RESOURCE CONTROL AND ENVIRONMENTAL CHANGE IN THE PHILIPPINES: A CASE STUDY IN THE PROVINCE OF BOHOL

Peter Brandt Urich

A thesis submitted for the degree of
Doctor of Philosophy
at the Australian National University

August 1995
Except where otherwise acknowledged, this thesis represents my original research. It has not been submitted in whole or in part for a higher degree to any other university or institute of tertiary education.

Peter Brandt Urich
# Table of Contents

## 1.0 Chapter One: Introduction
- 1.1 The Crisis of Explanation: 5
- 1.2 New Regionalism and Political Ecology: 7
- 1.3 Variables in the Analysis: 9
- 1.4 Methods: 11
- 1.5 Hazards in an Historical Approach: 13
- 1.6 Chapter Summary: 15

## 2.0 Chapter Two: The Physical Environment and Historical Background
- 2.1. Imprints From the Past: 29
- 2.2 The Pre-Spanish Period: 30
- 2.3 The Early-Spanish Period (1565-1621): 34
- 2.4 The Tam blot Uprising (1622): 38
- 2.5 The Middle-Spanish Period (1622 - 1744): 40
- 2.6. The Dagohoy Period (1744-1825): 41
- 2.7 The Late-Spanish to American Period (1826-1898): 42
- 2.8 Interpretation: 43
- 2.9 Social Development and Control of Land: 44
- 2.10 Trade and Agricultural Development: 49
- 2.11 Population and Settlement: 52
- 2.12 Summary: 53

## 3.0 Chapter Three: A Period of United States’ Control: 1903 to 1942
- 3.1 Batuan 1903-1942: 54
- 3.2 The Filipino - American War: 57
- 3.3 The American Imposed Land Laws: 58
- 3.4 Defining Public and Private Land: 61
- 3.5 Trade Relations and the Cash Economy: 65
- 3.6 Land Taxes: 67
- 3.7 Formalisation of Land Ownership: 71
- 3.8 The Cash Economy and Land Ownership: 72
- 3.9 An Expanding Population and Cultivated Area: 74
- 3.10 Summary: 78
4.0 Chapter Four: The War Years and Post War Era to the 1960s

4.1 The Japanese Occupation
4.2 Resettlement After the War
4.3 The Drought of 1951
4.4 Population Mobility
   4.4.1 Mindanao and Migration
4.5 Absentee Land Ownership
   4.5.1 The Sellers
   4.5.2 The Buyers
4.6 Tenancy and Social Change
4.7 Land: The Imposition of a Legal Framework
4.8 Implications of the Cadastral Survey
4.9 Population
4.10 Summary

5.0 Chapter Five: Local and Absentee Ownership and Land Management

5.1 Land Holdings by Kawitan
5.2 The Cadastrally Surveyed Lands
5.3 Ownership of Various Types of Land
   5.3.1 Summary
5.4 Individual Family’s Access to Land
5.5 Kawitans, Families and Land Management
5.6 Pressures for Production: Land Management in Quezon and Cabacnitan
   5.6.1 Upland Landuse in Quezon
   5.6.2 Upland Landuse in Cabacnitan
5.7 Factors Influencing the Intensity of Cultivation of the Uplands
   5.7.1 Dispersion of Land
   5.7.2 Life Cycles and Landuse
   5.7.3 Intensive Landuse
   5.7.4 Moderately Intensive Landuse
   5.7.5 Extensive Landuse
5.8 Summary

6.0 Chapter Six: Population Growth, Settlement Expansion and Migration

6.1 Population Growth and Migration
6.2 Population in a Regional Perspective
6.3 Contrasting Dynamics of Population
6.4 A Second Wave of Children
6.5 Fertility Rates and Armed Conflict
6.6 Migration Streams
6.0 Chapter Six: cont.
6.7 Creation of New Farms 148
6.8 Summary 148
6.9 Inter-sitio Variation 150
6.10 Overview of the Sitios 150
6.11 Sitio Tiga 153
   6.11.1 Landuse in Sitio Tiga 155
   6.11.2 Pattern of Land Ownership 156
   6.11.3 Population 157
   6.11.4 Social Structure 158
   6.11.5 Summary 161
6.12 Sitio Pili 161
   6.12.1 Landuse in Sitio Pili 161
   6.12.2 Pattern of Land Ownership 164
   6.12.3 Social Structure and Migration 164
   6.12.4 Summary 168
6.13 Sitio Kaburo 168
   6.13.1 Landuse in Sitio Kaburo 170
   6.13.2 Pattern of Land Ownership 172
   6.13.3 Social Structure 172
   6.13.4 Patterns of Migration 174
6.14 Implications of the Present Situation 176

7.0 Chapter Seven: The 1990s: Village Interdependency: The Eco-Social and Economic Basis 178

7.1 The Current Situation 178
7.2 The Ecological Linkages Between Villages 179
7.3 Landuse and Contraction of Irrigated Area Through Time 184
7.4 Summary 192
7.5 Economic Transformation in the Post War Era 192
7.6 Sharing the Wealth of Batuan’s Rice Economy 196
7.7 Changing the Terms of Access: The Case of Landuse and Economy 201

8.0 Chapter Eight: The Role of the State in Political and Ecological Change 208

8.1 Forest Protection and Government Intervention 208
8.2 Reform or No Reform: Various Places Various Cases 212
8.3 Development in Response to Insurgency 219
8.4 Conflict and the Dispensation of Public Lands 220
8.5 The ISF Programme 222
8.6 Secondary Projects 226
   8.6.1 The Militia 226
   8.6.2 Water Management 227
8.0 Chapter Eight: cont.

8.6.3 Electrification 228
8.6.4 Social Institutions 229
8.7 Summary 231

9.0 Chapter Nine: The ‘Process’ of Environmental Degradation 234

9.1 A Cause: Population Pressure on Resources (PPR) 236
9.2 Evidence From the Case Study 238
9.3 A Cure: ‘Sustainable’ Technologies 240
9.4 Counter-hypothesis: Regional Political Ecology 241
9.5 Implications of the Study 243
9.6 Thoughts on Future Eco-Social Change 246
9.7 The Case for Local Initiatives 247
9.8 Methodological Considerations 253
9.9 The Future 254

10.0 References 257
List of Figures

Figure 1: Location of the case study area in Bohol, and position of Bohol in the Central Philippines. 2
Figure 2: Change in area for selected landuses, barangay Quezon, Batuan. 3
Figure 3: Change in area for selected landuses, barangay Cabacnitan, Batuan. 4
Figure 4: Physiographic regions of Bohol. 19
Figure 5: Hydrologic relationship between main valleys and distinct uplifted blocks of southern Bohol. 20
Figure 6: Geological composition and depths to the groundwater table at four sites in Batuan and Bilar, Bohol. 24
Figure 7: Schematic diagram of the hydrogeological relationship between the uplifted anticline and valley in the study area (c. 1901). 25
Figure 8: Distribution of coastal and non-coastal archaeological sites for southern Bohol dating from 960 to 1600 AD. 31
Figure 9: Relationship between known pre-Spanish trade zone and the present study area. 32
Figure 10: Example of tattooing found in the Visayas at contact with Spain. 35
Figure 11: Direction of Spanish expeditions and location of major battles against Dagohoy's troops. 41
Figure 12: Relationship between cleared and forested areas of the Municipality of Batuan and vicinity in 1903. 55
Figure 13: Forest lands of the first district of southwest Bohol as demarcated in 1928. 63
Figure 14: Pattern of settlement distribution in the vicinity of Cabacnitan, Batuan in 1947. 64
Figure 15: Mean age at death and percentage of deaths occurring at one year of age or less. 76
Figure 16: Number of births and deaths, 1903 to 1955, adjacent to Cabacnitan, by address of claimant. 76
Figure 17: Plots established in Cabacnitan and the forested land adjacent to Cabacnitan, by address of claimant. 81
Figure 18: Plots established in the public forest land between 1942 and 1945, by area and age of the present claimant. 82
Figure 19: Generalised trends of in and out-migration for the town of Batuan. 87
Figure 20: Sample of the number of migrant families from Quezon and Cabacnitan by decade. 88
Figure 21: Distribution by date of sale for 74 plots sold to absentee owners. 91
Figure 22: Concentration of absentee ownership of lands of the study area throughout Bohol, by municipality. 95
Figure 23: Municipalities of Bohol that are cadastrally surveyed.
Figure 24: Cadastral map of barangays Quezon and Cabacnitan, Batuan.
Figure 25: Actual and projected population of Batuan, 1948 to 1991.
Figure 26: Total number of births, deaths in relationship with the
total population from 1939 to 1970.
Figure 27: Locations of three areas of land defined by ownership patterns.
Figure 28: Frequency distribution of areas claimed by individual kawitan
for lands claimed after the forest fire of 1960.
Figure 29: Dispersion of lands cultivated by the largest local land
owning kawitan.
Figure 30: Dispersion of lands owned by local kawitan
owning fewer parcels.
Figure 31: Moisture content of upland versus lowland soils after
a seven month drought.
Figure 32: Number of births and deaths, and population growth for
Figure 33: Area of forest cleared around the periphery of Batuan
by the late 1980s.
Figure 34: Comparative pyramids of de jure population for
Figure 35: Age and number of all married females by barangay.
Figure 36: Situation of the 11 sitios within the barangays of
Quezon and Cabacnitan.
Figure 37: Population pyramid of depicting the distribution of population
Figure 38: Migration pattern for the population of sitio Pili.
Figure 39: Migration pattern for the population of sitio Tiga.
Figure 40: Population pyramid for the residents of the sitio of Pili.
Figure 41: Population pyramid for the residents of sitio Kaburo.
Figure 42: Migration pattern for the population of sitio Kaburo.
Figure 43: Distribution of springs and irrigated areas in the villages.
Figure 44: The number and hectarage of newly established plots along
the eastern frontier of Batuan.
Figure 45: Landuse's relationship with the watertable in the villages, 1951.
Figure 46: Plots with any area of rice in 1951 (253 plots).
Figure 47: Plots with any area of rice in 1992 (135 plots).
Figure 48: Summary statistics of lands registered with
Department of Agrarian Reform; by barangay.
Figure 49: Land ownership inequality based on kawitans
(family groups) for the studied villages of Quezon
List of Tables

Table 1: Population growth for Batuan 1903 to 1939 and percentage yearly change for each barangay between 1918 and 1939. 56
Table 2: Occupations of programmed and spontaneous settlers before moving to government initiated settlement sites in Mindanao. 90
Table 3: Landuse type and area sold to absentee owners between 1943 and 1970, based on a sample of 74 plots. 91
Table 4: Population of barangays by census year, and percentage annual change. 105
Table 5: Per cent of plots by size, barangays of Quezon and Cabacnitan. 109
Table 6: Landuse and plot size, for cadastrally surveyed lands of barangays Quezon and Cabacnitan. 110
Table 7: Changes in number of wet-rice plots absentee and local owned from 1960s to 1992. 112
Table 8: Area of wet-rice field owned 1960s and 1992. 112
Table 9: Frequency distribution of plots per absentee and locally owned farm. 113
Table 10: Sample of lands owned by six local kawitan, by number of plots, area and number of registered owners. 114
Table 11: Lands owned, tenanted and occupied, in hectares by various households of the Bolon kawitan. 118
Table 12: Areas of major land units cultivated by person who planted economic trees in their uplands. 134
Table 13: Population of Batuan’s barangays 1970 to 1990. 141
Table 14: Number of households and population by barangay and sitio. 151
Table 15: Landuse change in sitio Tiga. 155
Table 16: Labour bought and sold by sampled families in sitio Tiga. 160
Table 17: Landuse change expressed in hectares for a family farm (1951-1992). 163
Table 18: Landuse change in sitio Pili 1951 and 1992, in hectares. 163
Table 19: Landuse in sitio Kaburo (1951 and 1992), in hectares. 172
Table 20: Overview of water resources, by barangay and sitio. 183
Table 21: Variety, yield and days to harvest for irrigated rice in alkaline field conditions, APC, Bilar, Bohol, principal varieties only. 193
Table 22: Variety, yield and days to harvest for rainfed rice in alkaline field conditions, farmer’s field Cabacnitan, Bilar. 194
Table 23: Rice production per hectare per year and total production and consumer support: post-introduction of modern rice varieties (post-1986). 195
Table 24: Rice production per hectare per year and total production and consumer support: pre-introduction of modern rice varieties (pre-1986). 196
Table 25: Economics of rice and corn production in sampled sites. 205
Table 26: Lands allocated in the break-up of one holding under the Comprehensive Agrarian Reform Programme. 217
List of Plates

Plate 1: Representative area of 'wet lowland' environment with widely dispersed mogotes, Batuan, Bohol, June 1992. 21
Plate 2: More elevated blocks with their deeply dissected limestone and either forested or dry cropped environments. 22
Plate 3: Elaborate indigenous rice terracing and irrigation systems found throughout the interior of southern Bohol. 39
Plate 4: Plough-type cultivation of soils on a mogote's summit, Cabacnitan, Bohol. 123
Plate 5: Typical upland/lowland environment in Cabacnitan. 124
Plate 6: In Cabacnitan trees are rarely planted around the base of the mogotes. 126
Plate 7: Sitio Tiga, June 1992. 154
Plate 8: Sitio Pili, June 1992. 162
Plate 9: Sitio Kaburo, June 1992. 170
Plate 10: Extensive contraction of an irrigation system in Quezon. Corn and coconuts have been planted in former paddies. 189
Plate 11: Foot threshing is still used in small-scale harvests and by individual family units. 199
List of Appendices: Volume Two

Appendix 1: Deforestation and declining irrigation in Southeast Asia: a Philippine case.
Appendix 2: Methodologies
Appendix 3: Rainfall recorded at Quezon, Cabacnitan, Batuan, Bohol and Dagohoy Bilar, various dates.
Appendix 4: Results of soil chemical and mechanical analysis for 60 surveyed family’s plots and assorted others.
Appendix 5: Declaration of Real Property and Certificate of Title.
Appendix 6: Number of parcels identified, total hectarage and mean parcel size of all municipalities of southern Bohol, 1937.
Appendix 7: Death statistics for municipality of Batuan, Bohol 1917-1992 (five year intervals).
Appendix 8: Labouring opportunities in Batuan, 1992.
Appendix 9: Questionnaire for household economic survey and census.
Appendix 10: Population by sitio and cohort, differentiated between children, relatives and adults.
Appendix 11: Children of heads of surveyed households, by age, sex, residence, occupation and marital status.
Appendix 12: Relatives living with surveyed families, by age, sex, occupation and relationship to head.
Appendix 13: Spouses of head of household by age, residence, occupation and location.
Appendix 14: Head of household by age, sex, residence, occupation.
Appendix 15: Water resources of Quezon and Cabacnitan, by location, situation, status and improvements.
Appendix 16: Government registered plots held under social forestry contracts in Cabacnitan and vicinity.
Appendix 17: Economics of rice and corn production.
Appendix 18: Landuse (1992) in hectares by cadastral plot for barangays Quezon and Cabacnitan.
Appendix 19: Portion of baseline survey of material possessions, 30 households, barangay of Quezon.
Appendix 20: Portion of baseline survey of material possessions, 30 households, barangay of Cabacnitan.
Appendix 21: Concentration of landholdings in Quezon and Cabacnitan by kawitan (family grouping) and type (including computation of Gini coefficients).
Appendix 22: Human use and development of the carbonate karst terrains of Southeast Asia
Glossary of local terms and acronyms

abot = income
a-tabay = a hand dug well, usually a square metre or slightly larger in area and several metres deep.
abuno = fertiliser.
abuno = group fund raising association.
alsa masa = vigilanté group
bakwitan = evacuation sites used during armed conflict.
balong-balong = make-shift huts.
baybayan = coastal people (of the sea)
banika yuta = durable soil appropriate for planting rice or corn depending on weather conditions.
baol = Swidden or shifting field component within a farming system.
barangay = Commonly referred to as a village. It has an elected and paid political hierarchy of one Barangy Captain and seven councillors.
BARC = Barangay Agrarian Reform Committee.
barrio = synonymous with the barangay.
bid system = A relatively new introduction to Batuan. This system works on the principle that labourers will invest their time and energy into the cultivation of a landowner’s crop on the proviso that they are given exclusive rights to harvest the same crop and collect a share of the harvest as payment for their labour.
bokbok (also tuhok) = weevils that attack stored corn.
Boholano = one of two of the major dialects of the Visayan language spoken on Bohol. It is most distinctive in its use of the ‘j’ in place of the ‘y’ and the ‘h’ rather than the ‘k’ as used in the other major Visayan dialect of Cebuano. Many important terms and usage occur between the two major dialects.
Boholanos = residents of the island of Bohol.
bongol = very sandy soil.
budloy = hill (mogote).
bukag = common volumetric measure used in early trade relationships.
bukidnon = mountain people.
bundak = the placement by hand of fertiliser (chemical or guano) at the base of each rice hill.
bungay = shovel tipped field knife (implement) sharpened along one edge and also along the shovel tip, used primarily for weeding and heavy chopping.
CAFGU = Civilian Armed Forces Geographical Unit.
camote = sweet potato (*Ipomoea batatas*).
camat = weeding the rice field.
capillia = Catholic Women’s Association (CWA), at the Barangay level.
carabao = water buffalo, used for draught and haulage, and butchered and served to the élite during festive occasions.
CARP = Comprehensive Agrarian Reform Programme.
Cebuano = term referring to a major dialect of the Visayan language spoken on the island of Cebu.
Cebuanos = residents of the island of Cebu.
cedula  =  head tax.
centavo  =  cent or 1/100 of a Peso.
CPP  =  Communist Party of the Philippines (now a legal political organisation).
daro  =  plough
darohan  =  dry cropped (ploughed) lowland.
dayong  =  Indigenous organisation activated to assist with a funeral activities and costs.
fiesta  =  Annual religious festival celebrating the patron saint of the barangay or municipality.
FOM  =  Forest Management Organisation.
gala  =  Indigenous organisation activated for a wedding.
gastos  =  expenses
gisaopahan  =  working as a tenant.
hanganoy  =  grass that when present on hillslopes once cultivated is a sign of returned fertility and possibility for cultivation.
hayopan  =  large pasture area for several livestock.
hongos  =  Boholano term for communal labouring organisation.
howbo  =  very deep soils found in isolated basins.
hug  =  Indigenous organisation based on the regular donation and receiving of cash.
icog  =  denoting respect for another person.
ISF  =  Integrated Social Forestry.
kamad-an  =  continuous hilly and valley land cultivated by a family.
kanding-kanding  =  grass on hillslope plots that signifies infertility of the soil.
katunganon  =  infertile, iron-rich soil.
kawitan  =  equivalent to the ‘clan’ or extended family.
lahos-lahos  =  direct seeding of rice after the previous harvest of rice.
listasaka  =  Programme initiated in 1988 to list tenants and their landlords on agricultural land.
lowland  =  Refers to land between the isolated limestone residuals or mogotes. Can either be ‘wet lowlands’ where rice is or was commonly cultivated, or ‘dry lowlands’ where only dry cropping has taken place (see upland).
lubang  =  traditional red pericarped rice commonly grown throughout southern Bohol.
luna  =  a single bunded paddy field.
luwang  =  the practice of shifting water from paddy to paddy.
MAO  =  Municipal Agricultural Officer.
mamuging  =  activity where small children collect small cobs of com overlooked by the adults in harvest. These are shelled, dried and the corn sold by the children to buy candies or trinkets.
Nang  =  contraction of Manang, a term of respect used when addressing a women older than oneself.
Nong  =  contraction of Manong, a term of respect used when addressing a man older than oneself.
NPA  =  New Peoples Army (armed wing of the CPP).
NDF  =  National Democratic Front (official voice of the NPA).
pakyao = system whereby a person is offered a flat rate to complete a task, usually used in reference to agricultural labour such as to plough a field or planting a rice crop.

peso = 100 centavos.

poanyed = to be planted.

poblacion = centre of government, religion and business in a municipality.

poghad = sweet potato that becomes 'soft' because it was planted in the lowland.

prenda = folk form of a mortgage.

punuan = informal leader of a sitio.

RIC = Rural Improvement Club.

ripa = cooperative savings association.

sa bukid = of the mountains.

samahang nayon = Government sponsored agricultural cooperative.

saop = a tenant.

sarol = a long handled hoe used in the cultivation of rice paddies.

sawang = a central place or commercial centre.

sitio = the smallest government recognised unit of organisation (micro-village).

suki = an unwritten trade relationship between a producer and either a merchant or consumer.

tampo sa barrio = an organisation which donates cash from its members to a deceased member's family.

ting-init = dry (hot) season.

ting-ulán = wet (rainy) season.

tubod = spring.

tunaan = water buffalo wallow.

upland = In this case the uplands are defined as all lands associated with the limestone residuals or mogotes (see lowland).

utang = credit (financial).

umahan = A farm including all different components (baol, basak, darohan, hayopan.)

waulog = soils situated between mogotes.
Acknowledgements

This thesis was made possible with the support of the people of Batuan, Bohol—and in particular—the people of barangays Quezon and Cabacnitan. I wish I could list all the names of the participants but space precludes it. I wish to single out Nong Cesar Bigcal, Nong Felomino Deliman, Nang Felicitas Bahande, Nang Lourdes Budiongan, for their enduring patience and investment of time and precious energy which I can not possibly repay. I hope that this study serves them well in their collective future.

Other support was provided by the Mayor of Batuan, Necitas Dumagan, Apolonio Virador, Batuan’s Municipal Agricultural Officer, Mrs. Heliodora Mahinay, Batuan’s Municipal Assessor and the remainder of the staff at the Batuan municipal hall. Special acknowledgement is made of the assistance of Eugenio ‘Dokie’ Dampog, Eleuteria ‘Teria’ Dampog and Denis ‘Den’ Hingpit. They have been a constant source of inspiration and unending support. They have housed me, my family and numerous outside researchers with enduring patience and wonderful hospitality. Similarly, Mrs. Wenida Jumawid, my local language tutor and close friend, Victor Tumanda, my research assistant, translator, and source of infectious laughter, Floro Jumawid, Anthony Jumawid, Ron-Ron Lamod, Luis Lamod whom all became wonderful friends and endearing companions.

At the provincial level special thanks go to Mrs. Evelina Leyble and her staff of the soils division of the Bohol Agricultural Promotion Centre. Also Mr. Ricardo D. Oblena, the centre’s project manager, who provided me with access to the facility, its staff and equipment. Mr. Jocvencio Taer and Erlita Juaton of the Department of Environment and Natural Resources, Tagbilaran City provided valuable data on upland forestry contracts. Various staff people at the Provincial Assessor’s Office, Register of Titles and Regional Trial Court provided access to archival records.

In Manila many people associated with air photography were of valuable assistance. I wish to especially thank Captain Carlos C. Solomon, the Chief of the Mapping Branch at Camp General Emilio Aguinaldo. Captain Solomon was instrumental in my gaining a security clearance for access to historical air photos and the military’s topographic maps of the area of central Bohol. In this regard I also extend my appreciation to Major Alejandro T. Camagay of the Office of the Deputy Chief of Staff of Intelligence, and Captain Recto C. Makinika of the Air Reconnaissance Squadron of the Philippine Air Force. Marites Narce of Certeza Surveying and Aerophoto Systems provided the printing service for my own air photographs and those held by the military. While in Manila we were billeted by Cita and Anthony Uy—who being from Bohol—were excellent sources of information and inspiration.

Many people at the Australian National University were indispensable in the formulation of this thesis. I wish to thank Dr. Bryant Allen for not only seeing a whole from many fragmented pieces but also for his visit in the field. Professor Harold Brookfield was a source of constant encouragement and a good lunch-time companion over the last three years. Geoff Humphreys, now at Marquarie University, always listened to ecological ruminations and posed interesting counter-hypotheses. Comments by Professor Gerard Ward were very constructive in reference to land laws and issues of land allocation. Barbara Banks provided valuable comments on structure,
grammer and the technical nuances of producing a 'clean' final copy. Robin Grau and Steve Lyons provided much needed assistance with ARC-INFO, and in cartography Keith Mitchell, Kay Dance, Nigel Duffy and Ian Heyward all contributed. Mr. Max Oulton at the University of Waikato created the final maps. Mr. Daniel Fritsch the Division's more than capable data programmer provided not only well thought-out database support but daily doses of good humour. Merv Commons and Eugene Wallensky kept me fully equipped with computers, compasses, clinometers, tape measures and global positioning systems. Finally, Winifred Loy and Elizabeth Lawrence are to be commended for keeping my paper trail unbroken over my three years in Canberra. One of my last acknowledgements is for Dr. Philip Reeder and Mr. James Webster—both hydrogeologists—who very graciously provided me with two months of their time for fieldwork in Bohol. It was with them that theories and later evidence of hydrological change in the study area were developed.

Finally, I would like to thank my partner Elaine Bliss. After all of this we are still happily married.
Abstract

This thesis examines the relationships between society, politics and economy and environmental degradation. The study area on the central Philippine island of Bohol has experienced a reduction in agricultural productivity and sustainability, and acute social upheaval. Critical to our understanding of the process of eco-social change are patterns of transformation in landholding patterns in concert with change in the quality (productivity) of land owned both locally and in absentia. In concert with these are issues of population change and shifts in characteristics of land management under continued ecological transformation.

An historical perspective is used to embody pre-colonial, colonial, early independent and contemporary periods. In the pre-colonial period there is evidence of a sophisticated Boholano culture. This period underpinned contemporary agro-ecological, social and political development. During the colonial period Hispanization of the local culture was not complete because of periodic revolts--one extending for 85 years. The pace of change increased during the American colonial period. Settlement patterns were disrupted during the conflict between the United States and the Philippines at the turn of the century. Again during World War Two and in the recent conflict between the peasantry and the state displaced persons migrated to fragile environments. Besides the impact of war there were changes in land ownership and demographic patterns. Throughout the twentieth century a large percentage of land was transferred to absentee (coastal) ownership. Population pressure on resources has ebbed and flowed throughout this period.

These complex issues are in a constant state of flux and result in both ecological and social decline. 'Downstream' environmental (hydrological) change associated with conversion of upland forested to agricultural land became evident in the early 1950s. A dramatic rise in out-migration coincided with this period of environmental decline, as did rates of conversion of land from local to absentee ownership. Pressure on local forest resources increased in the 1970s. By the mid-1980s the local peasantry and the state were in armed conflict. A new period of heavy out-migration occurred in the late 1980s and early 1990s.

The study concludes that local social, political and economic issues are intimately related to eco-social sustainability, and are strongly correlated with the rapid transformation of the complex eco-social situation. Therefore, one policy, programme or social construct cannot be conclusively implicated, i.e. 'reduced', as the cause of eco-social degradation. Prospects for improvement in the local eco-social situation are poor in the short to medium-term. Various time related issues of environmental rehabilitation and the human perception of change will militate against concerted social action. Structures of power, resource ownership and cultural dominance will need to be addressed at the micro level. Therefore, only direct intervention in the social, political and economic way of life, with an emphasis on poverty alleviation in the most marginal areas, could possibly mitigate further human suffering.
Policy on Place and Personal Names

Common local names were used for places at the provincial, municipal and barangay level. At the level of the sitio pseudonyms were incorporated. For kawitan and surnames two policies were used. Households were identified by unique number or pseudonym. Kawitan were similarly identified depending on the circumstance. In isolated cases a pseudonym was not used when identifying a person. This was always done with the permission of the named person.
1.0 Chapter One: Introduction

When I decided to research the underlying social and environmental reasons for degradation in peasant agriculture, the Philippines—with its myriad of problems—seemed a logical place to start. I had eight years of research experience in the interior of the archipelago’s central Visayan island of Bohol—an area within a region repeatedly portrayed as both over-populated and severely degraded (Larkin, 1982; Sison, 1954; Spencer, 1954; Vandermeer, 1962, 1963; Wernstedt and Spencer, 1967).1 2 My initial interests were in lowland, wet-field agro-ecology, the transformation of ‘traditional’ rice-based agro-ecosystems to modern industrial agriculture, social organisation relating to irrigation system development and maintenance, and conflict resolution in water resource allocation. During the course of that research it became apparent that the ecological transformation, i.e. environmental degradation3, of the lowland wet rice agro-ecosystem was associated with wider eco-social4 change.

Rice farmers had expressed to me their concern about the decline in both the quantity and seasonal availability of spring water supplying their rice fields’ irrigation systems. Press reports echoed their concerns in a wide array of sites and situations across the island province (Bohol Chronicle, 1989, 1990, 1991; Bohol Times, 1992; DENR, 1989).5 I found empirical evidence to corroborate their claims.

---

1 The Visayan islands form the middle region between the northern-most island group dominated by Luzon, and the southern-most dominated by Mindanao. The Visayas consist of a group of smaller islands: Bohol, Cebu, Leyte, Samar, Negros and Panay.
2 See Appendix 22 for a review of attitudes toward the occupation of tropical karst landscapes.
3 Degradation refers to a reduction in the capacity of the natural environment to consistently yield agricultural products over time without diminishment of that capacity.
4 A term used by Bryant (1992) to refer to the intimate interrelationship between society and ecology, and used in the political ecology approach investigating their transformation.
5 The unusual drying-out of “... these once-upon-a-time productive ancestral ricefields ... caused dislocations and economic disadvantage to the farmers and their families in particular, and to the community in general” (Bohol Times, 1992).
‘Tail-ends’ (areas of termination) of irrigation systems and rice field associated with them appeared to be abandoned. Given the ephemeral character of much empirical research into environmental change, what was required was clarification that the abandonment of systems and fields was not the result of something else, such as: soil infertility, intensification of irrigation elsewhere in the irrigation system, or change in intensity of water resource use as a result of the introduction of modern rice varieties and technologies as occurred from the 1980s onward (Bouis, 1993; JICA, 1989). I consulted historic air photographs, landuse records from the period prior to the introduction of ‘modern’ rice varieties, and interviewed more of the area’s farmers. My goal was to reconstruct the history of change in areal extent of wet rice production in two barangays (villages)—Quezon and Cabacnitan—in Batuan, one of Bohol’s interior municipalities (Figure 1).

Figure 1: Location of the case study area in Bohol, and position of Bohol in the Central Philippines.
In these two barangays I found clear evidence that landuse change was in fact occurring and had been since at least 1951. In the village of Quezon, where the majority of the wet rice in the case study area had been cultivated, the area of irrigated rice land declined from nearly 55 hectares in 1951 to only 11 in 1992, and the area of rainfed rice declined from 44 to 14 hectares over the same period (Figure 2). In the village of Cabacnitan, the area of irrigated rice declined from nearly 27 hectares in 1951 to only 6.5 in 1992 (Figure 3). In both villages this was in-part compensated for by a sharp rise in the area cultivated to corn, some of which was planted on the former rice lands. For both barangays the area in corn increased from 46 to 106 hectares, while the area planted to coconut increased from 31 to over 50 hectares.

![Figure 2: Change in area for selected landuses, barangay Quezon, Batuan.](image)
The purpose of this thesis is not to explore, in detail, the underlying geophysical reasons for this decline in irrigation. However, it is important to point out that change in the lowland agricultural system resulted from the evolution of a hydrologic imbalance (Appendix 1). Therefore, hydrologic change in the lowlands, was in geophysical terms, associated with deforestation and expansion of the sedentary agricultural land base within the area of the upper part of the water catchment, i.e. the barangay adjacent to Quezon, that being Cabacnitan. Throughout the thesis I refer to this as ‘downstream’ change. Discovery of such an intimate geophysical relationship between two contiguous villages forced me to consider the underlying social and political issues that led to such a widespread change in landuse in Cabacnitan, in conjunction with change of considerable social and ecological significance in the ‘downstream’ village of Quezon.
1.1 The Crisis of Explanation

Recursive relationships—dynamic and unstable—between ecological and social change have proven to be problematic in all attempts to explain the process of eco-social degradation. Ultimately, the purpose of research into this subject from the perspective of social science is to further our understanding of the nature of this dynamism and instability, or how the two themes of environment and society interrelate. Secondly, an underlying, and often unstated goal of such research, is the idealistic vision that there are ‘sustainable’ or ‘more sustainable’ solutions to seemingly untenable social-ecological relationships in both local and global society.

Human-environmental interactions have been explored in a number of unsatisfactory ways. For example, the ecosystems approach has been challenged for its erosion of human agency and discounting of human interaction with a changing environmental mosaic by placing human relationships with the environment in a deterministic framework of adaptation, thus disassociating humans from their environment, and constructing them as simple ‘beings’ that react to what the environment offers (Watts, 1983). Watts (1983:242) suggests that “the forces of social relations of production constitute the unique starting point for human adaptation which is the appropriation of nature into material means of social reproduction.” What evolves are changed environmental conditions which society has already begun to mould into material goods.

A political-ecology framework is one approach within a loosely defined Marxist theoretical position through which analysis of eco-social change can occur. The

---

6 A phrase used by Watts (1983).
7 Degradation in this instance refers to a reduction in the capacity of the natural environment to consistently yield agricultural products over time without diminishment of that capacity.
8 A sustainable agro-ecosystem based on Brookfield and Humphreys (1994: 390), is “a set of practices repeatable on the same land, without loss in the capability of that land to support production . . .”, for at “the very least one or two generations.”
framework offers distinct opportunities to examine the recursive elements of environmental and social relations where ecological and social transformation have resulted in diminished environmental quality and rapid social change. In the case of this thesis change appears to be negative as evidenced by: the shift in the dominant agricultural system from highly sustainable wet rice, to environmentally degrading corn; and the corresponding evolution of social dissent and armed conflict which connotes a serious degree of social and political degeneration (Fuertes, 1985; Bohol Chronicle, 1985b; Gurr, 1985; Homer-Dixon, 1991, 1993, 1994).

It is my belief that 'closure', or a deterministic understanding of the processes related to the transformation of environment and society is impracticable, and that such a definition may actually be counter-productive, setting in motion ill-advised reactions to what are too often misrepresentations of social and environmental processes.

Importantly, the flexibility of the political-ecology approach can be directed in such a way as to place emphasis on the connections and relations individuals have with each other, and how these are projected into the daily ritual of rural agricultural production and reproduction. Comment is necessary to elucidate on several critical aspects of the framework. First is regionalism, and the placement of a local situation within a wider context. Second is history, and the use of an historical approach to the study of the transformation of society and environment. Third is the critical issue of variables, and issues within variables, that must be chosen to investigate eco-social transformation. Finally, there is an explicit need to display how the regional, political and ecological components of the framework enmesh and combine to form an explanatory tool.
1.2 New Regionalism and Political Ecology

Social geography requires its subject or case study site to be integrated into a wider 'region' context. Murphy (1991:24), an ardent supporter of the concept of 'the region' argues that "the nature, extent and character of the regions examined in our empirical studies must become a part of our conceptualisation of the social processes that take place in those regions." Thus regions play a central role in focusing attention on the social processes going on not only in the region, but also in places and locales within the region (Murphy, 1991).

The region figures highly in the political ecology approach as used by Bassett (1988), Blaikie and Brookfield (1987), Conway (1990) and Zimmerer (1991). Yet the political and ecological aspects still must be justified within the regional approach. If we are to define the political as an on-going process whereby arrangements concerning authority, production and distribution are "re-examined, revised and even overturned", through time (Kerkvleit, 1993:5), and the ecological as the resource base from which the previous arrangements stem then we begin to see the logical fit between politics, ecology and the region (Hayward, 1994).

In this case study I examine an empirical problem, environmental degradation and its causes and consequences, and the methodological problem of deciding which variables to choose to argue my case. The integration of a political ecology perspective with the region in which the agents of change are living permits me to place

---

9 'Region', 'place', and 'locale' can have various meanings. In this study I associate the term 'region' with the definition of Paasi (1986), "as an institutional construction reflecting the collective history of an area and infusing the everyday lives of its inhabitants." The definition is infinitely flexible in time and space. Place and local have both been defined by Giddens (1985). 'Place' is defined as a local setting that derives its existence from the attachments that individuals develop to it whether that be the building of a home or the clearing of a forest plot. 'Locale' on the other hand is a term coined by Giddens and is seen as a setting for interaction which takes on significance as individuals move across that setting in time and space. An example of such a 'locale' is a communal resource like a spring where various people come and interact at different times and in different ways through time.
the study and its place within a wider regional context. This assists in defining the importance of places within the wider region while providing a better understanding of processes in the region.

Therefore I believe Blaikie and Brookfield (1987:17) were correct in their view of the approach as “combining the concerns of ecology and a broadly defined political economy” where emphasis is placed on the “constantly shifting dialectic between society and land based resources, and also within classes and groups within society itself” (Blaikie and Brookfield, 1987:17). Zimmerer (1991) and Emel and Peet (1989) added the caveat that neither social structure nor environment can be viewed as being static, as relationships between production, consumption and nature, and the conflict and contradictions they engender are universal and critical to the explanation of resource use and management.

This thesis represents a comprehensive application of the political ecology approach formulated by Blaikie and Brookfield (1987). It represents one of the few attempts to apply their theoretical framework to a site and situation experiencing deleterious environmental and social change. Moreover, the model is tested in a tropical, mixed wet rice and dry cropped agricultural system. Main elements of Blaikie and Brookfield’s model that were tested include the application of an historical approach to the study of land degradation, the definition of variables for analysis based on personal experience, and those deemed most valuable to test the stated hypotheses and, questioning the relationship between local societies and their internal dynamics with the role and degree of state involvement in effectuating or controlling change.

Four operational questions were formulated: 1) To what extent has environmental degradation occurred in the study area and what has caused it? 2) What influence has the change in control over the means of production (land) had in the process of environmental degradation? 3) How does the historical social and political makeup of local society influence the direction of landuse change and environmental
degradation? and 4) How do government policies and their implementation relate to local social and environmental change?

To answer these complex questions specific variables had to be chosen over and above other possibly worthy areas for inquiry.

1.3 Variables in the Analysis

As Zinn (1990:11) noted: “The real world is infinitely complex. Any description of it must be a partial description, so a choice is made about what part of reality to describe, and behind that choice is often a definite interest.” The political ecology approach provides the theoretical scope within which such a complex, progressively and increasingly globally integrated rural economy can be explored. When—as in this case—a declining situation is to be analysed the theoretical construct must be flexible enough to accommodate the breadth of diversity and relative instability inherent in both the environment and society.

Therefore, reconstruction of the social relations of production must to be effective be carried out at the greatest detail, in small-localised communities (Kummer et al., 1994). Informing this history are wider regional changes that can be clearly linked with the transformation of local society, the latter being closely related to the choice of variables used in the examination.

The choice of variables of analysis is problematic. Conscious choices must be made and these must be based on a firm understanding of the historical situation, outlined above, the structure of production and reproduction in local society, and current pressures and stresses determining social and environmental transformation.

Through my experience in the rural area I chose as a case study I decided to place emphasis on several variables. These variables reflect the basis of my central argument that aims to challenge the assertion that over-population, application of inappropriate technologies or ineffective state policy are ultimately responsible for
environmental degradation. Research to support these accusations has been haphazard, fragmented and not based on detailed empirical research. Ultimately, the process leading to environmental degradation can, I believe, be better explained by associating a set of critical variables to the central issue of the control of land and allocation of its products (Thiesenhusen, 1991; Dorner and Thiesenhusen, 1992). Within this single variable are several other important components, such as, the quality of land in relation to its pattern of ownership and the impact of specific events that affect not only the quality of land, but how owners choose to manage it. Moreover, there are issues of criticality and fragility associated with different land types under changing managerial regimes.

Underlying this variability is the perpetual evolution of social and environmental processes through time. Society’s actions, as expressed by analysing carefully chosen variables such as demographic change and state policy, is probably the best method for describing the process surrounding eco-social degradation in the case study area, and presumably in other sites and situations in the Philippines, and arguably throughout Southeast Asia.

Owing to the limited types and quality of information available the approach selected for the research was the case study. The specific approach entailed four components: 1) the assessment of the historical underpinnings of socio-environmental relations through the analysis of historical documents; 2) the development of a field methodology for deducing the exogenous and endogenous forces affecting local resource ownership and ultimately resource management regimes; 3) the quantification of ‘downstream’ impacts of ‘upstream’ ecological change and the relationship these bears with regional issues, particularly population pressure on resources; and 4) the use of a number of special studies and data sets designed to explore the association of specific events in local resource management and landuse change with government-led initiatives.
1.4 Methods

My eight years of experience working in the rural areas of Bohol was of enormous benefit when devising my research programme. My contacts in Manila, the province, and at the local village level afforded me an excellent understanding of the types of data held by government agencies and how to access it. I was also familiar with the nature of local society, its language, traditions, and expectations of me as a researcher. In defining my fieldwork strategy I was able to pinpoint the data that I thought I would need to test my assumption that landuse change and environmental degradation was strongly correlated with patterns of land ownership. I focused particular attention on the collection of government-held data on historic patterns of land ownership, landuse change and expansion of the settled agricultural frontier in the area of the case study. Data included historic airphotographs dating to as early as 1937 (oblique photos), maps of private and public land based on data from the early 1900s, and tax declarations for land from the early 1900s to just before the outbreak of World War Two.

Conformation, or ‘triangulation’, of government held data was gained by interviewing local residents and political leaders. A number of residents approaching 90 years of age provided extremely useful accounts of the transformation of the local economy and ecology. Especially interesting were oral testimonies reflecting the rates and areas of expansion of agricultural land. Airphotos and maps were used in conjunction with these interviews to facilitate discussion and pinpoint locations of particular events.

More detailed examinations of local and family history and landuse strategies was critical to my understanding of why political and social issues so influenced ecological change. I therefore chose to focus on sixty families for farm level surveys,

---

10 See Appendix 2 for a more detailed description of experience and methods.
and 13 of these 60 families for detailed life histories. The initial survey of 60 families focused on a number of sitios and a cross-section of population within them, rather than randomly choosing families across the study area. This created an internal consistency as each sitio varied in its current and historical landuse, population and internal socio-political dynamic. Detailed farm surveys were conducted whereby each plot of land available to the household for cultivation was surveyed for its size, physical properties and its landuse history. This data augmented household data on material possessions and family history, especially as it related to migration and labouring.

Of the 60 households initially surveyed 13 were chosen for detailed analysis. Initial, in-the-field assessment of the original 60 surveys revealed specific patterns of resource access and land management regimes. Families chosen for the second survey reflected the diversity discovered in the first broad-based household survey. The latter surveys aimed to define each household's relationships to its land based on its position in the larger kawitan (clan). I also sought to expand on the information I had gathered on population and migration issues.

Of great importance to the study from an ecological perspective was the impact of the change in economy from the wet cropping of rice to dry cropping of corn. My considerable knowledge of the local agricultural systems gained through participant observation, permitted me to monitor well-defined field sites to examine the socio-economic impacts of landuse change. This familiarity with the area also facilitated my inclusion in village affairs and allowed me to gain access to all types of families from the most affluent to the poorest and most marginalised. Being aware that such a wide range of families existed allowed me to formulate a research agenda that focused expressly on the issues of the poor and marginalised, without disregarding the critical role that the affluent play in affecting and perpetuating poverty.
1.5 Hazards in an Historical Approach

Definitions of the units of analysis are critical in the use of a regional political ecology approach in the study of eco-social change. The Philippine situation is complex because of the rapid growth both in population and area under cultivation in the main period chosen for investigation--the Spanish colonial period to the present. Corresponding with this growth has been the imposition of a system of bureaucratic administrative divisions that has attempted to 'rationalise' boundaries between various political units.

For example, during the first half of Bohol's colonial rule by Spain the island was administered as an integral part of neighbouring Cebu. Fortunately, in many of the ecclesiastical writings of the period the two islands were explicitly differentiated. Bohol became an independent province in 1854 (Augustinian Recollects, 1879).

Throughout the period of Spanish administration new towns were continually defined. The first two 'towns' were located on Bohol's southwest coast. New towns were designated along the southern coast, and up the west coast facing the island of Cebu. Each of these early towns had its Poblacion or administrative and religious centre located on the coast. Importantly, however, the territories under their administration extended in some cases for more than 40 kilometres into the island's interior. Through time the coastal communities were reduced in territory as the interior's population agitated for recognition. For example, the town of Batuan, formerly a part of the municipality of Bilar situated to its south, was created in 1903. Bilar, and what is now Batuan, Carmen and Sevilla were once all under the jurisdiction of the near-coastal town of Loboc. This process of administrative 'budding-off' is critical to the analysis of historical documents.

In many cases, pinpointing the exact locations of important events is impossible. For example, an event that occurred in Loboc in 1645 could have taken place in any one of the towns identified today as Loboc, Loay, Sevilla, Bilar, Batuan or
Carmen. Moreover, when new municipalities were formed they often consisted of territory appropriated from a number of surrounding municipalities. Caution must therefore be exercised when analysing historical population data at the municipal scale.

Similarly, new barangays (villages) have evolved from larger barangays. In 1903 there were only five barangays in Batuan; today there are 15. As with new towns, Batuan acquired barangays from adjacent municipalities as well as by splitting larger ones. Therefore, analysis of changing population pressure must take into account the changing areas of barangays through time.

Barangay boundaries are well defined in a legal sense because they are mapped as part of the cadastral survey. They are less well defined in a social context. The study area consists of two contiguous barangays, Quezon and Cabacnitan, both lying in the eastern portion of the town of Batuan. They are demarcated on cadastral maps although two boundaries are ‘fluid’, for two different reasons. First, the official designation of the eastern boundary between Batuan and the neighbouring town of Valencia is in dispute. Socially, many of the persons occupying and farming land in this zone of contention consider themselves to be residents of Batuan. They do so because they pay taxes, vote, attend religious services, receive government services, and do most of their marketing in Batuan. The same situation pertains to persons living in Bugong Norte, Bilar, the barangay to the south of Cabacnitan. They vote, pray and market in Batuan, although they pay taxes to Bilar on their land and homes.

I mention these issues of definition because I have chosen not to constrain my analysis to one set of defined boundaries. Some aspects such as the longitudinal study of historical landuse and land ownership change is more practically done using the boundaries defined by the municipality of Batuan. However, in social and ecological cases a socially constructed boundary, defined by the area where families were economically engaged was critical in the analysis of, for example, the expansion of cultivated area over time.
1.6 Chapter Summary

The thesis highlights processes associated with environmental degradation and is therefore set-out in a sequential series of chapters beginning with a discussion of the physical environment. The remainder of the first chapter includes discussion of Bohol's social and economic underpinnings as described by the Spanish colonisers. Analysis at this level is restricted to the provincial scale, although an attempt is made to associate political and economic development with the evolution of a tripartite economy based on coastal and interior interaction and wider economic integration with the Southeast Asian region.

