique Federation of Non-governmental Organizations (AFON) was created in 1989 in response to the search of the ANIAD Project for a provincial apex organization as link institution among ANIAD's partner NGOs relative to matters of mutual concern. The initiative to organize AFON came from the NGOs involved in ANIAD.

4.5.1 Profiles of Developmental NGOs

Antique Development Foundation

ADF started its operation in 1986 to pursue the projects initiated by the Philippine Business for Social Progress under contract with the USAID-assisted LRM Project. The local staff of PBSP were then absorbed into the management system of the foundation. The founding members of ADF consisted of prominent personalities associated with the former governor of the province.

The main target groups of ADF are sustenance fishermen, lowland subsistence farmers, upland farmers and landless agricultural workers. As of June 1990 ADF was involved in CO in 57 barangays in 8 municipalities. The foundation appears to have no formal linkages with GOs although it taps the services of DTI and DA-MAFC when necessary to extend training and advice to the POs that it has organized. Linkage with LGUs is quite informal, although municipal officials are consulted for their suggestions during the identification of beneficiary communities.

ADF has a total personnel complement of 21 with an average age of 27 years. It is headed by an Executive Director with a professional background in education, assisted by a Program Officer, a Training Officer, a Loan Officer and a Technical Officer. Field workers consist of 9 community organizers and 2 barefoot technicians. Gross ratio of staff to number of barangays assisted is 1: 3.

The internal management and staff of ADF have proved to be stable with minimal staff turnover. However its Executive Director, who had served the foundation since its formation left to become the Executive Director of AFON.

The project development and project management system of ADF has been adopted from PBSP, its precursor. The system is highly participatory, efficient and socially acceptable. POs organized by the foundation are considered as local partners and receive loans directly from the foundation at minimal interest. The POs in turn extend individual loans to its members at prevailing market rates.

ADF has developed performance and impact indicators for monitoring its community-based projects which it submits to its sources of funding. Because of its experience in developing its planning and M and E system, it has made significant contribution to the systems and procedures of the community based program component of ANIAD.

PROCESS

The Participatory Research, Organization of Communities and Education in the Struggle for Self-reliance is a national NGO organized in 1980. Its activities have been mainly concentrated in the Cagayan Valley, Bohol Island and Panay provinces. Organizing efforts in the province have led to the formation of 30 associations covering 38 barangays in six municipalities. In addition are 4 municipal level-federations of primary organizations which are further linked to regional and national organizations and advocacy groups.

PROCESS maintains a field unit in San Jose which is under the management of its Regional Office in Iloilo. A project manager runs the Antique operations and has under her the community organizers assigned to its beneficiary barangays. She also supervises the monitoring of a contract reforestation project which has been contracted to PROCESS by DENR.

Being a broad-based organization, the planning and management system of PROCESS basically follows guidelines developed by its central headquarters as adapted to the local situation. They are highly participatory and follows rather strictly certain stages in community organizing for credit management that are accompanied by a well-developed monitoring system.

Antique Federation of Cooperative Credit Unions, Inc. (AFCCUI)

AFCCUI was set up in 1969 as a provincial apex organization of some 20 cooperative credit unions to provide services that would ensure efficiency and uniformity in the conduct of business by member cooperatives. Most of the members of credit unions are farmers and fishermen. AFCCUI is engaged in programs and activities which go beyond direct services to its members. It is involved in CO and socio-economic project development in more than 40 barangays in 12

municipalities, using as management and CO arm the credit cooperatives in these municipalities. Using a recently sourced grant from the Canadian International Development Agency, AFCCUI is also involved in assisting 14 women in development organizations in 11 municipalities.

Aside from its institutional development, beneficiary training and interlending programs, AFCCUI is also involved in construction of community infrastructure such as the Casay-Mabuyong Potable Water System and 20 school buildings under the President's Social Development Program.

AFCCUI has a total personnel complement of 21 with an average age of 26.5. It is headed by a Manager assisted by 2 CO Supervisors, a WID Program Officer, Training Officer, a Project Officer, a Marketing Officer and a Loan Officer. Direct assistance in CO are provided by member credit unions of the federation.

With regard to CO, project development and project management, the systems and procedures of AFCCUI are similar to that of ADF. This can be explained by the fact that the Manager of the federation and the former Executive Director of ADF (now Executive Director of AFON) used to work together for PBSP under LRM. This is characterized by a high level of popular participation and efficiency. Linkage with GOs and LGUs also tends to be informal and adhoc.

Antique Human Development Program (AHDP)

AHDP was operationalized in 1987, following several years of experience of its founders in a similar initiative in Mindanao. Its target beneficiaries include farmers and fishermen specifically small owner cultivators, tenants, landless agricultural workers and subsistence fishermen. Special attention is given to the women and youth through trainings on livelihood projects, home management and CO. Its operations are concentrated in 5 adjacent southern municipalities and covers 28 barangay associations.

Minimal information could be generated about the management of AHDP except that it is run by a sweet energetic and dedicated lady with a small number of community organizers working under her. It appears to be highly dependent on project funds and volunteerism for its regular operations.

People's Alliance for the Cause of Evelio Dev. Found. (PEACE)

PEACE was initiated as an informal group in 1984 and formalized as a foundation in 1988. It is presently involved in 5 barangays in three southern municipalities where initial activities have been undertaken for the development of income generating projects.

PEACE is a small organization run by the President. It appears to have no full-time management staff. It has only two community organizers. Regular operations appear to be piggy-backed on project funds.

Hantique Iqkabuhi Center-Hublaq Evelio

Organized in 1986 after the assassination of former Governor Evelio Javier. The primary objective of HIC-HE is to organize and mobilize the Antiquenos against oppression and for active people's participation in local resolving local/provincial issues, as well as project development for socio-economic upliftment and self-reliance of local communities.

HIC-HE links with core groups in a number of municipalities. In the process, HIC which is the Social Action Center of the Catholic Diocese of Antique started to function as the implementing arm of HE. Its target groups are subsistence farmers and fishermen with include shifting cultivators, tenants, landless agricultural workers and small owner-cultivators.

At present HIC-HE has mobilized 62 POs in 13 municipalities. Most of these are operating livelihood projects including poultry and swine , rice trading and retailing, socialized production loans and provision of inputs.

HIC-HE has a total personnel complement of 24 with an average age of 28 years. It is headed by an Executive Director assisted by a Chief of Operations, 2 CO Supervisors, 2 Training Officers and a Loan Officer. Field workers consist of 12 COs, an Agriculturist and an Engineer. The gross ratio of staff to number of barangays assisted is 1:2.5

Project development and management systems are not as formally developed as ADF and AFCCUI. However HIC as the implementing arm of this particular NGO means that it is directly linked with an extensive network of diocesan social action centers which are found in a large number of provinces of the country. Thus it has potential access to external resources, both financial/material and knowledge that are channeled through the Catholic dioceses.

AFDAP

Very little details could be gathered regarding this NGO. The listing of barangay associations indicate that it is actively involved in organizing 11 barangay livelihood groups scattered in 6 municipalities mostly in the south.

Other NGOs (RGC-IDI, and PPA)

Two other NGOs have been identified as active participants in CO and livelihood project development in Antique. Their beneficiary organizations totaled 12 at last count. Details on these organizations were not available to the study team.

4.5.2 Antique Federation of Non-Governmental Organizations (AFON)

AFON was established through the joint efforts of the six NGOs participating in the ANIAD Program, namely, ADF, AFCCUI, AHDP, HIC-HE, PEACE and PROCESS. The Board of Trustees of AFON are the representatives of these NGOs and its Chairman was elected from among these persons. It has its headquarters in San Jose.

One of the primary aims of AFON is to institutionalize linkages among the NGOs. An important part of this linking function is to provide the mechanism for channeling resources intended for the institutional strengthening of these NGOs. Recognizing its role among the NGOs, ANIAD contracted AFON to develop a training program for NGOs and to devise mutually acceptable standards and procedures for planning and monitoring which they will adopt in their respective operations.

As an umbrella organization, AFON admits other qualified NGOs into its network following a probationary period during which the applicant is observed and evaluated. At the time of writing, two NGOs are under probation of AFON.

The management of the federation is headed by an Executive Director who used to be the Executive Director of ADF. This is very fortunate because this lady has definitely an impressive track record in project management, an accepted "insider", warm and articulate, and can ably represent AFON in any forum. While office staff is obviously lean, it is efficiently undertaking preparatory activities in networking such as baseline compilation and systems development. A newly acquired PC and printer speeds up staff work.

4.5.3 NGO-Assisted Community/Barangay Associations

The 8 major NGOs in Antique extend assistance in CO, livelihood management training, and small scale credit to a total of 272 community organizations. The distribution is shown in Table 4.1.