The second chapter becomes more specific and locality-based through an emphasis on the early United States period of colonial rule and the impact of the United States and Filipino war on the settlement and structure of the economy of Bohol island's interior. Specific variables of land ownership and settlement structure are introduced, and the effect of colonial policy on indigenous institutions is addressed.

The Second World War disrupted emerging pre-war patterns of population redistribution to the southern island of Mindanao. In response, population pressure was increasingly felt on the fragile fringes of the lowland core of Bohol. The third chapter examines the period of war restructuring and the dramatic shift in land ownership and population distribution that marked the immediate post-war period to 1960.

The remainder of the thesis focuses increasingly on the case study area and contemporary political, social and ecological change. Chapter Four examines the developing ecological change initiated by forest clearance in the barangay of Cabacnitan in the pre-World War Two and World War Two period. Land ownership patterns began to shift dramatically toward absentee control of important lowland resources. Tenancy increased as new forms of land holding based on cadastral surveys influenced the way that land could be held and managed.
Chapter Five continues with a discussion of contemporary change through the exploration of changes in the type of land owned by absentee and local land owners. Importantly, many of the study area’s residents do not own land, and their activities become increasingly important in the discussion of ecological change. Three spatially distinct areas of land claims are analysed based on their ecological conditions and the legal status of their cultivator--owner, tenant or squatter.

Between 1970 and 1990 local patterns of fertility, migration and settlement rapidly changed in response to complex local and regional forces. In chapter six the variable of population is explicitly addressed as it pertains to the movement of people into increasingly critical environmental zones within the study area. Much of the pressure on fragile resources is related not only to the patterns of ownership, but increasingly, to the opening and closing of economic opportunities outside the study area and the province. Three sitios (hamlets) represent the variation from relative local affluence and ecological stability to an extreme of fragility and marginality. Each is described to explore the interrelationships between landuse and land ownership history and longer-term ecological and social stability.

Chapter seven returns to the issue of ecology and the environmental relationship between the villages of Quezon and Cabacnitan. The element of time, and the delay in the onset of perceptible ecological change is examined. Analysis of the impact of ecological change on the social system of production in Quezon is related to the overall ecological transformation of the villages. Of importance is the increasing risk being placed upon the landless and marginalised peasants as ecological destruction continues.

Chapter Eight details the state’s response to rapid social, political and ecological change. A number of responses to an armed peasant insurgency have been attempted. The capacity of the state to respond appropriately to the problems is questioned with detailed examples of state policy described to illustrate the dichotomy between peasant defined problems and the state’s response. This final substantive
chapter is followed by a critique of the literature which has addressed the underlying process of eco-social degradation, discussion of the eco-social process of environmental degradation and prospects for future research.
2.0 Chapter Two: The Physical Environment and Historical Background

Bohol is a roughly circular island, centrally located in the Visayan island group of the Philippine archipelago (Figure 4). Covering nearly 5000 square kilometres the island is partitioned physiologically into two approximately equal sized components divided between the north and the south. The northern part consists mainly of gently rolling topography, flanked to the east by a range of higher hills, and in the west by more heavily dissected terrain. The southern unit is further divided into two smaller units of about equal area in the east and west. A narrow coastal plain and a series of east to west trending mountain ranges characterise the eastern half. In contrast, the western half consists of wider coastal plains which flank an extensive plateau-like interior. Further discussion is focused on this southwest quadrant which is the site for this research.

Pliocene-aged limestone is found throughout most of the coast and interior of southwestern Bohol. Raised shore platforms and marine terraces characterise the shore and near-shore environments (Sison, 1954; Hillmer and Voss, 1987). In the interior of the southwest quadrant is a plateau-like area of Pliocene-aged limestone ranging from 100 to approximately 600 metres above sea level. Two features dominate the plateau. First are three broad, flat valleys sloping at approximately 4 degrees to the southwest which are punctuated by isolated limestone residuals varying from 10 to 80 metres in relief (Voss, 1970)(Plate 1). These three main valleys are separated by distinctive blocks of Pliocene-aged limestone representing a series of prominent anticlines raised up to several hundred metres above the surrounding plains (Plate 2). Each anticline is a relatively homogeneous unit of limestone and is heavily dissected (Figure 5) (Plates 1 and 2).
Figure 4: Physiographic regions of Bohol.
Figure 5: Hydrologic relationship between main valleys and distinct uplifted blocks of southern Bohol (adapted from Quiazon, 1979).
Plate 1: Representative area of ‘wet lowland’ environment with widely dispersed *mogotes*, Batuan, Bohol, June 1992.
Plate 2: More elevated blocks with their deeply dissected limestone and either forested or dry cropped environments.
Within the seemingly homogeneous limestone of southwest Bohol are important variations in the lithology's composition, hardness and permeability. At varying depths of from several to over 100 metres are more resistant lenses of less permeable limestone and, in isolated cases, impermeable conglomerates and sandstone lenses. These lenses strongly influence the groundwater hydrology and also the terminology used to define local agro-ecozones (Figure 6).

Complex forms of contact between the anticlines of deeply dissected limestone and the lowlands, plus impurities within each lithological unit result in a complex hydrological picture across southwest Bohol. Working from areas of recharge to those of discharge and finally out-flow to the sea, the three geomorphological units (anticlines, valleys, coastal shore platforms) have distinctive characteristics. Critical to the entire hydrological system are the three anticlines of raised limestone which punctuate the southwestern half of the island. This heavily dissected karst acts as an important area for hydrologic recharge. High porosity combined with an elevation above the surrounding plains increases their importance as, over the long term, they receive substantially more precipitation per year than the lowlands. Inputs of water have come in two forms: rainfall and condensation of moisture in cloud forest. The former remains an important source, the latter's importance has diminished considerably as upland deforestation has intensified.

Porosity of the limestone of the uplifted anticlines is not restricted by the presence of a shallow, less pervious or impervious lense of altered or changed geology. Therefore, the upland watertable in these anticline areas is on average substantially deeper (>30 metres) than that of the surrounding valleys (Figure 7). However, in the anticlines, at a greater depth that is closely associated with the elevation of the surrounding lowlands, a change in geology 'forces' water moving downward and through the dissected limestone, to the surface.
Figure 6: Geological composition and depths to the groundwater table at four sites in Batuan and Bilar, Bohol (based on well-log data from the Bohol Department of Public Works and Highways, various dates).
Figure 7: Schematic diagram of the hydrogeological relationship between the uplifted anticline and valley in the study area (c. 1901).
The valley's hydrological regime receives a direct input of water through precipitation. Water is also discharged to the valley surface at the contact point between the baselevel poljes (valleys) and the extensive uplifted anticlines. A secondary input source is represented by springs debouching where the numerous residual hills contact the surrounding lowlands. Of the two spring-water sources the lowland hydrologic regime is most reliant on the large and numerous springs whose waters are recharged in the anticlines.11

Within the valley system are important discrete changes in the hydrologic regime that correlate with decreased porosity caused by an underlying lense of limestone impurity or less pervious geology. Analysis of over 170 well-logs for Bohol's southwestern region shows that this change in lithology can occur at depths ranging from two to over forty metres (Figure 6).

Most of the lowlands have an extremely shallow watertable that during wet periods is at the land surface, but during periods of extreme drought this level may drop by several metres. The coastal shore platforms and raised terraces play a minor role in the island's hydrology. They are extremely porous with little or no important springs debouching at the land surface. This relative lack of groundwater increases the importance of the inland valleys to the regional economy. Specifically, the lowland lithology of the inland valleys represents a very large reservoir of groundwater that fluctuates in its level depending on the amount of precipitation and, more critically, on the amount of input received from springs emanating from the surrounding uplifted anticlines.

Such diversity in landscapes and hydrology requires an explicit definition of terms. 'Lowlands' are often defined as being wet cropped. In this situation there are two types: wet lowlands and dry lowlands. Wet lowlands have historically been

---

11 In the local venacular the general term for spring is *tubud*. However, springs come in two forms *sapa ang tubig* and *bugwak*. The former are subterranean streams that debouche at the land surface, the latter are upwelling or artesian springs.
cropped with either irrigated or rainfed wet rice on bunded fields. In contrast, dry lowlands which may be located in the same valley as wet lowlands have historically been dry cropped because of their slightly greater elevation above the watertable. Uplands in this environment are defined as all sloping lands i.e. on the flanks or summits of the limestone residuals. In other situations uplands have been defined as all dry cropped land. Therefore, valleys have areas of both wet and dry lowlands and uplands. Anticlines and important zones of hydrologic recharge generally consist of dry lowlands and upland.

Rainfall is extremely variable across southwest Bohol. Coastal areas generally receive between 1500 and 1800 mm per year. Elevations of between 100 and 300 metres receive on average between 1800 and 2200 mm per year, while the areas of greater than 300 and up to 600 metres can receive as much as 3500 mm per year depending on exposure to the southwest and northeast monsoons. Rainfall is highly seasonal, with a markedly drier season extending from March to June, followed by a slightly wetter period until August which is marginally drier (Appendix 3). September through February is the peak rainfall period.

Longer-term and cyclical variations in climate, notably droughts, do arise. These drier periods now known to be associated with El Niño events have happened approximately every 10 years, although they appear to be increasing in frequency. In reviewing Bohol’s rainfall records since 1966, droughts occurred in 1969, 1979, late 1982 extending in 1983, 1987, and late 1991 extending into 1992. The longest of these droughts lasted for seven months and temporarily, yet severely reduced agricultural production.

Soils are highly variable through southern Bohol. Macro-level analyses describe 10 soil types for southwest Bohol. Eight of the 10 are clays, one is a clay loam and one is a beach sand. The Batuan-Faraon complex is the most common throughout southwestern Bohol and is the only soil type identified for the study area (Hitsuda and Leyble, 1988; Morjica et al., 1952). It is defined as a complex because
the Batuan clays of the valleys are intimately mixed with the Faraon clays of the hills. Other clay soils vary only slightly from the chemical and physical characteristics of the Batuan-Faraon clays. Generally, all the clays have an organic matter content higher than three per cent, Olsen's phosphorous content of more than 20 ppm, and potassium levels average between 80 and 120 ppm (Hitsuda and Leyble, 1988)(Appendix 4).

A smaller and more detailed scale is a local 'folk' soil taxonomy. Local classification is based on the soil's potential for various uses and its fertility. For example, lowland soils adjacent to limestone residuals and cultivated with rice or corn are known as wawog soils. They maintain their fertility and produce sustainable yields because they receive colluvium from the slopes of the surrounding mogotes (limestone residuals). Most of the time the colluvium is delivered to the lowland slowly and constantly as part of the natural denudation process. However, greatly accelerated colluvial deposition occurs when the uplands are slashed, burned and cropped. Periodic cultivation of the uplands in a long rotation cycle is advantageous because it results in inputs of fertile soil to the lowlands, as well as the production of dryland crops.

Areas of shifting field agriculture are known as baols. Seemingly in contradiction to the above statement, upland baol soils when in situ are generally termed umaw which means infertile (thin or impoverished, when referring to a person). However, two distinct types of upland soils are identified. The most important is a loose, friable soil layer overlaying a more compact and blocky umaw soil. This surface layer called bayog rarely exceeds 10 mm in depth, but it is considered extremely fertile and highly erosive. When bayog moves downslope and becomes mixed with valley soils these are then described as being tambok (fertile), literally meaning 'fat' in reference to a person.12

12 Wealth and obesity are to people, what tambok and fertile are to soil.
Several types of lowland soils are differentiated by their depth to bedrock. A lowland paddy soil that when saturated reaches only to a person’s mid-calf is known as *banica*. It is highly prized and, depending on the weather, is suited to the cultivation of either rice or corn.\(^{13}\) Deeper soils (> 1.0 metre) that accumulate in closed depressions or in older bunded paddies are termed *howbo*. With their use restricted to rice, their greater depth means that they are typically cultivated by *sarol* (hoe). Only one lowland soil, the *katunganon*, is infertile and as a result is avoided. It is perpetually waterlogged by up-welling groundwater and is iron-rich orange or red in colour.

Ecologically, the interaction between the wet lowland system of valleys and the more uplifted and dissected anticlines is most critical. Differentiation between soils of the wet lowlands and soils of the interspersed *mogotes* (uplands) become important during periods of drought. Upland soils that maintain a higher level of moisture are increasingly exploited during periods of drought. Finally, the distribution of these vital resources, most critically water, limits most wet rice production on the island to areas above two hundred metres in elevation and several kilometres from the coastal plain. The agricultural history of Bohol has for this and other reasons been played out largely in the interior of the island and more specifically in the island’s southwest.

### 2.1 Imprints from the past

I contend that the social, economic and ecological history of southwest Bohol from the pre-Spanish through to the American period underpins the direction of change in the 20th century. Six periods of history are identified: the pre-Spanish, the early Spanish, the Tamblot Rebellion, the middle Spanish, the Dagohoy Rebellion and the late Spanish.

\(^{13}\) These depths are from bedrock to the soil surface. Persons experienced with paddy soils may think that this represents the depth from an underlying plough pan or concretionary layer to the surface. When walking through a flooded *banica* soil, traction comes from the underlying bedrock.
to American. In each period different issues ranging from descriptions of classness, agricultural development and population movements, and location and development of settlements supports my contention that Bohol's cultural, agricultural and political development was focused in the island's interior, not on the coast or littoral (Wemstedt and Spencer, 1967). This evidence of the interior's development forms the foundations from which 20th century social and ecological change would evolve as power held in the interior shifted to the coast. I will review the evidence of interior domination and then discuss its significance to the study of environmental degradation.

2.2 The Pre-Spanish period

Cultures of southwestern Bohol were trading and raiding across the South China Sea and to the Mollucas and Borneo in pre-Spanish times (Beyer, 1947; Chen, 1966; Combes, 1667; Solheim, 1959, 1964a, 1964b, and 1981; Zamora 1967). These activities were supported by the agricultural productivity of Bohol's interior. The importance of settlement of Bohol's interior is substantiated by archaeological investigation of locations of pre-Spanish settlements (Henson, 1983). Between the 10th and 16th centuries more settlements in southern Bohol were located in the interior than on the coast (Figure 8). There were three periods where the rate of settlement development changed. These correlate closely with archaeological work on trade and economic development in the coastal zone (Beyer, 1947; Solheim, 1959, 1964a, 1964b, 1967, and 1981). The number of settlements--both on the coast and in the interior--expanded during the 14th century and declined slightly in the 15th and 16th centuries; yet throughout the period the majority of the settlements were in the interior (Figure 8).
Two crops, cotton and rice, constituted the basis of the interior’s agricultural economy. Cotton in particular was critical to the economy of the central Visayas for several hundred years prior to the arrival of the Spaniards as it formed the basis for a lucrative trade item to be bartered for Chinese porcelains (Echevarria, 1974). Rice had entered the Philippines by at least 3240 BP (Snow et al., 1986). It must have developed into an important local commodity well before 1565 when its trade was documented by the Spaniard Legaspi’s crew.

Bohol’s regional supremacy in coastal trading and piracy arose between the 13th and 14th centuries AD and waned through the 15th and 16th centuries; however, interpretation of coastal archaeological remains bear evidence to a ‘Chiefdom-based’ culture centered on Bohol as early as the 10th century AD (Beyer, 1947; Combes, 1667; Beyer and Solheim, 1959, 1964a, 1964b, 1967, 1981).

---

14 China did not begin to develop a domestic cotton industry until the Southern Sung Dynasty (1126-1279) (Dietrich, 1970). Numerous archaeological studies of the diversity and quality of porcelains found in southern Bohol, many of Chinese and Annamese origin, have been published and include Beyer and Solheim (Beyer, 1947; Solheim, 1959, 1964a, 1964b, 1967, 1981).

Figure 9: Relationship between known pre-Spanish trade zone and the present study area.
The chiefly classes were involved in the trade and distribution of prestige goods for political alliance building. Whether the chiefly class controlled agricultural production through access to land is not known, but it seems likely. They also extracted a surplus by imposing a tribute system and, moreover, maintained a core of artisans or slaves who processed raw material into trade items like iron and cotton cloth. When the trade entrepôt collapsed and the Dapitan culture evacuated Bohol these artisans were brought to the new settlement site.

The Dapitan trading centre collapsed only decades before the arrival of the Spanish. Poles on which the trading town stood in the shallow waters between Bohol’s mainland and the adjacent island of Panglao were still evident at contact. Collapse was associated with a military defeat at the hands of Mollucans who had obtained arquebuses in trade with the Portuguese and used them in their attack of Dapitan. A surviving leader moved the entire Dapitan settlement to the northeast coast of Mindanao because of lack of protection afforded by traditional poled construction of trading houses over water. As a reflection of the status given to the leaders of Dapitan, over 1000 families, plus 500 ‘slaves’ under the control of the remaining Prince Paguaya, and various artisans and warriors migrated to Mindanao (Combes, 1667:111-115).

---

15 See Solheim (various dates) for a detailed review of the interaction this culture had with other cultures of Southeast Asia as deduced by the analysis of pottery type.
16 Today the town of Dapitan is a substantial settlement situated on a mountainside overlooking a good all-weather port.
17 Combes (1667) commented that the Dapitan ‘Nation’ comprised “the only people of the entire archipelago who were renowned among foreign princes for their exploits, and to them alone were embassies made.”
Archaeological evidence dating to the pre-Spanish period is supported by Spanish accounts of Bohol’s social and economic development at contact. For example, the Visayan region’s cultures were noted for their ‘classness’ and many of the references in the earliest literature were to classness on Bohol. Three main groups were identified as the *Oripun, Timawa* and *Datu* (Scott, 1991:12). The *Oripun* could be held in legal bondage and could be bought and sold. In contrast, the *Timawa* accompanied the *Datu* on forays into rival territory to gain goods and slaves, and were relieved from paying tribute. The *Datu* was at the apex of the social hierarchy. He or she, as there is evidence of female political leaders, controlled both land and the people responsible for cultivating and processing its production. A wide array of Visayan terms can be found to describe the intimate relationships between the *Datu* and the two groups of people ‘below’ them. These terms would today be equivalent to terms referring to positions of status. Terms such as *hayohay, horohan, mangayaw* and *magahat* referred to persons of different ‘slave’ status. Both a class and a status position were inherited from one’s parents or acquired by “debt, criminal wrong-doing, or victimisation by the more powerful” (Scott, 1991).

A further example of the outward expression of social differentiation among Boholanos was tattooing (Figure 10). This ritual was highly developed and its personal extent was a reflection of the status to which an individual had risen in society.
Figure 10: Example of tattooing found in the Visayas at contact with Spain.
So widely was it practised that the Spanish referred to the Visayan culture as *Pintados* or the painted people. Exploits in raiding parties and hunting prowess were two common forms of status raising.

Spanish accounts of classness in Bohol included conspicuous references to chiefs, . . . “the conversion of a certain old chief, on whom they all look as a father, made a beginning for the conversion of the rest” (Vaez 1601:208-209). A very important Spanish account summarised the standard by which the power of Bohol’s chiefs could still be gauged in the late sixteenth century. In describing the burial of one of the island’s chiefs, the Spanish described the Chief’s boat-like coffin that was accompanied by 70 sacrificed slaves, their arms, ammunition and food at the ready (Colin, 1663:81).\(^{18}\) This is reminiscent of the reference to the fall of Dapitan and the movement of large numbers of people in support of the ruling élite.

One of the first accounts describing the economic and agricultural development was of the Spaniard’s seizing of a large *parao* off Bohol’s coast. It contained nearly 3500 kilos of rice (Rodriguez, 1965:61). Evidence to be presented below will show that this rice probably originated from the interior of Bohol.

When Father Juan de Torres arrived in Bohol in 1596 he went inland to the already established *sawang* (Boholano term for commercial centre) of Loboc seven kilometres from the coast. It was a trading centre between the coastal and interior cultures. Loboc in the Boholano dialect refers to the mortar and pestle used in the milling of rice. At Loboc, Torres who came from the rice growing region of Andulusia Spain discussed different methods of rice cultivation (de la Costa, 1961:64).

Cotton’s dominance as a local trade item at contact was seized upon by the Spanish. Bohol was distinctive in the archipelago because tribute paid to the Spanish was in woven cotton cloth (*lampotes*), not gold. Rice and cotton and their

---

\(^{18}\) Diego de Bobadilla writing in 1640 knew of two chiefs who had a great amount of gold and slaves, one being from Bohol and the other Dapitan on the northwest coast of Mindanao (originally from Bohol), who each had more than 100 slaves (Bobadilla, 1640).
interdependence was noted by Alzina (1668) when he described how upland and lowland environments were integrally managed. At contact the most favoured agricultural sites in the Visayas were those that could produce wet rice in the valleys (*Oriza sativa*) and a perennial cotton on the slopes of surrounding hills (*Gossypium herbaceum* or *Gossypium arboreum*) (Echevarria, 1974; Loarca, 1582). Cotton was cultivated on the lower slopes of the residual limestone hills in southern Bohol as late as the mid-17th century; "They have many tame and wild hogs and the seas are full of fish: Cotton is in abundance and their women manufacture it into fine cloths" (Draper, c.a. 1764?).\(^{19}\) Cotton production later declined as the Chinese market ended.\(^{20}\)

Settlements and the distribution of the population at contact and during the early period of Spanish occupation were very poorly documented. Spaniard’s attempt to institute the policy of *Reducción* as they had in Latin America. They were hindered by the fact they wished to establish town centres on the coast while Boholanos, by tradition, lived predominantly in the interior. At least some of Bohol’s population came “down from these mountains and dragon’s caves” when the Spanish clergy arrived (Chirino, 1601:206).

By 1597 the enumerated population of Bohol consisted of only 1000 tribute payers or approximately 4000 ‘souls’.\(^{21}\) By 1601 Torres and Sanchez had baptised over 3000 ‘souls’ in the vicinity of Baclayon and Loboc (Chirino, 1601). The enumerated population grew to 2110 tributes or 8440 ‘souls’ by 1612 (Lopez, 1612:208). Spanish ledgers continued to fill as more of the population was baptised. However, this dutifully recorded census of tribute payers was a gross under-

\(^{19}\) See Alzina’s long description of the weaving technologies used by Boholano women in his book on agricultural development of the Visayas in 1668 (Alzina, 1668).

\(^{20}\) It was briefly replaced by a smaller but less lucrative Mexican market. It too came to an abrupt end when the galleons stopped sailing to New Spain. Trade of local cotton ended when Manila was opened as a free port. This permitted the entry of more refined and decorated South Asian and British cotton products (Echevarria, 1974).

\(^{21}\) Vandemeer (1967:320) assigned one tribute the equivalence of four persons for the 16th and 17th centuries and five and one-half persons during the 19th century (Vandemeer, 1967).
enumeration of the total population. It was reported that one Father performed 400 baptisms on Bohol in one year; there would have been more had he been to ‘baptise persons who could not have their faith maintained by the regular services of a Father’ (Chirino, 1601). Enumeration of the population was, therefore, highly dependent on the rate of spread of Christianity which was slowed because of the resistance by the inland population. This resistance to the Spaniard’s attempts at resettlement erupted into armed conflict in 1622.

2.4 The Tamblot Uprising (1622)

Clear reference to the dominance of agricultural production coming specifically from the interior of the island first appeared in Spanish reports of the Tamblot uprising of 1622. Tamblot called the Boholanos to arms and the abandonment of the coastal settlements and alien religion of the Spaniards in favour of life in the interior with “food in abundance, without the necessity of work [forced labour for the Spaniards] and without the burden of paying tribute” (de la Costa, 1961:315) (Plate 3). So successful was the revolt that it spread to neighbouring Leyte island.

To quell the rebellion the Spaniards, accompanied by native troops from Cebu, marched inland for five days from the southern near-coastal trading village of Loboc to engage the rebels. In the interior they came upon a very large settlement of more than 1000 houses with a large temple built in the centre. The site was I believe in the vicinity of present day Bilar near the centre of the limestone plateau of southwestern Bohol (Vellarde and Diaz, 1622). In de Medina’s account of the siege, he described

---

22 Old World diseases, which so decimated the populations of the New World at contact, had little affect in Asia. The populations of the region had been trading with persons who had traded with Europeans long before the arrival of the Europeans themselves.

23 Bilar is nearly 20 kilometres from the coast and at an elevation of around 400 metres above sea level.
the enemy “who, courageous in their mountains and supplied with rice, thought that they were most safe, and that victory was sure” (de Medina, 1630:117). Six months after the initial siege the Spaniards had to return from Cebu to forcibly put down the remnants of the revolt.

Plate 3: Elaborate indigenous rice terracing and irrigation systems found throughout the interior of southern Bohol.
The ability of Tamblot to compel the population of Bohol to resist Spanish hegemony in 1622 could signify that an island-wide political hierarchy was in place at this time, and probably even earlier in the island’s history.

2.5 The Middle-Spanish Period (1622 - 1744).

During the middle Spanish period the clergy continued to experience difficulties in bring the people of Bohol ‘within the sound of the bells (Church)’. As de la Costa noted “Visayans had adapted themselves to their environment in a way that involved dispersal. To make them live in larger communities was to upset the balance of their lives . . . people had to live in the countryside [interior] near their source of food” (de la Costa, 1961:291). Settlements created by the Spanish in this period were all on the coast and very lightly populated. Boholanos would come from the mountains for services on Sundays but would quickly melt away afterwards to their villages in the hills.

Sixty years after the Spanish clergy’s arrival and 30 years after the defeat of the Tamblot rebellion the island’s known population was still only recorded from six villages. The five largest were located on the southern coast, and four of these were in the island’s southwest. That two of them were only 15 kilometres apart (present day Baclayon and Loboc) signifies the existence of a considerable population in their hinterlands. A third town called Malabooch (present day Maribojoc) was formed at the mouth of a large river draining the southwest quadrant of Bohol, Jagna and Tubigon, each of which, included extensive areas of hinterland, while Panglao was situated in the area of the pre-Spanish site of Dapitan.
2.6 The Dagohoy Period (1744-1825)

Dagohoy’s rebellion, like Tamblot’s, relied on the terrain and agricultural resources of the interior. Three military campaigns were waged to quell it. A map of encounters between the Spanish and Dagohoy’s troops shows the importance of the interior to the revolt (Figure 11).

![Figure 11: Direction of Spanish expeditions and location of major battles against Dagohoy's troops (adapted from Misa, 1970).](image-url)
A number of battles occurred near Inabanga, Dagohoy's home town and base for resistance. However, there were sub-commanders of his forces who resided in southwest Bohol and in and around the area of this study (Misa, 1970:71; Zaide, 1941, Zaide and Zaide, 1990). One such sub-commander bore the family name of a prominent family still resident in the studied municipality.

With the Spaniards successful assault of Dagohoy's mountain hide-outs around Inabanga in 1828 and the subsequent collapse of the rebellion, many of the defeated Boholano dissidents were resettled. Nearly 900 were moved to Bilar which then included the territory now encompassed by the towns of Bilar, Batuan and Carmen.

However, the majority went to northern Bohol, to relatively unproductive and abandoned cogonal (*Imperata cylindrica*) or talahib (*Saccharum spontaneum*) lands because the fertile and irrigated lands of southern Bohol were by then fully occupied. Further evidence of the complete occupation of the fertile valleys of southern Bohol was the Spanish decree of 1850 that prohibited further clearing of forest in Bohol. The island was perceived to have reached its limit of viable cultivable area (Fenner 1985; Larkin, 1982; Roth, 1983). The total population could have been well in excess of 100,000 representing the relatives of combatants—a population that was probably occupying the interior at the outbreak of hostilities in 1744.

2.7 The Late-Spanish to American Period (1826-1898)

The Augustinian Recollect religious order, which replaced the Jesuits during the Dagohoy rebellion, gained access to the entire island near the end of the rebellion and as a result more accurate population figures became available.24 Within 13 years of the end of Dagohoy's rebellion the Augustinians estimated the island's population at over

---

24 The island had been serviced by the Jesuits. Their removal from the entire archipelago began with their dismissal from Bohol in 1768. Bohol's 11 Jesuit Priests were replaced by nine Augustinian Recollects (de la Costa, 1961:591).
100,000 and by 1852 that number had risen to 150,000. In 1878 a detailed enumeration counted 30 towns and 255,706 ‘souls’ (Augustinian Recollects, 1879:325-339). Of these 30 towns, 25 representing 91 per cent of the population were located in the limestone terrain of southern Bohol and, moreover, 70 per cent of the population was situated in the southwest quarter of the island.25 This was the last enumeration by Spain before the Philippines came under the United States’ tutelage in 1898. A census conducted soon after the conclusion of hostilities between the United States and the Filipinos counted 269,223 Boholanos. At this time 61 per cent of the population was living in one quarter of the island’s land area in southwest Bohol (United States Bureau of the Census, Sanger et al., 1905). Of this population nearly 65 per cent was found in the interior rather than on the coast.

2.8 Interpretation

The relationship between trade and agricultural change, social differentiation and the control of land, and demographics and settlement patterns can be interpreted from the presented evidence. Each is related to the contemporary problem of eco-social degradation. Broadly, it can be said that the island of Bohol’s social differentiation was well developed prior to European contact. Secondly, agricultural systems were complex with cotton and rice production playing an important part in the economic viability of a trade entrepôt in pre-Spanish times. Bohol had a high population density at Spanish contact, and probably in the pre-Spanish period. This was repeatedly stated in Spanish records but was not enumerated in the ecclesiastical records. Finally, settlements were mainly in the interior.

25 It is difficult to conclude from these data whether the majority were residing in the interior or the coast. Spanish policy was to create a town centre on the coast and then extend the boundaries of the town far into the interior. This obviates any possibility of distinguishing the percentage of barangays which were in the interior portion of each town.
2.9 Social Development and Control of Land

In the study of resource exploitation, the way people gain access to the means of production is important because historical patterns of political and social organisation have strong contemporary correlates (Scott, 1991:17). "Slavery and bondage were ubiquitous and significant in Philippine life. In the practice of agriculture, terms distinguished the division of labour, not of property" (Scott, 1991:15). Social differentiation and cultural interdependence were the hallmarks of Bohol social organisation both before and during Spanish occupation.

Interest in the issue of social differentiation in the Philippines grew during the 1970s and 1980s—most notably through the work of Aguilar (1983 and 1989), Bautista (1983), Kerkvliet (1977 and 1990), Ledesma (Ledesma, 1982) and Turner (1978, 1982 and 1984). These studies explored Philippine society’s contemporary sub-classes at the village level and their differentiation.26 Findings from this contemporary work in some ways reflect current conditions in Bohol. However, the Spanish made much earlier and important references to social differentiation with specific reference to Bohol. Scott (1980 and 1991) surveyed and summarised this Spanish literature and his findings are supported by archaeological interpretations of trade patterns and production systems (Henson, 1983; Hutterer, 1974; Junker, 1991, 1993, 1994). Chiefly groups played a central role in administering complex regional economies based on a politically complex and socially stratified society before Iberian contact (Junker, 1993).

A region-wide polity was well developed and was thus centred on the area of southwest Bohol. The widespread investment in agricultural infrastructure, like irrigation systems and elaborate terracing, survive as evidence of the importance rice played in acquiring hegemony. Elements of these systems are in use today. For example, in three irrigation systems surveyed in 1989, the cumulative distance of each

---

26 These studies are based on studies of Tagalog and Ilocano culture. This work is based on Visayan and specifically Boholano culture.
system’s canals reached 1,690, 2,540 and 10,070 metres respectively. Of this total length 720, 600 and 820 metres were stone lined and another 160, 340 and 250 metres were excavated into the bedrock to depths of greater than a meter (Urich, 1990).

Development of such landesque capital over such a wide area before colonisation represented a substantial investment in the production process. As far as is known, this type of investment in land-based resources is not found in other areas of the Visayas, or is not still in use today (Hutterer, 1977; Lopez, 1967). The marshalling of such skill and investment before Iberian contact warrants a re-appraisal of the complexity and power of Bohol’s chieftains.

The chiefly class on Bohol had developed well beyond what has commonly been referred to in the texts on Philippine pre-history as small localised polities. I contend that the power, wealth and prestige came from control of territory across the island, but mostly in the densely settled south. Mobilisation of the entire population of Bohol by charismatic leaders with *nomme de guerres* like Tamblot in 1622 and Dagohoy in 1774 alerts us to this possibility of such supra-island political leadership before, and certainly early in, the period of Spanish colonisation. Moreover, the threat of Muslim raids and the need to mount reprisals in pre-Spanish times, and subsequently the coming of the Spanish colonisers, created both a need and opportunity to wield political power.

Physical evidence, represented by the terraced and irrigated landscapes still in use today, and the social differentiation noted by the rise of a chiefly class and its control over land and its produce, forms a pertinent backdrop to the situation faced today by the people of Bohol. It is from the *alipun* and *oripun* classes that the modern Boholano peasant will find his or her roots. In subsequent chapters the history of social development, and particularly the development of irrigation and land

---

27 Investments in the capital stock of the land (infrastructure) in order to increase the land’s capability to produce over time (Blaikie and Brookfield, 1987).
28 Lopez’s case (1967) is an isolated one in southern Cebu. It is in an environmental setting much like southern Bohol.
management technologies for the cultivation of rice, will prove to be critical in relation to recent and rapid increases in population.

The social background also has relevance. Only very recently have some institutions dating to pre-Spanish times been corrupted. Their longevity is important given the pressures for change occurring around them. That Bohol was an autonomous political unit from the mid-1740s to early 1800s is very important. This period marks Spanish-led expansion in plantation agriculture. Bohol largely by-passed this stage of agricultural 'development' which had a significant impact on much of the rest of the archipelago. Moreover, the systems of land control, land allocation and cottage industry development instituted by the Boholano élite before Spanish colonisation have endured for centuries, and its remnants are still detectable today.

The structure of society is transferable to the structure of landholding because the exercise of use rights over a piece of land, and the process of change in the allocation of these rights, is fundamental to the understanding of the process of land degradation. Little empirical work has explored the linkages between land tenure pattern and resource management strategies (Thiesenhusen, 1991; Dorner and Thiesenhusen, 1992), although considerable anecdotal evidence has been put forth to support the argument.

Traditionally, the limestone environment of the study area with its wet and highly prized lowlands and marginal uplands developed different patterns of land claims and access rights. Oral histories and Spanish reports tell of a system of land claiming in the resource-rich lowlands whereby an individual interested in a piece of unencumbered (uncleared) land simply laid claim to it by initiating clearing and cultivation. By continuing to cultivate or by investing—in the case of dry lands—in perennial plantings of fruit trees and coconuts, the land was deemed occupied and counter claims could not be made to it. Writing of the Visayas, Alzina (1668) outlined cases where land was claimed, cleared and, on the boundaries, fruit and other economic trees were planted. Lands were then abandoned, yet the trees remained. After a number of years, the
original claimant could then return and ‘re-claim’ the land which was marked by the fruit bearing trees on the boundary.\textsuperscript{29} There was an unwritten understanding between villagers that a piece of land with conspicuous plantings of fruit trees had been claimed.

Similarly, by cultivating or by investing in landesque capital (irrigation canals, terraces) and by maintaining the investment on a lowland property it could be held in perpetuity. Clearly, the wet lowlands must have been under a traditional tenure system. Without secure tenure farmers would not have been interested in investing such amounts of time and energy in constructing very durable stone terraces and extensive irrigation systems. With an assured economic return, smaller local units with localised leadership oversaw system construction and, with time, their expansion. For example, some of the larger irrigation systems descending from the uplifted anticlines to the wider plains show distinct signs of sectioning, whereby one group of irrigated lands is operated independently of the others upstream and downstream but still forms part of a larger irrigation system. Separate sections within the system may represent different local groups that first controlled and developed individual basins which were later brought together into what appears to be a larger, integrated system.

Accounts of an individual’s method of claiming land are not available. I therefore use oral accounts describing the process at the turn of the century to inform my discussion. Over-zealous persons did claim land beyond their capacity to maintain it. Depending on their social position in the village they could do one of several things: they could forfeit some of it to others if they couldn’t finance the prestige goods to influence others to cultivate it for them; they could relinquish a portion in payment of a debt; and occasionally, ‘extra’ parcels were included in bridesprice upon the marriage of a dependent child.

\textsuperscript{29} Alzina described the system thus, “Formerly, they (Visayans) readily yielded to him who came first (the right) to select (his land) and much more to him who planted first his coconuts, trees, fruits, abaca, and other things. They have always a right and dominion over there [land] even though they may affirm that they may go to live in another village” (Alzina, 1668:82).
The presence of such a fragmented environment with its small and semi-enclosed wet lowlands ringed by limestone *mogotes* (limestone residuals) would have enticed more powerful families to claim entire basins. Basins were more easily defended as being rightfully owned due to the tradition of extending use rights from the valley floor to the summits of surrounding hills. A fully or nearly fully enclosed basin would conveniently fall within these parameters. Evidence exists, and will be discussed later, to show that today's more affluent families are the descendants of relatives who claimed closed and semi-enclosed basins. Their ancestors cultivated the lowlands and realised their excellent agricultural potential. By distributing the surplus harvest they attained status and also expanded the area under their control. Peripheral and less powerful families were supported by the élite in return for their assistance in cultivating the land. These less powerful families had a self-interest in improving the land. By investing their labour in the construction of landesque capital (irrigation systems and terracing) they improved their share of the harvest and household food security. However, over the long term more benefits accrued to the dominant families.

The permanency of wet rice cultivation and the investment in landesque capital involves a very formalised traditional land holding system. These lands were highly valued and were not abandoned or distributed as compensation payment. In contrast, the dry cropped lowlands in most of the interior have been only permanently settled in the last 100 years. Still they too are becoming highly valued lands as more permanent crops, such as coconuts and economic trees, are planted. This very rigid and moralistic situation prevailing in both the wet and dry lowlands is markedly different from that operating in the extensive uplands.

Uplands, like the lowlands, were claimed by individuals. A person claiming an area of the lowlands was, by tradition, recognised as the claimant of all the upland from the point where lowland met the upland, and then extending to the hill's summit. This system still applies in lands being claimed today on the expanding frontier fringing the eastern edge of the study area.
Summits of hills, either gently rounded or in some instances quite flat, were cleared and cropped. In these instances use rights were formally recognised. In many cases cultivation was not feasible and these cleared and generally grass-covered areas were used by the community as a common property resource. Writing on the land holding system at Spanish contact, Bernad (1972) commented on the presence of formalised individual holdings for lowland plots and communal use of the summits of hills. This is taken to the extreme in southwestern Bohol where there are thousands of hill summits in the Gunung Sewu type karst\(^{30}\). Indeed, many of the uncultivable hills are still being communally managed.

In summary, two regimes have been in place regarding the usufruct rights to land. One is exclusive to the lowlands, and the other--widely recognised within society as de facto ownership--involves communal pasturing in the uplands. This digression is not unexpected. Historically, value has been placed on lowland resources as demonstrated by the investment in irrigation structures like canals, terraces and field bunds. Control of lowland resources and a surplus of rice enhanced the power of the family which originally claimed the land. These patterns, established in this earliest phase of local history, mark the patron-client relationship of today.

2.10 Trade and Agricultural Development

Intensification of Bohol’s agricultural and social system almost certainly took place in response to benefits derived by reciprocal payment from coastal traders and merchants, and to the babayan or coastal dwellers’ demand for more rice for use as a trade commodity.

Southwestern Bohol’s coastal élite had built wide trade alliances in pre-Spanish times which prevailed through the early part of the Spanish period. In this

\(^{30}\) A term referring to a tropical limestone geomorphology first described in south central Java.
early period Bohol had two complementary commodities, rice and cotton, that were of tradeable value; there is no evidence of unusual mineral wealth. However, evidence exists that rice was being traded around the Bohol sea (Rodriguez, 1965:61). It is possible that this trade first extended to Cebu and other nearby islands that could not support rice production. I am referring to the exchange of rice grown in Bohol for cotton cultivated in southern Cebu in the pre-Spanish and early Spanish period. Moreover, the surplus of rice was necessary for the support of artisans, weavers, traders and warrior-chiefs who, through trade or raid, extended Boholanos supremacy over a wide area of the central archipelago, mainland Southeast Asia and to the kingdoms to the south.

With cotton’s decline, excess rice continued to be absorbed by the new wave of mercantilism that entered the region with the Spaniards. The extraction of a surplus from small-scale cultivators was also important to the maintenance of the local élite power structure. Therefore, the revolts of the 17th and 18th century were as much against Spanish subversion of élites’ power as they were so called ‘nativistic uprisings’ as described by Sturtevant (1976).\textsuperscript{31} The Spaniards failed to realise that Bohol’s highly developed rice economy and its surplus production were exceptionally well suited for a long and drawn-out conflict because it afforded the dissident population an adequate subsistence on its terms.\textsuperscript{32} The 85-year long Dagohoy revolt, led by the local élite, was an expression of Boholano resistance to the tribute-gathering power of the Spanish.

\textsuperscript{31} Nativistic being defined “as a conscious, organized attempt . . . to revive or perpetuate selected aspects of culture.” As defined by Linton (1943) and used by Sturtevant (1976:79).

\textsuperscript{32} There are several vibrant statements of dissident life during the Dagohoy-led rebellion. An example of ‘life on their own terms’ was the continued functioning of the Catholic Church through-out the Dagohoy rebellion, even in rebel held areas. Services were run by native priests. Some Augustinian Recollect Fathers were permitted to deliver services near to the end of the conflict.
Overall, the Spanish period of colonial rule had a very minor impact on Bohol's agriculture. Due to the dissected nature of the limestone environment in the southwestern part of the island, development of large-scale plantation agriculture--like that which occurred on neighbouring Cebu--never took place (Fenner, 1985).

The indigenous, sedentary, rice-based agricultural system prevalent at least since Spanish contact involved the intricate weaving of lowland and upland resources. For example, within the lowland system is another more intricate system: that of lowlands and localised uplands of residual limestone. In both systems, parcels of land are clearly differentiated from one another, as individuals claimed land from the valley floor to the apex of the flanking hills. Of all the Visayan islands, southwestern Bohol has the greatest concentration of such sites--which helps to explain the character of the local economy at the time of Spanish contact.

As cotton became less economically dominant, perennial cotton trees were either destroyed or no longer maintained. They were replaced with the newly introduced corn and sweet potato which gained prominence more rapidly in Cebu than elsewhere (Spencer, 1975). Before the introduction of corn, Cebuanos of the southern half of Cebu island probably ate a staple of rice obtained by trading their cotton for rice grown on Bohol. Without cotton, Cebuanos lacked a lucrative trade item. Corn then supplanted cotton and became the crop of subsistence for the Cebuano.33 Meanwhile, on Bohol the surplus capacity to produce rice could have been an important factor in sustaining the population of the island when it revolted against Spain in 1622 and from 1744 to 1825.

---

33 This interpretation is questioned by Fenner (1985:48). However, his research concerning the history of Cebu from 1521-1896 did not examine the island in a regional context and therefore disregarded the historic cultural and economic linkages between Cebu and Bohol.
2.11 Population and Settlement

Given their inability to conduct a 'complete' and unbiased census of Bohol, the earlier Spanish data are clearly deficient. There is no reason to believe that the island's population was not at or near the level recorded in the mid-1800s at the time of Spanish contact in the mid-16th century, and probably in the pre-Spanish period. Important is the Boholanos historical predilection for migration. Throughout the island's history, groups often led by an élite figure have migrated to Mindanao and Negros. This must signify either the island's over-population early in its history, the complete occupation of the best lowland lands supporting wet rice, or the migration of groups feeling political or religious persecution. Characteristics of the physical environment—notably the depth to the watertable—do form a finite limit to the area capable of supporting rainfed or irrigated rice production. Secondary (dryland) environments are substantially less productive and more difficult to cultivate. This propensity to migrate relates to the quality of land and access to it in Bohol and perceived opportunities elsewhere. Boholano's wide trade networks must have been partially responsible for the transmission of knowledge of other lands and their potential for agricultural settlement.

In terms of location the interior was clearly the most desired site for settlements. Bohol's rugged terrain supported an excellent subsistence base of wet rice and formed a formidable barrier to attack from outside, with stories of ambushes of some pre-Spanish foreign aggressors having entered the realm of folklore (Panong, 1989).

Security and access to coastal trading entrepôts was of critical importance in the pre-Spanish period. Slave raiding by Muslims from the south was common in this and the early Spanish period. However, lucrative trade opportunities existed and being able to both trade and resist or evade foreign incursions was significant. Therefore the topography and agricultural productivity of southern Bohol were both important
elements in the evolution of the local society and the social norms that influence resource management.

2.12 Summary

Bohol has a complex social, ecological and political history underpinning more contemporary change. A number of salient points form the basis for further discussion beginning with the relatively high population density supported by southwestern Bohol’s environment. First, is the high degree of social differentiation, though still present today its roots stem back to the Spanish and probably pre-Spanish period. Secondly, are the kinship institutions which govern the claiming of land and its inheritance. Finally, there is the history of population migration. All four of these larger systems have influenced the trajectory of agricultural system development and, therefore, the distribution of settlement and use of marginal or fragile lands.

Clearly, Boholanos have preferred interior, humid, wet lowland environments over relatively drier, coastal conditions. However, this apparent environmental prejudice may reflect socio-political realities, i.e. the interior uplands provided not only diverse and easily adapted agricultural resources but also protection from seaborne roving, warring parties. Agricultural development in the interior and the island’s dominance in regional trade are probably strongly related; however, it is beyond this thesis to surmise which process was dominant.

In subsequent chapters I argue that these underlying structures of resource control and economic development began to shift and become increasingly stressed as the economic power base shifted from the interior agrarian to coastal capitalist economy. This shift of power has not been smooth, nor is it necessarily complete. The next chapter addresses the beginning of the process of transformation that occurred during the American colonial period, and corresponds with the opening-up of the interior’s economy to merchant capitalism and formal laws of land ownership.
3.0 Chapter Three: A Period of United States’ Control: 1903 to 1942.

The period of the United States’ direct involvement in the Philippine archipelago brought with it infrastructure and bureaucratic development that facilitated a transformation of the relationship between Bohol’s interior and coastal people. Trade and cultural relations between residents of the coast and interior changed in association with the shift in land ownership from local (interior) to coastal control. This, in conjunction with armed conflict and population growth, resulted in an extension of cultivated area into more fragile environments, leading to environmental degradation. I continue with an analysis of historical data regarding trade relations, land holding patterns, and demographics during the period of American colonial rule. Although the sources of data improve over time, they are still beset with inaccuracies. Much of my discussion is based on personal investigation and conversation with the area’s oldest farmers. Their perceptions of change are corroborated by colonial data on areal changes in landuse and patterns of land ownership.