Except for sixteen municipal-wide organizations, all NGO-organized and assisted groups are barangay-based or functional groups belonging to adjacent barangays. The broader-based organizations are the credit unions of AFCCUI and three municipal federations of livelihood groups under PROCESS.

Table 4.1. Distribution of People's Organizations by Municipality and by Assisting NGO

	ADF	AHDP	AFCCUI	HIC-HE	PEACE PROCESS	AFDAP	RDC/IDI PPA	Total
Anini-y	7	1	1	-	-	1	-	-	10
T. Fornier	-	1	8	-	1	-	2	1	13
Hamtic	2	9	7	8	-	2	1	2	31
S. Jose	-	-	7	1	-	-	-	2	10
Sibalom	1	15	7	7	-	1	4	6	41
S. Remigio	-	2	-	4	4	-	-	1	11
Belison	-	-	2	4	-	2	1	-	9
Patnongon	-	-	2	5	1	2	-	-	10
Bugasong	8	-	2	2	-	-	-	-	12
Valderrama	-	-	8	1	-	-	1	-	10
Laua-an	-	-	10	11	-	1	-	-	22
Barbaza	-	-	2	9	-	3	1	-	15
Tibiao	8	-	2	-	-	7	-	-	17
Culasi	-	-	1	4	2	11	1	-	19
Sebaste	7	-	1	-	-	-	-	-	8
Pandan	14	-	3	-	-	-	-	-	17
Libertad	10	-	1	-	-	-	-	-	11
Caluya	-	-	-	6	-	-	-	-	6
Total	57	28	64	62	8	30	11	12	272

Specific NGOs tend to concentrate their activities in a few municipalities of their own priority. Thus ADF and Process are directly associated with the northern municipalities, specifically Pandan, Libertad, Tibiao and Bugasong for ADF and Culasi and Tibiao for PROCESS. ADF however is assisting a significant number of fishing communities in Laua-an as an offshoot of its previous involvement with LRM Project. Laua-an and Barbaza in the north and Hamtic and Sibalom in the south are obvious priority municipalities of AFCCUI and HIC-HE. AHDP concentrates much of its resources on Hamtic and Sibalom communities.

The geographic spread of NGO assistance is influenced by a number of factors and can be attributed only partly to systematic prioritization and planning. Even LRM barangays which tended to gravitate toward the coastal areas were selected mainly because of the relatively sufficient planning information available for these areas as compared to other resource areas such as the uplands. Aggressive political leadership certainly contributed to certain concentrations as much as the cost effectiveness factor of concentrating NGO resources in adjacent barangays in a few municipalities.

4.5.4 People's Organizations

Developmental grassroots organizations existing in Antique are either barangay based with broad and multi-sectoral membership or based in functional/sectoral groups. Their institutional development is assisted by either a government agency or an NGO. There may be self-organized groups but information regarding these POs could not be obtained. Government agencies that have been active in organizing work are DA for farmers, fishermen, rural women and youth, NIA for farmer irrigators, DAR for agrarian reform beneficiaries, DTI for non-farm producers, and recently DENR for forestland dwellers. Since late 1970s, until recently the EBJ-UDP (formerly AUDP) was the only active agency in organizing upland farmers and only in selected barangays of the province.

NGO-assisted POs also have a long history in Antique. In the 1960s, particularly, the catholic parishes run by Dutch missionaries introduced the concept of rural credit unions in some 20 parishes all over the province. They have remained active until the present and have been federated into the AFCCUI.

Of latest count there are at least 272 POs including cooperative credit unions organized/assisted by 8 NGOs in all municipalities of the province with a total membership of more than 8000. They consist of groups of small farmers, subsistence fishermen, coastal dwellers, landless workers, rural women, or mixtures of these groups. They cover a barangay, adjacent barangays, or municipality, and range in

membership from 10 to more than 400. A rundown of the figures by municipality and by topographic area is presented in Table 4.2. Size of their membership is shown in Table 4.3 while the functional composition of membership is shown in Table 4.4.

Details of present status and activities of these organizations have not been ascertained.

With regard to the topographic distribution of POs, there is an obvious disparity in number in favor of lowland areas. Aside from the fact that population concentrations in lowland and coastal areas are more easily identifiable as well as the easier access to these areas by the assisting NGOs, another important reason can be surmised. This is the relative deficiency of NGOs, as it might well be with GOs, in dealing with upland problems. Both the sociological and technical aspects of the upland are still grey areas among Philippine development agencies. Its therefore not surprising for NGOs to tread on safer grounds by working in lowland areas.

Nevertheless a significant number of upland organizations appear in the NGO assistance list with the largest number being in Hamtic and Sibalom. These areas happen to be the original and expansion EBJ-UDP areas. It would be interesting to conduct a serious tracking to validate an assumption that the CO activities of NGOs have followed the tracks left by EBJ-UDP, whose operations were greatly hampered by lack of institutional resources after 1980.

4.5.5 Relationship with EBJ-UDP

EBJ-UDP is a distinctive feature of the institutional landscape of Antique which is not found in any other province in the Philippines. In essence it was a unique attempt of the provincial leadership to fill the gap in upland technology development which was decidedly neglected in the regular operations of the DA and other relevant agencies. The program which complemented those of DA focused on a specific topography, the 8 to 18 percent slope category. Since its inception in the 1970s EBJ-UDP has been popularly recognized as DA's counterpart in upland areas. Like other GO development agencies, it performs a dual function, technical extension and CO.

Table 4.2. Distribution of People's Organizations by Municipality and by Topographic Areas

Municipality	No. of POs		
	Lowland	Upland	Total
Anini-y	8	2	10
Tobias Fornier	10	3	13
Hamtic	17	14	31
San Jose	9	1	10
Sibalom	23	18	41
San Remigio	2	9	11
Belison	8	1	9
Patnongon	6	4	10
Valderrama	6	4	10
Bugasong	9	3	12
Laua-an	15	7	22
Barbaza	10	5	15
Tibiao	9	8	17
Culasi	13	6	19
Sebaste	6	2	8
Pandan	13	4	17
Libertad	3	8	11
Caluya	6	0	6
TOTAL	173	99	272

Table 4.3. Size of People's Organizations

Membership	No. of Orgs.
Less than 50 ----------	175
50 - 100 ----------	23
101 - 200 ----------	2
201 - 400 ----------	2
More than 400 ----------	1
Undetermined ----------	69
Total	272

Table 4.4. Function Composition of Membership of People's Organizations

General/Poor/Mixed Groups	62
Fishermen and Farmers	19
Farmers/Fishermen and Workers	75
Fishermen/Bangus Fry Catchers/Traders	19
Credit Cooperative	20
Women,Fishermen/Farmers mixed with Women	23
Minorities Farmers	1
Non-agricultural workers	6
Agrarian Reform Beneficiaries	2
Hog/Cattle Raisers	2
Irrigators' Association	1
Sub-total	230
Undetermined Membership/New	42
Total	272

NGOs involvement in traditionally EBJ-UDP areas is of recent occurrence, mainly late 1980s. The CO activities of these agencies can be characterized as uncoordinated and overlapping. A basic difference in approach coupled with the issue of "guardianship" over these communities makes coordination and cooperation difficult. In the case of EBJ-UDP, the introduction of technology and livelihood is generally used as entry point in community mobilization, while in the case of NGOs, CO is generally carried through to a formal stage before a livelihood project is started. As the two approaches are not necessarily irreconcilable, this situation is presently being corrected by ANIAD through proper delineation of respective roles.

4.5.6 NGO Problems and Constraints

1. Limited Institutional Resources

Except for AFCCUI, which has a more or less permanent network of clientele in the cooperative credit unions, the NGOs in Antique depend on sponsorship and project funding for their continuing operation. This is to be expected since they are generally young and have not built up a self-generating institutional capital to maintain regular O and M structure and staff. The challenge of accessing grant sources for community-based livelihood projects which are abundant in the country serves as the driving force of the leadership of these NGOs. Personnel compensation, including both for field workers and management staffs are therefore charged against project funds.

National government policy supports the promotion of GO-NGO partnership in development. However, the institutional strengthening of NGOs has been more dependent on assistance from grant institutions rather than government. This is because of certain financial and administrative constraints inherent in the government bureaucracy. Hence the NGOs have been mostly on their own, combining resourcefulness and a strong spirit of volunteerism to pursue their goals.