3.1 Batuan 1903-1942

In 1903 Batuan’s population of nearly 3,000 was concentrated in a 2000 hectare area of wet lowland on the southern side of Camanayon Mountain. It extended from the Loboc River in the west up to, but not including, the dry (greater depth to watertable), and highly dissected terrain of barangay Cabacnitan in the east (United States Bureau of the Census, Sanger et al., 1905; Philippine Bureau of the Census, 1918). By the outbreak of World War Two in Bohol, in 1942, large areas of forest fringing this lowland core, covering most of the present day barangays of Aloha, Behind the Clouds, and the upland portions of Cambacay, Rosariohan, Rizal, Janlud, Quirino, Cantigdas and Cabacnitan, were settled (Figure 12).
Figure 12: Relationship between cleared and forested areas of the Municipality of Batuan and vicinity in 1903.
Trends in the direction of population expansion, and the terrain that was cleared and occupied, became more obvious with the 1939 census (Table 1). When formed in 1903, the barangay of Rosariohan was Batuan’s only barangay and it served as the town’s focal point. Within five years Rosariohan was split into five barangays, and by 1939 the town had grown to eight barangays, as its cultivated area approached its present day 7900 hectares (Republic of the Philippines, 1939).

<table>
<thead>
<tr>
<th>Barangay</th>
<th>1903</th>
<th>1918</th>
<th>1939</th>
<th>Per cent change 1918-1939</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cabacnitan/Quezon</td>
<td>230</td>
<td>246</td>
<td>646</td>
<td>162%</td>
</tr>
<tr>
<td>Rosariohan</td>
<td>2390</td>
<td>647</td>
<td>993</td>
<td>53%</td>
</tr>
<tr>
<td>Pob. Nuevo</td>
<td>515</td>
<td>954</td>
<td>85%</td>
<td></td>
</tr>
<tr>
<td>Bughayan</td>
<td>359</td>
<td>----</td>
<td>----</td>
<td>53%</td>
</tr>
<tr>
<td>Cambacay</td>
<td>360</td>
<td>530</td>
<td>47%</td>
<td></td>
</tr>
<tr>
<td>Cantigdas</td>
<td>363</td>
<td>716</td>
<td>97%</td>
<td></td>
</tr>
<tr>
<td>Poblacion Vieja</td>
<td>494</td>
<td>1563</td>
<td>83%</td>
<td></td>
</tr>
<tr>
<td>Janlud</td>
<td>446</td>
<td>580</td>
<td>30%</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>2620</td>
<td>3430</td>
<td>5982</td>
<td>66%</td>
</tr>
</tbody>
</table>

(a) Quezon until 1951 was included with Cabacnitan. In 1951 they were split to form Lower and Upper Cabacnitan. In 1967, when Lower Cabacnitan became Quezon, Upper Cabacnitan reverted to Cabacnitan.
(b) Estimated portion of the population in Batuan that was part of Cabacnitan, Bilar in March 1903.
(c) Became known as Poblacion in 1939 and was divided to form Poblacion Norte and Poblacion Sur in 1975.
(d) Absorbed by Poblacion Vieja and Poblacion in 1939.
(e) Absorbed Bughayan to become Poblacion in 1939.

Table 1: Population growth for Batuan 1903 to 1939 and percentage change for each barangay between 1918 and 1939. Sources: United States Bureau of the Census, Sanger et al., 1905; Philippine Bureau of the Census, 1918; Republic of the Philippines, 1939.

The population in certain barangays grew more quickly than others. Areal expansion was into the town’s drier and more fragile environments. Three barangays--
Cabacnitan, Cambacay and Cantigdas—stand out as important cases. All three were adjacent to extensive areas of dry and forested land. By 1939 these areas supported many sedentary agriculturalists, for example, Cabacnitan, with its large tracts of relatively flat, but dry cropped land, more than doubled in population in 18 years.

The spread of farming into drier cropped areas in the early 1900s was—at the time—considered a legitimate exploitation of unclaimed land. However, forest clearance and further encroachment on land around Cabacnitan would later prove detrimental to wet-rice farmers ‘downstream’.

Five possible causes are examined to explain why cultivation of dry crops expanded into areas such as Cabacnitan in the first half of the twentieth century. They are: the war between the Boholanos and Americans as part of the wider Filipino-American conflict; the imposition of American-style land and tax registration systems, including the designation and differentiation of private and public land; effects of the tax assessment; trade relations with the coast and how they changed with a shift toward a cash economy; and, finally, issues related to health care and population growth.

3.2 The Filipino - American War

The Filipino-American war resulted in heavy losses of people as well as the means of production in Bohol. The US ‘scorched earth’ policy targeted recalcitrant districts like Bohol, Samar and Leyte; “The province [Bohol] was in organised rebellion against the United States’ government, and twenty pueblos [two-thirds of the town centres or Poblaciones], including in some instances all their barrios [barangays] were burned to the ground. Thousands of horses, cattle, and carabaos [water buffalo] were shot and left lying where they fell, to vitiate the atmosphere and pollute the streams of water” (L.T. Gibbens in Putong, 1965:47; Lanzar-Carpio, 1932). Specifically, 70 per cent of Bohol’s carabao (44,349 of 63,157) succumbed to what the US-sponsored census of
1903 referred to as deaths from disease (rinderpest) or slaughter (for food) (United States Bureau of the Census, Sanger, et al. 1905, Vol. 4:228). Statistics for the number of peasants murdered on Bohol have not been computed, but they must have been great. Estimates for the Philippines as a whole are as high as one-million (Lanzar-Carpio, 1932). The US government’s policy was to kill all peasants who supported guerrilla activity (Zinn, 1980; Putzel, 1992; Twain, 1992).

This devastating confrontation caused some of Bohol’s population to evacuate to drier upland areas for protection. The barangay of Cabacnitan, Batuan, was an important site of refuge. A large cave was used as an encampment for Bohol’s rebels. People of neighbouring towns came to Cabacnitan to seek refuge. Some refugees remained in Cabacnitan at the close of the war, and claimed land which they cleared and farmed.

Even after such a devastating confrontation with the Americans, Bohol had a population of 269,223 in 1903 (United States Bureau of the Census, Sanger et al., 1905). Batuan’s population was nearly 3,000 in 1903. In that year, the people of Batuan were already beginning to settle the drier zone of Cabacnitan; yet other changes in the local economy after the end of hostilities with the United States influenced Cabacnitan’s and other dry cropped areas’ more rapid expansion through 1939.

3.3 The American Imposed Land Laws

During the Spanish period no formal land tenure system was introduced into the interior of Bohol, nor is it clear whether such a system was implemented in the more easily accessed coastal zone. Friar lands, which were so common elsewhere in the archipelago, were highly restricted on Bohol, largely because of the Dagohoy revolt of the 18th century which seized any Friar lands and redistributed them. Miller (1913) described Bohol’s land tenure condition before the imposition of the US system as a
"peasant proprietary system". This was based on land ‘owners’ tilling their own land, and was most common in long-settled areas, and where there was a “wide distribution of wealth” (Miller, 1913:184).

In the first century of the United States colonial administration a series of land laws was promulgated to supersede any customary land holding system. A flurry of regulations pertaining to the formalisation of land rights was enacted and first adopted by the Christian lowland cultures of the archipelago.

The motivations for the establishment of a formal land titling system were diverse--and often contradictory. First, as part of the Treaty of Paris signed in 1898 which ceded the Philippines to the US from Spain, it was stated that existing property rights of private establishments, the church, and individuals, had to be respected. Secondly, the method of land registration was modelled on the homesteading system used in the settlement of the American west. An underlying motive of the American regime was to bring about an agricultural middle class (Miller, 1913). The US administration envisaged that the creation of ‘independent’ farmers’ would result in the type of citizen who, because of their investment in land, would have a greater interest in government and thus ensure the survival of democratic principles. Furthermore, economic development would take place as farmers--through the formation of an independent agricultural middle class--became consumers. It was thought that consumerism would raise the interest of farmers in not only the quantity, but also the quality of crops (Miller, 1913). Moreover, “the homestead laws, the activity looking

---

34 Others in the Philippines included a ‘proprietary system’ (hacienda) and ‘share system’.

35 Christian lowland cultures refers to those generally sedentary cultures who had adopted Catholicism. The term lowland in no way refers to an agricultural system, meaning a ‘lowland’ or wet-rice based system. It is used to refer to linguistic groups commonly residing at the coast and in the foothills of the archipelago’s larger islands.

36 Hugo Miller, an American, was the Head of the Philippine Department of Industrial Information. His book on the economic conditions in the Philippines in the early 1900s included extensive accounts - and policy statements - on land tenure systems, agricultural labour and food crops.
toward the settling of land titles, and the agitation for lower interest, *all have in view the extension and protection of the peasant proprietary class*” emphasis added (Miller, 1913:213).

The first legal act passed by the United States in the Philippines was the Cooper Act in 1902, also known as the Philippine Bill. It legitimated and empowered Philippine civil government to legislate land laws. Civil government ruled that land could be granted or sold to actual occupants or settlers, or any other Philippine citizen, as long as the area did not exceed 16 hectares per individual, or 1024 hectares for a corporation or ‘association of persons’. Following closely after the passing of the Philippine Bill was the more comprehensive Public Land law of 1903 which took effect on July 26, 1904. Act No. 926 as it was known, clarified and expanded upon the provisions of the Cooper Act. Regulations were put in place governing homesteading, selling and leasing of lands in the public domain, issuing local patents to native cultivators of public lands, settling disputes over imperfect titles, and making provisions for the leasing or renting of public lands by United States or Philippine citizens, and corporations.

To facilitate the provisions of the Public Land Law a Public Lands Division was created in the Insular Bureau of Public Lands. Soon after, a Court of Land Registration was created where Torrens titles could be applied for upon establishment of one’s ‘ownership’ over a parcel of land. Developed in parallel with the Torrens land titling system was a bureaucratic system for defining areas and landuses of individual plots for the purpose of taxation. In lieu of a Torrens title, a person could apply for a tax declaration. Although areas are computed for taxation purposes, specific

---

37 Homestead claims were initially limited to 40 hectares but were increased to 144 hectares in 1924. This 40 hectare limit is important; one of the larger land holdings in Cabacnitan, Batuan was a homestead claim made around 1910 and it conforms closely with the earlier 40 hectare limit. Establishment of this homestead in Batuan was unusual in that between the years 1906 and 1911 only 1400 homestead claims were made in the entire Philippines (Miller, 1913:214).
measurements and vectors are not shown on the document in the same way as they are on a Torrens title (see Appendix 5 for examples of a Torrens title and tax form).

A Torrens title was meant to be the only legal form of ownership recognised by the Philippine judicial system. To discourage use of tax declarations for this purpose there is a disclaimer printed on every tax declaration “not to be used in the settlement of legal cases”. Yet, in Bohol, many land disputes are settled in a court of law on the basis of a tax declaration. Legally occupied lands were therefore registered under two systems: tax declaration, and tax declaration plus formal Torrens title.

Original ownership was established by proving that one had been cultivating the land in question for three years prior to the date of application. While refinements of these laws occurred through the decades leading up to World War Two, precedents had been set by the Cooper Act and Public Land Law which, to a large degree, still apply today.⁴⁸ These land laws were swiftly interpreted by certain sectors of society.

Batuan’s ‘powerful’ peasants were quick to interpret the meaning of the new American land laws. Lands could be ‘claimed’ by applying for a tax declaration, and a Torrens title later. The state was involved because the formalisation of land rights, be it by tax declaration or Torrens title, permitted the collection of land taxes. Cash was required to fund the various bureaucracies associated with the land registration system.

3.4 Defining Public and Private Land

The American regime was responsible for imposing a system of land classification based on public and private land. Private land was termed alienable and disposable land—meaning it could be bought and sold—and public land, held by the state, was neither alienable nor disposable, but it could be leased by individuals and corporations.

⁴⁸ See Putzel (1992) for a detailed review of the role the United States played in development of land laws in the Philippines.
Bohol was surveyed in the late 1920s to designate these two broad types of land, and maps were produced. These maps are important for at least two reasons. They attest to large areas of forest being present in Bohol in 1928 (little remains today), and they represent an accurate historical benchmark of the extent of cultivation in southwest Bohol, and Batuan, in that year.

In 1919 the US-sponsored land classification system was to be implemented nationwide, but the programme did not reach Bohol until 1928. The forest lands depicted in Figure 13 represent those lands of southwest Bohol which were still forested in 1928.

In the survey, forestry personnel defined forest lands as all forested lands at the edge of the settlement frontier. The slope, or elevation, of the land was not considered in the same way as it is in today’s classification of forest land (World Bank, 1988). In 1928 just over 26,000 hectares of forest land was designated in the southwest half of Bohol (DENR-CENRO, nd.) (Figure 13). These forests had particular characteristics: they were remote and in rugged, highly dissected karst terrain, and had very few sources of surface water. Before World War Two these conditions militated against sedentary agriculture and settlement because ‘better’ land in places such as Mindanao were more easily cleared and cultivated, and were more productive. Migratory, shifting agriculture, did not occur in these remote lands (Figure 14).39 Hunting did take place, as did the exploitation of the economic trees and medicinal plants.

39 William Henry Scott writing on early Visayan agriculture believed that farmers of the Visayas were at contact sedentary in their practices (Scott, 1990:291).
Figure 13: Forest lands of the first district of southwest Bohol as demarcated in 1928. Source: DENR-CENRO, Tagbilaran City, Bohol, nd.
Figure 14: Pattern of settlement distribution in the vicinity of Cabacnitan, Batuan in 1947. Source: Sheet 2479 Bohol series 1:50,000.
Bohol’s forests, as defined by the Bureau of Forestry in 1928, were surrounded on all sides by one of the archipelago’s most densely settled rural populations, but were not widely cultivated prior to the Second World War. The eventual clearing of this marginal, land-based resource was a direct reflection of the personal hardship experienced by the population during the World War II and post-World War II era. In particular, the later (1970s) closing of Mindanao’s agricultural frontier stemmed the migration of Bohol’s agrarian population to that island. Also related to the opening-up of these fragile, resource-poor lands, were changes in endogenous patterns of land ownership.

3.5 Trade Relations and the Cash Economy

Before the completion, in 1922, of the road linking Batuan with the coast, the baybayan or coastal people, and the bukidnon or people of the interior (mountains), enjoyed a brisk and apparently equitable trading relationship which had been developed and maintained over a long period of time. However, bukidnon had several distinct advantages over the people on the coast. First, life in the interior was considerably more secure than on the coast—especially during the pre-Spanish and Spanish period when the coast was frequented by slave raiders. Secondly, the interior had reliable supplies of water which were lacking on the coast and, as a result, the environment of the interior supported the cultivation of wet rice. One important advantage held by the baybayan was their trade relations with the wider region. Nevertheless, over the long term, the bukidnon had a relatively stable existence. They could subsist with or without trade, and this position of strength was expressed through their trade relations with the baybayan. Those on the coast, in contrast, were dependent on trade not only to obtain prestige items, like gold and pottery, from beyond Bohol but also with the interior for vital supplies of food.
Widespread and diverse trade networks evolved. Importantly, in this pattern coastal traders came to the interior to obtain rice. Twice a year at the completion of the rice harvests, coastal people came to the interior to trade salt blocks and dried fish for rice. These products were transported in two baskets tied to the end of a pole carried across the back. One basket was for salt ‘pots’ and the other for fish. The baskets themselves were known as a *bukag*, the common volumetric measure of the time. *Carabao* were not used in transport because they were slow, uncommon in the drier coastal zone, and difficult to maintain (wallow and pasture). Bartering occurred and one basket of dried fish was exchanged for one basket--or about 20 kilos--of roughly ‘milled’ rice. Small urns containing hardened salt blocks filled the second basket, and these too were traded for rice. Distance (30 or more kilometres) and weight limited the coastal traders to approximately 40 kilograms of dehusked rice on their return trip.

Stable trade relations were maintained between individuals. Sometimes coastal people stayed a few days visiting, eating and drinking and, occasionally, working on the harvest with their trading partners in the mountains. Older farmers (>90 years) of Batuan told of journeys in the pre-road construction days to the coastal towns of Jagna, Dimiao, Valencia and most commonly Loboc. They customarily carried some rice to trade for fish and/or salt, but these trips were not as regular as those described above.

These intimate and mutually respected trading relationships were known by the local term *suki*. A *suki* was an unwritten bartering arrangement between two mutually respectful people. In the past, unlike today, it was passed from one generation to the next. *Suki* relationships are still very important but are much less secure, as the *sukis* of today must contend with diversification of both suppliers and buyers of products and services, and with the introduction of cash into the economy.

For example, as the 20th century progressed cash money was increasingly demanded as brideprice. Prior to the introduction of cash, a man demonstrated his
physical prowess to his potential bride and, more importantly, her parents by physically labouring. On the farm of potential in-laws this labour formed an important component of pre-cash brideprice payment, as did commodities such as rice and livestock. Carabao were very highly prized.

When one of my oldest informants was married in the mid 1920s he was required to pay P100 to his bride’s family. He also had to purchase new clothing for the wedding party. To place this P100 in perspective, in that same year one mature carabao sold for about P12. People in the interior had little economic activity based on cash transactions so they relied on coastal money lenders to finance events such as weddings. This cash-based world of the early 20th century radically altered the historical suki relationships.

3.6 Land Taxes

Cash based, coastal - interior relationships intensified with the incorporation of Batuan as a town. Prior to 1911, land taxes were not levied anywhere in the interior, although levies on each person were paid to the Catholic church. Soon after Batuan became a town, money was needed to finance its bureaucracy. The village’s older farmers recalled that a cedula, or head tax, payable to the town was imposed on every person in Batuan at the rate of P2 each. Lands were also taxed at a flat rate of P1.50 per hectare.

Formalisation of land ownership became an issue in Batuan when the town seceded from neighbouring Bilar. Public funds were urgently needed to finance the town’s new bureaucracy. In 1911, a private land assessor was hired by the town to conduct a rapid enumeration of its ‘land owners’ and to appraise their properties so that taxes could be levied. This constituted the first written record of ‘land ownership’
in the study area. Analysis of records recording land transactions and newly registered tax declarations from 1910 to 1992 revealed discernible differences in the rate of formalisation of land rights. The first was during the period 1911 to 1914, when the original land assessment was carried out and tax declarations were issued. This survey covered nearly all the wet rice lands. The second was from 1947 to 1951, when formal ownership was assigned by way of tax declarations to new land cleared during World War Two. This was mainly dry cropped land in Cabacnitan. The third period extended from 1980 to 1990 and arose from the land reform programme, and the issuing of Social Forestry Contracts to land in the public domain, through the Department of Environment and Natural Resources (DENR).

The first land assessor’s arrival in Batuan was met with apprehension by many residents. A formalised, government-initiated land-holding system was something completely alien to them. Also alien was the need to generate a cash income to pay the new taxes. Several of the older informants recalled this period of change and the upset that it caused. Land taxes were difficult to pay because there were few established cash markets. Much local produce was bartered. When assessors arrived many holders of small land holdings feigned ignorance over who actually owned the lands they were cultivating. Eventually, more powerful families came forward to have all of the land they controlled assessed and allocated to them. Powerful households within the kawitan (clan) gained legal control over large holdings and supported lesser households by permitting them to cultivate.

Today this type of activity would be seen by many as ‘land grabbing’, but in its time and context it was an extension of a traditional social contract. The more powerful local families exercised their power, but not as an overt attempt to

---

40 Records from this original assessment are kept (with some very minor gaps) in ledgers at the office of the Lands, Division of Taxation in Tagbilaran City, Bohol. To the best of my knowledge these are the only written records of land ownership that exist, and as such they are an invaluable public record. Even more surprising is that they are virtually intact not only for Batuan but for all the island’s municipalities.
manipulate and disadvantage those already possessing limited resources. However, the formalisation of land ownership, through the use of tax declarations, required further integration into the cash economy and increasingly disadvantaged those who were being ‘protected’ from the tax liens.

Older residents recalled that some people who were farming a small area did claim land in the first assessment, but many later failed to pay the land tax and forfeited important family possessions (like carabao which were critical to their farm operations) to the Municipal government. In other cases personal items (like furniture and religious artefacts) were auctioned. Politically powerful, large land holders, were not so easily coerced into proffering their assets/effects. In addition, they had the productive capacity to breed carabao, which were used to pay back-taxes (a carabao was given over to the municipality which was then auctioned to the public with the proceeds applied to the tax debt).

Within a kawitan and the wider community a household’s status was dependent on controlling a pool of labour. Labour was controlled by owning land on which the labourers worked. Records of land ownership attest to this relationship. In 1992, 43 of the village’s 203 households owned land. The other 160 families relied on the benevolence of these land owners either for access to land to cultivate themselves, or land to work as day labourers for daily sustenance, or possibly to work land for a share of a harvest. Kawitans were noted for considerable internal stratification that permitted the domination of many by a selected few.

Many terms are used to portray an individual family’s status within the community and kawitan. The majority describe non-landholding households, and are explicit in their terminology. In Batuan, the ‘ordinary’ non-landholding poor are referred to as the kabus. Just below them are the alaut who had been struck by a misfortune in life such as serious illness in the family. Three more groups are described below these two and they are the most destitute. Usually, they have very little land to tenant, if any at all, and are relegated to labouring for meals and
subsistence. They are termed the *pit-os* or *nagkilasud*, meaning those with a very difficult life (*lisud* = hard, difficult), below them are the *patay-gutom*, literally meaning the dead hungry. At the very bottom are the *kakha-tuka* which, using a local metaphor, are like chickens scratching the earth to find their next meal.

Within each *kawitan* there are members who fit one of these classifications. Commonly, the very poorest—who may earn less than P3000 a year as a family—are associated with very small *kawitan*; some represent individual families that have migrated around the Philippines and have come to settle in Batuan, typically along the fringes, in areas such as Cabacnitan. Importantly, activities of the more affluent land-holding members of the *kawitan* directly impact on all the other families of the *kawitan*—especially the poorest—who must rely on a tenancy or work meted out by their more affluent relatives.

Changes in patterns of land ownership during the United States’ colonial rule, and later independence, started before World War Two and intensified after it. People attained ownership of larger areas of land through various means. In Cabacnitan, a combatant in the war with the United States claimed a homestead of the legally defined limit of 40 hectares. He developed it as a ranch with cattle, *carabao*, and horses that he sold to the *calesa* (horse drawn carriages) drivers in Tagbilaran City. Interspersed in the large parcel were fragmented, marginal rice fields which were cultivated by tenants. In a rice growing area of Quezon, an incorporated business claimed several paddies in a larger irrigation system. It is likely that these few parcels were part of a much larger group of holdings that the business held throughout the island.

Importantly, prior to the imposition of land taxes, few if any people considered land to be legally owned by one person over another. Any dry cropped land left uncultivated or unimproved by the planting of economic trees was considered open and someone else was allowed to claim and cultivate it. Rice fields were not abandoned, or left uncultivated, therefore secondary claims were not made on them. In the Munoz
text (pgs. 80 and 81) of Alzina's history of the Bisayan (Visayan) islands there is a strikingly similar description of claims to land in a dry cropped area. Alzina described a system with no notion of the concept of 'your land' or 'my land'. This was mentioned to me by the older residents of Batuan whom I interviewed, but only in respect of the dry cropped lands--and that was before the first land assessment. Interestingly, Alzina hoped that this sort of unselfishness would transcend all time for, "These days [the late 17th century] it seems that there have been some who have wished to alter [things] somewhat; some come in to hispanicize (landinocer) are corrupting with knavish tricks and [the natives] are losing their ancient goodness and unselfishness with which they used to live without robbing one another" (sic) (Alzina, 1668: 81-82). These 'knavish' tricks were slower to develop in the interior of Bohol, probably owing to the revolts and relative autonomy, but they did begin to take hold in the 20th century.

3.7 Formalisation of Land Ownership

Land surveys followed the initial tax assessments of the early 1900s. One programme is used to illustrate how uneven this surveying was, and how intensive the ownership of land was in southwest Bohol. By 1935 over 288,203 discrete 'plots' covering 397,824 hectares had been identified province wide (Mills, 1937:214) (Appendix 6). Of these plots 94 per cent, accounting for 80 per cent of the hectarage, derived from municipalities in south central and southwest Bohol (i.e. in the limestone terrain). At that time only Tagbilaran, the most urbanised municipality of the province's 36 projects (each municipality represented a project) was cadastrally surveyed. Few of the plots in the other municipalities were formally surveyed, with the exception of the homesteading claims of which there were several in Bohol.

Before 1942 heavy pressure on the land was evident in the southern coastal communities whose hinterlands stretched over 20 kilometres into the interior. For instance, in the towns of Lila, Dimiao, Valencia, Garcia Hernandez and Jagna, the
mean plot size was already under 1.0 hectare. Batuan’s mean plot size was also low at 0.58 hectares. The mean size of plots in the adjacent towns’ of Carmen (9.96 ha.) and Bilar (2.27 ha.) was considerably greater. 41

Batuan’s population was concentrated in the irrigated central plain as evidenced by the small size of the plots. In 1935 the cultivated area of Batuan covered just over 2000 hectares. It has since expanded to 7900 hectares. It has expanded through the acquisition of land from adjacent municipalities, and by Batuan’s farmers clearing surrounding forest lands.

3.8 The Cash Economy and Land Ownership

Ownership of land began to shift from local to absentee soon after tax declarations or Torrens titles were secured. The period before World War Two was to be the nascent period of change; the period with the most land transactions was in the immediate post-War era. There were various means by which local land came to be owned by absentees. My informants stated that many of the first transactions in land between absentee and local owners resulted from indebtedness on the part of local landowners. However, we cannot be sure that this was the primary cause in all the cases of sale.

In the years between the construction of the road to the coast and construction of local markets and rice mills, few opportunities presented themselves for the sale of agricultural produce. Cash was required to pay coastal merchants for the western goods used in ceremonies, for example weddings and funerals, but finding cash was extremely difficult. The long-term relationships between coastal and interior dwellers

41 Flat and wet lowlands cover a large proportion of central Batuan. In contrast, the land area of Bilar consists of extensive tracts of heavily dissected and uplifted karst which are designated public forest lands. Carmen, in contrast to both of these municipalities, consists of flat to gently rolling plains much of which has a limited water supply. In 1935 the plains were largely uninhabited primarily because of the difficulty encountered in tilling the cogon grass.
became strained by this farmer indebtedness. A long standing cultural practice, known as *icog*, began to take on a whole new role.

*Icog* was traditionally used as a means of showing respect for other persons. These persons may be of higher rank within a nuclear family, respected members of the wider *kawitan* (clan) or unrelated persons of higher social standing. Since *icog* is an obligatory gesture it can come into use in any number of personal situations. For example, a young man may be obliged to assist his Godmother in her campaign to win a seat on the council in local government, even though he is in complete disagreement with her 'politics'. *Icog* can thus be extended to a wide range of social situations. Thus, *icog* occurred between residents of the villages and coastal traders with whom they had *utang* (credit). Out of a sense of obligation (or *icog*) the interior residents relinquished claims to their land to the coastal traders in lieu of their debts. There were several other ways in which land was transferred from local to absentee ownership. According to my informants many of them pertained to the period after World War Two (discussed in Chapter Four).

The circumstances leading to the first recorded change of land ownership from local to absentee are unknown. The following examples of land transactions were drawn from a sample of 74, of approximately 200 records of sale to absentee owners. It does not therefore represent a complete accounting of transactions in the pre-World War period.

In 1922 six parcels, officially claimed in 1914 by three different persons, were sold to one person living on the coast. Older farmers told me that absentee owners used the tenants they placed on their plots as 'informants'. If any plots of land

---

42 This account of financial conditions was assembled from numerous conversations with older residents of the villages.
43 *Budlay* is another local term used to refer to this 'obligation'.
44 Tracing ownership is a complex task. Over 200 plots of land in the study area were absentee-owned in 1992. Due to time constraints I traced changes in land ownership for 74 plots.
adjoining their absentee-owned plot were to be sold, the absentee owner wanted to be informed so that they could buy them.

In 1928 four plots were sold by one owner, three to one buyer from the coast, and the fourth to a different buyer from the same coastal town. The only other land from my sample that was sold to an absentee owner prior to the war was in 1935. In that year a plot, newly declared by a local resident in 1918, was sold to a person from Zamboanga, Mindanao. In my sample only seven hectares of locally owned land were sold to absentee owners before the war.

Many of my informants said that the application of icog through giving land to coastal persons was logical, in that it respected the rights of the coastal trader to--under any circumstance--be paid for their products and services. Therefore, proceeds from lands sold before World War Two were more likely to be used by local residents to pay debts. It was, however, possible that land was sold to finance a household's migration to another island, as so commonly occurred after World War Two.

The coastal owners bought land in the rice producing lowlands from which a transportable, storable and marketable surplus could be extracted. Furthermore, as the coastal zone is dry and incapable of producing rice, by controlling rice lands in the interior the coastal family enhanced their social position. Coastal people enjoyed their new status as owners of rice land in the interior. They continued to make regular trips much as they, or their ancestors, had when they traded with the interior folk. As owners they came every harvest time, participated in the harvest, and then returned to the coast with their share of rice.

3.9 An Expanding Population and Cultivated Area

Population growth, changes in patterns of land ownership, and economy, altered the degree and extent of cultivation in Batuan. Through the first half of this century Batuan expanded in area. Extensive areas capable of producing wet rice were already
exploited, therefore in this period the surrounding, relatively flat lands that could be cultivated to dry crops—particularly corn—were cleared and permanently settled. The evidence to support this is based on census reports which—in spite of their problems of accuracy—depict trends in each barangay’s population growth.

From 1903 to the outbreak of hostilities with the Japanese, the town of Batuan more than doubled in population. Both crude birth rates and death rates remained relatively high in the first half of this century (Appendix 7). Deaths in the first year after birth (IDR) accounted for nearly one-half of all deaths (Figure 15). This affected the computation of the mean age at death which was below 20 years until the 1950s when it began to rise steadily. This rise was due to improvements in health services, with the introduction of barangay health workers and the subsequent faster diagnosis and intervention in serious childhood illnesses. The impact of improved health services reached all segments of the population of Batuan by the 1960s. Infant mortality rates (IMR) stayed exceptionally high until the 1970s, while the mean age at death increased steadily from the 1950s when antibiotics were first introduced (Figure 16).

The area of land under cultivation expanded with population growth. Some trends can be deduced by the growth in the area of the town of Batuan, from 2000 hectares in 1903 to today’s nearly 8000 hectares. Throughout the first half of the 20th century Batuan’s high birth rates were offset by high death rates. Regardless of the wide range of diseases afflicting the population of Batuan, and the low mean age at death, the population continued to expand at a moderate rate before World War Two (Figure 16).

75
With all the wet lowlands of Batuan settled by the time of the town’s foundation in 1903 then either a dramatic change in the intensity of wet land cultivation or the extent of dryland cultivation must have occurred as the population grew.
Evidence points toward an expansion of cultivation into drier lands rather than an intensification of wet rice-cultivation. It is, however, possible that the system of sharing wet-rice resources changed as population grew; ever greater numbers of people would have worked for owners of the wet rice fields. There are grounds for believing a small increase in labour absorption took place with the introduction of the steel mouldboard (Negros) plough after World War Two. However, there are indications there was an increase in the area of land brought into production. These new areas only supported dry cropping.

For example, in this first 36 years of incorporation as a town, the population of Batuan grew from 2,853 to 5,982 or 3.59 per cent per year between 1918 and 1939, a rate over 2.0 per cent greater than that of the province. During the late 1920s Batuan's population was probably augmented by in-migration, as the difference—local births minus deaths—were below published census figures. Under-enumeration in the earliest census may have also inflated growth rates. In-migration signified that the municipality's lands were not totally exploited.

The environmental conditions in the irrigated central plain—in contrast to drier areas—were critical to the development of these new landscapes for settlement. Wet environments were highly developed with terraced and irrigated landscapes. Distinctive communities and kawitan were associated with individual irrigation systems, and these areas were those of heavier population settlement. This is evident in the core areas identified when Batuan was incorporated as a town in 1903. Smaller, peripheral settlements not associated with wet-rice production developed as population increased. These settlements were dispersed in less favourable terrain.

Over time, the number of households established in peripheral landscapes increased. Therefore, population growth occurred more quickly in the land frontier represented by the dry cropped environments fringing the wet-rice core. That explains why two of Batuan's more remote and environmentally fragile barangays, Cabacnitan (population 730) and Rizal (1,139), have today far greater populations
than a barangay, such as Quezon (440), that is cultivated primarily to wet rice. The actions of these households on the periphery resulted in the expansion of the area of Batuan in the pre-World War Two period, and the subsequent environmental degradation in both the core and peripheral areas.

3.10 Summary

Batuan’s population grew rapidly in its first 36 years. Such a dramatic increase leads me to believe that Batuan was under-populated rather than over-populated like other parts of the province may have been during this time. Testimonials from the Second World War period, and soon after, recount the abundance of produce coming from the interior plateau of Bohol. Application of intricate and extensive irrigation and terracing technologies is ample testimony to Batuananos’ desire to cultivate wet rice and conserve soil and water resources. However, shifts in economy and the methods of claiming and controlling land were reflected in incipient changes in the patterns of population distribution that took shape in the pre-World War Two era. Commoditisation of land and the intensification of the economy led to the dislocation of some of the more affluent to Mindanao, and the less affluent to Batuan’s dry cropped lands. The next section addresses the period of World War Two and shortly after and the changes that occurred both in Cabacnitan and, later, the lowland ecology of Quezon.
4.0 Chapter Four: The War Years and Post War Era to the 1960s.

World War Two brought about profound changes in Batuan's pre-World War Two settlement pattern. Now land could be held i.e. 'owned'; as a result shifts took place in societal-environmental relations. However, changes in the relationship between the pattern of land ownership and ecological transformation were complex. The developing ecological alteration that affected Quezon's lowlands in the early 1950s was associated with forest clearance that began in Cabacnitan at the turn of the century. The opening-up of Mindanao for widespread agricultural settlement was associated with shifts in land ownership in Batuan. Historic trade relations between the coastal and interior groups further hastened the shift of the more affluent land holding class from Batuan to Mindanao, and led to a dramatic increase in local land tenancy. Finally, the imposition of a cadastral survey led to significant reforms in the way land was to be managed.

4.1 The Japanese Occupation

Between the arrival of the Japanese in 1942 and Bohol's liberation in 1944, the barangays of Quezon--and particularly Cabacnitan--experienced an influx of refugees. The Japanese entered the island of Bohol unopposed in May of 1942 and proceeded to setup a puppet regime for both provincial and municipal governments. Schools were reopened and the Japanese language was taught. After the murder and public display of the bodies of two disobedient Boholanos the motives of the Japanese were questioned. A guerrilla army known as the Bohol Area Command (BAC) was established, with its base camp situated in barangay Behind the Clouds, Batuan (Borja, 1989).

The Japanese response to this resistance caused much of Bohol's population to evacuate their homes for safer sites. The island's interior became an important
sanctuary for Bohol’s population and people from surrounding islands. Boholanos termed their evacuation sites bakwitan. Nearly every house along a main road, or in the Poblacion, was abandoned and their residents resettled in . . . “make-shift huts (balong-balong) inside forests, along inconspicuous ravines, or under the cover of marshes in tidal swamps” (Borja, 1989:20). Most people stayed at their evacuation sites for the duration of the war, only venturing out to find a new hiding place.

In the village of Quezon, the more prominent families abandoned their homes and moved to Cabacnitan. Because of pressure to supply the Japanese with rice, vegetables and livestock families from Quezon moved. Their vacated houses were then occupied by families who had deserted Batuan’s Poblacion.

People on the farms and lands of Cabacnitan—particularly those situated near the edge of the lands still forested at that time—assisted many war refugees. Already established households assisted one, two and sometimes three additional families by providing temporary accommodation and sustenance. Refugees came from the neighbouring barangay of Quezon, the Poblacion of Batuan, and a few from Leyte, but the majority were from Bohol’s southern coastal zone. Within Cabacnitan numerous secondary evacuation sites were used when Japanese patrols were in the area. They were established deeper in the forest, in crevices in the limestone, or in caves.

When the Second World War began, much of the good dry lowland of Cabacnitan was already settled. Therefore the refugees’ land was situated in the drier and more ecologically fragile uplands of the dry, tight, cockpit-like karsts of the uplifted anticline, and in the public lands designated in the survey of 1928.

45 The term bakwit is commonly used today to refer to those persons who evacuated during the recent conflict between the NPA (New Peoples Army) and military.

46 Seemingly in contradiction to my earlier statement about the security of Batuan, the Japanese also established a camp in Batuan, in barangay Cantigdas. It is well known that the puppet Mayor of Batuan played along with the Japanese, knowing full well that the guerilla base camp was only seven or eight kilometres from the Japanese camp.
Two different types of farm were developed depending on the origin of the refugees. One comprised the establishment of a house on the newly cleared land, and this was usually land occupied by families who had evacuated from areas outside Cabacnitan. The other was made up of people from Cabacnitan who also cleared land in the then forest zone, but did not live there permanently. They used the land as a *bakwitan* when the Japanese patrolled the area.

Depending on their origins, farmers occupied new plots of between one and four hectares. In Figure 17, a graph depicts the size of parcels cleared during the war by origin of the evacuee. Those parcels still held today by the person who had come from outside Cabacnitan, and which are held intact, generally cover greater than two hectares. These larger parcels were held almost exclusively by farmers currently over the age of 65 (Figure 18). In nearly all these cases the claimant established their home near the clearing. After the war, many of these refugees stayed and farmed in Cabacnitan.

![Figure 17: Thirty-six plots established in Cabacnitan and the forested land adjacent to Cabacnitan prior and during World War Two, by address of claimant.](image)

Sources: Office of the Municipal Assessor, Batuan, Bohol; Republic of the Philippines, DENR: Statistics on Integrated Social Forestry Contracts for Batuan, Bohol (1989), Tagbilaran City, Bohol, and personal interviews.

---

47 One plot of 21 hectares of forest land that was absentee-owned was omitted from the graph.
Figure 18: Twenty-one plots established in the public forest land between 1942 and 1945, by area and age of the present claimant. Sources: Republic of the Philippines, DENR: Statistics on Integrated Social Forestry Contracts for Batuan, Bohol (1989), Tagbilaran City, Bohol, and personal interviews.

The few people now over 65 who cleared smaller parcels during the war used these clearings as their *bakwitan* (Figures 17 and 18). *Bakwitan* plots were situated from one to one and one-half kilometres from the claimant’s main residence; they were ‘remote’ at that time and lacked access to water. Families who normally resided in Cabacnitan, already had other lands in the alienable and disposable part of the village which had been cleared before World War Two. After the war they moved back to their regular farm and household, but they continued to cultivate their *bakwitan*. Some applied to formalise their claims while others did not.

Many plots cleared during the war are now claimed by younger farmers (< 50) and are substantially smaller in size. These younger farmers cultivated a share of an inheritance. Before the land was bequeathed it was part of a farm of greater than two hectares. This generational shift in area of plots is significant. The reduction in the size of clearings over a generation suggests that the next--without recourse to clearing new land--may not have access to enough resources to engage in viable farming.
These conditions pertained to the people who claimed land during the war and continued to live in the barangay afterwards. Their actions were not the same as those of the coastal people who had come to Cabacnitan for several years and then resettled on the coast at the end of the war.

4.2 Resettlement After the War

After the war, many families who took refuge in Cabacnitan returned to their original homes in Quezon and on the coast. Some who left continued to influence local conditions in two ways: by purchasing forest land and exploiting its timber; and by placing tenants on the land they had occupied and, attempting to alter local resource allocation mechanisms to their own benefit. For example, in the eastern-most part of Cabacnitan there were 27, absentee-owned parcels. This is an exceptionally high concentration of absentee ownership given the remote location and infertility of these soils. These lands because of the value of their timber were purchased by coastal people who resided in Cabacnitan during the war.

More commonly, coastal residents purchased a few small rice fields near the forest. An important case of conflict arose when a coastal resident, Nong Eugenio, tried to develop an irrigation system on his rice land that was rainfed. He did not cultivate the land himself, but hired locals to do this for him. To irrigate the fields he engaged two men from the village to excavate a 200 metre long canal through the solid limestone bedrock to a source of water coursing through an underground stream. The workers were each promised a carabao—a sizeable compensation in the years immediately following the war—on completion.

48 An arrangement whereby a land owner tenants a field to another person who then places another tenant on it, or hires people to cultivate it, is not unusual in the area. Even some very poor quality sloping lands are managed in this way.
The two men toiled for half a year to reach their goal. *Nong* Eugenio instructed them to dam and divert an underground stream to his few hectares of tenanted paddy. The project was a resounding success, though one critical aspect had been overlooked. Diverting the water to *Nong* Eugenio's fields had left virtually no water for downstream farmers who cultivated rice fields with water from the same stream.

By carrying out this work without consulting others, *Nong* Eugenio provoked an outcry from the downstream farmers who opposed his claim to the water. In nighttime raids they destroyed the makeshift dam which he had ordered constructed. *Nong* Eugenio had it replaced. Anticipating a confrontation, *Nong* Eugenio applied for a government licence to control the water. Fourteen families who were traditionally dependent on the water supply for their rice fields fought *Nong* Eugenio's claim in the courts. The case was decided three years later in Manila.

The fact that *Nong* Eugenio was not the actual owner of the now irrigated rice land, led the court to decide that his diversion of the stream was illegal. The case was settled in favour of the traditional users and the diversion dam was destroyed. *Nong* Eugenio was warned by the local population never to return to Cabacnitan on the threat of death.49

This example of local resistance to *babayan* (coastal persons) meddling in local affairs is important. Appropriation of the water by one person threatened the livelihoods of 14 families many of whom constituted the more affluent, local landowning peasantry. Their resolve in pursuing a legal case and carrying it all the way to Manila illustrates how seriously they viewed the situation. The case brought about a

---

49 I wish to thank *Nong* Cesar Bigcal for his tour of *Nong* Eugenio's irrigation system and detailed description of the case. He was 14 years old during the trial and travelled to Manila as a witness for the prosecution (his family had rice fields irrigated by the traditional flow of water). I am grateful for his assistance as the records of the case, although registered at the Regional Trial Court in Tagbilaran City, could not to be found there, or in Cebu. It appears they were lost in a Manila fire.
period of more intensive legal activity over resources between contending coastal and interior parties.

4.3 The Drought of 1951

Almost 50 years after the first large-scale land clearing took place in Cabacnitan, water stress became a serious problem in the rice growing village of Quezon. It was 'triggered' by the serious drought of 1951. The long drought and its effect on the lowland agro-ecology provoked two important cultural responses. First, a strategy was undertaken by the local land owners to augment the water supply for irrigation. Secondly, and in conjunction with other factors, was the abandonment of the area by some in the land-holding class who then migrated to Mindanao.

Two large-scale projects were initiated in the 1950s; both were in Quezon. The largest of the two was funded by the provincial government and involved the excavation of a 160 metre-long canal in the limestone bedrock to a maximum depth of over seven metres (Reeder, 1990). Its purpose was to link the underground reservoir of Camaro cave with rice fields owned by a few of Quezon’s affluent landowners. Their rice fields were drying-up as part of longer-term ecological change that was exacerbated by the drought of 1951. An initial attempt to link-up the paddies and the reservoir was made in the mid-1950s but ended with only a partial cutting of the canal. Engineers had misjudged the hardness of the bedrock and the depth needed to excavate and exhausted their budget. The project received a new injection of funding in the mid-1960s and the canal, along with a sluice gate, was completed. Water flowed to the paddies until the reservoir reached a dynamic equilibrium. Only as much water flowed out of the natural underground reservoir as flowed in, and that volume was not enough to compensate for the numerous leaks in the unlined canal. The project was abandoned.
In the same area, local people used hand tools to excavate a canal 40 metres long and three metres deep from a set of rice terraces to a spring. This project was also abandoned. The landowner planted the rice terraces to coconuts. In numerous other cases local residents entered caves and carved canals in the bedrock or moved limestone blocks of ‘breakdown’ to encourage the free-flow of water from cave streams to irrigation systems. Other than the large-scale projects in the immediate period after the drought of 1951, I have not seen or heard of any similar ventures initiated before this drought.

These activities all attempted to augment water supply in the face of a hydrological imbalance. Creation of other landesque capital, such as terraces and canals, was probably related to periodic droughts and floods. These technologies were fundamentally different as they pertained directly to the cultivation of the rice plant that requires a well controlled, slowly moving water supply, and drainage of excess water in times of flood.

4.4 Population Mobility

Between 1939 and 1948 in-migration occurred in Batuan. Because these data are based on the censuses of 1939 and 1948 the number of in-migrants does not reflect those that took refuge in Batuan and then returned home after the war (Figure 19). Data from 1948, do however, account for people who migrated to Batuan during the war and stayed until 1948. The censuses from 1949 to 1960 and 1961 to 1970 represent a significant change in the stream of migration, as strong out-migration occurred from Batuan between 1948 and 1960 but slowed from 1960 to 1970.
Figure 19: Generalised trends of in and out-migration for the town of Batuan were computed using the Republic of the Philippines 1939, 1948, 1960, 1970 and Municipal Registry of Births and Deaths, Municipal Hall, Batuan, Bohol.\textsuperscript{50}

A wave of migration from Batuan to Mindanao began in 1918 and extended to 1939. This first group of migrants from Quezon and Cabacnitan were affluent and they controlled good, productive land. The second wave of post-war migrants did not become significant until after the drought of 1951. Population pressure on resources was growing before the war, but was temporarily dissipated by the settlement of some of the province's fragile uplands during the war and in the immediate post-war period. This delayed the onset of the second wave (post-war) of migration. School records, submitted annually, showed trends in the rate of out-migration (Figure 20).

I reviewed grade reports from 1945 to the present for Quezon and Cabacnitan. These reports noted the names and destinations of families with school-aged children that migrated. Because these records only accounted for school-aged children they do

\textsuperscript{50} This graph is a generalisation of trends. Each year was derived by averaging the change between census years (1948, 1960 and 1970) and comparing it with data by year for births and deaths.
not represent a complete accounting, nevertheless they serve as an important source of data on general trends.

![Bar chart showing migrant families from Quezon and Cabacnitan by decade.]

Figure 20: Sample of the number of migrant families from Quezon and Cabacnitan by decade.

From the school records it became apparent that about 68 per cent of the families that migrated originated from Quezon. Relative affluence was a determining factor. Therefore, although migration was important in the villages and throughout the province it was limited to the more affluent classes. This left rising numbers of impoverished families residing in the marginal and easily degraded environments such as Cabacnitan. For example, children from 11 different families did not attend classes in 1952 because of ‘poverty’: only one of these children was from Quezon. The trend continued throughout the 1960s and 1970s when only two of the village’s 18 poverty cases were from Quezon. Poverty meant that the student’s family could not afford the books, papers, and pencils for school. None of these families migrated from Bohol, they continued to reside predominantly in the dry zone of Cabacnitan.
4.4.1 Mindanao and Migration

For centuries Bohol has been a source of large numbers of out-migrants. The character of this migration is important, and only recently has it been more appropriately termed a 'circulation in migration' as migrants move back and forth between their ancestral homes and other places. Small-scale out-migration occurred in Batuan between 1910 and 1930; some migrants went to Mindanao and others to Hawaiian plantations as labourers. However, between 1950 and 1970 over 100,000 Boholanos migrated to Mindanao.