2. Sustainability

Ability of the NGO to sustain its organizational effectiveness depends on a variety of factors including resources, committed leadership and a continuous constituency build-up. It appears that only AFCCUI has satisfied these requirements over the years since it was organized in 1968. HIC-HE's operations is the most spread in terms of communition associations (62). HE as a people's movement can maintain its momentum for as long as it is integrated with the HIC (equivalent to the Social Action Center in other provinces) which is already a recognized social development/CO institution. In the case of ADF (57 associations), the strength of this NGO is in livelihood project generation and fund sourcing, but its sustainability as an institution cannot be guaranteed at this point. While perceived to be political in origin, it appears to have the potentials for evolving into a network of complementary economic projects with an external market.

Membership in AFON by itself cannot ensure sustainability. The NGOs must build their own resources and constituency, whether economic or political, as a necessary base for permanency.

3. Coordination Problems: Duplication and Gaps

NGO assisting upland communities have a very limited and adhoc relationship with GOs, specifically DA, DAR, DENR, EBJ-UDP and the social services agencies. Adhoc means hardly ever in planning and only when necessary to resolve problems during implementation. CO often involves common beneficiaries of two or more GOs who may also be engaged in CO activities. Such duplication actually occurs in ANIAD areas, particularly between NGOs and EBJ-UDP. ANIAD guidelines are for the NGO to undertake CO. What EBJ-UDP should be doing is still quite ambiguous.

Gaps, on the other hand are of a technical nature although the problem appears to be minimal. GO-NGO arrangements with regard to technical support to livelihood project development are well defined and responsive to needs. DTI is actively involved in providing training in production skills and design as well as in business management. DA extends ready assistance upon request on crops and livestock production and MAFC on fisheries/aquaculture ventures.

Arrangement with LBP, PNB and rural banks can be easily arranged, if necessary for small credit management. Marketing support tends to be a problem especially for small scale production or deficient marketable quality of product lines.

4. Relationship with Local Government Units

Traditionally, NGOs in Antique specifically the AFCCUI network were civic-religious in affiliation and operated independently of the local government system. An overlap in leadership, however made these organizations blend smoothly with the cultural and socio-economic landscape. The entry of PBSP and later ADF under the LRM Program in mid-1986, on the other hand was deliberately integrated with LGU development components such as training in strategic planning and fiscal management. Certain procedures of NGO-LGU coordination was thus introduced by LRM. In some instances, local officials influence important decisions of NGO such as selection and coverage of sites and types of projects to undertake. In many instances, however this was done mostly as a formality or a courtesy gesture and quite empty of real resource sharing.

5. Ideological/Political Issues

As expected of a socio-political landscape that is in foment like the Philippines, most NGOs tend to uphold an activist stance regarding certain politically significant social and economic issues. The most important of these issues are related to agrarian reform and social equity, livelihood/ employment for the poor and governmental deficiencies including graft and corruption. Recent years have added an environmental dimension with the growing public awareness of ecological issues.

While ideology is considered a healthy driving force in development, there is a negative perception in certain sectors that NGOs can be influenced by partisan politics in Antique. This is accompanied by the suspicion that CO might be used as instrument in influencing votes for certain politicians. Right or wrong, all NGOs have the burden of counteracting negative public perception by showing convincing proofs of efficiency and genuine motivation for people's welfare.

NGOs that are perceived to be church-associated such as HIC-HE and AFCCUI tend to be easily accepted by rural communities probably because of the location of their headquarters, at least initially, near the parish offices, making them visible and accessible to the church's constituency. It is also for this reason that they are generally free of suspicion of insincerity and corruption.

A very interesting phenomenon in Antique is the personality cult of Evelio Javier who is upheld by the Antiquenos as provincial symbol and hero. Two NGOs, PEACE and HIC-HE carry his name and so do the EBJ-UDP, the EBJ Provincial Demonstration and Training Center, and numerous barangays and public schools in Antique. Javier's statue stands in the plaza in front of the provincial capitol building.

While it can be maintained that Evelio Javier is now beyond partisan politics, NGOs bearing his name still have to contend with public suspicion that they might be politically motivated since Javier's former colleagues and relatives are active in provincial and local politics.

4.5.7 Suggested Measures

Some suggestions on how to counter the above mentioned constraints are worth considering by development projects involving NGOs:

1. Project assistance by grant institutions should consider institutional strengthening not only for project operations but should also address to a reasonable extent the needs of the basic organization itself and its management systems.

2. Within the context of GO-NGO partnership, synergy can be better achieved if a resource sharing system is developed in lieu of GO-to-NGO resource transfers. Sharing can be in the form of common facilities such as transport and communications, conference/training facilities, etc.

3. Complementarity of GO and NGO staff in the same line of activity could be a guiding principle particularly where difficult upland terrain constrain mobility. For example, while the lead role for CO and technical extension may be assigned to NGO and GO respectively, the mutual exclusivity principle may not be the wisest thing to do. For a fact, some concrete work based on genuine CO principles have been done in many barangays long before NGOs entered the scene. The initiators of these activities, if they so desire, should retain a role, even if secondary, to complement whatever the new NGO would undertake. In like manner, many NGOs have potentials in terms of specific personnel to assist in technology extension to complement GO staff tasked with such responsibility.

4. The bottom line of the GO-NGO activities in the uplands is the creation of sustainable POs with socio-economic and environmental goals. The best possible scenario is for the POs to take over gradually the functions of community management and technical extension from these

agencies. The concept of farmer-extensionist and farmer-organizer should not end with self-directed development but should eventually extend to other communities. The PO thus graduates into a catalytic NGO that has absorbed both CO and technical extension capabilities of its NGO and GO mentors.

5. NGOs entering into programmed areas of EBJ-UDP must be discouraged from assuming an exclusivist or competitive attitude. Instead they should try to maximize the gains from previous community-based activities. CO must focus on reactivating weak/dormant community associations and not to create entirely new ones.

The ANIAD policy to limit EBJ-UDP function to technology development and assign CO to NGOs is a sound working principle in ANIAD-assisted barangays where these complementary actions are systematically programmed and adequately supported financially.

4.6 Summary of Findings

4.6.1 GOs in the Uplands

a) The DA has limited operations in upland areas inspite of its mandated comprehensive coverage. This is basically because of its strong lowland and rice farming orientation and personnel constraints. Livestock development which is a main function of DA also receives meager support for lack of resources and manpower capacity.

b) DENR is practically an infant agency when it comes to upland development because it has traditionally been a regulatory agency. Only its ISF Program has a strong socio-economic orientation but the implementation of this program is hampered by budgetary constraint, inadequacy of qualified manpower and socio-cultural problems inherent in public lands to which open access is difficult to control.

c) DAR's attention to upland needs is constrained by the present priority thrust of CARP implementation being focused on landholdings 50 hectares and above, or those owned by government financial institutions, or voluntarily offered for sale. Very few upland estates in Antique qualify under this category, hence the benefits from CARP hardly affect upland farmers.

d) Other support agencies appear to have relative capacity to respond to demands emanating from the local level through reprogramming/realignment of resources. These include DTI, PEO/DPWH, the social services agencies.

e) LGUs provide overall directions to development taking place in their respective administrative jurisdictions. This role is mainly political since technical planning and financial capacity is severely lacking at levels below the province. Token participation in community-based development is in the form of membership of elective officials in committees, informal endorsement of activities of external agencies and personal advice on local conditions.

The Provincial Government being the apex of the local government structure, on the other hand, assumes a very important role in the planning and coordination of developmental programs of both government and private sector. Under existing policies for decentralization it is provided with allocations from the national budget in addition to the purely local real property tax and other revenues it is authorized to generate. Under the new Local Government Code which is in final stage of enactment by the National Congress, the Provincial Government will have authority to control field operations and deployment of personnel of DA, DENR and DOH among others.

4.6.2 EBJ-UDP

EBJ-UDP has been assisting communities in the uplands for a long time but its operations have been hampered, especially lately, by lack of adequate funding support and rapid staff turnovers.

4.6.3 NGOs

a) Developmental NGOs are newcomers in the uplands, and get financing from various sources. Exception is AFCCUI with its record of a quarter century. Participation in ANIAD is a minor part of the total NGO landscape although it has probably the most systematically planned and organized operations.

b) NGOs have two motivations, political empowerment of communities and organizing for livelihood. Advocates of land redistribution/land to the tiller policy are behind a few NGOs and are openly working for acceleration of CARP implementation.

c) Commitment of staff and management to pursue a poverty-alleviation mission is a strong point. Institutional strengthening through systems improvement, financial capacity buildup and linkaging and networking is also seriously pursued.