A number of factors attracted Batuananos to Mindanao. One was the severe drought of 1951, and associated with it the incipient signs of hydrological instability, which reduced long-term rice yields. Also, government and local attempts at increasing the water supply to the irrigated fields failed.

Mindanao became more attractive after a nationwide malaria prophylaxis and treatment program was introduced in the early 1950s. It coincided with the pressure building on land in the Central Visayas (i.e. Bohol and Cebu). For farmers from Bohol with experience in wet-rice agriculture, a government funded irrigation scheme, and abundant land on Mindanao seemed to provide an excellent economic opportunity. For example, a sister of one of my more affluent informants, and her husband, migrated to Mindanao in 1963. They purchased three hectares of irrigated rice land and are today considered fortunate by relatives who remained in Batuan.

---

51 See the works of Ulack (1977, 1985 and 1986), Palabrica-Costello (1979) and Adem (1982) for detailed descriptions of 'return migration' in the Southern Visayas.

52 Calixto Seroje, the Head of the Provincial Office of the National Irrigation Administration (NIA) commented on the paucity of opportunities for 'developing' wet-rice agriculture in Southern Bohol (Seroje, personal communication). Technologies commonly successful on non-limestone lithologies failed in the limestone terrain of Bohol. Nearly all the emphasis on irrigation development in Bohol is now focused on the northern (non-limestone) half of the island (Seroje, 1982, 1989).
In 1950 a 20,000 hectare resettlement site was opened in Bukidnon, Mindanao, and in the same year a 21,904 hectare site was designated in Lanao del Sur. In 1956 a 100,000 hectare site was founded in Cotabato, Mindanao (Ramos and Postrados, nd.). The government envisaged that the settlement of these lands in Mindanao would act as a 'safety valve' for rebellious Huks from Central Luzon (Krinks, 1974). However, these ‘programmed migrants’, who received some government support, were outnumbered eight to one by spontaneous settlers, most of whom were Cebuanos and Boholanos (Wernstedt and Simkins, 1965). Moreover, migrants from the Visayas came largely from the better educated and more affluent class of society (Table 2). A review of the resettlements found that 63.3 per cent of spontaneous settlers were farm owners in their place of origin (Ramos and Postrado, nd.; Pelzer, 1945).

<table>
<thead>
<tr>
<th>Occupation in place of origin</th>
<th>Programmed beneficiaries</th>
<th>Spontaneous migrants</th>
<th>Overall</th>
</tr>
</thead>
<tbody>
<tr>
<td>Farm owner</td>
<td>50.7%</td>
<td>63.3%</td>
<td>58.5%</td>
</tr>
<tr>
<td>Farm tenants</td>
<td>5.7%</td>
<td>9.2%</td>
<td>7.9%</td>
</tr>
<tr>
<td>Administrative</td>
<td>3.6%</td>
<td>2.2%</td>
<td>2.7%</td>
</tr>
<tr>
<td>Professional</td>
<td>1.4%</td>
<td>0.4%</td>
<td>0.8%</td>
</tr>
<tr>
<td>Sales worker</td>
<td>4.3%</td>
<td>3.0%</td>
<td>3.5%</td>
</tr>
<tr>
<td>Services</td>
<td>0.7%</td>
<td>0.4%</td>
<td>0.5%</td>
</tr>
<tr>
<td>Others (student, sick, unpaid</td>
<td>14.3</td>
<td>10.0%</td>
<td>11.7%</td>
</tr>
<tr>
<td>family, etc.)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source (Ramos and Postrado, nd.)

Table 2: Occupations of programmed and spontaneous settlers before moving to government initiated settlement sites in Mindanao.

4.5 Absentee Land Ownership

Historical records of land ownership show a strong association with rates of out-migration and rates of land sales to absentee owners. I examined the records for all the
absentee-owned plots as of 1992 and was able to reliably reconstruct the land ownership history for 74 parcels (Figure 21). This was an important phase in local political development and has had important ramifications for settlement in the more fragile lands and for environmental degradation.

![Figure 21: Distribution by date of sale for 74 plots sold to absentee owners.](image)

Absentee owners who purchased local land between 1943 and 1960 bought mainly irrigated and rainfed rice land (Table 3). In the 1970s absentee owners acquired more coconut land, along with rice land. Of the 39 parcels sold between 1943 and 1970, 72 per cent had at least some rice in cultivation.

<table>
<thead>
<tr>
<th>Landuse</th>
<th>Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>Irrigated Rice</td>
<td>17.18</td>
</tr>
<tr>
<td>Rainfed Rice</td>
<td>7.63</td>
</tr>
<tr>
<td>Corn</td>
<td>11.95</td>
</tr>
<tr>
<td>Coconuts</td>
<td>3.75</td>
</tr>
</tbody>
</table>

Table 3: Landuse type and area sold to absentee owners between 1943 and 1970, based on a sample of 74 plots.
4.5.1 The Sellers

The type of land sold was critical, but of greater social significance was the type of local owner who sold it. A landowner in Quezon or Cabacnitan was part of the affluent class. Members of this land-owning class were locally termed datu. They were noted not only for owning many lands but also for having numerous people to cultivate them. Just below the datu, but also of the land-owning class, were the arangan, naahan, and hayohaya. They owned lesser areas of land but were considered by others in the village to still have comfortable lives. The variation in terms for those below the datu referred to slight differences in their status within the community. Based on records of incomes and expenses of 13 sampled households kept for this study, these classifications are reflected in variations in family income and in material possessions (Appendices 19 and 20). Annual incomes for the more affluent datu, arangan, naahan, and hayohaya ranged from P50,000 to P100,000; in contrast, the less affluent, non-land holding household’s incomes averaged between P3,000 and P10,000.

Therefore, land owners in Quezon and Cabacnitan were from the village’s larger and more influential kawitan. They sold their rice fields for various reasons: to relieve debts and to finance important rituals such as funerals, and to finance one or more family members’ move and establishment in Mindanao. In this way the kawitan hoped to increase its affluence, without completely severing ties with its ancestral village.

When any land held by a member of an extended family was to be sold it had to be offered to other members of the family. Often the asking price of the land was well beyond their means so other buyers were sought. When a buyer was needed, the owner usually went to the coast and consulted his or her suki. Because many people, even the more affluent, had debts with the coastal traders they chose to sell their land
to their *suki* creditors. In many instances the creditor relieved the family of its debt, paid the difference between the debt and the value of the land and took ownership. The selling family either stayed on the land as a tenant or migrated to Mindanao.

Land was also transferred to absentee ownership because of the relationship between inheritance and funerals. The basic principle of land inheritance is that all lands owned by the deceased are divided evenly among all the heirs. Each separate and distinct plot is divided into equal shares and is assigned a number which is equivalent to the number of heirs. Either straws or pieces of paper are marked with these numbers and are then drawn one at a time by each heir for each plot.

After the lottery the true division of lands occurs as each heir has a right to sell, hold or make some other arrangement for the land they were granted. Trading of land is common between heirs—especially when many children are no longer interested in agriculture or reside in urban areas. Inherited lands are very often sold to other family members, are informally leased or are given outright to a locally based family member who is charged with their care.

Through family agreement one plot is sometimes exempted from the pool of land 'to be inherited' and is sold to pay for the deceased's funeral. Depending on the area the family owns, the elaborateness of the funeral, and the financial capacity of the surviving children to pay for the funeral, a rice field may be offered for sale. Again a family member can choose to buy the rice field and, in essence, pay for the funeral of their deceased parent, but if no one is interested it may be sold outside the family.
4.5.2 The Buyers

Records of land and tax declarations list the home address of all landowners, and it is possible to trace where absentee owners reside. Over 72 per cent of all the absentee owners of land in the villages of Quezon and Cabacnitan reside in four coastal municipalities: Tagbilaran, Loay and Lila are all historically significant market centres with which Batuananos used to interact before the development of the highway linking them with Tagbilaran; Baclayon is slightly different—it is a religious centre (Figure 22). Another thing that all of the coastal communities have in common is a high population density and a small, degraded land base.

Absentee owners from the coastal zone became aware of the availability of land in three ways: through a period of local residence, through commercial relationships, such as in the use of *icog* and *suki*, or through informants they had in the village (as discussed in Chapter Three).

In the post-World War Two era government employees, such as officials in the municipal hall or school teachers, purchased large areas of land. For example, three such owners purchased a total of 35 plots, accounting for nearly 50 hectares. Each had lived in the interior for a period of his career. They had come to the interior because their educational qualifications enabled them to secure higher-status positions in government service that the local population could not fill. In several instances these government employees purchased land from farmers who were delinquent in paying their taxes, or who wished to sell to move to Mindanao. For example, a man who came from the town of Lila worked as school teacher in Quezon in the 1950s and 1960s. This job and his knowledge of local activities provided him with the opportunity to buy local lands as families migrated to Mindanao. By the time he retired in the late 1960s he had acquired over 12 hectares of land in contiguous parcels within several hundred metres of Quezon’s school.
Figure 22: Concentration of absentee ownership of lands of the study area throughout Bohol, by municipality.

4.6 Tenancy and Social Change

Associated with the rise in absentee ownership was an increase in the number of 'long-distance' tenant-landlord relationships. Before World War Two Bohol's tenancy rate was reported to be around 16 per cent (Hainsworth and Moyer, 1945; Pelzer, 1945). The Japanese International Cooperation Agency (JICA) recorded Bohol's tenancy rate
at 32 per cent by 1984 (JICA, 1986). These official rates under-enumerated actual tenancy. As I have shown, most land is owned by the oldest members of the kawitan or the financially better-off households of the kawitan and was allocated to the kawitan’s weaker families through tenancies. Veloso, in his study of tenancy in Bohol found that in over 700 lessee/lessor relationships just over one-half of tenants were related to their landlord by blood (Veloso, 1986:39). His study also revealed that these relationships were not viewed as ‘tenancies’ but as ‘obligations’ which were reciprocal: “those who helped their relatives were themselves helped at one time” (Veloso, 1986:40). Therefore, government statistics on tenancy, at least for Bohol, are suspect. It is not known how data were collected, and how questions regarding tenancy were phrased. From my experience in the two villages, only the people who cultivated land held by absentee owners, (non-blood related) considered themselves as ‘tenants’.

Inter-kawitan, household relationships, operated on a traditional set of values before the rise in absentee ownership. Vestiges of them remain today, as in sitio Tiga of Quezon where the informal sitio Captain lends money without interest to sitio members, food sharing occurs when livestock is slaughtered, and labouring more often takes place as part of a reciprocal arrangement rather than through cash transaction. With absentee landlordism many of these traditions broke down and labour for cash became more prevalent, especially if the absentee landlord had a number of plots in need of cultivation. A second and important change associated with absentee landlordism was the amount of food that was sent outside the village to pay rent to landlords. When land was locally owned, food was circulated throughout the village in status-raising rituals and as payment for work. To store the required surplus of rice, large wooden boxes several cubic metres in size were constructed underneath homes. These bande, as they were locally termed, were commonly associated with the largest houses in the study area. On questioning families as to their use, all responded that they were empty and had been for many years. Households had less rice to store due
both to lowered production and larger amounts rendered to landlords as payment for tenancy.

4.7 Land: ‘The Imposition of a Legal Framework’

Tax declarations had been issued to land in Batuan as early as 1911. However, most land had still not been cadastrally surveyed. As discussed in the previous chapter the initial planning for a cadastral survey took place in 1935 with a registration of plots. Only Tagbilaran city had been surveyed by World War Two. Surveying stopped during the war and recommenced in the late 1950s.

When recommenced, 32 towns still required surveying. Those along the coast from Tagbilaran to the mouth of the Loboc River, and then those inland along the National Highway, were the first to be completed. The most important products of the survey were maps of the individual plots, and the placement of concrete markers in the ground to differentiate boundaries between individual plots. When surveying stopped in 1961, nine communities had been completed; from west to east and into the interior they were: Panglao, Dauis, Baclayon, Alburquerque, Loay, Loboc, Bilar, Batuan and Carmen (Figure 23).

Batuan was surveyed in 1959. The final maps, together with a list of land owners and parcels, were submitted to the Lands Office in 1960 (Baking, 1960). A total of 506 parcels were surveyed in Quezon and Cabacnitan (Figure 24).

The number of parcels registered for the villages had increased to 603 by 1992. The increase occurred on two different types of land. Thirty-one new parcels registered with the municipal government were added to cadastral maps between 1961 and 1992. These parcels were derived by the fragmentation of plots cadastrally surveyed and mapped by 1960. The majority were owned by holders of extensive lands which had been passed on through inheritance. Five additional parcels with tax declarations claimed since 1960 are not depicted on the current series of cadastral
maps. The other 26 were incorporated into the cadastral maps when they were updated in 1983. ²⁵³

Figure 23: Municipalities of Bohol that are cadastrally surveyed.

---

²⁵³ I added several plot boundaries to the 1983 map depicted in Figure 24 to reflect the division of large land holdings as part of the CARP (Comprehensive Agrarian Reform Programme). My divisions were based on official surveys conducted for the turn-over of land under the laws of Agrarian Reform. Overall, given the complexity of the local situation and the scope of change the area has experienced in the last 50 years, the office of the Municipal Assessor has done an excellent job of recording transactions in land.
Figure 24: Cadastral map of barangays Quezon and Cabacnitan, Batuan.
A second group of lands was opened-up following a forest fire in Cabacnitan that burned about 100 hectares in 1960. Farmers streamed into the area and claimed it as cultivated land. A total of 66 individual plots were claimed and registered by way of a tax declaration with the Municipal government. These plots have not been cadastrally mapped.

More agricultural land has been added to the land base of Cabacnitan since the 1970s, all of it being in the forest zone (public domain). Those cleared before 1981 are registered with the provincial government. Technically, all plots cleared in the public lands from 1981 up to the present are—under current laws—illegal; they remain unregistered.

4.8 Implications of the Cadastral Survey

Why the cadastral survey was completed in some towns and not others is unknown. Possibility the land-owning class played some role in influencing which towns were chosen for survey because they could not provide documentary evidence to satisfy the courts that the land was rightfully owned. This affected two different groups. Jones, (1989) writing from an interview with the contemporary Boholano revolutionary figure Father Nick Ruiz, said that landgrabbing by well connected politicians was a problem in Bohol during the 1960s and early 1970s. Ruiz argued that landgrabbing was made possible by the lack of clear title held by the land’s cultivator. Fundamentally, this was a situation whereby the coastal élite exploited the unwary folk of the interior. Yet, influential local peasants in my survey area, who were also of the land-holding class, agitated for protection. They told me that before the cadastral survey, and the placing of concrete markers in the ground, some unscrupulous land owners or tenants had encroached on their land.

The transformation of the codes of land ownership from local, sabot-sabot (verbal agreements and usufruct rights) to a bureaucratic or codified system had a
profound effect on local society and hence on the extent and intensity of cultivation in fragile lands. Access rights changed, and continued to do so as the government’s stance on agrarian reform evolved. While codifying the system was straightforward, the consequences are still being felt.

By surveying and, more critically, by placing concrete markers along plot boundaries, an owner’s rights to land were formalised in several new and important ways. Many of Batuan’s land-holding families told me how land claims were insecure prior to the cadastral survey, especially for people who could not afford to hire a private surveyor. Claims to land were, in the owner’s mind, ‘legalised’ by the cadastral survey. This must also have been realised by the non-land holding class as only a few minor counter claims were brought before the court and were quickly settled. The number of contested claims to land then diminished. Therefore the cadastral survey, maps and concrete markers served to legitimate the interiors and coastal, land-holding classes’ control of the land. Wealth and status are equated with one’s capacity to hold land (and increasingly, and more importantly, to do so without cultivating it). Migration of some of the villages’ wealthy landowners to Mindanao, and the subsequent cadastral survey of these lands, created the opportunity for people from the coast to secure incontestable rights to land they had purchased in the interior.

Cadastrally surveyed land permitted coastal residents and also the landholding residents of the interior to hold land in perpetuity without actually having to live nearby, or to cultivate and harvest fruits. This represents a fundamental shift from the early literature describing Boholanos as intimately tied to the land and their family farms.

Contradictory impacts on the land and culture have stemmed from this new relationship between owners and the land. From an ecological standpoint, absentee ownership of wet rice lands has, in some instances, allowed for the regeneration of surrounding uplands, and in others, militated against the clearing of forests on limestone residuals. Limestone residuals which are owned in absentia are often well
forested although the few trees of economic value have been removed. This is in stark contrast to locally owned, annually cropped and severely degraded residuals which often surround them.

The rights of absentee owners have been generally accepted. However, there have been cases recently where absentee-owned land has been cultivated by local households without permission. Previously, people were first apt to travel to the home of the absentee landowner to inquire whether they could cultivate a neglected piece of land. This code of conduct began to break down in the 1980s. In 1992 officials of the Office of Agrarian Reform discovered three different households cultivating a plot of land in Cabacnitan which the Office had planned to sell as the absentee owner had defaulted on a bank loan. The farmers who were working the land had not asked for permission to cultivate it, but when they became aware that the bank had foreclosed on the owner, and that the Office of Agrarian Reform was handling the dispensation of the land, they became interested in obtaining a legal right to continue to cultivate.

This case was in contradiction to the generally accepted procedure of obtaining permission to cultivate absentee-owned land. This policy of asking permission was common before 1986, and the implementation of the Comprehensive Agrarian Reform Programme (CARP). Under CARP, after three years of cultivation of land by a tenant, that tenant could file a claim for the land. Understandably, absentee landowners became hesitant to place tenants on land for fear that they would lose it to them. This had the effect of reducing the land base available for cultivation by local tenants and agricultural labourers.

4.9 Population

Without the opening up of the frontier of Mindanao in the post-World War Two era, the population pressure on resources (PPR) which Batuan experiences today with its 11,000 people, might have occurred 20 years earlier. Projecting the population of
1948 to 1991 with a constant rate of growth of 2.6 per cent, Batuan could have reached 10,209 persons in 1960 and 13,129 in 1970, and over 23,000 by 1991 (Figure 25). Out-migration strongly influenced local population growth rates throughout the 1960s, and when the stream of migration was suddenly disrupted in the early 1970s it resulted in a rapid population rise in certain marginal barangays such as Cabacnitan.

![Graph showing actual and projected population of Batuan, 1948 to 1991. Source: Republic of the Philippines, Birth and Death Records, Municipal Hall, Batuan, Bohol.](image)

In the 1950s death rates began to decline from around 50 per thousand at the turn of the century, to 25 per thousand by 1960. With this decline Batuan's rate of growth should have increased. However, as shown in Figure 26, it did not, but remained relatively stable well into the 1960s.

Periods of relative stasis, marked by occasional steep declines, characterise the number of births reported between 1949 and 1970. Migration statistics derived from my census of the two villages in 1992 showed that of the 313 members of local families who had migrated outside the villages, nearly 60 per cent were female, and 89 per cent of them were fecund. Therefore, the drop in births from 1949 to 1970 reflects the
migration of fecund females from the municipality, rather than a reduction in the number of births per fecund female (Figure 26).

Figure 26: Total number of births and deaths in relationship to the total population from 1939 to 1970. Source: Birth and Death Records, Municipal Hall, Batuan, Bohol and Republic of the Philippines (various years).

Under conditions of no migration the number of births would probably have continued to climb as the overall population increased—as it did between 1910 and 1926. Reconstructing change between 1927 and 1948 is impossible because these birth records were removed from the municipal hall. However, a noticeable decline in births occurred in 1953, and this continued in 1954 and 1955 after which the rate came more steady through to 1970. A new stasis had been reached that fitted closely with the rise of out-migration to Mindanao, as already discussed.

54 The data from 1927 to 1949 were ‘removed’ from the Municipal Hall. The recorded ‘indigenous’ Filipino names were then sold to Filipino Chinese who had left Manila for southern China during World War Two and were then trapped there in the revolution of 1949. Some were ‘smuggled’ out of China and were given Filipino surnames, those that were ‘removed’ from the Batuan Municipal Hall.
In Quezon and Cabacnitan the growth rates of population changed markedly during the period from 1948 to 1975 (Table 4). They were considered one barangay in 1948 but soon afterward were split to form Quezon and Cabacnitan.

<table>
<thead>
<tr>
<th>Barangay</th>
<th>1948</th>
<th>1960</th>
<th>1970 (per cent growth per year)</th>
<th>1975</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quezon</td>
<td>-----</td>
<td>288</td>
<td>343 (1.7%)</td>
<td>402  (3.2%)</td>
</tr>
<tr>
<td>Cabacnitan</td>
<td>-----</td>
<td>414</td>
<td>511 (2.1%)</td>
<td>652  (5.0%)</td>
</tr>
<tr>
<td>Total</td>
<td>763</td>
<td>702  (-0.7%)</td>
<td>854  (2.0%)</td>
<td>1054 (4.3%)</td>
</tr>
</tbody>
</table>


Table 4: Population of barangays by census year, and percentage annual change.

These two villages, unlike the municipality, experienced a decline (-0.7%) in population between 1948 and 1960 (Table 4). Growth returned to a moderate level between 1960 and 1970, and climbed to nearly five per cent between 1970 and 1975. Cabacnitan grew the most quickly—especially between 1970 and 1975. Between 1971 and 1975 the armed conflict in Mindanao was at its peak. This severed the flow of migrants to Mindanao and resulted in a rapid rise in the pressure on land in Cabacnitan.

The expansion of settlement along the boundary of Cabacnitan and the forest zone was determined mainly by the forces of war. During the Second World War some clearing took place which temporarily reduced pressure on the land, and the strain was further reduced by the opening up of land burned in the forest fires of the 1960s. Throughout the 1960s the number of new clearings diminished. In the 1970s the population increased because of the severing of the migration stream to Mindanao; it became a time of conflict—in Batuan and elsewhere in Bohol—between the state and farmers in need of new land to cultivate.
4.10 Summary

During this phase of local history, settlement expanded into the more ecologically sensitive lands. The affluent chose to migrate to Mindanao when the opportunity arose, as they had the economic means to do so. The poor remained behind and colonised new lands.

Changing patterns of land ownership particularly of the wet-rice land—and the linkages between this change and pressures on fragile resources are critical. The drought of 1951 was an important trigger that provoked various cultural responses. After the drought the wealthier land owners sold many of the villages’ best rice lands to absentee land owners. With the proceeds they moved to Mindanao. The cadastral survey of 1959 legitimated the absentee and local land owners’ claim to land. Now land could be held in perpetuity without the owner necessarily having to live near or cultivate it.

Poorer people, those that were not of the land-owning class, stayed in the villages, and their numbers grew—especially in the dry cropped areas of Cabacnitan. There, access to the better lands was lost as lands became increasingly controlled by absentee land owners. They stayed in Cabacnitan and cultivated their small, marginal plots owned by their relatives or they laboured on the absentee-owned fields. Between the shift from local to absentee control and environmental degradation are important social and physical changes as local society lost control of its most vital resource, its wet rice fields. A growth in tenancy left local society beholden to an absentee-landlord class, and changes in the physical and social system of production resulted. Importantly, the lands cleared and brought into cultivation were critical to the hydrologic stability of the lowlands of Quezon.
5.0 Chapter Five: Local and Absentee Ownership and Land Management

"... perception of the value of land, land as a source of profit, and the actions that followed upon this perception divide premodern from modern Philippine society" (Larkin, 1982:610).

Imposition of a cadastral land survey in the study area influenced the pattern of local landholding, settlement, and migration. Three areas of land: the cadastrally surveyed alienable and disposable land, an area of land burned in the forest fire of 1960 that was settled but not surveyed, and clearings in the public forest lands, all have distinct patterns of ownership and control and reflect the effects of the cadastral survey.

With the cadastral survey some *kawitan* gained more effective control over land. Affluent local and absentee *kawitan* participated; however, the areas and types of land controlled by the two groups differed. Cabacnitan’s nonlanding-owning population expanded cleared areas. The management of these fragile lands was intensive and their use signified the paucity of opportunities in other areas, and also impacted on the precariously balanced lowland ecology.

5.1 Land Holdings by Kawitan

Land ownership is concentrated in the hands of several powerful *kawitan*, and is defined by having either a Torrens title or tax declaration issued for a distinct plot of land. A rise in absentee ownership of a large proportion of the most productive lands in the post-World War Two era left very little to be owned by local *kawitan*. *Kawitan* are used in this level of analysis for several reasons. Historically, they have been the most important social unit of production. Families constituting a *kawitan* often lived in close proximity to each other and cultivated their land communally. Larger *kawitan* controlled more land and consequently maintained their prestige and power. At the barangay scale, distribution of *kawitan* holdings can be analysed and related to the way
that lands were acquired. I discuss the mechanism of intra-kawitan land allocation, i.e. to individual households later. Three distinct areas of land are defined based on where they are in the villages, and when they were developed for agriculture (Figure 27).

Figure 27: Locations of three areas of land defined by ownership patterns.

---

55 A household, and its members, is defined as a distinct dwelling whose occupants generally cook and eat together.
The first are cadastrally surveyed alienable and disposable lands. Second, are the lands associated with an area burned in a forest fire in 1960; these were claimed by tax declaration but were not cadastrally surveyed. Third, are all lands cleared in areas of public forest from the 1970s to the present. They are either informally claimed, as described earlier, with conspicuous plantings of trees on the boundary or are, in some cases, registered with the Department of Environment and Natural Resources under its Integrated Social Forestry programme.

5.2 The Cadastrally Surveyed Lands

The cadastrally surveyed plots for both barangays range in size from 0.011 to over 12 hectares. However, the distribution of plots by size varies between the barangays. Quezon has just over 71 per cent of all the plots under 0.5 hectares. Cabacnitan, in contrast, has 74 per cent of all the plots of greater than 5 hectares (Table 5).

<table>
<thead>
<tr>
<th>Area in hectares</th>
<th>0.0 - 0.50</th>
<th>0.051-1.00</th>
<th>1.01-3.00</th>
<th>3.01-5.00</th>
<th>&gt;5.00</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quezon</td>
<td>71%</td>
<td>58%</td>
<td>55%</td>
<td>41%</td>
<td>26%</td>
</tr>
<tr>
<td>Cabacnitan</td>
<td>29%</td>
<td>42%</td>
<td>45%</td>
<td>59%</td>
<td>74%</td>
</tr>
</tbody>
</table>

Table 5: Per cent of plots by size, barangays of Quezon and Cabacnitan.

Small plots are more common in Quezon than Cabacnitan and vice versa for large plots because of landuse patterns and history of settlement. Quezon has more land farmed to wet rice, and this land has been cultivated for longer than most land in Cabacnitan. Conversely, Cabacnitan was mostly dry cropped and has been cropped for a shorter period of time. Quezon’s plots have, with longer occupation, been subject to greater division by way of inheritance than the dry cropped fields of Cabacnitan.
The size of parcels is therefore closely correlated with the crop cultivated. However, due to the nature of the environment and the tradition of defining individual plots from valleys to hilltops, many plots grow a combination of wet and dry crops. The most common types on a single plot are wet rice in the flooded lowlands, *gabi*, sweet potato, corn, coconuts and fruit trees in the dry lands and lower slopes of hills, and forest or *cogon/talahib* grass on the upper slopes and summit. To correlate plot size with landuse I reduced these many uses to three cropping systems: wet fields cropped to rice; dry fields cropped with annuals and fruit trees; and *cogon/talahib* grasses. Landuse for a plot was defined by the presence of greater than 50 per cent area devoted to a cropping system.

In 1992, Quezon had over three times as many wet field plots as Cabacnitan. Cabacnitan had 25 per cent more dry cropped plots than Quezon, representing over 30 per cent more area. *Cogon* and *talahib* grass was twice as likely to be the landuse of the uplands of Quezon, and covered a greater area than in Cabacnitan (Table 6).

<table>
<thead>
<tr>
<th>Wet fields</th>
<th>Dry cropped</th>
<th>Cogon/talahib grass</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Plots</td>
<td>Area</td>
</tr>
<tr>
<td>Quezon</td>
<td>87</td>
<td>42.12</td>
</tr>
<tr>
<td>Cabacnitan</td>
<td>26</td>
<td>10.26</td>
</tr>
</tbody>
</table>

Table 6: Landuse and plot size for cadastrally surveyed lands of barangays Quezon and Cabacnitan.

Landuse in the barangays was closely associated with the wetness or dryness of the lowlands. Quezon had more wet fields and *cogon* or *talahib* grass in correlation with its greater area of wet valley and many limestone *mogotes*. Quezon’s grassy area was greater than in Cabacnitan because *cogon/talahib* grass on Quezon’s hills was managed as pasture for carabao used in cultivating the lowlands. Cabacnitan in
contrast, had more open, dry plains, where corn predominated, and cogon or talahib grass was less common because Cabacnitan had far fewer limestone mogotes. Moreover, although Cabacnitan’s lowlands were dry cropped, they were cultivated on a very short fallow cycle that limited the growth of cogon/talahib grass.

5.3 Ownership of Various Types of Land

‘Ownership’ of cadastrally surveyed land was divided between local ‘resident’ kawitans, i.e. those kawitan living in the two barangays, and absentee kawitans (those living elsewhere). Ownership was defined as having a Torrens title or a tax declaration to a plot of land. Of the 78 local kawitan, 61 owned land. Absentee owners are not as easily differentiated. There were 88 uniquely named households who, while not resident in the villages in 1992, did own local land. For the purpose of this discussion I considered each of these to be a unique kawitan.

In 1992 absentee kawitan owned about 200 hectares of land. Nearly one-quarter was wet field suited to rice, slightly less than half of their remaining land was dry cropped. More significantly, in 1992, 103 of the 246 plots of absentee-owned land had some wet lands suited to rice. In contrast, in the same year, the local kawitan owned 343 plots, but only 103 supported wet rice. This is significant, as fields with wet rice cultivated were three times more likely to be absentee owned.

I have discussed how land became absentee owned. However, considerable landuse change has occurred since absentee took ownership of large areas of land in the 1950s and 1960s. Sixty per cent of the 215 absentee-owned parcels of the 1960s supported wet rice. By 1992 only 41 per cent supported some wet-rice cultivation while the number of absentee-owned plots increased to 246. Two things affected the percentage of wet fields. Landuse changed in response to local ecological change. Areas that were once planted with rice were planted to corn. Also, the percentage of
all absentee lands that supported rice dropped because new lands—added to those absentee owned through the 1970s and 1980s—were primarily dry, coconut lands.

The number of rice lands sold to absentees reached a plateau in the late 1970s. Rice fields that are still locally owned are held by locally powerful *kawitan*. Around 100 plots of wet rice were still locally owned in 1992, about the same amount as in the late 1960s (Table 7). Also the percentage of area of wet fields under local control changed only slightly between the 1960s and 1992 (Table 7). However, in contrast, the area of wet-rice land owned by each group varied markedly, particularly for locally-owned rice lands (Table 8). Locally-owned rice lands were more adversely affected by changing ecological conditions with nearly half of their wet rice lands being converted to dry cropping versus only 25 per cent for absentee owned fields. Clearly the absentee-owners purchased wet rice land with better access to irrigation water.

<table>
<thead>
<tr>
<th>Ownership</th>
<th>Plots owned</th>
<th>Plots with some rice cultivated</th>
<th>Per cent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Local 1960s</td>
<td>320</td>
<td>103</td>
<td>32</td>
</tr>
<tr>
<td>Local 1992</td>
<td>343</td>
<td>103</td>
<td>30</td>
</tr>
<tr>
<td>Absentee 1960s</td>
<td>215</td>
<td>129</td>
<td>60</td>
</tr>
<tr>
<td>Absentee 1992</td>
<td>246</td>
<td>100</td>
<td>41</td>
</tr>
</tbody>
</table>

Table 7: Changes in number of wet-rice plots absentee and local owned from 1960s to 1992. Source: Office of the Municipal Assessor, Batuan, Bohol.

<table>
<thead>
<tr>
<th>Ownership</th>
<th>Area (Ha) 1960s</th>
<th>Area (Ha) 1992</th>
</tr>
</thead>
<tbody>
<tr>
<td>Local</td>
<td>69.09</td>
<td>38.05</td>
</tr>
<tr>
<td>Absentee</td>
<td>59.15</td>
<td>44.32</td>
</tr>
</tbody>
</table>

A second way of approaching the issue of absentee versus local ownership is to examine the relationship between the number of plots of land a kawitan owns, and how many are wet cropped versus dry cropped. Absentee kawitans own farms—a farm being equivalent to the cumulative area and plots which constitutes it—of anywhere from one plot to thirteen. The cumulative area of these plots ranged from 0.07 to 23.07 hectares. The number of plots constituting a farm for kawitans living in the villages was between 1 and 23 and ranged in area from 0.06 to 61.2 hectares.

Most of the absentee kawitan owned only one plot. One-plot farms were therefore twice as likely to be absentee owned than locally owned. In contrast, farms of more than 10 plots were four times more likely to be locally owned (Table 9).

This tendency was determined by several factors. For absentee kawitan it was related to the association the absentee kawitan had with the villages, and how their land was attained. The stronger the attachment to the village the more likely the absentee kawitan was to have more than one plot. For example, of the four absentee-owned farms of more than 10 plots, two of the kawitan had members who once lived in the villages, or still have relatives in the villages (Table 9). In the other two cases, the absentee kawitan had a member who temporarily resided in the villages. Most of the absentee kawitan who owned one-plot farms lacked close attachment to the villages, i.e. they neither resided locally nor had family members living locally.

<table>
<thead>
<tr>
<th>Plots</th>
<th>Absentee</th>
<th>Local</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>43</td>
<td>24</td>
</tr>
<tr>
<td>2 to 5</td>
<td>23</td>
<td>14</td>
</tr>
<tr>
<td>6 to 10</td>
<td>15</td>
<td>12</td>
</tr>
<tr>
<td>&gt;10</td>
<td>4</td>
<td>17</td>
</tr>
</tbody>
</table>

Table 9: Frequency distribution of plots per absentee and locally owned farm.

Large and small farms, as defined by the number of their plots, are much more evenly distributed among the local kawitan. This signifies a wide range in the number
of households constituting a *kawitan* within the villages. Large farms that are locally owned are also much larger than the largest absentee-owned farms. One covered over 60 hectares. Its legal ownership (Torrens titles and tax declarations) was, however, distributed among several of the *kawitan*’s households.

For locally owned lands, there was also a correlation between the size in area and number of plots of a *kawitan*’s farm and the number of families constituting the *kawitan* (Table 10). As important as the size of a *kawitan* was, the way that the ownership of land was distributed to its members was critical. In most cases the land was legally titled or declared for tax by less than half of the *kawitan*’s households.

<table>
<thead>
<tr>
<th>Plots</th>
<th>Area</th>
<th>Households</th>
<th>Named owners</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Kawitan</em> 1</td>
<td>28</td>
<td>61.21</td>
<td>20</td>
</tr>
<tr>
<td><em>Kawitan</em> 2</td>
<td>16</td>
<td>22.42</td>
<td>16</td>
</tr>
<tr>
<td><em>Kawitan</em> 3</td>
<td>3</td>
<td>11.47</td>
<td>7</td>
</tr>
<tr>
<td><em>Kawitan</em> 4</td>
<td>21</td>
<td>11.08</td>
<td>9</td>
</tr>
<tr>
<td><em>Kawitan</em> 5</td>
<td>3</td>
<td>4.33</td>
<td>4</td>
</tr>
<tr>
<td><em>Kawitan</em> 6</td>
<td>1</td>
<td>0.91</td>
<td>1</td>
</tr>
</tbody>
</table>

Table 10: Sample of lands owned by six local *kawitan*, by number of plots, area and number of registered owners.

Therefore, many of the *kawitan*’s households remained ‘landless’. These ‘landless’ families tenanted land from other members of the *kawitan* or cleared new land in the forest zone, worked as day labourers or migrated away from the villages and province (See Appendix 8 for a list of mostly part-time day labouring opportunities).

A second area of land in the villages was not cadastrally surveyed. Tax declarations were issued for individual plots within the area, therefore, technically, the land was owned. This area was situated on the northeastern edge of the cadastrally surveyed part of Cabacnitan. A total of 66 plots covering an area of about 100 hectares were claimed immediately after a forest fire swept through the area in 1960. Plots ranged in size from 0.06 to 21 hectares, but 95 per cent were less than 3.50
hectares (Figure 28). Nearly 60 per cent of the area was dry cropped, mainly with corn and coconuts. Only 5.0 hectares of marginal wet fields were defined in the 1992 tax declarations.

Figure 28: Frequency distribution of areas claimed by individual *kawitan* after the forest fire of 1960.

The distribution of these lands was different from the cadastrally surveyed lands. First, all but one plot was owned by *kawitans* residing in the villages of Quezon and Cabacnitan. A single plot of forest land covering 21 hectares was owned by an absentee *kawitan* from the coast. However, not all the other lands were owned by the *kawitans* residing in the village of Cabacnitan. Of the 28 different *kawitan* with claims, 14 were residents of Quezon and, in some cases, these 14 *kawitan* owned large areas of land in Quezon. Areas claimed by each *kawitan* ranged primarily between 1.0 and 3.0 hectares. Three of the four farms of less than 0.50 hectares were rice farms. The farms of between 0.51 and 3.0 hectares were mixed farms of corn, coconuts and small areas of *cogon/talahib* grass. Claims of greater than 3.0 hectares had a larger percentage of the land in grass.
Although many different kawitan claimed lands, they still represented a select group. Many were either local leaders or had very large kawitan that required more land to satisfy their kawitan's needs. Kawitans claimed areas of land that they had the capacity to cultivate. Therefore, those from Quezon claimed smaller areas and fewer plots. Local and larger kawitan claimed many more plots and more area; for example, the largest local kawitan claimed about 17.0 hectares. In 1992 this kawitan consisted of 18 households and 93 persons.

The claiming of these 66 plots by so many kawitan immediately after the forest fire attests to the pressure for land in the community. Still, the land was claimed by either large or powerful kawitan, and a large segment of local society still remained 'landless', i.e. did not own land.

There was a third area of land cultivated by villagers. Starting in the early 1970s, new plots were cleared in the public forest lying to the east of Cabacnitan. None of these plots were cadastrally surveyed, and very few were registered with the government. Owners that had registered their claim before 1981 were issued with government Social Forestry Contracts in the late 1980s. These contracts defined the area of the holding and stipulated that sustainable cultivation practices had to be exercised. Any plot not registered with the government before 1981, or cleared after that date, was illegal. Many such plots existed, and their numbers grow every year.

Of the 60 households I surveyed in detail, 13 cultivated unregistered plots in the forest zone; they covered a total area of about 8.0 hectares. Of these 13, only 2 owned land in the cadastrally surveyed part of the villages or had claims to land in the area burned in 1960. A few kawitan that claimed land in the public forests were of the local landholding class. As my informants commented, those that already owned land were the first to illegally cultivate in the public forests. They had 'connections' and could resist legal challenges. It was the weaker households that followed.
5.3.1 Summary

The settlement and associated clearing of areas of Cabacnitan in the post World War Two era occurred in conjunction with the loss of a large area of the village’s most productive land to absentee kawitan. Analysis of the types of land controlled by each kawitan in relation to the number of their plots revealed that smaller holdings are much more likely to be absentee owned, and large holdings locally owned.

There was inequity in land ownership for land of greatest value, but also for lands of less or, seemingly, no value such as cogon/talahib grass land. The trend toward absentee ownership is a rather recent phenomenon. If the land that became absentee owned were not the village’s best, its change in ownership would probably not have had such a profound effect on local society. The issue of individual household’s control over land determines how it is used, therefore, how land is allocated within individual kawitans is critical.

5.4 Individual Family’s Access to Land

Many kawitans--excepting those that have claimed land in the public forest--own some land in the cadastrally surveyed areas, or in those claimed after the forest fire of 1960. These lands were allocated to individual households that constituted the kawitan. Within each kawitan there were usually a few families that held tax declarations or titles to the land. Therefore, in most cases, the majority of the families in a kawitan owned no land.

A kawitan, was comprised by family members, related by blood who lived in separate and independent households. The type of land that each kawitan owned was important, for example, irrigated lowland versus xeric uplands, but of additional importance was the number of households in a kawitan, and the total number of individuals who needed to gain sustenance from that land.
An analysis of land, in relation to family needs, was conducted. Two broad variables were used: land and population; each was split into specific categories. Land was divided into its various uses, wet field, dry cropped and cogon/talahib grass. Population was quantified using adult equivalents, with each person in a household assigned a value relative to their sex and age (WHO, 1979). Based on WHO values men over the age of 19 equalled 1 adult equivalent, males aged 10 to 19 (0.95), women over the age of 19 (0.73), women aged 10 to 19 (0.79). Children from 4 to 9 years were assigned a value of 0.67, and all those younger a value of 0.36.

A household’s land base, and its potential productive capacity, was broadly compared with the number of calories the household required for basic sustenance.

Two families, the Bolon’s and the Guijo’s, are used as examples of at least two ways that land resources were distributed in relation to family size. As a kawitan, the Bolon’s own a total of 30.24 hectares of land, half of which is cogon/talahib grass-covered uplands. The remaining lowlands were cultivated to nearly one hectare of unirrigated rice, slightly more than eight hectares of corn, and just over five hectares of coconuts. The Bolon’s were the largest kawitan in the study area with a total of 92 individuals living in 18 separate households. Disregarding the unproductive cogon/talahib grass uplands, the Bolon kawitan relied on less than 1600 square metres (0.16 hectares) per individual for sustenance, or a mean of 1.68 hectares per family. The Bolon kawitan’s cumulative adult equivalent was 58.2. However, the kawitan’s land base was not evenly distributed among all its households (Table 11).

<table>
<thead>
<tr>
<th>Total</th>
<th>Owned</th>
<th>Tenant</th>
<th>Occupied</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bolon 1</td>
<td>3.37</td>
<td>0.00</td>
<td>3.36</td>
</tr>
<tr>
<td>Bolon 2</td>
<td>0.42</td>
<td>0.00</td>
<td>1.10</td>
</tr>
<tr>
<td>Bolon 3</td>
<td>0.00</td>
<td>0.0</td>
<td>0.82</td>
</tr>
<tr>
<td>Bolon 4</td>
<td>0.00</td>
<td>0.71</td>
<td>0.0</td>
</tr>
<tr>
<td>Bolon 5</td>
<td>0.00</td>
<td>0.24</td>
<td>0.0</td>
</tr>
</tbody>
</table>

Table 11: Lands owned, tenanted and occupied by various households of the Bolon kawitan, in hectares.
For example, one of the households headed by a young, newly wedded couple (Bolon 5) had the least land at their disposal, while the kawitan's patriarch (Bolon 1) owned over three hectares that consisted of unirrigated rice land (0.30 ha.), cornland (1.88 ha.) and upland (1.20 ha.). Bolon 1 also had over three hectares of dry cropped land in the forest zone. One of the households, Bolon 3, only had access to land in the forest zone. The trend was for older members of the kawitan to own land, with the middle-aged kawitan members tenanting from them. Younger households had a higher proportion of land held as either tenancies--usually of degraded dry cropped lowlands as in the case of Bolon 5--or as insecure illegally occupied land in the forest zone (Bolon 2 and 3).

Adult equivalents were not correlated with the area and type of land available to each family. Bolon 1 had an adult equivalent of only 2.73, while Bolon 3 had only land in the forest zone, but had an adult equivalent of 3.8, as did Bolon 5 which had access to even less land. Only Bolon 2 with slightly more land was equated with a higher household adult equivalent of 5.15. In general, needs in terms of calories for any one household in the kawitan were not associated with the disposal of the kawitan's land.

The allocation of land was much less critical in the situation where a small kawitan had a large area of land. The Guijo kawitan had nearly 70 hectares of land spread throughout Cabacnitan, but had only four families directly dependent upon it. These four families had only 21 dependent members that represented an adult equivalent for the kawitan of only 8.23--or one-fifth that of the Bolon kawitan--on more than twice the area of land; one household was always female headed, and another was headed by a widow. Their father had one sister who married into the Ikow kawitan. This resulted in a split of the land between the Guijo and the Ikow kawitans. On the Ikow side the kawitan has grown larger. The first generation had 11 children. Five reside and farm locally. Of these five, only one had married and
produced offspring. This second generation consists of five children, none of whom reside locally.

Lands under the stewardship of the Guijo and Ikow kawitans were, as in the Bolon’s case, split between cogon/talahib grass uplands (35.30 ha.) and cultivated lowlands of rice (2.60 ha.), corn (12.83 ha.), coconuts (6.65 ha.), and rocky and forest land (10.81 ha.). Only a small proportion of the lowland was cultivated by each household. This was done with the assistance of hired wage labourers.

On the Guijo’s side of the kawitan the head of each household was a professional with a full time teaching position in the local school. Weekends were devoted to the maintenance of the farm and management of the labourers. One household owned irrigated (0.27 ha.) and unirrigated rice land (0.41), dry lowland (1.22 ha.) and upland (0.60 ha.). The only other household still carrying the Guijo kawitan name was limited to 1.50 hectares of dry lowland and 1.41 hectares of upland. The remaining land was distributed to tenants of which only two were registered with the Department of Agrarian Reform. The others operated with informal, unwritten contracts and were, therefore, insecure in their tenancy. A large proportion of the remaining land originally controlled by the Guijo kawitan was controlled currently by the Ikow kawitan who inherited the land through their grandmother, who was a daughter of the Guijo kawitan patriarch.

Within each kawitan were any number of individual households which in some form received sustenance from the kawitan’s land holdings. Allocation of lands was not equitable. Elderly, dominant families maintained the ownership of land, and allocated it to younger families as they saw fit. Trends were for the kawitan’s younger couples to receive less land in lieu of their ability to work as wage labourers for other kawitan. Middle-aged households have better access to land. These various levels of household status within the kawitan were similar to the system of land holding and labour control described by the Spanish. Status was not equated with control of land.
but with control of labour. Therefore, households used the land that was allocated at varying intensities depending on a number of factors.

5.5 Kawitans, Families and Land Management

Variability in landuse strategies, their intensity of implementation, and their relationship to familial obligations--including family life cycle--were critical to the study of environmental degradation. The barangays of Quezon and Cabacnitan have fundamentally different demographic profiles. Quezon had a smaller population that cultivated a more fertile and sustainable land base; in contrast, Cabacnitan had a substantially greater population living in a decidedly more fragile landscape.