4.6.4 POs

While a hundred or so upland POs exist, they are mostly in the organizational stage and their survival uncertain. Most of the older ones were organized by EBJ-UDP but many of these are either weak or dormant. An attempt to revive and strengthen old POs is being made by NGOs in several areas. However, in other areas, entirely new POs emerge as a result of the organizing activities of NGOs. With a few exceptions, all upland POs are organized around farming and livestock raising.

4.6.5 Inter-institutional Relations

A number of factors constrains coordination of field operations and interaction of staff in the vast upland areas. First is the limited resources and personnel whose presence is hardly felt in the upland areas. Second is the policy of assigning turf to GOs, e.g. DENR within the "forest zone" and DA in A and D lands. A third is the very absence of a planning and management framework where the interfacing of roles and activities is defined to guide these agencies.

5.0 SYNTHESIS AND CONCLUSIONS

5.1 Framework

The purpose of the synthesis of the major findings of the assessment of the upland resource environment is to arrive at some conclusions on what can be judged to be the critical determinants of upland poverty and environmental problems and provide a basis for identifying feasible solutions. The framework is formulated around three interactive concepts. First is a people-centered concept of change, that is, individual and collective action of people can reverse the negative conditions of their living environment. More than anything else, the framework dictates people's capacitation as the core intervention strategy. Second is the farmer's decision as affected by the physical, and socio-economic forces around him. Third is the institutional framework through which the individual relates to the broader socio-political and economic systems.

The poverty-environmental framework suggests a logical prioritization by focusing on what is relevant and necessary in order to assist the poor. Thus the identification of the poverty groups is the starting point of the synthesis.

5.2 Upland Poverty Groups

Approximately 85% of upland households live below the poverty threshold, which is defined by NEDA as those whose income is less than P32,000 per annum. They consist of the following:

a) farmer households with less than 3 hectares of landholding, constituting 86 % of all upland farmers and 80 % of upland poor roughly estimated at 20,000 farming households.

b) landless workers, unrecorded upland kaingineros, cultural communities (Ati), etc. (20% of poor)

5.3 Agro-ecological and Socio-economic Environment

The uplands up to slopes of 50% and over are occupied by a farming population resulting to continuous conversion of natural forest to crop farms. Only 12% of the provincial area is presently covered by forests. Problems of degradation has become severe in the watersheds of big rivers, especially the Sibalom-Maoit-Tipuluan, Cangaranan

and Dalanas Rivers. The southern mountains, where runoff goes directly to the sea are also degraded because of cultivation to seasonal crops.

Traditional upland agriculture tends to follow lowland farming practices.

Marginal soils on small landholdings, insecurity of land tenure, lack of capital and technical support, and inadequate social services make the upland dweller live in absolute or relative poverty. Educational attainment and skills level are generally low depriving the uplanders of opportunities for employment in non-agricultural activities.

Opportunities for improvement, however are not lacking. New technologies introduced in the past have succeeded, in reversing ecological conditions of upland farms and the economic viability of the upland farmers. If replicated on a wider scale the impact of improved agriculture will redound to the progress of this marginal groups in Antique.

5.4 Farming Systems

The upland farm is generally fragmented, normally consisting of two or three parcels of one hectare or less which are situated in different locations. Where feasible, terracing is practiced to allow for paddy cultivation of improved varieties for bigger yield. Farmers without terraced lots plant traditional rice varieties and corn directly on cleared slopes. Yield is extremely low, ranging from 7 to 10 cavans per hectare.

Land tenure is of various types, but the prevailing pattern is recognized full ownership through inheritance, even if not supported by formal titles since only a portion of the uplands have cadastral surveys. Nevertheless upland tenancy exists as well as buying and selling/mortgaging of land, resulting to more fragmentation.

Unterraced land is devoted to seasonal cash crops such as corn and rootcrops, and perennials such as bananas and fruit trees. Bamboo is natural growth and rarely planted. There is no systematic agroforestry system combining forest species with agricultural crops or livestock. The latter exist in backyard scale. Only a few farmers raise large cattle for lack of capital. The carabao is a treasure as draught animal.

Insecurity of tenure and the pressure to produce for basic needs discourage farmers to plant long-gestation crops particularly tree species. Clearings also need to be preserved for rice and corn, peanuts and rootcrops. In the

face of these poverty constraints in addition to the meager resources and personnel capabilities, it is difficult for technical support agencies to convince farmers to shift to more sustainable production systems.

From the findings on the problems and potentials of the small farmer sector in the uplands, a farm typology matrix based on various bio-physical and socio-economic indicators has been devised (Table 3.3). Appropriate support for each type can then be recommended under the upland strategic plan.