Life cycles were also fundamentally different. Generally, the families in Quezon were headed by older couples, and therefore had less economic pressure bearing on the family unit and hence the land. Cabacnitan’s families were younger, and had greater expenses, as wealth flows were predominantly from parents to children. This arrangement resulted in a greater demand being placed on their land.

5.6 Pressures for Production: Land Management in Quezon and Cabacnitan

In Quezon and Cabacnitan two broadly different agricultural systems operated. The most productive was on the flat, wet or dry lowlands. The second operated in the uplands. The system on the lowlands was broadly similar across the study area. In contrast, important distinctions were made between the upland landuse systems of Quezon and Cabacnitan.

The size, and quality of the land base at a household’s disposal was crucial. This was refined by distinct relationships between the size and quality of the land base and the stage of the life cycle of individual families.
The morphology of the limestone residuals in concert with the landuse of the surrounding lowlands affected upland landuse and its intensity. Uplands constituted nearly 50 per cent of the land area of Quezon and approximately 30 per cent of Cabacnitan. The size and morphology of the *budloys* (limestone residuals) differed in the two *barangays*. In Quezon, the *budloys* were larger, often had multiple levels, and had considerable areas of relatively flat land on their summits. In isolated cases, Cabacnitan’s *mogotes* were of this morphology, more commonly they had sharply inclined slopes, some with *pang-pang* (cliffs), and more pinnacled summits.

5.6.1 Upland Landuse in Quezon

Wet rice cultivation prevailed in Quezon for generations. Associated with this wet rice system was the use of *carabao* as a draught animal. In the wet season the summits and more gentle slopes of the hills were used as *carabao* pasture. The intensity of this use changed over time. In some instances the summits of hills were periodically tilled with a *carabao* drawn plough.\(^{56}\) This practice was more prevalent before World War Two and in the immediate post-war years. For a number of reasons the practice has either stopped or become less intensive. One reason was erosion of the summit’s soils (Plate 4). Natural denudation rates for the summits were high, and with plough agriculture they increased. Due to soil loss, summits were abandoned for cropping and were seasonally burned to maintain them as *carabao* pasture.

Upland agriculture in Quezon continued on the *budloy’s* slopes. Instead of cultivation in horizontal strips around the *budloys*, land was cleared from the base and was extended up the slope toward the degraded summit. A regime of cultivation and fallow shifted laterally around the hill. Gardens were seldom more than 20 to 30

\(^{56}\) The summits of individual hills were labelled as “under cultivation” in an oblique air photograph taken in 1937 in the vicinity of Batuan (Allied Geographical Section, 1944). Today there are very few summits in cultivation in Quezon, however, in Cabacnitan, I observed a number of hilltops under plough, mostly in areas close to the forest zone, i.e. recently cleared lands.
metres wide at the base, and narrowed toward the summit. Often the same crop was planted throughout the garden. However, permanent crops, like fruit trees and coconuts, were commonly planted at the base of the hill, in part because of the soil’s fertility and moisture, but more importantly to designate ownership.

With time, and depending on the length of fallow, the plots became smaller, not in their extent across the hill but in their range upslope. Complete denudation of upper slope soils and their translocation to the lower slope was common. Colluvial soils at the toeslopes reached more than a metre in depth. Intensity of cultivation, i.e. the length of fallow, was to a large degree determined by the amount of land available for cultivation by a household in both the uplands and lowlands.

Plate 4: Plough-type cultivation of soils on a mogote’s summit, Cabacnitan, Bohol.

57 This depth is highly unusual within the wider environment. Lowland soils are generally unstratified, less than 20 centimetres deep and rest on bedrock. Toeslope soils are the environment’s deepest and most fertile.
More recently, (in the last 20 years) some farmers have foregone the cultivation of the slopes of hills and have permitted them to return to scrub. Some plantings of economic trees were scattered in the shrubbery. In isolated cases there were more formal planting of ‘pocket forests’ (0.10 ha) of mahogany on a hill’s lower slope. In these cases the hill’s summit was still maintained for pasture. Hand tools were used to maintain the pasture, rather than fire, so as not to damage the planted trees.

5.6.2 Upland landuse in Cabacnitan

In Cabacnitan, *budloys* constitute less than 30 per cent of the land area of the alienable and disposable portion of the *barangay*. Their morphology was considerably

---

58 In the forest zone to the east of the alienable and disposable lands the proportion of hills to lowlands increases dramatically to nearly 70 per cent of the land area.
different from those of Quezon. Many had very steep slopes and extremely limited areas of flat land on their summits (Plate 5). Most were completely denuded of vegetation and the most degraded were seasonally burned.

A combination of less need for pasture and greater pressure for food production resulted in many *budloys'* intensive cultivation. Wet season pasturing was rarely done on Cabacnitan's *budloys*. Lowlands were relatively free-draining, therefore the diseases that afflicted *carabao* which grazed on continuously sodden ground were not present.

Areas of flat land on the summits of hills were highly restricted, therefore most cultivation took place on the slopes. All slopes suited to cultivation were used for crop production—usually continually. Shovel-ended knives called *bungays* were the most common implement used in cultivation. Fire was occasionally used to open-up fallowed land. More commonly, plots were weeded by hand using a *bungay* and the grasses and weeds were stacked and burned.

Very few fruit and coconut trees had been planted at the base of the hills in Cabacnitan (Plate 6). This was due to the *budloy* cultivators' very weak tenure position. For example, the mean number of years of tenure of upland plots in Quezon was over 20. In many instances these have been passed down through generations; in Cabacnitan the mean was three years. The same crops were planted on the slopes of Cabacnitan as in Quezon, i.e. mainly corn and sweet potato and then cassava late in the cropping cycle, that was if a fallow period was included in the cycle. Cultivation was often limited to the bottom one third to one quarter of the *budloy*. Summits and upper slopes had been seriously denuded by erosion.

59 A disturbing trend was evident as I surveyed more and more families in Cabacnitan. Upland land was frequently (every few years or less) passed down the social hierarchy as tenancies. As a family abandoned a piece of tenanted upland (recently, to cultivate 'new' land in the forest zone) other usually poorer families move quickly to cultivate the abandoned plot. Even the most degraded upland plots are therefore continuously tenanted and cultivated.
Plate 6: In Cabacnitan trees are rarely planted around the base of the mogotes.

The budloy-based cropping regimes of the two villages were markedly different. The morphology of the budloys influenced the type of cultivation that occurred due to the extent of flat land on the summits of some hills and the erodability of soils on the slopes. More important, however, was the intensity of landuse. The
following section addresses this in relation to access to other types of land, the quality of that land and the tenure position of the household that cultivated uplands.

5.7 Factors Influencing the Intensity of Cultivation of the Uplands

Thirty households in both Quezon and Cabacnitan were interviewed, and the lands under their control were surveyed, and their quality assessed. Maps were sketched of each household's fields and questions were asked about landuse intensity and methods of cultivation. Although each household was distinctive in all facets of their life I differentiate between three broad types. Each was distinguished in relation to the amount of land they had access to, plus: 1) their tenure situation; 2) the quality of their land, and 3) the household's stage in the life cycle. Households had either: 1) relatively large owned holdings, with the family in the later stages of their life cycle; 2) secure tenancies with moderate holdings and primary, elementary or college aged children, or 3) had very little land available to them in any form (owned, tenanted, informally claimed) and were in all stages of their life cycle.

---

60 See Appendix 2 for a description of the methods and the finding from this survey.

61 I am referring to the age of the head of household and the placement of their dependent children in their life cycle, be it primary or elementary aged school children or high school or college aged. The number and life stage of the children bear heavily on the intensity of landuse.

62 Primary school is mandatory and covers grades one through four. Elementary grades are optional and consist of grades five and six. These first six grades are government sponsored and are free from tuition. High school includes grades seven through ten, and college thereafter. Prior to 1993 students wishing to attend high school in Batuan had to attend the private high school (fee-paying) run by the local Catholic Church. The nearest government run (free) high school was nearly 30 kilometres away in Loay. Some residents sent their children to the public high school in Tagbilaran City.
5.7.1 Dispersion of Land

Local society's premier group consisted of people who owned an array of land types, usually in different parts of the village, or in more than one village. In rare cases land was held contiguously. This signified considerable 'depth' in familial tenure, marked by few if any land divisions for inheritance. However, more commonly, lands of the land owning kawitan were held as a discontinuous group (Figure 29).

Ownership of plots only occasionally, transcended barangay boundaries, as seen in Figures 29 and 30. Kawitan who owned many plots possessed them either in a highly dispersed, or very compact form. This reflected the way the lands were obtained. For example, in map 14 the Loktob kawitan accumulated land by foreclosing on indebted farmers, and by buying land from farmers who migrated to Mindanao; their holdings were highly dispersed. In contrast, the holdings of the Guijo kawitan were very compact. These lands were claimed under the Homestead Act at the turn of the century. Many contiguous plots owned by the same kawitan usually represented a large plot severed for inheritance.

Land held in a dispersed pattern was a distinct advantage. In general, it was common for a kawitan to hold land that was dispersed over, at most, a one kilometre radius. A range of ecozones existed within the radius, and the quality of lowland fields reflected this environmental diversity. For example, owners of many plots commonly owned land with excellent access to irrigation water. Yet, with a change in hydrology their fortunes changed. Sometimes the 'best lands' no longer had access to water, while marginal, flooded areas, became well positioned. Dry lowlands used for corn and root crop production were not directly affected by hydrological change, but they varied in stoniness, slope and aspect.

Small holders and tenants had access to only one or two plots of land in the lowlands (Figure 30). The land was usually marginal in access to irrigation water. With hydrological change they were more adversely affected as they harvested fewer
and poorer crops than those with well irrigated land. They were also less likely to have another parcel that with hydrological change became better adapted to rice cultivation i.e. not as seriously flooded.

Under the traditional pattern of land allocation, limited access to the lowlands in affect meant limited access to the uplands. In many cases a lack of access to diverse upland environments in conjunction with poor quality lowlands led to intensified use of uplands.

Figure 29: Dispersion of lands cultivated by the largest local land owning kawitan.
Figure 30: Dispersion of lands owned by local kawitan owning fewer plots.
5.7.2 Life Cycles and Landuse

The interaction of life cycles and household structure affected land management decisions. For example, households ranged in composition from young couples with one or more children, to families through their reproductive years who supported children in school, and finally, more aged households whose children had completed school. In many cases the latter enjoyed a shift in wealth flow from children to themselves. Within each group, access to land of various quality affected land use decisions.

5.7.3 Intensive Landuse

In Cabacnitan 17 of 20 households interviewed continuously cropped their uplands. Many were young couples with growing families. They lived close to the forest margin, and often cultivated land in the forest zone. Households headed by older couples that had many children in non-public education (fee paying) also cultivated land in the forest zone. However, not every family could support their children past public school and into fee paying high school or college. In Cabacnitan, families with children in fee paying courses typically had some land owned in the cadastrally surveyed part of the village. They cultivated cash crops in the forest zone to supplement their incomes.

In Quezon, only 2 of 25 farmers surveyed, who had uplands under their control, cultivated them continuously. The situation for these households in many ways matched conditions of the 17 families of Cabacnitan who cultivated continuously. One case was a refugee family of eight, and a second, was a single, male headed household, with five young children supported by a land base of only 0.31 hectares of tenanted rainfed lowland and a small adjacent upland plot.
5.7.4 Moderately Intensive Landuse

Those who cultivated their uplands more moderately, i.e. on a more regular rotation, were almost exclusively located in Quezon. Uplands were viewed as a food safety net, rather than as an integral part of the household’s economy. Upland plots were cultivated about every 10 years. Many uplands in Quezon previously cultivated in 1982 and 1983 were cultivated in 1992. This period related closely to the El Niño droughts that affected the area.

There were a number of reasons why uplands were cultivated during periods of drought. First, during drought the production of food in their lowland plots was severely constrained. Secondly, the upland soils possessed higher levels of soil moisture than the surrounding lowlands, particularly during drought.

Over 10 years or longer, fallowed land became revegetated to shrubs and small trees; they shaded the ground and reduced evaporation. Moreover, uplands were exposed to the sun at various aspects, and thus shady areas with a northern aspect conserved even more moisture. Also, the soils on the hills had a greater clay content and retained more moisture than the lowland soils. The chalky and marly limestone of the hills fostered the slow downward movement of meteoric water to the toeslope where it became available to crops. Figure 31 below depicts the variation in soil moisture for over 74 samples of lowland and upland soils collected during the 1992 drought.
Figure 31: Moisture content of upland versus lowland soils after a seven month drought (see Appendix 4).

Cultivation of the uplands intensified during drought with serious consequences for the longer-term stability of the lowland hydrology. Similarly, the clearing of forest in the uplands of Cabacnitan intensified during periods of drought as a result of both increased clearing for sustenance, and from the spread of wild fires.

5.7.5 Extensive Landuse

As a percentage, the barangay of Quezon had more older couples whose children had been educated, and were now living or working outside the province. When a household owned a considerable area of land relative to others, distinctive land management decisions had been made. Cultivation of fertile plots was sometimes discontinued because the aggravation, and production costs, outweighed the benefits, or perceived needs of the household. Only a minimum amount of land was cultivated, and this was usually the nearest the house.
In some cases lands were cultivated solely to assist the village’s underprivileged. Members of the land owning households seldom participated in these ‘make work’ projects. Importantly, the land owner felt obliged to create an opportunity for the less fortunate to work and harvest a crop of rice. No matter how benevolent the owner felt, they still claimed their typical five-sixths of the harvest and left the rest for the labourers.

Commonly those with excess land changed to less labour intensive cropping systems such as fruit and other trees. Areas planted to coconut trees increased among the older, more secure households. Degraded lowland corn land was planted with coconuts. Economic trees planted in the uplands reflected a ‘comfort zone’ for the household in terms of the area of their land holdings, and their perceived need to cultivate uplands during drought. Of the households surveyed in Quezon, 6 of 25 who owned uplands had planted economic trees. In all cases they had access to relatively large areas of wet and dry lowland (Table 12).

<table>
<thead>
<tr>
<th>Irrigated (ha)</th>
<th>Dry lowland (ha)</th>
<th>Upland (ha)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Farmer 1</td>
<td>0.3966</td>
<td>1.1897</td>
</tr>
<tr>
<td>Farmer 2</td>
<td>0.0000</td>
<td>1.5000</td>
</tr>
<tr>
<td>Farmer 3</td>
<td>1.1207</td>
<td>1.5877</td>
</tr>
<tr>
<td>Farmer 4</td>
<td>1.5000</td>
<td>3.9460</td>
</tr>
<tr>
<td>Farmer 5</td>
<td>1.7136</td>
<td>0.0000</td>
</tr>
<tr>
<td>Farmer 6</td>
<td>1.2830</td>
<td>0.4120</td>
</tr>
</tbody>
</table>

Table 12: Areas of major land units cultivated by persons who planted economic trees in their uplands. Source: personal farm surveys and records of the Batuan Municipal Assessor.

A household’s intensity of cropped lowlands was in all cases similar to the intensity in their uplands. In Quezon’s dry cropped lowland, land was commonly fallowed for at least 10 years for the more affluent farmers. In Cabacnitan, dry land was generally fallowed for less than three years. Critically, the newly developed lands in the forest zone were nearly all continuously cropped (drylands and uplands). It is
beyond the bounds of this dissertation to show the impact that this activity was having on the soils.

5.8 Summary

Types of upland landuse and their intensity were indicative of any number of socio-economic factors that affected individual households. There was a correlation between the amount, and type of land owned, and the type and intensity of upland landuse. Implementation of more 'sustainable' upland landuse strategies, i.e. tree planting, was more common in Quezon. This was due in part to the security of tenure Quezon’s land owners had to their land. Large areas of Cabacnitan were owned by households who placed tenants on individual hills. These tenancies were frequently rotated, and this militated against the planting of any long-term economic crops, such as coconuts, fruit or timber trees.

The life cycle of a household influenced land use and intensity. Families that owned and tenanted land in Quezon were generally older, and had educated their children. This permitted the land manager freedom to plant economic trees in lands they would have cropped to cover school expenses. Cabacnitan’s families were considerably younger, and they needed to cultivate land intensively.

Families compete for land, either as tenancies, or as new parcels in the forest zone, and even degraded, cadastrally surveyed land. This reflected not only the limited extent of available alienable and disposable land but also a decline in agricultural productivity.
6.0 Chapter Six: Population Growth, Settlement Expansion and Migration

Between 1970 and 1990 local patterns of fertility, migration and settlement rapidly changed in response to complex local and regional forces. Early in the period, war in Mindanao curtailed migration to that island. In response, Batuan’s population growth in fragile lands increased rapidly in the 1970s. Urbanward migration from Batuan only influenced the local situation in the late 1980s and 1990s. However, there was no evidence to link this stream of migration with reduced population pressure on local resources.

As a result of past social development the populations of individual sitios responded differently to post-World War Two ecological change. Three sitios represented different socio-ecological stages in the process of environmental and social degradation—ranging from predominantly wet-rice to mainly dry cropped. Each sitio was distinctive in its social construction and land management regime owing to historic and changed landuse, land ownership, population pressure and migration.

6.1 Population Growth and Migration

From 1970 to 1990, the population of Batuan increased, on average, at half the rate of the rest of the country. Specifically, between 1970 and 1980 population grew at 1.28 per cent; between 1980 and 1990 the annual rate was 1.64 per cent (Republic of the Philippines, 1980 and 1990). Out-migration was still occurring because rates of municipal population growth were still well below those of real population growth (i.e. birth rates minus death rates). Disregarding migration, Batuan’s real growth was about 2.7 per cent between 1970 and 1990. About 400 persons migrated between 1970 and 1980—representing a steep decline from the two previous decades. Significantly, immigration occurred at a very marginal level (approximately 34 persons) between 1980

In direct contrast to the period between the 1960s and the early 1980s, the late 1980s and early 1990s marked a new phase of migration. This was directed almost entirely toward Manila. Intensified militarisation and repression in Batuan in the 1980s (and continuing into 1993\textsuperscript{63}), 'pushed' many out-of-school youth to the city with their parent's moral and financial support. Impacts of this movement of fecund youth was evident in a drop in the number of births during the late 1980s and early 1990s (Figure 32).

\begin{figure}[h]
\centering
\includegraphics[width=\textwidth]{figure32.png}
\caption{Number of births and deaths, and population growth for the municipality of Batuan, 1970 - 1992.}
\end{figure}

\textsuperscript{63} Repression occurs primarily at the hands of the CAFGU (Civilian Armed Forces Geographical Units) detachment deployed in the hinterlands of the municipality. However, the initial repression and human rights abuses were meted-out by military personnel. The CAFGU detachment was disbanded in 1994. Police patrols filled the gap.
As increased numbers of Batuananos chose to stay in Batuan, in the 1970s and 1980s, existing settlements grew and new settlements formed. With the recent political unrest, displacement (within Bohol) became common—although the distribution was uneven, both spatially and temporally—as patterns varied across Bohol and within the town of Batuan. For example, in most coastal towns there was very little displacement, in contrast to towns of the interior such as Batuan. There was also variation within Batuan. To the west of the Poblacion, settlements were 'permanently' shifted to new sites. However, to the east of the Poblacion i.e. in the barangays of Cabacnitan and Quezon, nearly 1,000 persons evacuated to the Municipal Hall for up to one year before choosing—and being permitted by the military—to return, to their traditional house sites (Republic of the Philippines, 1985).

For rural barangays the post-World War Two era marked a period of stagnant population growth throughout the 1960s as large numbers of Batuananos migrated to Mindanao and elsewhere. In the 1970s migration rates decreased and population pressure grew in marginal, peripheral settlements that had previously been dominated by single households or, at most, two or three related households. Through the 1970s and 1980s these peripheral settlements grew to between 10 and 15 households.

As economic, social and political change intensified, access to the alienable and disposable lands, and its dwindling agricultural product, decreased. In response, some families began to cultivate public forested lands. At first the government responded using legal means, most notably by enforcing P.D. 705, of the Philippine Forestry Code. Numerous cases were brought to the local and district court; most ended in conviction. Land disputes became more frequent between farmers, and between farmers and the state. Mounting social pressure on resources and state intervention to further limit access to public forest lands provided fertile ground for the New Peoples Army (NPA) to enter the area. It was in this environment during the late 1970s that the 'movement' entered southern Bohol. What resulted was an instantaneous withdrawal of forestry personnel, police and the military from most barangays outside
the *Poblacion*. This reaction by government departments led to a lessening of population pressure on the land as farmers moved quickly into the newly ‘liberated’ forests to cultivate new plots. Coffee was the preferred cash crop, and farmers made substantial profits in the ‘boom’ period of the early 1980s. Root crops and corn were cultivated for subsistence and, where conditions permitted, wet rice was grown. This rural boom economy attracted business. For example, residents, with the government’s approval and support, opened new markets in peripheral *barangays* such as Rizal, Batuan, to service the area’s new wealth.64

Several new and more remote settlements evolved. Settlement patterns changed in *barangays* with access to large tracts of public forest land such as Cabacnitan, Cantigdas, Quirino, Janlud, Rosariohan, Rizal, Cambacay, Aloha, Garcia and Behind the Clouds (Figure 33).

Access to the forest was short-lived. Military forces arrived in August of 1986 to clear the island of NPA guerrillas, and in doing so they ‘encouraged’ families who lived and cultivated the public forests to move to *barangay* centres. Between 1980 and 1990 nearly 600 of Batuan’s families (roughly 3,000 people) relocated their homes along *barangay* roads, near traditional *sitio* and *barangay* centres, or in some cases in the *Poblacion* (Bliss, pers. comm, 1992). The only *barangays* not temporarily or permanently resettled (Aloha and Behind the Clouds) were still allied with the NPA.

Of particular interest was the rapid population growth in *Poblacions* Norte, Sur and Vieja (Table 13). These *barangays* became safe sites for refugees coming from the hinterland. Typically, families that migrated to the *Poblacion* had suffered severe psychological distress from the armed conflict (Bliss, pers. comm, 1992; Jumawid, pers. comm, 1992).

---

64 The market functioned prosperously for only a few years. It closed when newly cultivated lands quickly degraded, coffee prices dropped and people were urged to ‘relocate’ closer to the *barangay* centre. A secondary problem was an inadequate water supply.
Figure 33: Area of forest cleared around the periphery of Batuan by the late 1980s.
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Cabacnitan</td>
<td>511</td>
<td>652</td>
<td>635</td>
<td>730</td>
</tr>
<tr>
<td>Quezon</td>
<td>343</td>
<td>402</td>
<td>412</td>
<td>413</td>
</tr>
<tr>
<td>Aloha</td>
<td>526</td>
<td>592</td>
<td>620</td>
<td>531</td>
</tr>
<tr>
<td>B.T.C.</td>
<td>370</td>
<td>420</td>
<td>420</td>
<td>363</td>
</tr>
<tr>
<td>Cambacay</td>
<td>525</td>
<td>577</td>
<td>540</td>
<td>530</td>
</tr>
<tr>
<td>Cantigdas</td>
<td>949(^{(a)})</td>
<td>570</td>
<td>526</td>
<td>638</td>
</tr>
<tr>
<td>Garcia</td>
<td>474</td>
<td>412</td>
<td>501</td>
<td></td>
</tr>
<tr>
<td>Janlud</td>
<td>622</td>
<td>724</td>
<td>665</td>
<td>731</td>
</tr>
<tr>
<td>Pob. Norte</td>
<td>1716(^{(b)})</td>
<td>897</td>
<td>955</td>
<td>1383</td>
</tr>
<tr>
<td>Pob. Sur</td>
<td>789</td>
<td>770</td>
<td></td>
<td>1008</td>
</tr>
<tr>
<td>Pob. Vieja</td>
<td>529</td>
<td>688</td>
<td>651</td>
<td>847</td>
</tr>
<tr>
<td>Quirino</td>
<td>508</td>
<td>466</td>
<td></td>
<td>580</td>
</tr>
<tr>
<td>Rizal</td>
<td>1194</td>
<td>999</td>
<td>1151</td>
<td>1139</td>
</tr>
<tr>
<td>Rosariohan</td>
<td>814</td>
<td>731</td>
<td>714</td>
<td></td>
</tr>
<tr>
<td>Santa Cruz</td>
<td>1089(^{(c)})</td>
<td>834</td>
<td>881</td>
<td>1091</td>
</tr>
</tbody>
</table>

\(^{(a)}\) Split to form Quirino.
\(^{(b)}\) Split to form *Poblacion* Norte and *Poblacion* Sur.
\(^{(c)}\) Split to form Garcia.
B.T.C. = Behind the Clouds
Pob. = *Poblacion*


In the 1990s some settlements clustered together during the military operations were dispersed as government initiatives, such as the Integrated Social Forestry (ISF) programme permitted the legal occupation of the forest zone. Yet the social forestry initiative was implemented unevenly. Only those who had registered their claims to plots in the forest land with the Department of Environmental and Natural Resources before 1981 were eligible for consideration in the programme.
6.2 Regional Perspective on Population

Unprecedented mobility, as evidenced by the population movements of the 1980s and 1990s, characterised Batuan's population. Meyer (1993) postulated that poor economic performance in the cities of the Philippines in the early 1980s led more migrants to settle in public forest lands than urban areas. This was probably the case in the mid-1980s, or until the Marcos dictatorship was toppled in 1986. Not mentioned was the rise of the 'leftist' movements throughout the countryside. Public forest land was abandoned by the Forestry Department and other government agencies, and this encouraged increased upland settlement. President Aquino's policy of 'all out war' against insurgents reversed the trend of upland mobility and turned the migration tide back toward the cities--as evidenced by an 8 per cent rise in urban population between the 1980 and 1990 censuses (Republic of the Philippines, 1980 and 1990).65

The fear generated by 'all out war' in the countryside pushed people to the cities even though jobs were difficult to find. This mobility, facilitated by the frequency, quality, and availability of transport, was further enhanced by the growth in 'agencias' or employment agencies in Batuan. These agencias provided placements and financial backing, typically for young women but also for young men, in a wide range of urban occupations.

6.3 Contrasting Dynamics of Population

I conducted a census of the villages of Quezon and Cabacnitan over three consecutive days in November 1992. Four people worked in two teams and visited every house in the study area. They asked a series of basic questions (see Appendix 9). A total of 187 households were enumerated, 77 in Quezon and 110 in Cabacnitan. The de jure

65 The 8 per cent rise is considerable when between 1980 and 1985 the flow into the country's uplands exceeded flows toward the urban areas. The number of upland migrants between 1980 and 1985 is estimated to be around 1.2 million (Meyer, 1993:14).
population totalled 1002 persons: 512 children of a living head of a household, 142 other relatives (grandchildren, parents), and 348 who were either a head of a household or a spouse of a head of a household (Appendices 11, 12, 13, 14).

Although the land area of the two barangays was nearly identical, their population characteristics were wholly different. For example, the number of households in Cabacnitan was 42 per cent greater than in Quezon. Similarly, the population was disproportionately distributed. Cabacnitan had 36 per cent more people, or 464 full-time residents, in contrast to Quezon’s 342. Furthermore, the age structure of the two populations was different (Figure 34).

A difference in number and ages of fecund females was also evident at the base of population pyramids. Cabacnitan had 248 children of between 0 to 15 years of age that represented 3.8 children per fecund female. Quezon had only 143 children, or 3.1 per fecund female.\textsuperscript{66} Therefore, not only was the pool of fecund females greater in Cabacnitan than Quezon but their fertility rates were higher.

\textsuperscript{66} A distinction must be made between children born of fecund females in Quezon and those that have been sent back to the village from urban areas to live with grandparents. If all the children were included in my calculation (not disaggregated by those born of local women and those sent back) the fertility level per fecund female would have been exactly the same at 3.8.
Figure 34: Comparative pyramids of *de jure* population for barangays Quezon and Cabacnitan, November 1992. Source: personal investigation.

Most striking was the contrast in the number of fecund women (aged 16 to 40) (Figure 35). In Cabacnitan there were 66, and in Quezon 46, of which 45 and 23, respectively, were married.
Two other issues stemmed from the graphs of barangay population by cohort: out-migration of young people and their destination and type of employment; and the number of second generation children sent to the villages by fecund females or other family members living outside the villages. Both villages had about 16 per cent of their total population living outside the village; nearly 95 per cent were children of couples residing in the villages. The other 5 per cent consisted of the head, or the spouse of a head, of a household for migrants working outside the village. Manila was the most common destination for migrants at 78 per cent of the total (99 of 125). Mindanao was second most preferred (27 of 125). Cebu ranked third, with only six migrants from the villages. Cebu was portrayed in the media as the Visayas’ ‘booming’ urban centre yet Boholanos were not attracted.67

In terms of migrant activities there was a strong gender division of activities. Women dominated in areas of higher education (enrolled in courses toward a higher

67 Cebu’s economic growth has not impacted directly upon the population of Bohol. ‘Ceboom’ as it is known has only absorbed a portion of the oversupply of labour on Cebu. Bohol’s population is still informally linked with Manila via well-established networks of communication. I presume that it will be some time before networks are developed to the same extent with persons and firms in Cebu City.
degree) and/or working as househelpers. Men were also househelpers, but more commonly worked as drivers or factory workers. A lesser proportion enrolled in higher education. Migrants' work did not result in high levels of remittance to families. Few families that were surveyed reported any remittance and, when it was reported, it was sporadic and often of little consequence.

6.4 A Second Wave of Children

An important number of 'second generation children' were sent to the villages by parents residing in urban areas. Grandparents raised the children in a more traditional manner than in the city. Furthermore, education in the rural barangay was for an entire day, five days a week. In the parts of Manila where many of the poorer migrant Batuananos resided, school was for only a half-day due to overcrowding, and too few teachers and buildings. Parents at work were constrained in their time for minding children so they sent them to the 'provinces'. As care givers, grandparents were responsible for not only sustenance and housing but also material support (clothing, school supplies).

In both villages the number of children in this situation was significant. In Cabacnitan 13 per cent of the entire population under the age of 15 were second generation children. In Quezon, they comprised nearly 23 per cent of the age group. In all likelihood these children will migrate to the city along with the children born of parents living in the villages, but what their longer term attachments to the village will be is unknown.
6.5 Fertility Rates and Armed Conflict

Two minor points were revealed by the barangay's population pyramids; both pertain to armed conflict. The growth in the post-World War Two population in Cabacnitan was associated with two related factors: a baby boom after the war among the long-term residents of Cabacnitan; and a similar trend among the people who sought refuge in Cabacnitan during the war and stayed after the war and started families.

Armed conflict affected population growth rates in the mid-1980s, although the circumstances and impacts were completely different. A decline in the birth rate occurred between 1982 and 1987 but only for Cabacnitan. The NPA movement was active in the area throughout the late 1970s and up until 1985, at which time the military arrived and a mass evacuation occurred. Nearly all the barangay's residents moved to the Poblacion as the barangay was 'cleared'. Evacuation led to a temporary reduction in the birth rate but the rate returned to and exceeded pre-crisis levels from 1987 to the present. A similar drop in birth rates occurred in western Batuan in the late 1980s and early 1990s as the military operations shifted to that area.

6.6 Migration Streams

Historically, out-migration to Mindanao had been of a more permanent nature, however, there was evidence of some return migration later in life. Migration to Mindanao began prior to colonisation and peaked in the early 1950s, ending abruptly in the early 1970s. During this period Boholanos poured into Mindanao to develop permanent agricultural homesteads that militated against a return later in life.

The issue of migration was complex. Recently an urbanward migration has broken the rural people's ties to the land. Another 20 or more years must pass to see whether return migration will prevail among this new generation which chose city over rural life. Those that have migrated to the city are sending many of their children back...
to the village for primary schooling. It is probable that these children will follow the stream of migrants going to the city after their studies. However, it has yet to be seen whether their migration to the city will hold their retired parents there, or whether the ties to the village will draw the older generation back. If early trends continue, a surge in return migrants will occur (see Yap, 1992 for a discussion of a Boholano’s attachment to place).

6.7 Creation of New Farms

Most new farms created since 1970 have been in the public forest lands. This occurred primarily because of the intense division of alienable and disposable land which was held by owners and tenants. With the large exodus of young people from the town, province and even the country, fewer and fewer children remain at home, or maintain a strong attachment to the land. It is typical to have one or maybe two children stay at home, farming and caring for the elderly. When they replace their parents as the representatives of the family in the community it was in their interest to maintain what little property they owned or tenanted as one consolidated production unit. Therefore, although other children were given a share of the land, they rarely exercised their right to take full possession, and began to cultivate it independently of the other family member’s holdings. If they resided elsewhere they would either sell the land to the child who had farming experience and had chosen to maintain the family farm, or they had their sibling cultivate their share as a tenant, or finally they elected to pay their sibling a cash wage for cultivating their plot.

6.8 Summary

I’ve briefly highlighted the complex population structure of the municipality and special characteristics of the two villages of Cabacnitan and Quezon. Such high rates of out-
migration revealed the lack of opportunities presented by the local economy. Migration resulted, in part, from a decline in productivity of the environment. However, this was not a new and unrecognised trend in the local community; yet the dynamic of the migration stream had important implications. What was evident was that the exposure of village folk to the modernity of urban areas brought with it higher expectations for rural life. This was frequently expressed by the village’s elderly; the ‘wants’ of the young have become, ‘not-to-be-lived-without needs’, and this has resulted in some family problems.

Furthermore, there was a sizeable population under the age of fifteen. This has been examined in the context of land management strategies. Providing adequate food, clothing and shelter for the growing population intensified environmental degradation. Of particular concern was a rapid rise in population in Cabacnitan—the more environmentally fragile of the two barangays. It is clear that the youth and newly married as a percentage of the entire population increased from the core areas of Quezon toward the periphery and Cabacnitan’s forest zone. High population pressure and intensity of cultivation was, therefore, strongly correlated with heightened degrees of environmental degradation.
6.9 Inter-sitio Variation

I have used the concept of core and periphery at various scales of inquiry. Bohol was a core area for population growth and this had implications for the settlement of much of Mindanao, western Leyte and Negros. I commented on cores and peripheries in Bohol’s municipalities, whereby flat, often irrigated, wet-rice lands represented cores, and drier, hilly, marginal lands peripheries. Inter-sitio variation offered examples of trends in social change as sitios were transformed by environmental shifts. I used the scale of the sitio, because it was the smallest unit of government-recognised organisation. This was not translated to the degree of government-sanctioned elections of sitio leaders or councillors as in a barangay. Every sitio did however, informally elect a punuan (head), and he or she held considerable power.

6.10 Overview of the Sitios

The barangays consisted of 11 sitios, 5 in Quezon and 6 in Cabacnitan. Their populations ranged from 40 to 186, and areas from 50 to over 130 hectares (Table 14) (Figure 36). Landuse patterns were highly variable: three of Quezon’s five sitios were fundamentally rice growing; another was primarily corn growing and was the site of the school, day care centre and barangay hall; the remaining sitio had a small amount of rice paddy, but was now predominantly dry cropped. In Cabacnitan, only one of the six sitios had a substantial area of paddy. The other five had very small, isolated areas of paddy. Cultivation of corn, squash and coconuts predominated.

I chose to highlight three sitios that represented core and peripheral areas: sitio Tiga was in the core, and sitios Pili and Kaburo the periphery. Tiga and Pili were in Quezon, and Kaburo was in a remote part of Cabacnitan.
Table 14: Number of households and population by barangay and sitio. Source: based on census conducted by Peter Urich, Elaine Bliss, Victor Tumanda and Wenida Jumawid, November 4, 5, and 6, 1992.

A government census of population was taken in 1990. Quezon reported 78 households and 440 persons, Cabacnitan had 121 households and a population of 730. The discrepancy between my findings and those of the census, two years prior, were important. There was much less discrepancy between my figures and those for Quezon (2+ households and 10+ persons in the census). This variation was understandable. There was one recently vacated home, and the population loss probably reflected recent urbanward migration. The discrepancy in Cabacnitan (10 households, 158 people) was more worrying. A Department of Agriculture map used in the agricultural
census of 1992 depicted the location and number of houses (only 112) in Cabacnitan. I counted 111 households in my census later in the same year.

Figure 36: Situation of the 11 sitios within the barangays of Quezon and Cabacnitan.
My informants commented on the number of people from the neighbouring municipality of Bilar who stayed in Cabacnitan from the late 1980s until 1991 when the military activity in the vicinity of their traditional homes subsided. Actually, many of these people from Bilar voted in Batuan’s election, went to church, and marketed in Batuan even though their homes and land were in Bilar.

6.11 Sitio Tiga

Sitio Tiga was one of the most agriculturally developed barangays with its extensive irrigated wet-rice lands. It was dominated by two valleys bisected by a central mogote (Plate 7). Each valley was supplied with irrigation water from springs debouching at the valley’s nick point. The sitio consisted of three distinct irrigated areas: the central area was most extensive, and this was where the population had agglomerated; a secondary area was situated upslope; the third area was downslope from the sitio’s centre.

Tiga represented one section of a much larger irrigation system that was linked by a series of subterranean stream passages. Bakan Spring, four kilometres upstream, was the head-waters; the very flat, polje-like barangay of Bogong Norte, two kilometres downstream, the terminus. Sitio boundaries corresponded with sumping points for water along the irrigation system.68

Sitio Tiga was, in essence, a self contained system. It was isolated from other sitios by a number of encircling mogotes offering a narrow, winding break through which linkages were made with the main road and municipal centre. Within this semi-closed environment lived 13 of the sitios 17 families. These 13 households were situated along a strip of dry land that divided the central from the lower irrigated area.

68 These terminations are only temporary. Along the Bakan irrigation systems, sumps are common, however, resurgences only tens of metres downstream are also common. Depending on the lie of the land and the development of infrastructure these short submergences can denote a break in irrigation systems and form boundaries between sitios.
Four other houses were situated in three sites in the upper section, two set independently, and two located very close together.


In the main settlement, a second order of agglomeration was evident. Centrally located was the house of the sitio leader. This house was built in 1983 after the original home, located on the flank of the central mogote, was destroyed by a typhoon. The new house was distinctive. It was centrally located along the new road, was of cement and hollow block construction, and was connected to the electrical grid. After the sitio leader transferred his home, other families shifted from the flanks of the hills to
sites along the new barangay road. This process was spurred by the need for protection from warring (NPA and military) elements and, more recently, to avail themselves of the electricity supply. New (last 10 years) residents (two families) had settled along the southern edge of the central irrigated area. These families had taken 'permanent' refuge from the armed conflict in the neighbouring town of Bilar.

6.11.1 Landuse in Sitio Tiga

As mentioned, sitio Tiga was considered a core sitio because of its highly developed irrigation system, and its historic capacity to produce two crops of rice per year. This capacity has however, been severely undermined by recent ecological change (Table 15). The area cultivated to double cropped, irrigated rice has been affected, having dropped by almost two-thirds over 40 years. Some of the area lost to irrigated rice was cultivated as rainfed rice. Areas cultivated to coconut and corn increased.

<table>
<thead>
<tr>
<th>Landuse</th>
<th>1951</th>
<th>1992</th>
</tr>
</thead>
<tbody>
<tr>
<td>Irrigated rice</td>
<td>23.90</td>
<td>8.80</td>
</tr>
<tr>
<td>Unirrigated rice</td>
<td>11.20</td>
<td>15.20</td>
</tr>
<tr>
<td>Corn</td>
<td>5.30</td>
<td>11.10</td>
</tr>
<tr>
<td>Cogon/talahib grass</td>
<td>26.60</td>
<td>25.00</td>
</tr>
<tr>
<td>Coconuts(^{(a)})</td>
<td>6.90</td>
<td>9.20</td>
</tr>
<tr>
<td>Fruit(^{(a)})</td>
<td>0.01</td>
<td>0.49</td>
</tr>
<tr>
<td><strong>Total(^{(b)})</strong></td>
<td>73.91</td>
<td>69.79</td>
</tr>
</tbody>
</table>

\(^{(a)}\) Areas cultivated to fruit and coconuts are difficult to assess. Assessors tend to disregard those planted around the home. Conspicuous plantings for income generation are more likely to appear in assessments.

\(^{(b)}\) Totals vary due to more accurate surveys being completed or boundary disputes.

Table 15: Landuse change in sitio Tiga, in hectares.

When the lowlands were at their peak of production the surrounding uplands were unattractive and too time consuming to cultivate. As lowland capability
diminished upland cultivation intensified. A long rotation cycle of as many as 20 years once predominated. Over the last two decades in some cases, that was reduced to less than five years. The most intensive landuse was restricted to residents with extremely limited access to lowland resources. In one case a refugee family sought permission from the sitio leader to access an upland plot to plant *camote* (*Ipomea escalata*). The family had abandoned a plot in the forest zone under the threat of violence associated with the regional conflict. Owners and tenants of relatively large portions of lowland, who also owned or tenanted uplands, placed considerably less pressure on their uplands. In isolated cases the seasonal burning of the hills had ceased and economic trees had been planted.\(^{69}\)

6.11.2 Pattern of Land Ownership

In 1992 *sitio* Tiga consisted of 74 plots of land of various sizes. The smallest was an irrigated rice field of 0.0388 hectares (388 m\(^2\)), the largest a 5 hectare upland plot of *cogon/talahib* grass. Ownership patterns were skewed toward absentees and multi-plot holdings by a few households. In 1992 only 41 of the 74 plots were owned by a resident of Tiga. Nearly all of them were lower valued plots of corn, coconut, plus uplands of *cogon/talahib* grass. Of the 64 lowland plots with at least some rice, 44 were owned by people living outside the *sitio*, the majority being coastal residents.\(^{70}\)

Local (*sitio* Tiga) ownership of lowland plots was dominated by several families. The greatest locally owned concentration was a family with seven plots, three of which were in the lowlands. In contrast, an absentee owner had ten plots, five of

\(^{69}\) This tendency is consistent with the findings of Siebert and Belskey in Leyte, and Peluso in Indonesia. Access to ‘adequate lowland resources tends to favour the planting of trees in more sensitive areas of one’s farm’ (Peluso, 1992; Siebert, 1984; 1990; Siebert and Belskey, 1985).

\(^{70}\) Many parcels of land have more than one landuse. The history of land allocation from valley bottom to upland serves as an explanation (for example, rice, corn, coconuts, cogon grass, in a valley to upland transect). Tax declarations differentiate between the types of landuse on each plot using an area measurement (see Appendix 5 for examples).
which were lowland. Absentee owners control 16 hectares\textsuperscript{71} of riceland and 6 hectares in the uplands. Only 7.51 hectares\textsuperscript{72} of riceland was locally owned, versus 13 hectares of the \textit{cogon/talahib} grass uplands. Much of the absentee-owned riceland was cultivated by locals on a share tenancy basis. Arrangements between landlord and tenant were highly personalised. In general, the sharing system was based around a one-third, two-thirds ratio, the former for the landlord, and the latter the tenant. In only one case was the latter payment system inflexible; if a crop failed, the landlord still expected payment. In most instances payment was foregone when a crop failed.

6.11.3 Population

Tiga's population pyramid showed characteristics of a more highly developed rural economy. If the children sent back by relatives in the city for schooling in the villages were excluded, the pyramid's depiction of the youth population would be greatly contracted (Figure 37). The unevenness in the young adult and middle-aged population stems from a heavy rate of out-migration.

\textsuperscript{71} Includes 7.14 hectares of irrigated land and 8.85 hectares of rainfed rice land.

\textsuperscript{72} Includes 1.68 hectares of irrigated land and 5.84 hectares of rainfed rice land.
Particularly tight contractions, such as for males aged 16 to 20, and females 21 to 25, represent an important feature of migration. Often groups of like age and gender migrate together, sometimes for jobs in the same factory, restaurant (the case of the young men aged 16 to 20), or just the same boarding house and unemployment.

6.11.4 Social Structure

Life in sitio Tiga revolves around the cultivation of wet rice; as such the social structure and social institutions were associated with its cultivation rather than with dry land cultivation. For instance, social class and status had historically revolved around the capacity of a family to own land and control labour, and thus to create a bond of patronage with labouring clients, i.e. other families in the sitio. Labour required to cultivate land was purchased from the sitio’s families on a cash basis. Several examples help to explain the symbiotic relationship between patron and client. Two local families controlled 10 lowland plots of land, together they hired more than 50...
people during planting time--10 persons to clean the paddy bunds and repair canals, over 30 for weeding, and a minimum of 10 to 20 at harvest time, depending on pre-arrangements. This pool of labour was supplied by the families who owned one or two parcels of lowland, or no land at all. They were dependent upon the benevolence of the larger land owners for their access to work.

In contrast with other sitios, traditional institutions were still active in Tiga. One was a functioning ‘hongos’ or communal labouring institution. Seven families constituted Tiga’s hongos, all had a blood relationship with the sitio leader. The hongos was limited in its membership to a specific group, therefore it constrained access to some labouring opportunities for other sitio residents. The hongos functioned in this way: a task to be completed by each member was identified, usually this was associated with the cultivation of a crop; a schedule was then created whereby each family sent one able-bodied person to participate on a daily basis as the activity occurred on each member’s farm; the hongos was not disbanded until every farmer had received the service; no cash changed hands, unless a family failed to send a participant, then either a monetary fine was imposed or a payment in kind was required--generally in tuba (coconut wine) or rice.

Differences in social status had to do with the hiring or selling of labour (Table 16). This table of eight of Tiga’s households outlines the wide digression in labour purchased and sold. A number of institutions were involved, yet a clear distinction between those that owned or tenanted rice land and the total area of that land dictated how kawitan, and individual households were recognised. Families were clearly distinguished by the amount of time they spent working for others, and how that work fitted into their subsistence strategy. Holders of larger tracts of lowland either did not work for others under any circumstances, or only worked for others after the most important tasks were completed on their own farm. There was a group that took the opportunity to work for others before working their own farm.
Table 16: Labour (person-days) bought and sold by sampled families in sitio Tiga.

It is interesting to note that the bid system had been widely adopted by land owners. As an imported system (i.e. it came from outside Bohol), it undermined one of the major opportunities for social mobility in the community. The ‘traditional’ or older ‘open’ system, which entailed the lowlands being regularly cultivated to wet rice, provided the opportunity for kugihan (industrious) individuals under the pito-pito\(^73\) system--to earn as much as three cavans\(^74\) of rice per harvest. Bidding for the rice crop, as discussed in Chapter Seven, placed inordinate risk in the event of crop failure on the labourers who bid for rights to cultivate and harvest the crop.

\(^73\) Under a pito-pito system (seven-seven) a threshed rice crop is divided into seven equal parts. Those who helped in the harvest (other than those in the rice field owner’s household) take one part of the harvest and split it amongst themselves. The owner of the field takes the other six shares. A similar system is used in corn and is called siyam-siyam (nine-nine), nine equal shares are divided on a one to eight ratio, worker to owner respectively.

\(^74\) A cavan is equivalent to about 75 litres or 45 kilograms of dry unmilled rice.
6.11.5 Summary

*Sitio* Tiga has led the discussion of variation at the local level because of its only very recent change in landuse which was driven by environmental degradation. Its long history of relatively affluent and sustainable agricultural production was evident in all facets of its population's life from fertility rates to social structures, institutions and migration. The migration issue was exceptional. Many of Tiga’s migrants had found work in Manila and, relative to the occupations of other local migrants, they found above average and secure employment. This reflected the historic affluence of a larger segment of the local population, and their investment in education. In other *sitios* this important aspect waned as the environment deteriorated, and because the *sitios* were further from the affluent cores.

6.12 *Sitio* Pili

For several reasons *sitio* Pili was chosen for comparison. First it had once had a large area in rice production (Plate 8). Secondly, it had a relatively small population which had grown despite a considerable loss in rice production. Finally, *sitio* Pili represented change, change that could occur in other rice-producing *sitios* of Quezon as paddies are increasingly cultivated to corn and other uses.

6.12.1 Landuse in *Sitio* Pili

While similar in size to Tiga, in both households and area, *sitio* Pili had a very different landuse history. Rice, either irrigated or unirrigated (rainfed) had not played a substantial part in the *sitio*’s economy for over 30 years. Nearly all of the 5.3 hectares of irrigated rice in 1951 was owned by one family. Its decline and conversion to other
uses was well documented by the land tax assessments of 1951, 1974, 1980, 1985 and 1992 (Table 17).


<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>IR</td>
<td>4.02</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>UNIR</td>
<td>1.00</td>
<td>5.02</td>
<td>5.02</td>
<td>1.50</td>
<td>1.50</td>
</tr>
<tr>
<td>Corn</td>
<td>3.26</td>
<td>3.26</td>
<td>3.26</td>
<td>1.50</td>
<td>1.50</td>
</tr>
<tr>
<td>Camote</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>1.17</td>
<td>0.00</td>
</tr>
<tr>
<td>Coconut</td>
<td>1.15</td>
<td>1.15</td>
<td>1.15</td>
<td>2.00</td>
<td>4.24</td>
</tr>
<tr>
<td>Cogon grass</td>
<td>7.52</td>
<td>7.52</td>
<td>7.52</td>
<td>10.77</td>
<td>9.70</td>
</tr>
<tr>
<td>Total</td>
<td>16.95</td>
<td>16.95</td>
<td>16.95</td>
<td>16.94</td>
<td>16.94</td>
</tr>
</tbody>
</table>

IR = Irrigated rice  
UNIR = Unirrigated rice (rainfed)

Table 17: Landuse change expressed in hectares for a family farm, 1951-1992.

The situation on this one family farm served as a metaphor for the situation that faced the entire sitio over several decades, as population growth out-stripped local productive capacity. Moreover, the sitio’s population aged, particularly the land holding class. As rice cultivation collapsed the area cultivated with the less labour-demanding coconut increased (Table 18).

<table>
<thead>
<tr>
<th>Landuse</th>
<th>1951</th>
<th>1992</th>
</tr>
</thead>
<tbody>
<tr>
<td>Irrigated rice</td>
<td>5.3</td>
<td>0.0</td>
</tr>
<tr>
<td>Unirrigated rice</td>
<td>3.1</td>
<td>3.1</td>
</tr>
<tr>
<td>Corn</td>
<td>7.5</td>
<td>6.5</td>
</tr>
<tr>
<td>Cogon/talahib grass</td>
<td>31.2</td>
<td>31.2</td>
</tr>
<tr>
<td>Coconuts</td>
<td>2.4</td>
<td>8.4</td>
</tr>
<tr>
<td>Fruit</td>
<td>1.2</td>
<td>1.2</td>
</tr>
</tbody>
</table>

Table 18: Landuse change in sitio Pili, 1951 and 1992, in hectares (slight variations in total area resulted from rounding of figures).
6.12.2 Pattern of Land Ownership

In 1991 one family owned two of the ten lowland rice plots, accounting for 60 per cent of the sitio’s rice area. Of the eight other parcels, six covered just over 2.0 hectares, and all were absentee owned. This left two plots of slightly more than a hectare for other local owners. Overall, of the 17 families residing in the sitio only five owned land. Ten of the families who do not own land had secure tenancies on absentee-owned land, two families had either very insecure tenancies or access to no land other than their house site.

6.12.3 Social Structure and Migration

Sitio Pili was transitional in the sense that it was in the pre-WW II era an important rice producer, and a large proportion of its earlier and much smaller population was sustained by its production. In the last three decades the population grew, while the area cultivated to rice contracted. Today, a majority of the sitio’s residents rely on wage labouring both within and outside the sitio. Contacts with the urban centre of the Poblacion have become more important. Many work in the town centre, in contrast to residents of sitios Kaburo and Tiga. Nine of the sitios 25 plots were owned by residents of the Poblacion. For example, one head of household was a full-time labourer at a local rice mill and another was a bus conductor. These jobs were more likely to be held by persons with a relationship with the Poblacion and who were located closer to the urban centre.

In the 1950s the sitio was made up of only a few houses. Land was owned by several prominent families in large holdings of which only one remains intact today. The others were broken up by inheritance and sale, as their affluent (by local standards) owners built up capital for their migration to Mindanao in the 1950s and 1960s. These migrants had exhausted the land they owned, sold their holdings to absentee owners,
and invested their profits in Mindanao where they remain today, having purchased considerable areas of irrigated land (three or more hectares). Remaining behind farming the earlier generation’s large holdings--were new tenants and persons who had originally been small-scale owners and tenants.

Residents of the sitio rely almost entirely on local wage labour for subsistence. A family of eight whose head of household was aged fifty-five had always been a wage labourer, and his six children and their respective spouses were all wage labourers. Their only land was tenanted, and it was the area’s poorest. Their only lowland plot located in the neighbouring town of Carmen was situated at the ‘tail-end’ of an irrigation system and was out of production more than it was in. They had access to an upland plot, but this was very insecure. The land was owned by a person living in the Poblacion of Batuan. The ‘official’ tenant was a Pili-based family. They passed the rights to cultivate to the wage labourers, in effect making them tenants of a tenant. The original tenant had not asked for compensation, i.e. a share of any harvest.

The majority of the sitio’s population was very young and therefore emulated the situation in the dry cropped sitio of Kaburo. Of particular interest was the destination of Pili’s out-migrants in comparison with those of sitio Tiga (Figures 38 and 39).
Migrants as a percentage of sitio population: 17

Population density (1992): Before migration: 2.50 persons/hectare  
After migration: 2.08 persons/hectare

Figure 38: Migration pattern for the population of sitio Pili.

Migrants as a percentage of sitio population: 26

After migration 1.51 persons/hectare

Figure 39: Migration pattern for the population of sitio Tiga.
The oldest migrants from Pili were in their forties; in contrast, in Tiga migrants were aged up to their mid-fifties (Figure 40). Yet, like Tiga, the percentage of migrants to Manila represented about half of all migrants. The two sitios of Quezon differ in the percentage that migrated to Mindanao and other parts of Bohol. Only 30 per cent of Pili’s migrants remained in Bohol, as against Tiga’s 44 per cent. Far more residents migrated to Mindanao from Pili than from Tiga. Migrants aged 30 and older were almost all male farmers, while the females were involved in both urban and rural type work. For those under the age of 30 factory work and other service industry activities predominated. For women under 30 the majority were employed as househelpers.

High rates of out-migration were evident in Pili’s population pyramid with its contraction in the 16 to 20, and 21 to 25 cohorts (Figure 40). The pyramid’s expansion in the cohort of females aged 26 to 30 was explained by the sitio’s middle-aged men with wives from five to 10 years younger than themselves. These had left the

![Population pyramid for the residents of the sitio of Pili, November 1992. Migrant members of the family are not included in this analysis. Source: personal investigation.](image)

Figure 40: Population pyramid for the residents of the sitio of Pili, November 1992. Migrant members of the family are not included in this analysis. Source: personal investigation.
sitio for Mindanao in their teens but in the last 10 years had returned to marry younger local women. These return migrants had not secured long-term access to land in Mindanao and were thus free to return to Batuan.

This condition was reflected by the 26 children aged 0 to 5, and to a lesser degree the sizeable group in the 6 to 10 cohort. Out-migration of young people had become more commonplace in sitio Pili in the last 10 years.

6.12.4 Summary

Sitio Pili was chosen to depict a sitio in the intermediate stage of environmental decline and, attendant with this, the early stages of a re-orientation of its migration stream. It is yet to be seen whether today’s single, migratory male will return to marry a local woman and choose to settle in the sitio. Such men have migrated to urban areas, in contrast to their peers who went to Mindanao, I would therefore expect relatively low rates of return for marriage (perhaps for retirement), unless of course there is another collapse in the urban economy as occurred in the early 1980s, or if the local economy displayed a new robustness.

6.13 Sitio Kaburo

Sitio Kaburo was in several respects distinctive. Of all the sitios it was furthest (10 kilometres) from the Poblacion. The friction of this distance was evident in the historic lack of government-provided services. Kaburo had been dominated by dry land farming since it was first settled, unlike the sitios of Quezon which, although settled and developed around a wet rice economy, were shifting toward the Kaburo landuse and social system (Plate 9).

Although the productive capacity of the land in Kaburo was lower than many other sitios, it supported a higher density of population, and that population was
younger, more fecund, and thus, over the longer-term, more potentially threatening to resources.

Evidence showed that the educational levels attained by the residents of Kaburo were lower than other sitios. This was reflected by the types of occupations obtained upon migrating to urban areas. Only 3 (men) of the sitio's 34 migrants could be considered 'professionals', using the Filipino lexicon for such employment (office workers). All but one of the remainder were farmers. The migrant women were predominantly househelpers.

Home leavers were much less likely to migrate from Bohol. An important number had moved to other parts of Cabacnitan. Trends for reversal of the migration stream from Mindanao to Manila, though present, were not strong, and this was for two reasons: a lack of education; and lack of networks such as those forged by migrants from the other sitios.
6.13.1 Landuse in Sitio Kaburo

As early as 1910 very scattered agricultural clearings were present but these were restricted to the lowlands, particularly in areas suited to wet rice. Kaburo was an important area of frontier settlement in the 1930s and especially during World War Two when various people sought refuge from the Japanese. Many households trace their roots to kawitans in Quezon.
Sitio Kaburo had some of the largest tracts of relatively flat land anywhere in the study area. Hills, so prevalent elsewhere, were more widely spaced. This left wide, well-drained, plains for corn to be cultivated (most rice fields dried-up in the 1950s). Indeed, most cultivation had been limited to the lowlands. Mogotes in this area were particularly steep sided, a condition not conducive to extensive pasturing or cultivation. The uplands were nearly all completely deforested and colonised by patchy cogon/talahib grasses.

Fire had played an important part in the transformation of Kaburo’s landscape. As recently as 1960 many of the uplands in the sitio were still clothed in native vegetation. Fire was used to eliminate native vegetation in the lowlands but it was used in a controlled manner, as it had been used to clear public forest land. Trees and shrubs were cut, firewood extracted, and then the trash was piled and burned. However, in 1960 a devastating fire swept across the barangay of Cabacnitan including the sitio of Kaburo. A concerted effort to stop the fire was waged by the residents of Cabacnitan, and residents from as far away as Quezon and the Poblacion.

Lowland landuse has changed over the last 40 years (Table 19). The area cultivated to rice, both irrigated and rainfed, diminished. Land once taxed as rice land supported one crop per year, and in recent years of climatic uncertainty none. Former rice fields were converted to a number of uses: production of squash for sale in local and regional markets, production of corn and, occasionally coconuts. The area under corn, coconuts, gabi and camote increased. Gabi and camote were commonly cultivated on newly cleared lands. Cogon/talahib grass declined in area for at least three reasons. First, in 1990, 50 hectares of upland cogon/talahib grass land was planted with gemelina and mahogany seedlings.75 Secondly, coconut cultivation expanded into former cogon/talahib grass lands. Finally, an intensification of the corn cultivation cycle left fewer and fewer hectares of cogon/talahib grass in long fallow.

75 Only 13.0 hectares (Table 19) of the attempted reforestation was in sitio Kaburo.
<table>
<thead>
<tr>
<th>Landuse</th>
<th>1951</th>
<th>1992</th>
</tr>
</thead>
<tbody>
<tr>
<td>Irrigated rice</td>
<td>6.7</td>
<td>2.5</td>
</tr>
<tr>
<td>Unirrigated rice</td>
<td>8.4</td>
<td>6.4</td>
</tr>
<tr>
<td>Corn</td>
<td>75.7</td>
<td>88.2</td>
</tr>
<tr>
<td>Cogon/talahib grass</td>
<td>55.9</td>
<td>39.1</td>
</tr>
<tr>
<td>Coconuts</td>
<td>17.3</td>
<td>27.9</td>
</tr>
<tr>
<td>Fruit</td>
<td>0.3</td>
<td>1.7</td>
</tr>
<tr>
<td>Forest</td>
<td>29.1</td>
<td>9.7</td>
</tr>
<tr>
<td>Gabi</td>
<td>2.6</td>
<td>4.0</td>
</tr>
<tr>
<td>Camote</td>
<td>0.8</td>
<td>4.1</td>
</tr>
<tr>
<td>Rocky</td>
<td>0.4</td>
<td>1.0</td>
</tr>
<tr>
<td>Reforested</td>
<td>0.0</td>
<td>13.0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>197.2</td>
<td>184.6</td>
</tr>
</tbody>
</table>

Table 19: Landuse in sitio Kaburo, 1951 and 1992, in hectares.

6.13.2 Pattern of Land Ownership

In contrast with the sitios of Tiga and Pili, most of the land in Kaburo was owned by sitio residents (82 of 113 plots). More productive wet fields did--like other sitios--attract outside interest, but as a whole fewer were purchased by absentee owners than in the other sitios. One of nearly every three (10 of 27) plots with some rice was absentee owned in 1992. This contrasts with sitio Pili. Kaburo was similar to sitio Tiga in that plots were owned in large agglomerations by relatively few kawitan. One kawitan owned 16 parcels, four others more than 9 parcels, and another eight between 3 and 5 parcels.

6.13.3 Social Structure

In some ways life in Kaburo was similar to life in the other sitios, but in several important respects it was distinctive, for example, different landuse systems, patterns of land ownership, and population density. Two issues are raised to explore commonalities and differences. First there was the prevalence of important social
institutions found in every other sitio, and secondly, the conspicuous absence of a hongos, as described in sitio Tiga.

Several hongos operated in Kaburo until the mid-1980s. Their collapse coincided with a period of intensified military activity. As noted, many families evacuated the area during the mid to late 1980s. When they returned their hongos were not reactivated. Farmers who commented on the hongos’ collapse, noted that not only had the military found the hongos suspicious, but it had become unworkable. They stated that their farms needed immediate attention as they could not afford to wait one or two weeks for a hongos to attend to their needs, particularly when seasonal rains arrived and corn had to be planted.

This was poignantly displayed in the later part of 1992. In that year, the timing of corn planting was critical to receive a good price. Rainfall was sparse during the first five months of 1992 and no corn and very little rice was planted. The year’s first substantial rain fell in the western part of Batuan on the 12th of June. Within days several barangays in that area had planted their entire corn crop. Soaking rains did not occur in the Kaburo area for another two weeks. The entire corn crop was quickly planted. Rains continued and the crop matured. Harvest occurred in western Batuan two weeks before Kaburo.

The first farmers to bring their crop to the mill received P7.50 per kilogram. This was a remarkably high price, but not unexpected given the length and breadth of the drought. Quickly, more and more crop came to the millers; as it did the price dropped. The harvest was by local standards excellent because many farmers planted land long idle. Two weeks after the start of the harvest the price dropped by 50 per cent. One month later it had reached a dismal P1.50 per kilogram. Kaburo’s corn planted two weeks after the farmers in western Batuan received less than half the top price.

Increasingly, farmers had to manage and act decisively on their own farms. To wait for a hongos could cause severe economic hardship at the time of harvest when
prices for any part of a crop to be sold can fluctuate widely. Moreover, today, most field labour commands a cash wage.

6.13.4 Patterns of Migration

Kaburo's population density was nearly a third greater than the other two sitios. Importantly, the fertility and productive capacity of Kaburo's environment was considerably less.

Kaburo's population was also much younger (Figure 41). This reflected the importance of intra-sitio, over inter-sitio and inter-barangay migration. Those who did manage to migrate from Bohol were more likely to be female. Men remained in the sitio to labour in agriculture. Regardless, Kaburo still had more fecund females than any other sitio. Their distribution was also more widely spread through the fecund cohorts, in contrast with the concentration of fecund females in sitio Pili. This distribution resulted in an increased number of children in Kaburo aged 0 to 15.

![Population pyramid for the residents of sitio Kaburo, November 1992.](image)

Figure 41: Population pyramid for the residents of sitio Kaburo, November 1992.
A second interesting characteristic of the population was the percentage of the total population aged 46 to 60. These cohorts represented persons born between 1932 and 1946. This was a period of rapid local growth from voluntary in-migration and war refugees. The number of those born during the war years (aged 46 to 50) was greater than in the period preceding the war (aged 51 to 55 and 56 to 60). In the immediate post-war period the birth rate declined as people moved away. The rate of migration in the 1950s and 1960s did not diminish the growth of the sitio.

Kaburo's migratory pattern was markedly different from Pili's or Tiga's (Figure 42). Over time, the direction of Kaburo's stream of migration has not changed.

Migration as a percentage of the sitio's population: 20.

Population density (1992): Before migration 1.39 persons/hectare
After migration 1.11 persons/hectare

See Appendix 11 for a breakdown of location and occupation of out-migrants.

Figure 42: Migration pattern for the population of sitio Kaburo.

Migration of Kaburo's youth has for the most part been intra-sitio and intra-barangay. Therefore many children remained in the sitio and intensified the cultivation of family holdings, or created new farms in the public forest zone. Few of the sitios residents took part in the latest surge of migration to Manila.
6.14 Implications of the Present Situation

Three themes summarise the analysis of population, land holding and social structure in these three sitios. They are diversity, migration, and an inability—even with a rather rapid reaction of the local population to local ecological stress, i.e. migration—to stabilise the situation.

Each sitio had a distinctive environment, history of landuse, and settlement, therefore the diversity across sitios was wide. Tiga was a core sitio, even though its once pre-eminent position as a rice producer had waned. Nevertheless, in such areas high production of corn can be obtained, at least in the short term. The peripheral areas are markedly different. There has been a shorter history of occupation, but a greater population pressure on more fragile resources. These environments are highly degraded, and therefore the excess population within peripheral sitios caused an inordinate degree of ecological destruction, especially as residents cleared new land in the public forest zone.

Migration from the sitios of Quezon was primarily to areas outside Bohol, and certainly outside Quezon, Cabacnitan and Batuan. In the past, some of Quezon’s migrants moved to Cabacnitan and cleared new land for settlement. This was more common for the previous generation, and in the era just before and during World War Two. Migration to Manila became more common in the sitios of Quezon than Cabacnitan. A longer history of urbanward migration for Quezon’s residents has meant the establishment of strong linkages between the village and city. Better education and, in general, higher affluence, among the residents of Quezon facilitated the movement of its capitalised and more trainable youth to Manila. Cabacnitan lacked an urbanward tradition in its migration. Many of its youth were poorly educated, and certainly much less capitalised. They were therefore much more likely to establish new homesteads in Cabacnitan than to migrate from Bohol. By staying in Cabacnitan this
population imparts a serious threat to the most fragile part of the island’s environment, the historically avoided and forested limestone anticlines intersecting the interior’s plains.

Changes in landuse have led to a reduction in overall agricultural productivity. In response migration, which began in earnest in the post-World War Two era, has been maintained, except for the spasm represented by the in-migration which occurred as the war in Mindanao intensified in the early 1970s, and as that island’s land frontier closed. Before the new stream to Manila became well established, the combination of reduced opportunities in rural migration and return migration from Mindanao led to a brief but rapid rise in local population. Pressure of population was inordinately concentrated on the remote and upland sitios rather than in the long-settled areas such as Quezon. The fact that migration quickly reordered itself to a new focus on Manila was important. This migration can be viewed as a natural and positive process of economic transformation, whereby surplus labour from the rural areas moved to higher-order occupations in the city. Therefore, the country’s urban economic growth relieved pressure on rural agricultural resources.

These villages, however, display a far more complex situation. Clearly, high rates of migration reflect a serious problem in the local economy, though they should reduce the pressure on the land. Opportunities for migration have been uneven, and those in areas with the best land, strongest economy and more affluent households have had much better knowledge and access to urban life and its opportunities. They have taken advantage of the situation. Even with heavy emigration local population growth has not stabilised, as those unable, unwilling or unsuited to migration remain locally, and to a greater extent in the most marginal areas of Cabacnitan where they place increasing pressure on fragile resources. Inequality that prevailed in rural areas was, therefore, perpetuated as people seized urban-based opportunities. The poor remain behind, in the fragile, remote areas.
7.0 Chapter Seven: The 1990s: Village Interdependency: The Ecological Social and Economic Basis

An intimate ecological link between Quezon and Cabacnitan is indicated by the environmental impact of upland landuse on ‘downstream’ landuse. This effect first became evident in 1951 and stemmed from deforestation in the upper part of the watershed 50 years earlier. By 1992 downstream change was probably occurring as a result of deforestation the previous decade. Social alterations had initially driven ecological transformation in the fragile lands of Cabacnitan. Landuse change in the lowlands of Quezon, in conjunction with continued social flux, caused Cabacnitan’s residents to place even greater pressure on environmentally fragile resources.

Previous social change was centred upon shifts in land ownership from locals to absentees. Alterations in the lowland agro-ecological system from rice to corn formed the basis for more contemporary social and economic modification. In unison with the movement away from the dominant wet lowland cultivation to a corn system came a shift in the social relations of production. Risk was increasingly placed on the landless agricultural labourer as rice cultivation became more marginal.

7.1 The Current Situation

By 1992 Batuan’s environmental and social climate had taken a new and disturbing course. The state violently and repressively crushed the decade-old rebellion. Regional fluctuations in society and economy more directly influenced the local social and political environment as return migrants from Mindanao introduced new and radically different models of patron-client relationships. Affluent land owners realised their advantage and shifted the risk of investment in local agricultural production from themselves to the poor and the growing pool of marginalised labourers. In turn, migrant labouring became more common as the ‘positive’ image of the urban centre, wage and lifestyle grew stronger. This represented a major shift from the initial post-
World War Two pattern of migration. Still, the villages faced the intractable problem of environmental decline: the drying-up of springs and rice fields, and the expansion of the cultivated frontier into fragile upland areas.

The 1990s were politically stable. Two ‘free and fair’ elections were successfully run. Local residents had recognised the relationship between on-going deforestation in Cabacnitan, and the drying of rice fields in Quezon. In the 1992 election a mayoral candidate from the villages ran on a ‘green’ agenda of tree planting and water conservation.

Hydrological change in the uplands is linked with change in the lowlands. Two processes are involved: deforestation in the fragile uplands destabilised the hydrological system and this led to a drying-up of rice fields in the more fertile and affluent lowlands; and secondly, the traditional patron/client social contract was under attack both as a result of landuse change and the adoption of different agreements between labourers and owners or tenants.

Such a steep decline in the area planted to wet rice resulted from upland deforestation and destabilisation of the hydrology. It affected the longer-term sustainability of community institutions, sharing systems and, ultimately, social harmony. Reflexively, the environment suffered more abuse. Although upland-lowland interaction was expressed ecologically, change was socially driven by factors such as access to land and its produce, population growth, and attainment of kawitan and household prestige.

7.2 The Ecological Linkages Between Villages

Change in the local vegetation cover, hydrological cycle, and farming systems began with the arrival of sedentary farmers more than 400 years ago. The wet lowlands of Quezon have been the nexus of cultural and agricultural development for Quezon and Cabacnitan. This development was dependent on two elements: a fertile and easily
worked lowland soil, and a reliable source of water. The latter was obtained by maintaining a high watertable, supplemented by rainfall, or the spreading of spring water over the lowlands through irrigation. Irrigation water from springs played an important role in smoothing out the fluctuations in rice production that befell the area with the failure of seasonal rains. The significance of irrigation was expressed by the extent of indigenous irrigation infrastructure developed in Quezon.

Hydrological conditions varied widely across the case-study area. In zones with very high watertables, springs debouched at the land surface. In contrast, areas with a low watertable, even of only a metre, had very few springs or *estavelles* (also known as reversing springs which respond to changes in the level of the groundwater table). Therefore, topography and geology played a decisive role in determining the spatial distribution of water resources (Figure 43).

The study area has two, broadly different hydrological units and the most important—when considering wider system sustainability—is in Cabacnitan. It is the zone of aquifer recharge. In Cabacnitan, orographically derived rainfall is at its maximum (>3500 mm/year), yet Cabacnitan is predominantly dry cropped. The watertable is deeper (>30 metres in many places) than in Quezon. Several factors have contributed to this: the greater thickness of the limestone formation overlaying the less permeable sandstone and shale allowed for intensive karstification and formation of a deep watertable; and the geological faulting and uplift of the limestone in Cabacnitan, in contrast with Quezon, increased the gradient between the two units. A thicker capping limestone in Cabacnitan linked with a thinner limestone of the same geologic unit in Quezon, confined Quezon’s aquifer close to the surface. The latter condition influenced the transport rate of water that moved down and through Cabacnitan’s capping limestone, to Quezon.
Figure 43: Distribution of springs and irrigated areas in the villages.
A high density of closed depressions drained by swallets characterises Cabacnitan’s geomorphology. Today, rain water moves rapidly—either across the land surface and into sinkholes and caves or percolating through the porous bedrock to join groundwater reserves.

In Quezon the depth to the watertable varies through a narrow, but critical, range throughout the lowlands. Nearly 80 per cent of Quezon’s lowland area has--or historically had--a high watertable, meaning water at the interface between the shallow soils and the underlying bedrock. Two things are responsible: the underlying geology of sandstones and shales perched groundwater in a shallow lense in the epikarst zone; and, the lack of development of deep and large cave systems. Taking the place of these deep cave systems are shallow, dendritic cave systems formed in the epikarst, only a few metres below the surface. Lacking deep and large draining conduits, a high groundwater table developed and it formed the basis for Quezon’s intensive wet rice cultivation system.

An experiment was conducted to determine the link between Cabacnitan’s recharge, and Quezon’s debouching zone. Rodamine green dye was injected into an underground stream in Cabacnitan and down-stream resurgence sites were pin-pointed. A link was established between the village’s largest spring, Bakan, and the underground stream accessed two kilometres upstream in Cabacnitan.76

A survey was conducted to map and evaluate all the significant surface and subterranean water resources in Quezon and Cabacnitan. A total of 88 sites were assessed and ranged from small springs and seepages debouching from the base of the

76 Lithologically, each of the geological units underlaying the study area has different hydrological characteristics. The Maribojoc formation, which prevails in Cabacnitan, has a surface morphology which was noted for having eroded along preferred flow paths to form sinkholes and solution pathways. Dissolution enlarged fractures and bedding planes discharged groundwater recharged in Cabacnitan to the land surface in Quezon. The depth to saturated bedrock ranged from 0.0 to over 40 metres in the lowland areas (Quiazon, 1979). The Carmen formation was the only other geologic unit of consequence to the area. Depth of the watertable in it was highly variable ranging from 1.0 to 5.0 metres in the valleys of Quezon. Wells in this geologic unit were commonly dry in the shales at depths from 26.5 to just over 100 metres (Quiazon, 1979; Urich, Reeder and Webster, 1992).
limestone *mogotes*, to larger springs or cave streams debouching mid-valley. Large, natural, underground reservoirs, underground streams, surface irrigation canals and mechanical pumps were mapped. The table below outlines the distribution of the various water resources by *sitio* for the two *barangays* (Table 20).

<table>
<thead>
<tr>
<th>Total Number(a)</th>
<th>Perennial sources</th>
</tr>
</thead>
<tbody>
<tr>
<td>Barangay</td>
<td>Number used for</td>
</tr>
<tr>
<td>Sitio</td>
<td>irrigation</td>
</tr>
</tbody>
</table>

Quezon

<table>
<thead>
<tr>
<th>Barangay</th>
<th>Sitio</th>
<th>Number used for irrigation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Narra</td>
<td>13</td>
<td>3</td>
</tr>
<tr>
<td>Pili</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>Kaliot</td>
<td>16</td>
<td>9</td>
</tr>
<tr>
<td>Tiga</td>
<td>13</td>
<td>4</td>
</tr>
<tr>
<td>Marang</td>
<td>12</td>
<td>5</td>
</tr>
<tr>
<td>Total</td>
<td>58</td>
<td>21</td>
</tr>
</tbody>
</table>

Cabacnitan

<table>
<thead>
<tr>
<th>Barangay</th>
<th>Sitio</th>
<th>Number used for irrigation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sakat</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Bakan</td>
<td>6</td>
<td>3</td>
</tr>
<tr>
<td>Kaburo</td>
<td>14</td>
<td>5</td>
</tr>
<tr>
<td>Gisok</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Taluto</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Supa</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>27</td>
<td>11</td>
</tr>
</tbody>
</table>

(a) This includes all types: springs, underground reservoirs which have been surveyed, and mechanical pumps (two in total). Source: personal investigation. See Appendix 15 for a listing of important groundwater resources and their location, reliability, and development.

Table 20: Overview of water resources, by *barangay* and *sitio*.

The majority of the exploitable water resources were in Quezon. Distributed throughout the *barangay* were 68 per cent of all point sources of water, and over 75 per cent of all springs used in irrigation (Appendix 15). Cabacnitan was important for
its underground reservoirs. The total capacity of Cabacnitan’s four known natural underground reservoirs was more than 20,000,000 litres (Reeder, 1990; Urich, Reeder and Webster, 1992).

Water used in irrigation played an important role in eco-social development. A skewed distribution of water resources toward Quezon, particularly those debouching at the land surface, correlated closely with areas of historic rice production. However, the expected positive correlation with population density did not occur—for example, the greater the population density of Cabacnitan’s sitios, the fewer the number of sources of irrigation water, and the smaller the area under rice.

7.3 Landuse and Contraction of Irrigated Area Through Time

The earliest evidence of large-scale settlement and land clearing in Cabacnitan is associated with the war against the United States after the collapse of Spanish hegemony. The second wave came with the war with the Japanese, and the most recent incursion with the peasant-led insurgency (Figure 44).

Given the stress that accompanied armed conflict, flight into remote but still habitable, parts of the island was to be expected. However, a limit was reached with the most recent expansion. During the conflicts with the United States and Japanese, households were established in more remote areas. In contrast, in the most recent conflict between the peasantry and the state, no new house sites were established in the forest. In some instances people resettled in more compact arrangements, although these agglomerations remained widely dispersed. Rather, new plots were established in the forest zone at anywhere from two to five kilometres from the cultivator’s housesite. Many residents commented that households were not moved during the insurgency or in the recent period of calm, simply because cleared areas lacked reliable sources of

---

I am referring to water held in voids in the limestone. Quezon too, holds a large reservoir of water in its saturated bedrock.
drinking water. Regardless of this hindrance, clearing continued to expand farther and farther from house sites. By 1993 the plot farthest into the forest was six kilometres from the cultivator's home.

The extent of land cleared and cultivated in the public lands in the two most recent periods is clearly expressed in data obtained from the DENR (Figure 44). The mean size of each newly declared parcel was in decline from 1.51 hectares in the period from 1925-39, to 0.48 hectares in the 1980s.

![Figure 44: The number and hectarage of newly established plots along the eastern frontier of Batuan. Sources: DENR's Integrated Social Forestry (ISF) programme, supplemented by interviews and surveys (Appendix 16).](image)

A correlation exists between the occurrence of rapid land clearing in Cabacnitan and the contraction in wet-field agriculture in Quezon. This is not a linear correlation, meaning that a patch of forest cleared in Cabacnitan is not directly translated to a reduction in water available in Quezon. Several factors affect the delay. First, it must be established that a cleared forest results in a reduced yield of water discharged from a basin. In many published cases from tropical sites (but outside Bohol) it substantially
increased it (Gupta, 1980; Hamilton, 1983; Hibbert, 1967; Nakano, 1967; Oyebande, 1988). In this situation the cleared forest was a cloud forest. It had historically been immersed in *amog*, the local term for fog. These forests can be responsible for 50 per cent of the moisture that enters into the hydrological cycle, as they ‘trap’ cloud-borne moisture on the epiphytes and other foliage which then drips to the forest floor (Ewel and Conde, 1980). No data existed for the actual input this represented in the study area, but it is highly likely that water yields were reduced because of the removal of this cloud forest.

A second problem linked directly with deforestation and declining irrigation may have been the ‘theft’ of water by *Nong Eugenio* in the early 1950s. It is possible that the brief disruption of the water supply to the traditionally irrigated paddies and valleys of Quezon reduced the inputs to the shallow and fragile groundwater system to a level that has not been recovered. Regardless, further detailed study of the dynamics of groundwater flow, moisture catchment by cloud forest and landuse change must be completed.

I can broadly define periods when deforestation began in certain areas and when irrigation systems lost irrigated area. I use the term ‘periodic’ because the change in irrigated area did not occur as part of a slow or even process. There were abrupt events, triggered by a number of complementary factors. Change is linked not only to deforestation but also to unusually dry periods, or El Niño events. The first evidence of a contraction in the irrigated area of Quezon was in the early 1950s and, this correlated with the drought of 1951. Deforestation had, however, begun in the recharge zone of Cabacnitan at the turn of the century. There was, therefore, a 40 to 50 year time lag before a downstream hydrological impact became noticeable.

Loss of natural forest cover intensified in the 1940s, and the area under irrigation in Quezon declined further in the late 1960s and early 1970s (Figure 45).

---

78 Cloud forest was found throughout the interior of Bohol. A famous refuge and military camp for guerrilla forces fighting the Japanese was called “Behind-the-Clouds”, referring to the seemingly perpetual fogs.
This correlated closely with the drying up of a number of larger springs in Quezon, suggesting that a de-watering of the watertable occurred as springs became 'perched' above the lowered groundwater table. In this situation, the period of deforestation and the associated contraction of irrigation were 20 years apart. This trend continued with the rapid expansion in the cleared area of Cabacnitan in the 1970s and 1980s. Again, a severe contraction in irrigation occurred in Quezon in the early 1990s. This correlated with another El Niño type drought (1991 into 1992).

Figure 45: Landuse's relationship with the watertable of the villages, 1951.
Throughout the post World War Two period the wet-field area of Quezon periodically retreated. Clearly, there was a close relationship between deforestation and a decline in wet-field area in Quezon. However, with time—and as cultivators cleared increasingly more marginal land—the lag time between deforestation and decline in wet areas shortened from a 40 year lag to 10 to 15 today.

In the years between the droughts—when climatic conditions return to a long-term normal—a new stasis developed in the lowland agricultural system. Farmers adapted by altering their cropping regime, although there was often a short delay in a farmer’s adaptation. Farmers repeatedly stated that a rice field converted to corn was very difficult—if not impossible—to rehabilitate to a rice field. For this reason, farmers waited one or two cropping cycles before corn was cultivated in a former paddy, i.e. they held out some hope that rain—and strong spring flow—would allow them to replant rice (Plate 10).

Drought was a trigger that over-stressed water resources and subsequently led to landuse change (Figures 46 and 47). The drought of 1951 was still recalled by older villagers, as were that of 1973, the short droughts of 1983 and 1987, and the most recent during 1991 and 1992. Landuse changed more quickly during these periods. Between droughts, agricultural systems were altered to compensate for the loss in area planted to rice. Commonly, corn was planted in rice paddies, and coconuts were planted on degraded corn land, or on the lower, and sometimes middle, slopes of the uplands.
Plate 10: Extensive contraction of an irrigation system in Quezon. Corn and coconuts have been planted in former paddies.
Figure 46: Plots with any area of rice in 1951 (253 plots).
Figure 47: Plots with any area of rice in 1992 (135 plots).
7.4 Summary

The once dominant lowland agricultural system became increasingly vulnerable to change. This was related to an increase in the deforested area of Cabacnitan. Periods of more rapid deforestation in Cabacnitan, and associated landuse change in Quezon, narrowed in time from nearly 50 to only 10 years. Swift change was triggered by drought, and the area subject to landuse change was influenced by its length and severity. However, the lowland agricultural systems became more vulnerable with time. The drought of 1992 was not as severe as that of 1983, yet the area of land converted to corn was much greater in 1992 than 1983 (Urich, 1993).

7.5 Economic Transformation in the Post War Era

For some time Batuan has been an important rice producing town. A simple calculation establishes rice’s pre-eminent position in the local economy. It involves the area under cultivation, yields, equivalent per capita production and cash value.

Government statistics place the irrigated rice area of Batuan at 619 ha and the rainfed area at 1152 ha (Virador, 1987). Until very recently both of these areas produced two crops per year, therefore the actual area of the town cultivated to rice per year was 3542 hectares. The area planted to rice has declined significantly in the last 40 years, but for my purposes I first comment on the situation before widespread landuse change.

Productivity of Batuan’s rice lands is difficult to assess owing to the wide range of planted varieties and levels of inputs used. Bohol’s Agricultural Promotion Centre (Japanese International Co-operative Agency funded project (JICA)), as part of its research and extension initiatives, completed rice field trials in the alkaline rice

---

79 These were areas cultivated to rice prior to the onset of ecological degradation and contraction in irrigated area.
lands of southern Bohol. Two of their sites in the municipality of Bilar are only three and eight kilometres from the *Poblacion* of Batuan. The climate, soil and cultural practices used in rice cultivation in these two sites are similar to conditions in Batuan. The following yield data are from rainfed and irrigated sites in Bilar (Tables 21 and 22).  

<table>
<thead>
<tr>
<th>Variety-line</th>
<th>Yield (M.T./ha.)</th>
<th>Days to harvest</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>WS</td>
<td>DS</td>
</tr>
<tr>
<td>IR66</td>
<td>4.55</td>
<td>4.66</td>
</tr>
<tr>
<td>IR70</td>
<td>0.76</td>
<td>3.96</td>
</tr>
<tr>
<td>IR72</td>
<td>4.28</td>
<td>4.69</td>
</tr>
<tr>
<td>Lubang dwarf (local)</td>
<td>2.02</td>
<td>----</td>
</tr>
<tr>
<td>Cainte (local)</td>
<td>3.37</td>
<td>----</td>
</tr>
</tbody>
</table>

WS = wet season  
DS = dry season  
All rice planted at 20 hills/m²

Table 21: Variety, yield and days to harvest for irrigated rice in alkaline field conditions, APC, Bilar, Bohol, principal varieties only (Source: JICA, 1989).

---

80 In the early 1900s, 16 rice cultivars were collected from Bohol and taken to the Manila area for trialing (Camus, 1921). Two varieties yielded greater than 3 tonnes per hectare, four yielded greater than 2.5, but less than 3 tonnes per hectare, and three yielded between 2 and 2.5 tonnes per hectare (Camus, 1921: 64-87). An exceptionally high yield attained with the use of traditional local varieties was an important feature of Batuan’s agricultural landscape and economy. In comparison with other areas and varieties, traditional rice varieties grown without any water management typically yielded less than 1.5 tonnes per hectare. Most rice landscapes with some irrigation structures, still using traditional varieties, yielded an average 2.2 tonnes per hectare. The most developed landscapes that incorporated improved varieties and organic or inorganic fertilisers averaged about 3.8 tonnes per hectare (Bray, 1986:62; Siy, 1982:5). Bohol attained an exceptionally high level of productivity before the introduction of modern varieties, owing in part to efficient control of irrigation water and indigenous development or possible importation of improved seed stocks well before the so-called ‘Green Revolution’.
<table>
<thead>
<tr>
<th>Variety/Line</th>
<th>Yield (M.T./ha)</th>
<th>Days to harvest</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>WS</td>
<td>DS</td>
</tr>
<tr>
<td>IR68</td>
<td>3.33</td>
<td>3.56</td>
</tr>
<tr>
<td>IR72</td>
<td>3.58</td>
<td>3.19</td>
</tr>
<tr>
<td>Lubang dwarf (local)</td>
<td>2.54</td>
<td>----</td>
</tr>
<tr>
<td>De la Rosa (local)</td>
<td>3.09</td>
<td>----</td>
</tr>
<tr>
<td>Cainte (local)</td>
<td>----</td>
<td>1.83</td>
</tr>
</tbody>
</table>

WS = wet season
DS = dry season
All rice planted at 20 hills/m²

Table 22: Variety, yield and days to harvest for rainfed rice in alkaline field conditions, farmer’s field, Cabacnitan, Bilar (Source: JICA, 1989).

Two sets of figures are used to fix a value for Batuan’s rice production. One was based on the difference in production between irrigated and rainfed rice (Tables 21 and 22). The second is founded on the production of predominantly indigenous varieties, and the change associated with the widespread acceptance of modern varieties (MVs) (Tables 23 and 24). The first set of tables draws on data from Camus (1921) and JICA (1989) and indicates a mean yield under rainfed conditions of 2.7 tonnes per hectare per crop. Mean yield under irrigated conditions rose to 3.0 tonnes per hectare per crop.

The second set of figures reflect the change associated with the incorporation of modern varieties and techniques, that became popular locally in the late 1980s (Tables 23 and 24). In 1985, 57 per cent of Bohol’s rice farmers planted modern varieties. The remaining 43 per cent continued with traditional varieties. By 1989, 51.7 per cent cultivated newly released IR66, 29.3 per cent cultivated other modern varieties and only 19 per cent still cultivated indigenous varieties (JICA, 1989:173).

---

81 This was based on data from the Cainte and Lubang varieties that corresponded between the studies of Camus and the APC. Therefore, this figure represented the mean yield for these varieties from trials conducted in 1988, and over a number of years in the 1910s.
Figures for adoption rates in Batuan were slightly below the provincial average with 32 per cent of farmers still using traditional varieties in 1989 (JICA, 1989:172).

Given the high rate of adoption of modern varieties, the second set of production figures is derived from yield data for the IR66 and IR39489-57-2-1-1 varieties (a red pericarped MV). The mean yield for 68 per cent of Batuan’s production (representing those lands planted with MVs) was 4.3 tonnes per hectare for the irrigated fields, and 3.1 tonnes for rainfed paddies (Table 23).82 Yields for the traditional component are the same as in the pre-MV period (3.0 and 2.7 tonnes per hectare) (Table 24).

<table>
<thead>
<tr>
<th>Type of crop</th>
<th>M.T/ha.</th>
<th>Total M.T/ha.</th>
<th>Hectares</th>
<th>Production in M.T</th>
</tr>
</thead>
<tbody>
<tr>
<td>Irrigated</td>
<td>4.3 X 2</td>
<td>8.6</td>
<td>619</td>
<td>5323</td>
</tr>
<tr>
<td>Unirrigated</td>
<td>3.1 X 2</td>
<td>6.2</td>
<td>783</td>
<td>4855</td>
</tr>
</tbody>
</table>

Based on a 20 per cent loss for milling and a consumption rate of 98 kilograms per consumer per year (Mears, 1971).

Table 23: Rice production per hectare per year and total production and consumer support: post-introduction of modern rice varieties (post-1986) (Source: JICA, 1989).

82 Yield figures for irrigated rice were based on the production from IR66 and IR39323-182-2-3-3-2, for the wet and dry seasons of 1988 (chart above). Rainfed rice production was derived from the same varieties and the same seasons.
<table>
<thead>
<tr>
<th>Type of crop</th>
<th>M.T./ha. Double cropped</th>
<th>Total M.T./ha.</th>
<th>Hectares</th>
<th>Production in M.T.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Irrigated</td>
<td>3.0 X 2</td>
<td>6.0</td>
<td>619</td>
<td>3714</td>
</tr>
<tr>
<td>Unirrigated</td>
<td>2.7 X 2</td>
<td>5.4</td>
<td>1152</td>
<td>6221</td>
</tr>
<tr>
<td>Total Production</td>
<td>Milling loss in kilograms</td>
<td>Net production</td>
<td>Potential support</td>
<td></td>
</tr>
<tr>
<td>9,935,000</td>
<td>1,987,000</td>
<td>7,948,000</td>
<td>81,102 consumers</td>
<td></td>
</tr>
</tbody>
</table>

Based on a 20 per cent loss for milling and a consumption rate of 98 kilograms per consumer per year (Mears, 1971).

Table 24: Rice production per hectare per year and total production and consumer support: pre-introduction of modern rice varieties (pre-1986) (Source: JICA, 1989).

Yields from field trials in farmers’ fields provide an overview of production levels and potential surpluses in Batuan’s rice economy. Rice produced with the modern cropping regime was valued--based on early 1990s prices--at nearly 27 million pesos per year. In 1992 that represented 2,250 pesos for every man, woman and child in Batuan. Individual households asserted a claim to surplus production; however, it is critical to know which households declared a claim if we are to understand the importance of the decline in the amount of rice distributed to families in the villages and the slight reduction in overall production plus their cumulative impact on forest resources (Mangahas, 1974).

7.6 Sharing the Wealth of Batuan’s Rice Economy

Rice, its acquisition, milling, marketing, and consumption, formed the basis for nearly all social relations in Batuan. Unequal opportunities to participate in any, or all, of the economic, social and ecological spin-offs of rice production intensified as the social, economic and ecological structure of the town changed. Different patterns of land ownership, incorporation of new technologies, and new and evolving social practices, reinforced aspects of the economy that already excluded a majority of the
population. Batuan’s rice economy was controlled, and its benefits were allocated to an increasingly small segment of society. This characteristic of the changing rice economy proved critical to the ecological stability of this dominant economy, more so than a rise in population pressure.

At the close of World War Two much of Batuan’s rice was locally consumed or traded with coastal people who could not produce rice themselves owing to environmental limitations along the coast. Incorporation of Batuan into the cash economy of the island and region took off after World War Two with the construction of new rice mills and improved transport facilities. The population of Batuan at the close of the war was only 7,800 and migration into the uplands, which was heavy during the war, ceased. Rice production during this period, and access to it, was dictated by strong patron-client relations. Owners of large areas of lowland rice contacted groups of workers to complete tasks in the rice fields on a barter basis, obviating the need for cash transactions. The cultivation of the paddy soil required few workers, but they were in great demand for planting, weeding and harvesting.83 The number of workers needed to plant has not changed over time; new technologies have not been adopted to replace the hands of, predominantly, women who pulled rice seedlings from seedbeds and carefully transplanted them in the prepared paddy. New technologies have been developed for weeding but they have not been widely incorporated by Batuan’s or Bohol’s farmers. Random rather than straight row planting has also militated against their use. The camote (hand) method was widely practised, and it absorbed a large amount of labour.