5.5 Institutional Environment

The spheres of influence of agencies in the uplands can be characterized as basically land resource oriented and technical such as DA, DENR and the infrastructure agencies, or primarily people-oriented such as social services agencies, DTI and NGOs. A number of agencies are of the integrated type and concern themselves in equal measure with the resource base and the community. EBJ-UDP, ANIAD and LGUs are of this type of organization. For some specific reasons and in selected areas such as DENR's ISFP, a land-resource agency also assumes CO functions and employ community development officers for such purpose. The same can be said of NIA, DA and DAR regarding the organization of their farmer beneficiaries.

In Antique, upland development is a grey area where government services are fragmented and overlapping at the same time. The functional jurisdiction of DA, DENR, OPA and EBJ-UDP cannot be clearly defined in practical terms. Territoriality merely confuses field staffs who are aware of a need for a well coordinated system of assistance to their upland beneficiaries.

Another problem area relative to spheres of influence is community organizing and the entry of NGOs in the uplands. Since NGOs are primarily concerned with institutional development for early introduction of livelihood enterprises that are not necessarily agricultural, their interest tends to promote an ambivalence of technical and psycho-social priorities among the upland farmers. Questions of sequence and relative value of CO as against technical extension are current issues.

Participation in the ANIAD Program seem to carry on the ambivalence inherent in the existing institutional landscape. The DA does not have a distinct role in the upland development component of ANIAD Phase 1, except to provide resource persons in technology training activities of EBJ-UDP. This role of DA is short of its potential to contribute to the program with technical expertise and

resources which it can realign under its programs on land evaluation, microwatershed management, crop production technologies, crop research, seedling production, marketing and credit, all for the uplands.

DENR's direct involvement in ANIAD is in the implementation of an ISF Project in San Rafael, San Remigio. It appears from the data that even very steep slopes are classified as A and D land. Thus while DENR has many programs relevant to the uplands, e.g. watershed management, forest development, FLMA, CFM, their application on A and D land cannot be given due course by the department.

While land tenure improvement and support services are major programs of DAR, this agency does not have adequate resources and authority to bring together the various agencies identified to carry out an interagency support system for CARP.

The provincial and other LGUs also have an undefined role in ANIAD operations, except, in a vague way, to monitor the program. Existing and proposed legislation, however, (E. O. 363, Local Autonomy Code), recognize the supervisory powers of the Provincial Government over integrated programs.

The Local Autonomy Code which has just been enacted will give to the Provincial Government the authority over the operations including the deployment of field staff of DA, DENR, DAR, and other line agencies.

The planning and management structure of any long-term upland development program will have to consider the implications of these immanent changes. Obviously the direction is toward a truly decentralized development where LGUs will have the deciding role and national agencies with a supportive role.

The placement of OPA and EBJ-UDP as management instruments of the province in upland development given their experience and familiarity with this environment should be seriously considered. However, the largely autonomous operation of EBJ-UDP from the OPA is tenuous because of its adhoc character. The logical solution is to strengthen it as the core program of OPA in field extension only. Other management functions such as planning and monitoring and support functions such as crop research, IEC, and the operations of the PTRC can be directly handled by OPA.

5.6 Areas for Further Research

Empirical information is a most effective tool in the formulation of strategies and plans for local level development or in evaluating their responsiveness to the needs of the local people and the environment. The lack of a complete data base and empirical knowledge of the dynamics of socio-economic systems is particularly serious when it comes to the uplands. Some of these gaps have been identified during the resource assessment for the Antique Strategic Upland Study. These include the following:

a) In-depth assessment of POs under various institutional development programs of DA, NIA, DLG, others;

b) Constraints and potentials of agroforestry and livestock development;

c) Market study focusing on the market potential of suitable upland crops in the province;

d) In-depth study of the traditional and formal credit system in the uplands;

e) Effectiveness of media in IEC for the uplands;

f) Implications of the local autonomy code on the resource utilization and management in Antique;

g) Role of women in upland farming households;

h) Identification of potential water impounding sites;

i) Potentials of upland fisheries and other minor forest products; and

j) Study of remote and inaccessible upland barangays in the highland zones that are difficult to integrate in the strategic plan.

k) In-depth study of the Ati community, their needs and and aspirations, and possible strategies for involving them in the upland program.

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