83 The number of workers incorporated in paddy cultivation increased dramatically in the years following the introduction of the ‘Negros’ steel plough in the early 1950s. Prior to its introduction, paddy cultivation was carried out almost exclusively by the use of large teams of carabao, sometimes reaching 30 or more, that were lashed together and led around the paddy usually by a young boy and his barcadas (companions). Incorporation of the ‘Negros’ plough initiated a new style of cultivation that had a farmer operate one carabao and one plough. This greatly increased the work that could be carried out by a single carabao and also revolutionised the market for agricultural labour as men were required to plough rather than young boys.
Harvesting changed considerably over the years through the introduction of the pedal thresher that first entered the local area in 1987. Before its adoption, foot threshing was most common with several teams of usually three or four people required to promptly complete a typical threshing job (adad-adad in the local dialect) (Plate 11). Today, three people commonly constitute a team that operates one pedal thresher to complete the same amount of work as several traditional groups. Milling has also changed with the introduction of mechanical mills rather than the traditional mortar and pestle (loboc method).

Although technological change has been task-specific, the overall social organisation of patron-client relations in rice production has shifted, irrespective of technological change. The pace and extent of these changes have intensified as population pressure per unit of rice land has increased.

Competition over rice resources was evident by the adoption of exogenous patron-client moral structures. Until the 1980s patron-client relationships were highly moralistic and based on clearly understood codes of conduct. Peasants that did not own or tenant rice lands obtained a much desired supply of rice by working for patrons who did own or tenant rice fields. Patrons first offered access to people on either their, or their spouse’s, side of the family (cousins, second cousins, etc.). If more workers were required or family members were uninterested, the hiring of members of the family’s home sitio took precedence over people from other sitios or barangays. Patrons took little interest in the number of family members, or others, who participated in a harvest (at this time harvesting was the only activity that provided a guaranteed access to at least some of the harvested rice). Regulation of numbers was left to the clients as everyone knew that too many workers would only diminish the size of everyone’s share of the harvest. At harvest’s end, the winnowed, but yet to be sun-dried rice, is divided by volume at a ratio of between six and seven units to the owner, to every one to the labourers. A similar allocation system
remained in use regardless of the technology used for threshing (foot versus pedal thresher).

Plate 11: Foot threshing is still used in small-scale harvests and by individual family units.

Since 1988 a new trend in patron-client relationships has emerged that has severed ties between family members. Pakyao is the term used to refer to the ‘cash for task’ system, for example, a fixed wage is negotiated for ploughing a field, weeding a crop, harvesting, or renting a vehicle or a motorcycle for a journey.
Increasingly, rice farmers hired ‘professionals’ or labour gangs, to complete specific tasks required in rice production. Generally, tasks in paddy cultivation were divided as such: ploughing and combing the rice paddy in preparation for transplanting; cleaning the mud and stone field bunds, and irrigation canals of vegetation, and packing fresh mud along them; pulling the rice seedlings and transplanting them to the prepared paddy; weeding; and harvesting. Each task could attract a different person or group of persons to the paddy. Negotiation between the owner or tenant of the field, and either an individual or a group, took place for each task. This involved considerable discussion before a ‘one-off’ cash value for the task was agreed upon. All contracts were verbal. The onus was placed on the labourer to complete the task as quickly and efficiently as possible. To either languish in one’s work, or to do a poor-quality job, greatly affected a labourer’s chance of finding more work.

The bid system, as it was locally referred to, is a newly adopted form of patron-client negotiation. It is significant in that it attests to both a rise in competition for access to wet-rice resources that are in decline and the increased risk in successfully harvesting a crop--originally borne by the owner-cultivator but increasingly resting on the ‘hired’ cultivator (discussed below)--stemming from pestilence or bad weather involved in growing a rice crop. In the bid system a group of labourers approaches a patron and contracts with him or her to complete all the tasks required to grow a crop (field preparation, planting, weeding, etc.). They do not accept any payment for their labour. As compensation the labourers expect the right to harvest the crop and receive their traditional one-sixth or one-seventh share. This system was unheard of when I first visited Batuan in 1986. By 1992 it had become very common around the town centre, and especially among the élite landowners who lived in the Poblacion. It was used less frequently in the peripheral barangays where the social pressure to hire your family and neighbour was still strong but beginning to wane. The bid method was particularly strong in the core areas as it attracted
labourers from as far away as the coastal zone to enter into contracts.\textsuperscript{84} These coastal groups bid for the local rice land owned by absentee owners who resided on the coast.

An important difference between the bid system and the traditional system was the distribution of risk. Under the bid system it was nearly all borne by the labourers. They invested their time and energy in a crop that as a result of a number of calamities (insect damage, kuhol snail infestation, rice tungro, typhoon, drought) could fail. The clear 'winner' was the owner of the rice field. Bidding relieved them of the risk involved in paying hired labour for cultivating a crop that could be lost in a natural calamity. Shifting the risk from patron to client marked a revolution in the traditional, and strongly paternal, patron-client relationship described earlier.

7.7 Changing the Terms of Access: The Case of Landuse and Economy

A shift in the social contract of crop production is related to change from a wet-rice dominated economy to increased reliance on dryland crop cultivation, mostly of corn. I conducted in-depth surveys of the inputs and outputs for individual farmers' fields cultivated to the two crops to compare the economic and social realities of the shift in landuse.

Ownership and, to a lesser degree, tenancy of wet-rice land was highly prized. Not only because of the wet fields' potential to produce up to three crops per year, but more importantly, for the prestige and social dependency that could be developed among the non-owning or tenanting households. Many factors in rice production--high demand for labour per unit of area, its relatively stable production over many years, its storable and easily transportable surplus and, critically, the obligations and reciprocal arrangements that surround production and distribution of surplus--have helped to constitute the 'ethos' or rules of conduct in society.

\textsuperscript{84} Coastal groups bid for the land owned by the absentee owners who resided in the same coastal village. These 'outsiders' were easily identified by the local population by the way they stacked the cut rice prior to its threshing.
One such factor, sharing of produce, formed the base of the local social structure, and was the economic and social reason for the creation and maintenance of a wet-rice economy. Wet rice not only provided sustenance, but a type of social cohesion and access to the cash necessary to participate in the local economy.

I assessed the impact of the steady decline in the area of the village lands cultivated to wet rice not only economically but socially. I did so by working closely with a handful of farmers from field preparation through to harvest, for crops of both rice and corn. I collected comparable data on the rice and corn systems. Included were inputs of land, labour, capital and outputs of yield, knowledge, community health and social stability.

Rice has a distinct 'ethos' surrounding its cultivation. Every year two rice crops were usually obtained from the same area of paddy. No cover crops, or dry field crops, were cultivated in the paddy during the off-season. One rice crop was called the ting-ulan (rainy season) crop and the other the ting-init or dry season crop. Cultivated varieties did vary between the two seasons. Traditional varieties were generally cultivated during the drier of the two seasons.

One field was owned by a town dweller. He hired nearly all the labour required to produce the crop. A second field was cultivated by the owner and his direct family, relatives and selected members of the sitio. The third field was cultivated by the owner with a great deal of assistance from members of the sitio.

In 1992 all three local ting-ulan rice crops were cultivated four months later than normal because of the lack of rain associated with a weak monsoon and El Niño drought. The input for the initial cultivation of the paddies was much greater than normal because of the drought-related heavy weed growth, and hardness of the soil. These conditions were common across all fields thus giving them an internal consistency.

Various technologies were used in cultivation. Two of the fields had banica soils (shallow) conducive to cultivation with water buffalo, plough, harrow and
levelling board. In the third case the paddy consisted of *howbo* soils (deep) that required *sarol* (hoe) cultivation. This initial operation included turning the soil either by plough or hoe, combing (it was flooded) and levelling with a wide, heavy board pulled behind a *carabao* or person, plus cleaning of field bunds and packing them with a fresh coating of mud. All activities were common to the three plots. The least expensive means of preparing paddy was the *sarol* (Table 25). The most expensive was the *carabao*, plough, harrow and level. Costs ranged from 17 to 39 centavos per square metre, or from P210 to P1000 depending on the size of the field.\(^{85}\) Other tasks before harvesting include *lempi tadan* (preparing the seedbed for seedlings), *pagtanum* (transplanting the seedlings), *pagcamote* (weeding by hand), *pagabono* (fertilising) and *pagani* (harvesting).

Overall, each system contributed something to the local community either by way of labour or product. The rates of labour absorption ranged from 0.011 to 0.021 person days per square metre. Generated wages ranged from 49 to 66 centavos per square metre. Critically, among the three fields, the owners distributed 165 kilograms of rice to the people who assisted with the harvest (see Appendix 17 for a full breakdown of activities and sharing arrangements).\(^{86}\)

Four fields of corn, two cultivated by their owners and two by tenants, were studied. A time constraint forced me to gather a sub-sample of the harvest rather than the whole crop as I did with the rice. A wide variation in economies between rice and corn is significant over the long term, as the intensity of corn cultivation is much less than rice. On a 10 year cycle, rice is cultivated on the same plot an average of 20 times. In the case of corn the average for three of the four fields was seven crops from the same area, per 10 years. This was because of a fallow period in the corn

\(^{85}\) 100 centavos = one peso. During this study one peso was equivalent to approximately $US 0.0375, or $US1.00 = P27 (pesos).

\(^{86}\) These figures were derived by weighing the complete harvest (i.e. no sub-sampling was done for yields or inputs) grown by three farmers in three different areas who used a range of technologies.
One corn field was left out of this computation. It was a field that in 1992 was converted from rice to corn for the first time. The farmer was unsure whether he would return it to rice when heavier rains occurred. I visited the field in late 1993, after rains had improved, and the field was still cultivated with corn. If not returned to rice, the farmer planned to crop the field twice a year with corn until the soil became exhausted. He would then put it into a long fallow system like his other corn fields.

In contrast to the rice system, the majority of the labour input for corn came from the household. None of the corn fields generated income for persons other than the owner. This was expected as the labour requirement for corn dropped to an average of only 0.005 person days per square metre, in contrast to the 0.040 for rice (eight times less for corn than rice). Cultivation was in all cases done using a carabao and plough. Planting was done by hand. Weeding was done by a carabao-drawn plough that turned the soil as it passed through the rows of corn. In only one case was a part of the harvest shared with labourers. In all other cases the family unit was responsible for all inputs (importantly labour) and accrued all the benefits.

The dominant sharing system for corn was called siyam-siyam, meaning nine and nine. In this system nine parts, by weight, go to the owner for every one part to the labourers. A number of other systems also occurred. In one case, all the cobs from a field were counted as they were picked and then distributed by number rather than weight. In another case cobs were split between big cobs and little cobs and distributed separately by weight using the siyam-siyam method.
<table>
<thead>
<tr>
<th>Code</th>
<th>Crop</th>
<th>Area (ha.)</th>
<th>Total expenses (pesos)</th>
<th>Labour days</th>
<th>Gross income</th>
<th>Net income</th>
<th>Gross per m²</th>
<th>Net per m²</th>
<th>Labour days per m²</th>
<th>Wages paid m²</th>
<th>Kilos shared</th>
<th>Yearly cropping intensity</th>
<th>Ten year cropping intensity</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>rice</td>
<td>0.32</td>
<td>2450</td>
<td>26</td>
<td>6083</td>
<td>2764</td>
<td>1.84</td>
<td>0.83</td>
<td>0.011</td>
<td>0.49</td>
<td>79.0</td>
<td>2 per year</td>
<td>20 per 10 years</td>
</tr>
<tr>
<td>B</td>
<td>rice</td>
<td>0.13</td>
<td>780</td>
<td>26.5</td>
<td>2365</td>
<td>1255</td>
<td>1.89</td>
<td>1.001</td>
<td>0.021</td>
<td>0.45</td>
<td>30.0</td>
<td>2 per year</td>
<td>20 per 10 years</td>
</tr>
<tr>
<td>C</td>
<td>rice</td>
<td>0.26</td>
<td>1716</td>
<td>39</td>
<td>3906</td>
<td>1544</td>
<td>1.54</td>
<td>0.60</td>
<td>0.015</td>
<td>0.66</td>
<td>56.0</td>
<td>2 per year</td>
<td>20 per 10 years</td>
</tr>
<tr>
<td>D</td>
<td>corn</td>
<td>0.09</td>
<td>197</td>
<td>6</td>
<td>1190</td>
<td>994</td>
<td>4.31</td>
<td>1.10</td>
<td>0.007</td>
<td>0.00</td>
<td>0.0</td>
<td>2 per year</td>
<td>6 per 10 years</td>
</tr>
<tr>
<td>E</td>
<td>corn</td>
<td>0.67</td>
<td>423</td>
<td>18</td>
<td>5069</td>
<td>4645</td>
<td>0.76</td>
<td>0.70</td>
<td>0.003</td>
<td>0.00</td>
<td>161.0</td>
<td>2 per year</td>
<td>20 per 10 years</td>
</tr>
<tr>
<td>F</td>
<td>corn</td>
<td>0.18</td>
<td>59</td>
<td>6</td>
<td>1260</td>
<td>1202</td>
<td>0.71</td>
<td>0.68</td>
<td>0.003</td>
<td>0.00</td>
<td>0.0</td>
<td>2 per year</td>
<td>10 per 10 years</td>
</tr>
<tr>
<td>G</td>
<td>corn</td>
<td>0.19</td>
<td>72</td>
<td>13</td>
<td>1138</td>
<td>1066</td>
<td>0.58</td>
<td>0.55</td>
<td>0.007</td>
<td>0.00</td>
<td>0.0</td>
<td>2 per year</td>
<td>7 per 10 years</td>
</tr>
</tbody>
</table>

Table 25: Economics of rice and corn production in sampled sites.
Comparing the two systems for sharing, rice generated 0.143 kilograms per square metre against only 0.024 kilograms for corn (a ratio of 6 to 1 in favour of rice). The net return for corn at 76 centavos per square metre was slightly less than rice’s 81 centavos.

The point of this analysis was to compare the social systems of production and sharing in the historically dominant system of wet rice and the supplanting system of corn. As a corollary it was interesting to relate this to social and environmental change in the villages. Obviously, the rice system could play—depending on the patron-client relationship—an important role as a social safety net to the less fortunate in the community. It provided not only meaningful work, and food, but also a sense of community, and an opportunity for social interaction, discussion and action. Only 20 years ago families that did not own their own rice field gathered enough rice to feed their family by working for owners of rice fields. Today, finding any work on a rice field is considered fortunate, especially with the shift toward the pakyao and increasingly the bid system. The contraction in the area cultivated with rice compounded the problem. This shift in landuse was closely associated with the expansion of the agricultural frontier and intensification of agriculture on the fragile mogotes. Furthermore, the migration stream in search of wage labour was increasingly directed at the larger urban areas. This also indicated a lack of local opportunities. Social dislocation has resulted as the competition over resources increased and long-honoured social institutions collapsed. In the case of local intensification and extensification of agriculture even more acute ecological damage resulted.

---

88 Even owners and tenants of rice fields had difficulty maintaining surplus stocks of rice. Of the 60 households in the initial survey only 40 per cent had any stored rice. In the past, rice was stored under the house in wooden boxes (known as a bande) that looked like oversized coffins (a large basket kept in the house for the storage of rice was also termed a bande). Some held upwards of 30 cavans or approximately 30 sacks. Eight of the sixty homes surveyed had wooden bandes, but they were all empty, most being so for five or more years.
In several situations local owners of rice land planted their fields only to offer their *sitio* residents an activity, and a chance to get at least some rice. Gaining a profit was a secondary concern. Given the vagaries of rainfall, pestilence and input costs, rice farmers saw their role more as charity givers than businesspeople.

In summary, the change that occurred in Quezon’s lowland and, increasingly, Cabacnitan’s upland ecology is linked with a host of major changes in the rice economy. Migration has been important. Out-migrants sold their land so that much of what remained of the productive wet-rice land was absentee owned. Absentee ownership led to a break down of traditional and strong patron-client relationships. When rice fields were locally owned, owners were under a more strict moral obligation not only to plant, but also to share production with family and friends. Return migration has gained importance as it has brought with it exogenous ideas of social obligation. First, the élite local landowners adopted these new structures. Increasingly, more marginal and less powerful families began to adopt the methods; this led to even further erosion of the moral fabric of society.

I have broken down an exceptionally complex system into its constituent parts, that permitted some generalisations to be made. I focused on the intimacies of the processes associated with environmental degradation. The government’s response to these problems is crucial.
8.0 Chapter Eight: The Role of the State in Political and Ecological Change

A perceptible change in the relationships between interior and coastal peoples which began prior to World War Two became more pronounced with the closing of Mindanao’s frontier in 1974. In Bohol’s interior, this event was marked by an increase in population pressure on forested, state-owned resources. In part this was related to the historic change in patterns of ownership in the alienable and disposable lands. Tension between the State, which controlled the public land appropriated by the growing population, and residents of Cabacnitan had--by 1983--reached the level of armed and violent conflict. Social tension was heightened by the lack of comprehensive agrarian reform in the more fertile and better watered lowlands. Other actions taken by the State to alleviate the pressure on resources were unsuccessful for reasons that included: a lack of understanding of local socio-political organisation and historical dimensions of relationships, not only between coastal and interior residents but also between local people and their environment. What resulted were poorly conceived and implemented programmes that led to increased tension between the State and the villagers.

8.1 Forest Protection and Government Intervention

Several events in the early 1970s set the stage for a fundamental shift in the relationship between the State and local society throughout the 1980s and 1990s. The rapid closing of Mindanao’s frontier in 1974 because of armed conflict on that island, and the nearly complete claiming and clearing of its land by individuals and corporations, coincided with the State’s most comprehensive attempt to date at agrarian reform Presidential Decree 27 (P.D. 27) in 1972 (Kerkvliet, 1977). As with nearly all government programmes associated with land, the programme was not taken up

---

89 Land reform laws were also passed in 1936, 1953, 1963 and 1969 but were all substantially weakened by landlord-dominated Congresses (Fegan, 1995:4).
immediately in all areas of the archipelago. Prior to the widespread registration of local landlord and tenant relationships, the effects of the closing of Mindanao’s frontier were already being felt in Bohol. This resulted in heightened pressure on the then cultivated land resources of Bohol including those of the study area—and increased pressure on some of the most fragile and ecologically critical resources of the public forest zone. The State’s first response was markedly different from earlier instances when people were forced, mostly by circumstances related to war, to cultivate fragile public lands and were unimpeded in their action.

The government’s role in protecting forests and, by default, the hydrology of Bohol had been negligible until the first forestry survey of 1928. In that year 20 per cent of the southwest part of the province was designated protected forest land. Deployment of forest guards to protect the areas was unnecessary both before and for a short period after World War Two.

First, the remaining areas of forest, in contrast to surrounding wet and dry plains, were characterised by intensive karstification of the limestone bedrock with steep to vertical slopes (pang-pang), and extremely small and rocky closed depressions. Furthermore, and more critically, there was a greater depth to the watertable and, in many instances, deep grikes and runnels had evolved in the compact valleys. These qualities were unattractive for sedentary agriculturalists given the cultural tradition of settling in small, isolated extended family groups very near sources of spring water, and areas developed for wet rice production (Scott, 1990).

Secondly was the relatively easy movement of Boholanos by water transport from Bohol to the ‘greener’ pastures of Mindanao. This situation reduced the population pressure building on the edge of these upland forest zones before and in the immediate post-World War Two era. However, this symbiotic relationship between Bohol and Mindanao unravelled in the 1970s, and as it did the government gained a much higher profile in protecting Bohol’s state-controlled forest lands.

90 Triple cropping of rice was attempted, and increased application of so-called ‘Green Revolution’ technologies (JICA, 1986).
Documented evidence of government involvement in the protection of Bohol’s public forest lands was obtained from the archives of the Regional Trial Court in Tagbilaran City. In the mid 1970’s there was an increase in the number of cases violating Presidential Decree (P.D.) 705. The penalty for violation of P.D. 705, or the occupation of state forest land, was two to four years imprisonment and a fine of eight times the value of forest products destroyed (Lynch and Talbott, 1988:683).

In 1977 a person from Batuan was charged for clearing a 8,600 sq. metre area of forest valued by the then Bureau of Forestry at P157.77. Initially, the plaintiff pleaded not guilty but later changed his plea to guilty. He was sentenced to “two to three years” imprisonment and was fined P1262.16; and moreover, he was required to turn over all improvements on the land and any domestic animals or equipment “of any kind” used in commission of the offence. During the defendant’s probation hearing--at which he was successful—he was told by the court to “devote himself to his present occupation of farmer”, and “refrain from cultivating or occupying areas within the forest zone”, and he was to pay the full costs of restoring the occupied area relevant to the case. Cases similar to this were levelled against dozens of farmers throughout Bohol’s interior in the late 1970s and into the 1980s (Records of the Regional Trial Court, Tagbilaran City).

The number of cases filed slowed in the mid-1980s when the peasants living in the hinterlands of many of Bohol’s interior municipalities were organised by the NPA (New Peoples Army). This marked the beginning of a period of rapid change in the public forest lands.

---

91 I did not conduct an assessment of all cases filed against persons for illegally occupying the public forest zone. I was, however, able to accurately reconstruct 11 cases from the municipalities of Batuan, Bilin and Carmen.

92 An example of a motive for destruction of the forest included statements such as, “The defendant is a farmer aged 45 years who has finished only Grade 2 and is the father of 10 children. He claimed that he decided to cut the trees so that his cacao and coffee plants will not be overshadowed by them. He cut up the timber and sold them as firewood at the town proper in order to buy a few kilos of rice” (Records of the Regional Trial Court, City of Tagbilaran, 1988).
Throughout the late 1970s and the first half of the 1980s, peasant groups formed and protested against government policy across the interior by focusing on the lack of agrarian reform (Bohol Chronicle, 1984b; 1985a). Under the threat of violence, forestry personnel abandoned their substations in the forest zones, and great numbers of dispossessed peasants entered the state’s forests to cultivate coffee for a booming market, and root crops and corn for subsistence. This period of rapid change came to an abrupt halt in 1986 when the government responded. Sensing the loss of control of the interior to the NPA, the government’s policy of exclusion from the forest zone was re-established over a five-year period (Aumentado, 1985).

Government troops swept through the forest zones and forced nearly all its occupants and cultivators to move to barangay centres, or at least outside the forest zone itself. In some instances entire sitios were transferred to the barangay centre where CAFGU (Civilian Armed Forces Geographical Units) detachments oversaw them. In the case of Cabacnitan, even those living on and cultivating alienable and disposable lands chose to evacuate the area for the second half of 1984 and the first five months of 1985 (Republic of the Philippines, 1985; Bohol Chronicle, 1984a).93

93 It was reported that “terror-stricken residents of Cabacnitan fled from their homes and farms reportedly for fear of PC (Public Constabulary) intimidation and possible PC-NPA confrontation” (Bohol Chronicle, 1985:1, 6 and 8).
8.2 Reform or No Reform: Various Places Various Cases

The expansion of the cultivated area in the fragile lands of Cabacnitan and the neighbouring municipality of Valencia, and across much of southwest Bohol, was related to the practical difficulties of implementing policy in the alienable and disposable lands. Implementation of agrarian reform was hindered, if not hobbled, by the framing of P.D. 27. Initially P.D. 27 was applied to lands of over 24 hectares owned by one individual. As Putzel noted (1992:125), the Department of Agrarian Reform did not begin at this prescribed level but at a threshold of 100 hectares. In 1974 President Marcos decreed that the limit on the size of landholding per individual liable to reform was to be reduced to seven hectares (of rice and corn land). In areas of long-term occupation and with a history of a “peasant proprietary system” of land control, plus a short or non-existent history of plantation agriculture, these reforms were of little consequence. Furthermore, reforms in such areas were further weakened because of the dispensation, in many cases, of lands above the limit (seven hectares) to members of the extended family.

Regardless of the above constraints, two official lists of landlords and tenants were on file at the local office of Agrarian Reform situated in the Poblacion of the town of Batuan. One list is known as the “Master List of Farmer Beneficiaries”, the second is much less formal, and includes raw data on landlords who declared that they had tenants on their land as part of the Government’s “Listaska Programme” launched in 1988. The latter was a failed attempt to register land ownership country-wide (Putzel, 1992). I draw on these two sources to examine land tenancy in Batuan and attempts to alleviate it.

There are gross differences between the two villages of Quezon and Cabacnitan in the number of persons registered as tenants, and the types of land that they tenant. In Quezon, over 130 separate claims have been enumerated, in contrast to 39 in Cabacnitan. The majority of the claims in Quezon are for rice land, while in Cabacnitan
they are predominantly for corn land. Fields claimed in Quezon are considerably smaller than those in Cabacnitan (Figure 48). This correlates with the difference in landuse and potential landuse, Quezon’s claims being largely for rice land and Cabacnitan’s for corn.

Figure 48: Summary statistics of lands registered with Department of Agrarian Reform; by barangay. Source: Department of Agrarian Reform, District Office, Carmen, Bohol.

Under Agrarian Reform, claims to land can be of one of five types. The most secure, but not present in these villages, are claims issued as an ‘emancipation patent’. The next most secure is a ‘certificate of land transfer’. No tenant in Cabacnitan carried this type of ‘certificate’, although 20 farmers in Quezon held this type of paper for 35 plots; these farmers are all affluent, politically active and knowledgable on the laws of Agrarian Reform. A third group represented a level of security below the holders of certificates. They were tenants who had applied but had not yet been issued with a ‘certificate of land transfer’. Few tenants were included in this group. In Cabacnitan 10 farmers had applied for a ‘certificate’ for a total of 12 plots, but in Quezon only two
farmers had claims pending for a ‘certificates’ covering two plots. The fourth group were tenants with a registered leasehold agreement lodged with the local office of the Department of Agrarian Reform. Only one tenant from Cabacnitan was registered, in contrast with 23 from Quezon who had registered for tenancies on 31 plots. The vast majority of tenants were in the least secure category that consisted of all tenants who cultivated land without any leasehold agreement lodged with Agrarian Reform. Thirty-two farmers held this type of weak tenurial hold over 58 plots in Quezon, and in Cabacnitan 19 such farmers cultivated 28 plots. Rounding out the possibilities of tenancy and government enumeration were tenants cultivating lands owned by landowners classified as being under ‘Operation Land Transfer’, and then a small group with a special ‘registered contract’ of tenancy.

It was significant that a majority of tenants were registered in some way with the government, but had no future right to the land they cultivated. This relates closely with the paternalistic history of rice cultivation on Bohol. As with so many other institutions, little or nothing was written down. Personal honour and code of conduct were strictly adhered to in relation to cultivation rights. In many cases the lands that were cultivated without any contract or certificate had been passed from generation to generation as an inherited tenancy. As smooth running as these interpersonal relations seemed, cases of abuse occurred.

Court records attest to the rise in the number of confrontations over land. Unreported cases also occurred. For example, a tenant farmer in Cabacnitan was offered by his uncle a rice field for tenancy. Having very little other land the young, newly wedded man graciously accepted the offer. With little warning he was ejected from the tenancy, ostensibly to make way for his uncle’s newly married son. Tismis (gossip) around the village noted that the land was taken back because the uncle feared that the young tenant (nephew) would apply for the land under the new code of the agrarian reform. The uncle had more control over the son, who he knew would not apply for agrarian reform over land that he would eventually inherit. The nephew was
fortunate to secure another tenancy several hundred metres farther from his home, but it was a very stony rice field, with shallow soils and poor access to water.

A celebrated case over access rights to land occurred in the early 1970s near the boundary with the forest zone of that period. A long court case ensued over the right of ownership of a rice field. The case was between a local family and a family from Cebu. The local people stated that the court case was unjustly decided when the party from Cebu was given clear title to the land. After the court's decision a contending family member was murdered, and an unjustly accused man was convicted and imprisoned in Mindanao. He later returned to Cabacnitan in the 1970s and rallied support for the NPA based on the government's injustice in dealing with this land and murder case.

Throughout the period of insurgency (1970s to early 1990s) few cases of agrarian reform were raised. As one early case in Cabacnitan will highlight, the programme's efficacy in such a remote and physically degraded environment was problematic.

A young man from the town of Valencia married a woman from Cabacnitan and settled in Cabacnitan. The young couple came to a local landowner and 'applied' for a tenancy. This was agreed to, and the family cultivated the land from 1960 to 1977 when they applied for it under the laws of agrarian reform (P.D. 27). Their application had been initiated by the Department of Agrarian Reform which insisted that the tenants were within their rights. The tenants accepted the advice, applied, and were successful. A computation was made on the payments to be given to the previous owner of the land in compensation. These terms were very firm and called for a portion of every harvest to be turned over to the original landowner until the debt was amortised. In subsequent years drought occurred and the tenants became increasingly

---

94 I have chosen to highlight only a few cases. A number of cases reached as far as the Regional Trial Court and involved intra and inter-family disagreements over land and boundaries. The number of cases reaching the Regional Trial Court has rapidly increased in the last few years (personal communication, Clerk of Courts, Regional Trial Court, Tagbilaran City, Bohol).

215
delinquent in their payment. After 10 years the tenant visited the landowner to discuss terminating the contract. The farmer wished to return to his original status as a tenant; it was more secure as no crop had to be given if there was no harvest. The landowner agreed to the terms and they continue to this day in the relationship of landlord and tenant.95

A successful case of agrarian reform took place in 1992. The reason for the success was due in large part to the extremely low amortisation payments. The basis for the case, interestingly, had an historic precedent. Outlined in Alzina’s history of the Visayan islands in 1668 were situations where land had been claimed, cleared, and fruit and other economic trees had been planted along the plot boundary. The land was then abandoned. After a number of years the original claimant of the land returned and re-claimed that land as they had planted fruit-bearing trees to mark its boundary.96 This situation mimics the pre-conditions for a successful local initiative in agrarian reform. In this circumstance, land locally owned and cultivated for generations was sold in the early 1960s to finance the move of several families to Mindanao. After nearly 20 years in Mindanao the families returned to Batuan with the expectation that the land they had sold would be returned to them. Of course this was not so because the new owner had secured a legal title. It was only after persistent badgering, and the ill health of the absentee owner, that he agreed to return the land to the original owners on very favourable terms.

In negotiating a price for the land, the owner agreed to the formula based on the average price paid for land of similar quality throughout Batuan. As already

95 I made several attempts to find the records of this well known local case of ‘reverse’ agrarian reform. Local and provincial level offices had no records of the case. I was however able to interview the landlord, the tenant and the officer of the local Office of the Agrarian Reform that handled the case.

96 Alzina (1668) described the system thus, “Formerly, they (Visayans) readily yielded to him who came first (the right) to select (his land) and much more to him who planted first his coconuts, trees, fruits, abaca, and other things. They have always a right and dominion over there [land] even though they may affirm that they may go to live in another village (Alzina, 1668:82).
mentioned, the price paid for land and that reported to the Municipal Government were at substantial odds. For this reason the amortisation payments spread over twenty years were within the reach of each beneficiary (Table 26).

<table>
<thead>
<tr>
<th>Lot</th>
<th>Area in Hectares</th>
<th>Total Value In Pesos</th>
<th>Annual Amortisation In Pesos</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>0.9352</td>
<td>5230.80</td>
<td>261.54</td>
</tr>
<tr>
<td>B</td>
<td>0.3556</td>
<td>1289.20</td>
<td>99.45</td>
</tr>
<tr>
<td>C</td>
<td>0.0801</td>
<td>137.00</td>
<td>6.85</td>
</tr>
<tr>
<td>D</td>
<td>0.1531</td>
<td>262.00</td>
<td>13.10</td>
</tr>
<tr>
<td>E</td>
<td>0.8454</td>
<td>1446.40</td>
<td>72.32</td>
</tr>
<tr>
<td>F</td>
<td>0.7529</td>
<td>4211.20</td>
<td>210.56</td>
</tr>
<tr>
<td>G</td>
<td>0.0603</td>
<td>103.20</td>
<td>5.16</td>
</tr>
<tr>
<td>H</td>
<td>0.0465</td>
<td>79.60</td>
<td>3.98</td>
</tr>
<tr>
<td>I</td>
<td>0.2121</td>
<td>1186.40</td>
<td>59.32</td>
</tr>
<tr>
<td>J</td>
<td>0.0921</td>
<td>515.20</td>
<td>25.76</td>
</tr>
<tr>
<td>K</td>
<td>0.4860</td>
<td>2718.40</td>
<td>135.92</td>
</tr>
<tr>
<td>L</td>
<td>0.1416</td>
<td>792.00</td>
<td>39.60</td>
</tr>
<tr>
<td>M</td>
<td>0.2588</td>
<td>442.80</td>
<td>22.14</td>
</tr>
<tr>
<td>N</td>
<td>1.1782</td>
<td>2015.60</td>
<td>100.78</td>
</tr>
<tr>
<td>O</td>
<td>0.8853</td>
<td>1514.40</td>
<td>75.73</td>
</tr>
<tr>
<td>P</td>
<td>0.6087</td>
<td>1041.40</td>
<td>52.07</td>
</tr>
<tr>
<td>Q</td>
<td>1.1084</td>
<td>1896.20</td>
<td>94.81</td>
</tr>
<tr>
<td>R</td>
<td>0.1262</td>
<td>216.00</td>
<td>10.80</td>
</tr>
<tr>
<td>S</td>
<td>0.1233</td>
<td>211.00</td>
<td>10.55</td>
</tr>
<tr>
<td>T</td>
<td>0.0966</td>
<td>170.40</td>
<td>8.52</td>
</tr>
</tbody>
</table>

Table 26: Lands allocated in the break-up of one holding under the Comprehensive Agrarian Reform Programme (1991). All lands are contiguous and are located in the barangay of Quezon. Source: List of farmer-beneficiaries of absentee owners landholding under survey plan no. psd-07-021141, Quezon, Batuan. Office of the Comprehensive Agrarian Reform, Batuan, Bohol.

As I was leaving Batuan in late December of 1992, two more cases of agrarian reform were opened. Both were for land held by banks. These banks had obtained the land by foreclosing on their owners for the non-payment of loans. One case in Quezon

---

97 For example, one square metre of prime irrigated riceland along a road near the centre of town sold for nearly P8.00 in 1992. In contrast, the small pieces of rice land sold as part of this reform package sold for P0.56 per square metre.
had been settled with lands distributed to heirs, while the case concerning land in Cabacnitan was problematic. When an inspection was made of the latter land by representatives of the local government, three farmers appeared and made claims to parts of the single parcel.

Significant in the process of agrarian reform are: the high levels of tenancy in the villages, particularly in response to the picture portrayed of Bohol by outside observers as being for the most part immune from the problems of servitude and debt peonage associated with tenancy elsewhere in the archipelago; and secondly, the fact that many tenants cultivated land without any legal contract binding them to their tenancy or landlord (Putong, 1965). Such agreements do exist, most commonly between tenants and a locally resident landlord. Absentee landlordism may have some limited advantages in that harvests can be under-reported and a smaller crop can be transferred, but with inheritance of absentee owned parcels the potential exists for disruption of the tenancy under new ownership. Finally, more and more land is being held by absentee-owners and is being under-utilised. If rice—for various reasons—cannot be planted, absentee owners often do not require anything to be planted, or else much less intensive use of the land is made, for instance as cattle pasture.

A situation often mentioned by landlords and tenants alike was the landlord’s fear that having placed a registered tenant on a piece of land, the tenant could justify his or her claim to the land through agrarian reform. This limited the number of new tenant contracts. Another important factor often mentioned were tenancies held within extended families. When land was tenanted by a cousin, uncle or some other relation the tenant was reluctant to formalise the relationship with the government. The majority felt secure in their familial-based tenancies. However, as described, relationships could and did breakdown.

---

98 This was a significant case because the land in question was divided among members of the family of the indebted landowner. As in an inheritance, the land was divided equally among all the surviving siblings. However, an added complication was the presence of one illegitimate child. After much discussion the family decided to allocate an equal share to that child.
8.3 Development in Response to Insurgency

Insurgency and counter-insurgency gripped all of Cabacnitan and much of Quezon from the mid 1970s until the end of the 1980s, in part due to the failed attempts at agrarian reform. Families were displaced, political killings took place, and the entire social milieu was disrupted (Philippine Daily Inquirer, 1992). As part of the model of pacification after the ‘clearing’ of insurgents from an area, ‘development’ was attempted. The overall goal has been summarised as “clear, hold, consolidate, and develop” (Garcia, 1991:28). Specifically, this relied on the government to: “... organise in reverse: dismantling the CPP/NPA organisation and replace it with alternative organisations and intelligence gathering networks.” This so-called ‘total approach’ integrated government and non-government organisations and addressed insurgency first from a military, then a “social, economic, cultural and political perspective” (Garcia, 1991:29). Cabacnitan, and to a lessor extent, Quezon were exposed to military force, and later attempts at economic and social development along a prescribed model (Magno and Gregor, 1986; McCoy, nd.; Porter, 1987).99

---

99 See Magno and Gregor (1986) for a comprehensive description of a ‘clearing’ and ‘development’ project in Mindanao in the early 1980s.
8.4 Conflict and the Dispensation of Public Lands

Ecological links have been described between the lowlands of Quezon and the uplands of Cabacnitan. Bearing in mind the lack of substantial agrarian reform in the more fertile and productive lowland areas, the government’s initiative in Social Forestry appeared as an ill conceived attempt to deflect attention from the root of the problem—access to land.

In the late 1970s the peasants of Batuan were organised into two separate groups who were in armed rebellion against the State. One group was formed in the hinterlands of western Batuan, and the other in the hinterlands and forests of eastern Batuan (i.e. Cabacnitan). The group in eastern Batuan was dissatisfied with the unfair meting out of judicial power both in relation to civil and criminal court cases. With a rise in the peasantry’s power, the government institutions which were created to keep the rising population out of the then still forested public lands broke down. This happened in unison across the province, and the population pressure which had built-up on the edges of the forested lands moved into the forested lands. It must be recalled that prior to the withdrawal of the government’s forest guards numerous cases were brought against poor peasants who already cultivated land in the forest zone, not necessarily out of greed but out of necessity. With the withdrawal of government employees the best lands in the forest-zone usually within several kilometres of the barangay residents’ homes—were cleared and planted to both cash and subsistence crops.

In the early 1980s there was relative calm and prosperity as farmers harvested bumper crops of coffee, corn, gabi and cacao from their new forest zone plots.

100 On a Sunday morning March 24, 1985 the insurgency reached a new height in Batuan. While the town’s more urban folk celebrated Mass armed insurgents attacked the Municipal Hall, opening fire on the building, seriously injuring the officer on-duty (Bohol Chronicle, 1985).

101 This period of CPP/NPA control was noted for its lack of crime (notably theft of chickens and crops). Farmers recalled the peace through-out the barangay of Cabacnitan, however,
This period came to an end when a particularly serious ‘encounter’ occurred between the NPA and the military in the hinterlands near the borders of the towns of Batuan, Valencia and Carmen. A dozen military men including a field commander were ambushed and killed (Bohol Chronicle, 1985d). A helicopter gunship was summoned and rockets were launched at suspected rebel strongholds in the vicinity of Cabacnitan, and the neighbouring barangay of Cambigs, Bilar. Also during this period a prominent, local land owner was shot and killed outside his home in Cabacnitan. By the end of 1985 the military was called in to retake the hinterland areas of the province, starting with Cabacnitan.

In Cabacnitan, an Alsa Masa (vigilante group) was formed by relatives of the slain land owner. Arms were supplied to them through the local government. This was the origin of the CAFGU detachment which remained active into 1994. Cabacnitan’s Alsa Masa, in unison with a military presence, cleared the rebels from the hinterlands of Cabacnitan (resulting in the evacuation of nearly all the barangay’s residents to the Poblacion) and then moved on to pacify the remainder of the municipality. In the first week of September 1985 their initiative began when six rebels were killed in a “fierce, one-hour fight” in Cabacnitan (Bohol Chronicle, 1985c).

Cabacnitan’s resettlement process after the population’s evacuation for the ‘clearing’ of the rebels was different from other barangays. In other areas the population that had moved into the public forest lands--some people as early as World War Two but many during the 1980s--was coerced to move to the lowlands, along roads or at the very least close to traditional barangay centres (Urich and Bliss, 1992). In Cabacnitan, residents were permitted to return to their original housesites, and were also allowed to return to the cultivation of their plots in the supposedly legally protected public forest lands. This concession was apparently made in compensation for Cabacnitan’s residents’ assistance with the quelling of the insurgency in other parts.

tension was greater in the barangay of Quezon as it was closer and much more accessible to the highway and Poblacion.
of the municipality. Evidence to support this contention comes from the records of the Department of Social Welfare and Development (DSWD) and the Department of Environment and Natural Resources (DENR), and from interviews with the people involved.

8.5 The ISF Programme

Government policy toward some forest dwellers quickly changed only months after the military had completed its ‘clearing’ operations. The DENR introduced the Integrated Social Forestry development programme in the municipality. The programme had been rapidly implemented in the early 1980s in other areas of rebel activity. This is where the unevenness of government policy is apparent. To be eligible for issuance of a stewardship contract, a farmer was required to show evidence of having occupied a contested piece of forest-zone land prior to 1980. The claimant was then required to have registered that claim with the DENR. If such a claim was made, and the person in question was registered, a stewardship contract was granted.

This occurred in the hinterlands of Cabacnitan where 72 farmers were in 1989 issued stewardship contracts for land within the boundaries of the Rajah Sikatuna National Park. They became legal occupants of the park for a minimum of 25 years, and under the current guide-lines a maximum of 50 years. There are, however, provisions in the stewardship contract for expulsion of a contract holder if the terms of the contract involving limits to cultivation and use of ecologically sustainable principles are not adhered to.

These contracts legitimised the claims of those persons who supposedly occupied their present farms before 1980--although considerable evidence exists to show that this was not the case. Of fundamental importance to the Department of Environment and Natural Resources was the maintenance of each farm’s soil fertility so as to halt further farm expansion as it inevitably declined. This task of farm
management which would logically be within the domain of the Department of Agriculture was not devolved to them. There were particular problem areas where legally defined plots were being expanded, most notably in the adjacent town of Carmen, and in the areas to the east and south of Cabacnitan. A secondary, and equally insidious problem was fire. Many 'escaped' from attempted 'controlled' burns on plots of land both legally and illegally established. The DENR acknowledged that they had not fully contained the dual problems of illegal farm development and expansion of legally occupied areas in the public forest zone (Philippine Department of Environment and Natural Resources 1992, Personal communication).102

After legitimating the Cabacnitanos claims to the lands in the public forest zone, there came a rapid succession of infrastructure projects. They ranged from road building and irrigation to electrification and reforestation. Each and every project has been an unqualified failure from various perspectives.

The Integrated Social Forestry programme (ISF) had as its objectives environmental protection, poverty alleviation and social justice (DENR Administrative Order 4, Series of 1991). Critical to this discussion are the areas prohibited from inclusion in the programme, specifically: “Areas where continued occupancy would result in massive soil erosion, sedimentation of rivers or streams, reduction in water yield and impairment of other resources to the serious detriment of the community and public interests” (emphasis added) (DENR, 1991:3). A second area of interest was the closing date for legitimate application for inclusion in the Integrated Social Forestry programme. Land had to be claimed and cleared by December 31, 1981 to qualify for consideration under the current programme, though, as mentioned, lands cleared after this date have been included in the programme.

Both of these critical requirements have been overlooked in the design of a Social Forestry Programme in Cabacnitan. Clearly, given the evidence presented, the

102 As a postscript, I returned to the forest zone of the study area in February 1995 as part of another study. The encroachment into the forest had accelerated since my visits in 1992 and 1993.
effect of continued deforestation in the municipality’s remote and elevated environments had a deleterious effect on the amount and timing of water yielded by springs in the adjacent lowlands. This is obviously detrimental to the community and public’s interest. Secondly, the areas of Cabacnitan cleared and now officially sanctioned as legitimate parcels through the Social Forestry Programme were in most cases cleared after the 1981 cut-off date. Some were cleared after 1985, but their cultivators were still issued ISF contracts. Of secondary concern are stipulations in the contract that call for the strict adherence of cultivation to the area within the boundaries set forth in consultation with the staff of the DENR. In other words, fires were to be contained on the cleared land, and any fires that did escape were to be actively extinguished by members of the ISF programme. However, in Cabacnitan, wild fires are not only a major problem, but there is a continued extension of the cultivated area, both further upslope on the surrounding *mogotes* and into new areas of forest.

Implementation of an ISF programme in Cabacnitan countered many of the major stipulations outlined in the government’s official policy. Moreover, the activities in Cabacnitan contrast with the activities in all of Batuan’s other *barangays*, both in relation to forest occupancy and interpretation of the forestry programme’s guidelines.103

Associated with the ISF programme was a reforestation project. It was one of the most ambitious projects attempted in the aftermath of the insurgency and was sponsored by the Asian Development Bank, overseen by the Department of Environment and Natural Resources, and implemented by the local population. Initiated in 1989, its roots stem back to the fire of 1960 that decimated over 100

103 In western Batuan residents of *barangay* Aloha were told that they could not return to their forest zone plots which they cultivated through the 1980s, i.e. during the height of the peasant insurgency. They, like the residents of neighbouring Rizal risked prosecution if they continued to cultivate these plots. With the presence of a CAFGU detachment in the area, many have foregone their forest zone land and are now forced to subsist on the degraded and overcrowded lands closer to the *barangay*’s core.
hectares of forest. Immediately after the fire some residents in the area that adjoined the burned-out forest, approached the then Bureau of Forest Management and asked for assistance to reforest the land. There was no response from government and the local farmers encroached on the burned-off lands and cultivated the lowlands. Subsequent fires on the uplands resulted in the hills quickly being colonised by cogon/talahib grass that was in some cases used as carabao pasture.

At the conclusion of local hostilities between the NPA and the State, the State requested that the local residents replant lands burned in the fire of 1960. A total of 50 hectares of only upland (mogote land) was planted with gmelina (125,000 seedlings), and Philippine mahogany (2000). The planting, fertilisation and cutting of grasses between the trees was contracted to the local population. The local, informal sitio leader was elected to head the local chapter of the ISF committee. He was hired by the DENR at a rate of P100 per day to oversee the reforestation project and to organise the labourers and distribute wages.

The trees planted in 1989 grew vigorously in the first few years. In 1992, even with a serious drought, the trees remained strong and, over three years, only a small area had been damaged by fire because farmers respected local by-laws limiting upland pasturing of carabao and the use of fire. However, trees along the bottom third of the hills grew at rates more than double those on the upper half and summits. By December 1993, few if any trees could be discerned from the high grasses growing on the hillslopes. Trees that did survive were located predominantly on the lower one-fifth of the slopes. It was not climatic stress that led to the demise of the trees. The year 1993 was slightly above average for precipitation, and was certainly much wetter than the drought year of 1992 (see Appendix 3). Local informants described the dying of trees as a rapid shrinkage in the girth leading to leaf drop and ultimately death. I surmise that a nutrient deficiency affected the trees when they reached a critical size.

This project represented an investment of approximately P750,000 in seedlings, fertiliser and labour. Trees that survived through the fourth and fifth years may not
grow to maturity. A yet unknown limit in nutrients may face them at a later stage. Moreover, if these trees do survive they will have a very limited impact on improving the hydrological balance of the area. Forest cover is required further upslope where the water may be trapped and filtered through the chalky limestone of the *mogotes* to slowly enter the hydrological regime. A temporary benefit of the project was an influx of cash into the local community through the dispensation of wages for planting and maintaining the reforested area. This infusion has now flowed through the community and very little substantive change has occurred.

8.6 Secondary Projects

A number of smaller, secondary projects were attempted in Cabacnitan to further ‘develop’ the former insurgents. The least successful programmes were those based on infrastructure development.

8.6.1 The Militia

There was one on-going government programme that did infuse money into the local economy over a longer term. A number of primarily young men from the village of Cabacnitan were employed by the municipality for the local CAFGU (Civilian Armed Forces Geographical Unit) detachment. Many were former rebels from the period of unrest in the 1980s. They did not patrol the village of Cabacnitan. They were assigned to a military detachment in the village of Rizal in western-most Batuan. CAFGU members from Cabacnitan were primarily *Boholanos*, having been born and raised in Bohol. They were assigned to oversee native-born *Cebuanos* who settled in the hills of
western Batuan during the Second World War. A strong mistrust of these World War Two refugees began with their original settlement over 50 years ago.\textsuperscript{104}

The CAFGU brought a steady cash flow to 14 of Cabacnitan’s households until 1994. With a monthly (two weeks on two weeks off) wage of P900 their work was the most steady and lucrative locally available employment. Ten of the 14 members were in their twenties and thirties. Three members were in their forties, and the group’s leader was nearly 60.\textsuperscript{105} When the group was disbanded in 1994 many of the younger members migrated to Manila and the older members returned to agriculture in Cabacnitan.

8.6.2 Water Management

The Bakan dam project in Cabacnitan was designed to supplement indigenous irrigation infrastructure already in place (Urich 1993). A system of small diversion dams and canals built by the local population was to be upgraded by lining canals with concrete and building a relatively large dam (in comparison with indigenous structures) with an associated reservoir. Bakan dam was built in 1986 by a Tagbilaran-based contractor. It was built with substandard footings and without a clear understanding of the local geology or hydrology. The dam never adequately retained water, as it leaked through a number of swallets in the underlying bedrock. Materials required to remedy the situation were never received. The government, undeterred by this failure continued with other projects.

\textsuperscript{104} Non-Boholanos are identified by their surnames. Many of the surnames of the older established families of the interior of Bohol are of non-Spanish origin as the island was in revolt when the Spaniards instituted their policy of name changes to Spanish derivatives. Therefore, persons with Spanish surnames living in western Batuan are considered ‘outsiders’ and as instigators of ‘trouble’.

\textsuperscript{105} The detachment originally consisted of 16 members. One was shot and killed during an argument with another CAFGU. The other, the assailant, is now imprisoned.
8.6.3 Electrification

Electrification was extended from the *Poblacion* of Batuan through Quezon to Cabacnitan where the centre of the insurgency had been focused in the 1980s. The *Barangay* Captain of the time recalled that for years he had petitioned for electricity in Quezon. He left the *barangay* for a stint of work in Saudi Arabia and returned to find the BOHECO (Bohol Electricity Co-operative Agency) stringing wires through Quezon. He, along with other members of the community, attempted to influence the path that the wires would follow through the *barangay* because they knew that the power lines would affect the pattern of settlement, as it had in other recently electrified *barangays*. Their voices were not heard and the power lines were placed directly through the *barangay* with very little regard for the historic settlement pattern.

In Cabacnitan, the provision of power caused considerable consternation among the populace. On-going bickering between local consumers and BOHECO has left the people of Cabacnitan bitter. Discrepancies in the meter readings between the line meter at the boundary between Quezon and Cabacnitan, and the cumulative readings of the individual households reached P700 per month in favour of BOHECO. Members of the Cabacnitan power co-operative were vigilant and examined all the power lines in search of illegal hook-ups. All the meters were checked and rechecked, and some were replaced; still there was a monthly discrepancy. The residents of Cabacnitan called for and received dialogues with the representatives of BOHECO, but were unsuccessful in their attempt to have the extra charges cancelled. They had to levy extra charges from all consumers to cover the discrepancy. In 1992 several more meetings were held in an attempt to find a final solution to the problem. Several people said that if BOHECO did not soften its stance the *barangay*’s residents would cut the power lines at the boundary with Quezon and sell the wire.
8.6.4 Social Institutions

A number of government programmes have integrated well with indigenous social institutions. However, many institutions were not co-opted by the government. Some endured the social upheaval of the 1980s and 1990s better than others. Those that fared poorly were associated with trade and commerce between primary producers and the marketers of primary products.

One of the most enduring institutions that operated in both barangays before the rise of the insurgency was the Barangay Brigade. This was a programme initiated during the Marcos years to rejuvenate the countryside and put pride back into rural endeavours. All government employees were required to submit for service to the rural areas at least once a year. Barangays organised themselves with a democratically elected set of officers and formal activities.

Quezon’s Brigade was particularly active. They oversaw the planting of several ‘pocket-forests’ of mahogany on the lower slopes of mogotes. Today, these efforts are being rewarded as the trees reach maturity. Moreover, the Brigade oversaw the cultivation of the sloping lands of the barangay. Any farmer planning to clear any sloping land of the barangay had first to apply for a permit from the Brigade. Although few requests were denied, the community was active in policing indiscriminate clearing and cultivation of the hillsides.

The activities of Quezon’s Barangay Brigade came to an end in 1985 with the onset of insurgency. A message was relayed to the then leader that if the activities of the Brigade were not stopped the CPP/NPA would resort to violence against its members. The Brigade was disbanded and has not been resurrected. Allocation of the sloping lands associated with the area’s mogotes came under the control of the CPP/NPA. This was only one of the initiatives begun by the CPP/NPA that addressed directly the issue of resource access. They had planned to form a cooperative to manage the sale of the produce from the communally cultivated hillsides. They had
also planned a poultry raising project (Philippines Regional Trial Court of Bohol, 1984).

As discussed in Chapter Six, the hongos, or communal labouring institution has been in rapid decline since the period of insurgency. In contrast, other important formal and informal, religious and economic organisations continue to flourish. For example, the gala and dayong (respectively, marriage and death institutions) are based on blood relations and involve the donation of food, sometimes cash, and labour, for a family member financing a marriage or funeral. The other organisations revolve around larger groups and are church oriented. They are the tampo sa barrio which involves cash donations to the family of the deceased, and the capilyas (usually used in reference to CWL, Catholic Women’s League) or chapel (Protestant equivalent of the CWL) in each barangay. These also included a cash donation, usually for a Christmas pageant, or decorations for the barangay Fiesta.

More important for this study are the very strong organisations of the hug, ripa, abono and suki. All but the suki are internal organisations. They involve the paying in, and lending out of money. Memberships vary widely from a dozen to two dozen blood related persons, to over 100 members in the case of an abono. The large abono extends over three barangays in two municipalities. I mention these institutions for several reasons. One is that they have endured for decades and possibly for centuries even with war, drought and civil disturbance. They also exhibit a high degree of civic organisation which is often said to be lacking in the rural Philippines. Thirdly, these groups generate substantial pools of capital in relation to household incomes, and their proceeds are often invested in capital improvements, or are at least circulated throughout the community as wages paid to carpenters, or to farmers for their produce (usually pigs).

Variation in the arrangements of sukis are critical to the understanding of marketing and interactions between villagers and merchants in the Poblacion and on the coast. Sukis are what were entered into in earlier times between coastal fish
mongers and salt traders and interior rice producers. A *suki* is an unwritten contract between a primary producer (usually a rural villager) of for example food, fuel (firewood) or labour, and either an urban consumer, or more likely a merchant or landowner. In a *suki* ‘contract’ a villager is guaranteed an outlet for his product at a previously arranged price. Credit for villagers is usually available from merchants as part of a *suki* contract, usually at low interest rates. The loan being repayable in produce. An example of a *suki* contract is the relationship between a merchant who may be guaranteed of a regular delivery from a villager of firewood or possibly vegetables, *camote* or *gabi* for home use or sale. Villagers may also have a second *suki* relationship with a rice or corn mill. Again, credit may be available that will be payable with the milling and sale of crops with that mill.

*Sukis* can be passed from one generation to the next. This was more common during the period when arrangements were being made with coastal traders of fish and salt. These relationships have largely broken down with the rise of the peasant insurgency. Also local *sukis* have become more precarious. Cash flow problems for merchants in the *Poblacion* are often cited as the main reason for the breaking of a *suki* contract.

### 8.7 Summary

Until only very recently, the interior was viewed by those dwelling on the coast as a safe haven from all kinds of threat, be it Muslim slave raiders sweeping up from the south, the Spanish clergy, or Japanese or American military forces. Food was always available, even in the long and gruelling campaign of World War Two. Peoples of the interior and coast therefore had an enduring and apparently symbiotic relationship.

In the last 20 years this long history of mutual respect and regular interaction has collapsed. Coastal dwellers no longer come to the interior to meet with their friends and relatives at fiesta and to work in the fields and collect their share of the
harvest from their rice fields. Commercial relationships based on the suki have become tenuous, placing further strain on already tense relations. Increasingly, residents from the coast fear the interior. Coastal dwellers are fearful because the recent insurgency arose from the interior, it was not imported from a coastal town and supported by the interior’s population and resources. This is a fundamental shift in the relationships between the coastal and interior populations, and will have long-term influences on resources. Residents of the interior have called for change in the exploitive activities of coastal businessmen and farmers who have monopolised trade and increasingly, and more importantly, formalised access rights to land and water.

Antagonisms between coastal residents and the interior’s farmers are growing more intense. Environmentally oriented NGOs—whose membership is composed primarily of residents from the coast—have the stated objective of ending the degradation of the interior forests by exercising strict policing and court action. This is reminiscent of the government’s strategy of the late 1960s and 1970s which ended with the outbreak of civil war. Clearly, contention over resources and their sustained output—most notably water—is a critical issue to both interior and coastal residents.

Associated with the rise in antagonism between the interior and coastal cultures have been government military and development policies. Attempts have been made to override indigenous social institutions with government run bureaucracies. Resistance to change has been strong and multi-faceted. Land ownership patterns and methods of allocating the land owned by individual kawitan has mitigated against nearly all attempts at agrarian reform. First, the size of most households’ land holdings in numerous cases falls well below government guidelines for reallocation. Secondly, tenants are apprehensive about applying for ownership of tenanted land when the land they are cultivating is owned by a relative in their kawitan. In the limited number of successful cases of land redistribution, the households that benefited were not landless or even poor by local standards. Moreover, those that are more likely to be poor and living in the barangay of Cabacnitan, have a significantly lower rate of application for
agrarian reform. Finally, a substantial amount of land is owned by absentee landlords living along the coast. Often these holdings are of a small area per owner and are thus not liable for inclusion in the programme.

Development projects that have been attempted in lieu of serious agrarian reform have been largely unsuccessful and in one important case extremely detrimental to the environment. It appears that it is politically expedient to release state-owned land to agitating peasants rather than address the serious issue of claiming and redistributing under-utilised land that is often absentee owned. Hastily planned and implemented reforestation, dam construction and electrification have had very little long-term effect on the environment, or on the provision of social services to the poorest people in Cabacnitan.
9.0 Chapter Nine: The ‘Process’ of Environmental Degradation

My purpose in writing this dissertation was to come to a better understanding of the ‘processes’ of local environmental and socio-political transformation. This in turn demands a better knowledge of the complexities of environmental, social, political and economic factors which have influenced an area over time. What I have demonstrated in this thesis is that this complexity cannot be reduced to the analysis of just one aspect impacting upon eco-social degradation. Degradation occurs when one or more of the social, economic, political and environmental variables--possibly in interaction with change in one or more other variables--results in a shift in agrarian structure. As a by-product of this shift in structure either social change or landuse change, or both, occur. The fact that the perception--and then interpretation--of this shift is personalised means that reactions to change can be highly variable because households interpret and react in different ways. Access to land, the type of land, the position of the family within the village and wider community, and the number and status of kawitan members; each can mediate the response of individual households to change. As a result the outcome of change in any one variable, or combination of variables, is never predictable.

Therefore, at the root of the problem of eco-social degradation are the social and political dynamics of local society that determine the position of households within the community. By exploring these aspects a better understanding of responses to shifts in agrarian structure will be forthcoming.

In the literature examining environmental degradation in rural sites there are at least three schools of thought addressing the underlying causes and possible cures to a problem defined as ‘unsustainability’. My interpretation of unsustainability is based on eco-social parameters. Difficult though it is to identify from an ecological standpoint, degradation involves a reduction in an environment’s longer-term (a generation or longer) productivity stemming from human interaction with that environment. This anthropogenic definition recognises the importance of natural denudation of
environments exemplified by the second law of thermodynamics (Ehrlich and Ehrlich, 1970). Social decline is more problematic to define. Civil unrest is certainly one barometer. More subtle definitions are usually Western-derived and based on the degree of freedom a person has to lead one type of life or another (Nussbaum and Sen, 1993). Issues of social justice and egalitarianism pervade many discussions. The complete debate on the measurement of quality of life is too large to be discussed here. Nevertheless, it can be said that a composite of environmental and social discourses is required to truly define the sustainability of agricultural systems. As the following examples will show in relation to the findings from this study, the current dominant paradigm in sustainability is formed largely by two distinct schools of social scientists and physical scientists—but rarely do the two converge.

I refer to one school as ‘cause-oriented’ because it attempts to discover the antecedents of environmental degradation. Within this tradition are the Malthusian and neo-Malthusian theorists who pursue the population pressure on resources (PPR) line of reasoning (Ehrlich and Ehrlich, 1990; Malthus, 1970; Meadows et al. 1972; Meyer, 1993). Their theories claim that population growth will always outstrip the environment’s capacity to supply food, resulting in poverty, marginalisation of populations, land degradation and famines.

The second body of literature I define as ‘cure-oriented’ and this is dominated by the natural scientists. This research assumes that human driven environmental degradation is ongoing. Research is then guided by the need to design non-degrading ‘sustainable’ geo-physical conditions. Within this school there are three main fields: geo-ecology, environmental geomorphology and agronomy (Barsch, 1990; Coates, 1990; Edwards, et al., 1990).

Regional political ecology is an integrated school of research (Allen, 1993; Blaikie and Brookfield, 1987; Bryant, 1992). The theoretical underpinnings of this stream lie in ecology and political economy. Knowledge of the ecological principles and ‘inherent capacities and constraints of nature’ is critical to the understanding of
environmental degradation. Political economy can illuminate issues beyond the scope of ecology as it incorporates themes such as political-power formations, social-structural conditions, and economic change as they relate to the rationale for and methods of resource management (Watts, 1983; Blaikie, 1985; Blaikie and Brookfield, 1987).

9.1 A Cause: Population Pressure on Resources (PPR)

Proponents of the PPR school have subscribed to the view taken in global studies of environmental change, where human numbers are accorded a pre-eminent position over technological capacity and sociocultural organisation as the cause for global environmental transformation (Kates, et al., 1990:11). This argument has been adopted by Cruz, et al. (1988; 1992) in their enumeration of the Philippine’s upland population which, because of their research design, is already assumed to be ‘the problem’. The peasant’s occupation of upland areas is then used to explain gross environmental problems in the Philippines (Cruz, et al., 1988; 1992; Meyer, 1988). I agree that PPR is an issue in the Philippines, but for two reasons I qualify my enthusiasm for their approach. First, the methodology used appears to have inflated upland population figures. Secondly, the linkages between the spurious population figures and the root causes for such high numbers are weakly developed.

In the late 1980s Cruz et al. (1988) estimated there were 18.5 million Filipinos living in the uplands. Recent research by the Forest Management Bureau places the figure at 4.5 million (delos Angeles, 1994:8). The nation-wide census of the upland population derived from Cruz’s pseudo-geographical model is based on several criteria: the slope of the land (greater than 18 degrees), elevation of the land (greater than 100 metres), the percentage of such land per municipality, and the percentage of a municipality’s settlements in these environments (Cruz, et al. 1988). The model’s weakness, among others, comes from its poor differentiation between upland and
lowland populations. In many rural municipalities Poblaciones are located in valleys or along the coastal margins i.e. they are situated on lands sloping at far less than 18 degrees. However, many of these municipality's hinterlands consist of land sloping at greater than 18 degrees and above 100 metres in elevation. In these instances a large number of people are located in the lowlands, and are reliant only on lowland resources for sustenance. Nevertheless, when at least 75 per cent of the municipality's land is sloping at or above 18 per cent the entire population of the municipality is defined as being in the uplands (Cruz, et al., 1988). The model has many other drawbacks. First, it assumes that all lands of greater than 18 degrees in slope cannot, and should not, be sustainably cultivated, and for that reason settlement should be restricted. Complexity in environmental and landuse systems inevitably leads to gross generalisations of both which invalidate the model for analysing country-wide and local situations.

For example, the assumed lack of agricultural sustainability in upland areas is not substantiated by any empirical research. In this case the root causes of PPR are 'reduced' to two issues--poverty and landlessness. Increases in poverty, for example, are attributed to 'exogenous' forces: "The sharp increase in poverty, caused by the stabilisation policies adopted so as to secure IMF loans amid the debt crisis, clearly contributed", in reference to more people occupying upland environments (Cruz, et al. 1992:42; Meyer, 1993). These writers consider occupants of the uplands to be "the poorest of the poor". In some cases this may be so, however, explanations as to why the poor are poor, such as inter-relationships between local wealth and poverty are overlooked.

Large numbers of upland cultivators and the various technologies they use to cultivate the land to satisfy their needs can create stress, but there are also examples of
environmental degradation in areas “with rising PPR, declining PPR and without PPR” (Blaikie and Brookfield, 1987:33). PPR is assumed to be driven largely by poverty, and is strongly related with disenfranchisement of the poor from better-quality land in the lowlands. It is equated with PPR because the poor resort to cultivation of fragile sites of lower resilience and higher sensitivity. Too often this argument is followed by the notion that these poor farmers lack technical knowledge appropriate for sustainably cultivating marginal lands. Concepcion (1989:88), for example, noted that in the Philippines “lowland technologies eventually become the center-piece upland production systems which are [sic] one of the reasons why so much of our upland production systems are severely degraded.” The idea that upland farmers are ill-prepared to cultivate the uplands incorrectly lays blame on the peasant; furthermore, it places him or her in the position of perpetrator of massive resource degradation. This is a convenient approach for those in the lowlands who wish to enforce “effective conservation and forest protection policies” (Cruz, et al, 1988).

9.2 Evidence From the Case Study

The two arguments put forward above can be tested by the findings of this case study. The first involves the issue of PPR and the factors underlying it. The second involves the theory of poverty and the generalisation that occupants of the uplands are impoverished. Finally, there is the issue of technological capacity and farmers’ skills.

It was clear that the population of Cabacnitan—the more upland of the two barangays in the case study—had a considerably greater population density than did the lowland barangay of Quezon. This supports the argument of Cruz that PPR in the uplands is high. However, I diverge from Cruz’s argument when the root causes of this are discussed. Changes in the ownership of private land, in unison with a long

---

106 An excellent illustration is that of the conditions of rehabilitation occurring in the Gunung Sewu of Java, as highlighted by Nibbering (1991), where population densities reached over 500 persons per sq. kilometre, and in contrast the declining conditions in Bohol where population pressure is about half that of the Gunung Sewu.
history of privately recognised land ownership, have led to a marginalisation of a portion of the population. Historical and differential access not only to land but other social institutions—mainly education—has further marginalised a growing segment of society. Although differentiation has occurred in the local job market, many of these jobs are part time and low paying. Regional change through the closing of traditional agricultural frontiers such as Mindanao heightened the pressure of population on local resources.

Furthermore, the innovators who began cultivation in the uplands were more likely to be affluent and politically connected. They claimed the best land in the fragile upland areas, and hence served as catalysts for further occupation of the even more fragile, less resilient uplands by the poorest of the poor. Therefore, imbedded in the expanding upland population—which does have a high proportion of poor families—is an affluent core that has a great deal of influence in local land claiming and management decisions.

In terms of the skills possessed by the upland cultivators there is no evidence to support the hypothesis that upland farmers are underskilled. O’Brien (1991) writing on the potential for adopting sustainable agricultural practices in the Visayas commented that political and economic realities would first have to change. It could be further argued that because upland farmers came from lowland areas, which are often highly developed with terraces and irrigation systems, they had an excellent ‘tool-kit’ to apply to marginal lands. Furthermore, because there are so many upland farmers then it is possible that their labour could and would be marshalled to create and then maintain landesque capital. There are underlying factors that seem to mitigate against this. Indebtedness, lack of clear title to land, ineffective provision of government extension services and simple isolation come to mind.

Overall, PPR and its relationship with poverty is not adequately addressed by proponents of the argument. Models are increasingly sophisticated, yet they are based on weak assumptions that cannot compensate for the great variation in environmental
and cultural attributes country-wide. In general, the PPR argument as put forward in the Philippines is reminiscent of FAO carrying capacity models with their unrealistic assumptions of access to resources and technologies for future growth in production, among other problems (Brookfield, 1992). Blaikie and Brookfield (1987:35) therefore properly assert that PPR is an important issue, but “in association with other causes”. To date these other causes have received scant attention.

9.3 A Cure: ‘Sustainable’ Technologies

The notion that sustainability can be achieved in rural societies by developing and extending ‘new’ or re-invented local agro-ecosystems is spurious (Allen, 1993:1). This ‘technocratic’ viewpoint of ‘sustainable’ agriculture is agronomy-based and has grounded itself upon the historical ‘fact’ that environmental and social collapse—often alluded to by people such as Malthus and Meadows et al.—has been averted by human ingenuity, technological advance and the theory of substitution when resources became scarce. The emerging ‘rice production crisis’ in Asia exemplifies this viewpoint’s perspective on the issue.

Rice production in Asia will have to increase by 70 per cent over the next 35 years to keep pace with population growth and the demand for rice products (Lampe, 1993:61). Attainment of increased production per unit of land will be seriously constrained by social and ecological conditions. For example, all the land capable of supporting even marginal cultivation of rice has been exploited (Bouis, 1993). Extension of irrigation to new areas has reached a limit of economic viability. Water resources are in decline—not only in Bohol—but across Asia, partly due to deforestation (Collins et al., 1991; Kummer, 1992ab). Water which is critical for agriculture is increasingly being diverted to industry and urban consumers.

Rice breeders working on this problem have created a new rice hybrid that has the potential to yield up to 13 tonnes per hectare but it has certain particular
requirements (Khush, 1993:32). Like other modern varieties (MVs) it requires heavy inputs of fertiliser, water and possibly pesticides (the new rice has yet to be cross-bred for resistance to a multitude of pests and diseases). Laudable as the International Rice Research Institute’s (IRRI’s) efforts may be, their agenda of averting another rice crisis is hampered by disciplinary blinders. Attention must be paid to the social, economic, political and ecological issues surrounding wider environmental degradation.

Technocratic arguments are too narrow in focus and disenfranchise the agency of society, economy and politics. Those that claim to have created so-called ‘sustainable agricultural systems’ have a very limited view on what an agricultural system is and how it fits with wider issues of community and cultural sustainability. Appreciation of the complexity is being voiced, by Harwood for example (1990); however, attempts at framing research to address it have still been limited by disciplinary constraints (Allen, 1993).

9.4 Counter-hypothesis: Regional Political Ecology

I used a regional political-ecology framework to explore underlying complexity within the broad variables critiqued. I believe that by using this approach a clearer understanding of the issues affecting eco-social transformations is attained (causes), consequently more efficient or realistic attempts can be made at mitigating eco-social decline (cures).

From a theoretical perspective, in the studied situation, the issue of land tenure as proposed by Thiesenhusen (1991) counterpoised with the demographics of a changing population and type of government intervention--provided valuable insights into the process of local environmental, social and political change. These issues could not have been effectively described had they not been explored at a local scale, in considerable historical depth, or in relation to state policy. Examination of a finite and small area allowed for the effective use of detailed data and other methods that would

241
have proven to be cumbersome or reductive if used over a larger area. Historical depth permitted a more focused analysis of various causes and effects and described a longer view—and wider perspective—on ecological principles which impacted (rather belatedly) on decisions made by land managers, their households, and politicians at the local, provincial and state level.

Problems of land tenure, changed agrarian structures, and household-coping strategies through time, and the impact of change as reflected in land-holding patterns, and issues of resource allocation, are powerful and pervasive explanatory tools. For example, personal and familial decisions on mobility were to a large degree driven by access rights to resources and changing ecological conditions; this was clearly displayed by the disturbingly—from a planning perspective—mobile character of the study area’s and Bohol’s population.

Population pressure on resources, is therefore, a secondary problem, dictated to a large degree by the primary themes of land tenure, and access rights to the products of the land, and a failed urban industrialisation policy (among others). On this same point, land tenure arrangements, rather than population issues, were in this century largely derived from exogenous, typically state-driven prerogatives, that were interpreted and mediated by certain sectors of the local population. Structures of power at the local level, with families pre-positioned in places of presumed authority, used this position and interpreted, implemented, and benefited, from the state-imposed structures of control. In contrast, issues of population were reactive. They were reactive to the élite’s interpretation of state controls and how, over time, this affected their access to productive resources in the local setting and hence their families survivability.

Furthermore, over time, the complexity of these variables has increased as part of the continued fractionalisation of social groups as capitalism penetrated this relatively autarkic agrarian society. The description of the diversification in the types of jobs exemplified the character of this now open social and economic system.
Kessler correctly (1989:17) views this diversification as a "sign of social decay, not progress", that signified the lack of employment opportunities in agriculture. In the environment the increasing openness of the system determined patterns of land ownership. There was a progressive and correlated dislocation of local society from their resources as land ownership shifted from local to absentee control.

9.5 Implications of the Study

There are several important issues that have arisen as a result of this study. Some relate to methodology and the use of a regional, political ecology framework. Others evolved out of the heightened understanding of a local situation and how that related to the wider literature on societal roles in environmental degradation.

Two of the most important implications were the identification of an intimate relationship between time, landuse change and downstream ecological and social change; and the relationship between population mobility and diminished or enhanced ecological change.

Migration can be a critical element in maintaining the sustainability of agricultural systems. It is questionable to define agricultural systems as being sustainable if their sustainability is dependent on the export of large numbers of persons to frontier areas where forest is destroyed to create new farms. Issues of PPR were critical in the local case, as evidenced by the correlation between state control or loss of control of forest resource and the movements of farmers to exploit these public lands. Underlying the migration issue were social-historical patterns of access to social resources. For example, the recent urbanward phase of migration from the villages was determined by factors almost completely divorced from direct environmental considerations. An important implication of this was the discovery that access to opportunities outside of local agriculture were determined by historical conditions of access to other social services such as education. Moreover, heavy out-migration to
urban areas and continued ecological destruction of fragile resources is significant. It contradicts the theory that urban economic growth, and its presumed capture of the rural surplus labour force, will subsequently lead to a reduction of pressure on agricultural resources by society’s poor and marginalised (Meyer, 1993).

To understand the causes of degradation—and to apply this knowledge to stemming it—requires the study of the relationship between time and ecological change. Local cognisance of important relationships between deforestation and ecological change only appeared when cause and effect narrowed to a period of less than a generation. For example, in an interview with a farmer in his mid-50s, we discussed the history of local ecological change. While in his youth, his parents warned him to plant trees or face ecological destruction. He looked around at the destruction all around him and said that few of his contemporaries believed their dire prediction.

An important change in the local perception of the problem has clearly come about. However, principles of rehabilitation based on this new understanding have yet to be translated into social change. The implications of attempting to intervene in the social side of the eco-social equation are problematic. It is questionable whether a ‘just’ redistribution of land will have the desired effect and, if attained, would be sufficient to ameliorate deep-seated, social-ecological problems. The most severe constraints would be human behaviour associated with the perception of the pace of environmental change; if these were positive, change might eventually materialise.

Geo-ecological as well as social interdependence characterises Quezon and Cabacnitan’s relationship. Time, as a factor between the onset of downstream environmental change after upstream deforestation, is critical. Expansion of agriculture into the fragile and ecologically sensitive lands of Cabacnitan only occurred this century. The initial clearing was extensive for the period, but ill effects were not immediately experienced either in-situ or downstream. From the initial period of massive disturbance until the second phase of widespread expansion during World War
Two little negative ecological change was expressed. It was not until the 1950s that downstream change began to occur.

The initial downstream impact of upland deforestation was felt hydrologically, and this was associated with the drought of the early 1950s and resulted in a reduction in the area of irrigated land. The drought temporarily reduced the critical boundaries of the system's irrigation capabilities. What resulted was a contraction in irrigated area. With water available on a less regular and even basis a new stasis evolved in the downstream environments as abandoned rice lands were converted to dry cropping. This new 'contracted' system persisted until the next serious drought in the early 1970s. During the intervening years forest clearing continued in Cabacnitan, most notably that associated with the clearing of nearly 100 hectares of burned forest. Another contraction in irrigated area occurred approximately 10 years after this phase of deforestation. More rice lands were converted to corn as the lowland system was again readjusted to ecological conditions.

Deforestation of another large area of upland forest occurred in the 1980s. Drought returned in late 1991 and extended into 1992, and yet another large area of lowland rice was replaced by dryland crops.

In terms of periodicity, several points are raised. First, clearing of upland forests has not been a smooth process whereby a relatively equal number of hectares of land were opened-up on a seasonal basis. Conversion of forest to field has been both periodic and rapid, and each case was associated with a particular event. Historically they were: 1) the Filipino-American War of the turn of the century; 2) a World War Two resistance movement and associated population resettlement; 3) the devastating fire of 1960, and 4) the recent peasant resistance, and the releasing of fragile uplands under the ISF programme. The point being that armed conflict, social disruption and desire for land have overcome state controls over access during periods of unrest. However, recent expansion into the forest has come about when state control was--rhetorically--well established. In spite of the general public's recognition of the
negative effect caused by the few families that continue to clear land in the forest, no one has come forward to report them or their illegal activities.

Downstream effects of periodic conversion of forest to cropped land are linked with social and climatic factors. Conversion of lands from wet field to dry land cultivation occurred most rapidly during and immediately after, long droughts. El Niño droughts and floods have become more common in the 1970s, 1980s and 1990s and, with each, the extent of irrigation has contracted (Urich, 1993; Appendix 1). Timing of deforestation and resultant downstream ecological change, and conversion of the agricultural system, changed through time. Initial deforestation was not ‘felt’ widely in the downstream environment for approximately 50 years. As periods of more rapid conversion of forests to farmland have occurred more frequently, so has downstream change. The most recent period of deforestation in the 1980s was translated to dramatic lowland hydrological change approximately five years later. Any future widespread deforestation of the uplands may therefore lead to the complete collapse of the lowland hydrological system supporting wet rice cultivation.

To a large degree the elapsed time between ecological disturbance and downstream ecological change helps to explain why the process continues. Due to the length of time between the widespread deforestation of Cabacnitan and the initial destabilisation of the lowland hydrological system, farmers who could, and did, make the cause and effect link were powerless to react. Local circumstances, pressing needs of family and community outweighed any conservation attempt at a wider system level.

9.6 Thoughts on Future Eco-social Change

Rehabilitation, or at the very least a halting of the current process of environmental degradation, is necessary. Nevertheless, any strategy will face the problem of social justice and equity on local society if the chosen strategy requires the more affluent to change their mode of accumulation. If we assume that rehabilitation begins along the
lines of the dominant Philippine rural development paradigm of redistribution of under-utilised lands to tenants, and, if as a result, deforestation was halted, downstream hydrologic change would continue on its negative course for a number of years until a new stasis was reached (Gupta 1980; Nakano 1967; Parfait and Lallmahomed 1980; Yannian 1990). Secondly, as regeneration occurred (either naturally or assisted by reforestation) the positive downstream effect would also suffer a lag in time.

If affluent farmers and landowners were to be asked to sacrifice land for the benefit of wider society they would require compensation. They would also expect rather rapid positive environmental feedback. The chances of a redistribution of land and positive environmental change are not good. Depending on El Niño-related climatic conditions, it is more likely that environmental conditions will continue to deteriorate, perhaps for five or ten years, before any positive signs of change emerge. Continued decline would certainly force the affluent to rethink whether their benevolence was indeed well placed. Given the inertia of the ecological system environmental change may appear to worsen. Therefore, environmental inertia must be recognised and taken into account in any plan for rehabilitation.

9.7 The Case For Local Initiatives

It is clear from the Gini coefficient presented below, and from the detailed description of the history of land-holding in the villages, that the control of land is crucial to the accumulation process at the local level. Social and political power at the household and, critical in this situation, at the kawitan level stems from this process of accumulation.

This was the case before the advent of formalised land holding structures, and before a researchable set of records was kept. Among villagers, the first evidence of these power relations was apparent when the state imposed a system for formalising land holdings early this century. More powerful households within a kawitan came
forward and claimed land on behalf of their less powerful relatives. Importantly, this was not contested by the weak; giving way to more powerful relatives was an integral part of local culture and there was an expectation that this would be rewarded by the more affluent. However, with time, this 'creeping codification' of access rights to land became increasingly distorted, abused and corrupted, whereby its original purpose as a 'development' tool was lost (Figure 49). Increasingly, individuals treated the land as a commodity to be bought and sold with little regard to the small farmer, cultivator ('tenant'), or labourer who originally ceded 'ownership' of the land to their paternalistic and more powerful relatives.

![Graph: Land ownership inequality based on kawitans in Quezon and Cabacnitan, Batuan in 1992. This depicts a Gini coefficient of 0.6423 which is roughly equivalent to the nation's coefficient (Putzel, 1992).]

Figure 49: Land ownership inequality based on *kawitans* in Quezon and Cabacnitan, Batuan in 1992. This depicts a Gini coefficient of 0.6423 which is roughly equivalent to the nation's coefficient (Putzel, 1992).

No single issue is more emotive in the Philippines than that of land and agrarian reform. Land reform has been portrayed in a very narrow sense, i.e. the redistribution of land from the élite and land-holding class, which often under-utilised its holdings, to the dispossessed or marginalised, who very often over-exploited their holdings, in an
overt attempt to ameliorate inequalities in access to land and the intensity of its use. Land reform's utility given the complexity of the local situation is greatly limited.

Agrarian reform is a more holistic concept and entails not only the redistribution of land but also the restructuring of markets and entrenched hierarchies in the merchant classes of society. An excellent example of the latter is the rice miller's and rice trader's monopoly which exists in the Philippines (Constantino, 1986). Agrarian reform is obviously a more comprehensive programme, and one which is obligatory if land reform is to succeed.

Regardless of the level of reform, there is a widely held view that reform will not take place until one or both of the following conditions pertain. First, reform will not occur until peasant mobilisation is so great that it threatens the very existence of the ruling elite. As Putzel stated, it will not be attempted until peasant mobilisation "presents a challenge to the very foundations of the state", and that this "would appear to be the crucial factor determining whether or not the state will adopt redistributive reform" (Putzel, 1992:375).

There is a second 'ecological' viewpoint. As described by Blaikie (1985) and Blaikie and Brookfield (1987), adaptation to change in land management systems through formulating access to resources is critical to the sustainability of systems. In systems such as Bohol's where local populations recognise a clear and acknowledged relationship between upland deforestation and destabilisation of the lowland ecology, these writers would contend that if the livelihood of Quezon's elite were jeopardised by the actions of Cabacnitan's farmers, some sort of local redistribution would occur to minimise losses in Quezon. The evidence to support Putzel, Blaikie, and Blaikie and Brookfield is not forthcoming.

In Putzel's view, reform should take place during periods of stress, where those in authority make decisions during 'historical moments of choice' (Putzel, 1992:375). In order to avert a revolution, the state would concede, and permit the limited implementation of agrarian reform 'to let off steam'. Successful cases of exogenously
designed and driven redistributive programmes are few. The local situation provided
the state with two ‘historic moments of choice’. One came in the late 1970s when the
peasant insurgency was building. A clamour for land was heard when its redistribution
was requested by the marginalised peasant sector. It is recalled that at this time PPR
was building on the fringes of the then closely guarded state forest lands.

Before the government could respond with a comprehensive programme or
local reform—if indeed they had any plan at all to reform—armed conflict began. The
state retreated and withdrew its forest guards to the provincial capital. The
prosecution of illegal occupants of the forest zone diminished. Pressure of population
was released and large areas of the fragile forest environment were quickly deforested
and farmed. A second opportunity was presented to the Aquino administration in
1986.

When Aquino came to power in 1986 she had the opportunity to impose a
workable system of agrarian reform with her legislative powers (Putzel, 1992:375). In
the study area that would have entailed removing the cultivators from the forest zone
and providing them with the municipality’s under-utilised alienable and disposable land.
In parts of Batuan this policy was half-implemented. The military ‘cleared’ the forest
zone and ‘encouraged’ families living and/or cultivating in the forests to move back to
the areas of alienable and disposable land and to cease their cultivation in the public
lands. This was a very effective policy carried out throughout southern Bohol from
late 1986 to 1991. However, it posed a new problem. Resettled peasants were land
starved and so became an even greater threat to the state than they did in the late 1970s
and early 1980s. In this climate Integrated Social Forestry (ISF) was implemented.

The state may have realised the limitation of the implementation of the most
recent Comprehensive Agrarian Reform Programme (CARP) on Bohol, with its
already small farm plots relative to the plantation type and larger land holdings
common elsewhere in the archipelago.\textsuperscript{107} CARP was designed to be more comprehensive than P.D. 27. It set a retention limit of only 5 hectares, and 3 hectares for each legal heir.\textsuperscript{108} Although this would apply to nearly 90 per cent of private agricultural land in the country, it would have little impact on Bohol (Garcia, 1991:63). Rather than threaten the political allegiance of the landed élite who were educated and politically powerful, the state opted for the introduction of an Integrated Social Forestry Programme. In direct contradiction with its stated guidelines, ecologically fragile, state-controlled lands in the uplands were released to the marginalised peasants.

From an ecological point of view the reforms that could occur in this area are constrained by a number of factors. There is the issue of time as already discussed in relation to the cause and effect of ecological transformation and any perception of positive change in the future following redistribution of resources. Acknowledging that this gap exists is crucial to the local cognisance of conditions and must form a critical part of any educational component of a redistributive programme. Without this understanding I question whether serious ecological change could initiate the endogenous creation of positive social change. Perhaps this occurred in the past when economic realities were far simpler. Exigencies of modern living, the power and pervasiveness of the cash economy and immediacy of familial needs will, I believe stifle any such endogenously initiated rehabilitation strategy.

Several significant points can be drawn from this discussion. First, the political power of the local élite over the marginalised peasants is comprehensive. At all levels of government--and even at local non-elective levels--persons elected or appointed to positions of power are from the land owning élite. As a result of the subjugation of power by the élite the state is hobbled and weak. Even though central government has

\textsuperscript{107} Lack of political will is also widely implicated as a constraint on reform. After seven of CARP’s ten years of planned implementation only 0.8% of the lands programmed in the 5 to 24 hectares range had been distributed (7,508 hectares of 845,012) (Lim, 1995:4).

\textsuperscript{108} ‘Retention limit’ refers to the area of land an individual owner is allowed to keep when agrarian reform is implemented. The owner is allowed to choose which lands are to be kept. They should be contiguous plots (Romero et al., 1991:104).
always been weak, local governments have not risen to fill the gap (Kessler, 1989). Opportunities for genuine reform under these circumstances are unlikely. Secondly, and in relation to the point made above, the turn-over of the ecologically fragile, state-held lands to cultivators on fixed 25 year, extendable to 50 year leases, compromised any chance of a locally led redistribution of land--especially one based on a perceived ecological threat to lowland productivity and lifestyle. Thirdly, the use of the state forest lands, and more critically such sensitive lands, as a 'safety valve' to relieve political pressure represents a serious indictment on the state of affairs in Philippine rural society and politics.

Therefore, the problem lies in identification--and linkage--of today's activities with future ecological change. By the time an environment displays a cultural, perceptible, and widely recognised change from a shift in land management, that change is typically well entrenched. Degradation of a fragile environment which has downstream impacts may therefore be so far along as to render its own, and downstream rehabilitation, nearly impossible; although there are examples of spectacular rehabilitation which have occurred over comparatively short periods of time (Nibbering, 1991).

Ecological transformations cannot always be halted or remediated by an immediate redistributive programme aimed at ameliorating environmental stress. Moreover, it is improbable that owners of lowland resources could be convinced that by redistributing their land to upland marginal cultivators a reduction in the pressure for production in the uplands would result, and overall environmental conditions would improve. For example, even if deforestation were halted today, the flow-on impacts would take several years to manifest. Moreover, seeking even a modicum of recovery would take generations. Therefore, there are few short-term benefits that could be derived from an endogenously or exogenously designed and implemented redistributive programme.
9.8 Methodological Considerations

Regional political ecology when applied at the local level is effective in detailing linkages between social and ecological transformation. A historical perspective breaks the study free from the binds of empirical positivism. Choosing appropriate variables for analysis is critical to the approaches utility. This is improved by interaction and participation with the local society in many aspects of local life. Moving between various types of families and clans in terms of size and relative affluence is also important. Concurrent with the personal socialisation process is the need to study the relationship between persons and their environment. Analysis of political and ecological change is therefore of little value without a firm understanding of the critical ecological issues impacting on local society. As with the social variables, the ecological variables are always in a state of transformation.

Scale of analysis as seen in the investigation of PPR and through the use of a political ecology framework of analysis is important to method and future planning. Cognisance of the limits of data must be taken into account when designing a political ecological study. As part of the method a historical study will, in many cases, be hampered by a paucity of data specific to locals for the earliest periods of analysis. Conversely, new and innovative data sets are often available for the more contemporary periods, frequently with considerable detail specific to local situations.

In reference to future planning, scale is critical to recognising the applicability of findings stemming from the use of a political ecology approach. Commonalities in life histories, environments and histories of clan accumulation can and do transcend from the local to regional levels. Identification of commonalities of life experience across wider areas can be significant when planning interventions. Tentatively speaking, the conditions that were described in the case study pertain to an area comprising the southwestern quarter of the island of Bohol and the southern one-third of the neighbouring island of Cebu. This region is defined by common environmental
conditions, history and cultural affinity. It is differentiated from surrounding areas by its relative cultural homogeneity. To the north, in Bohol, the culture is more heterogeneous being composed of Boholanos, Cebuanos, Leytenanos and others. Mindanao is similar in its heterogeneity, and with it specific problems and cultural norms of a political and social nature evolve.

9.9 The Future

In the future, as in the recent past, issues of access rights to water sufficient for the land holding class and control of land itself will be paramount. Cases have already been raised. New cases will undoubtedly occur as resources become more destabilised. A second area of contention will be the NGO communities (Broad and Cavanagh, 1993). The environmental movement's call for a reinstatement of forest guards may recreate the conditions prior to the most recent conflict. No mention is made on behalf of the élite-run NGOs to attempt to understand the pressures that face cultivators of public forest land, although presumably they will be receptive to the argument that the issue is extremely complex.

Policy formulation is therefore the next critical issue, and the relationship between a political ecology approach taken here and the prospects for changes in policy. What this study has revealed is that the way in which natural resources are exploited is largely determined by private or clan-based accumulation. Within the local society is a complex mix of social groups each possessing different positions of wealth, prestige and power. Clearly, those that are higher in this social system have inordinate control in the realm of politics and policy decision-making and therefore state policies tend to cater to their needs.

As described, any programme designed to ameliorate the ecological and social problems facing the local community run counter to the interests of those most involved in private accumulation. It has been surmised by Schmink and Wood (1989)
that if these socio-political realities were incorporated in a project design, then an environmental policy will have a better chance of being effective. I contend that this can be taken one step further by incorporating a more overt environmental perspective. If the environmental realities of the situation facing the more affluent were clearly presented then the chances of a social, economic, political and environmental policy being effective would improve considerably. This requires a clear definition of policy goals and an honest assessment of who the winners and losers of such a policy would be. A greater comprehension of what these ‘areas of contention’ may be can be partly discovered through the use of political ecology framework. In this way empirically observed phenomena can be better understood in a context of ever-widening circles of explanation. Moreover, clearer historical trends in the local environment can be linked with socio-political aspects.

It is perhaps at this level that an attempt at the most objective analysis of past change and state response can and should be addressed. Future interventions could be informed by patterns of previous unsuccessful attempts at ameliorating local social and environmental decay. ‘Civil society’ is currently seen as an avenue for passing new initiatives which challenge the state’s dominant paradigms of development; civil society being defined as “associational activity outside the state” (Fine, 1994:130). Within these associations there is the assumption that democratic participation occurs, whereby decisions on local development could and should be made without the overbearing hand of the state. Still, within civil society there will be areas of contention within local units, in the situation of this study within individual barangays, and within barangays, between members of individual kawitan. It is the understanding of the root causes for these divisions, and how they are manifest in reference to accumulation of land, prestige and power or, on the contrary, disenfranchisement of these elements, that will bear heavily on the success or failure of any intervention. By viewing civil society with regard to these issues of access to physical and social resources, and management patterns of those resources under an individual’s or
household's control, relationships between socio-political power and transforming environmental conditions can be wedded.

Finally, it is important to stress the need for continued investigation of socio-economic change in specific localities. Information cannot be used in a positivist, snapshot way, but must be continually reassessed and revitalised to keep pace with the dynamic nature of local society and ecology. This study was designed with the premise that continued monitoring would take place, and results would be quickly and clearly disseminated to the local population. The ultimate goal being the enabling of local populations to monitor their own situation, interpret the results, and convert that knowledge into their own plans for action.


Bohol Chronicle (1985c) Six killed as PC, rebels fight: Mayors declare war on rebels, seek PC help. *Bohol Chronicle.* Tagbilaran City 31(18) 1 and 8


Camus, J. S. (1921). *Rice in the Philippines.* Manila, Department of Agriculture and Natural Resources.


DENR-CENRO (Department of Environment and Natural Resources). (nd.). *Operational map of First District of Bohol*. Scale 1:50,000.


260


Philippine Department of Environment and Natural Resources (DENR). (1989). The need to evolve policies to regulate the utility of underground water in Region VII. DENR Region VII Research and Development Notes 1(2): 2 and 13.


Philippines Regional Trial Court (Tagbilaran City) (1981). Criminal Case No. 1006. Violation of the anti-subversion law.


Seroje, C. M. (1982). Communal irrigation census, Bohol Province, Philippines. NIA,


Siy, R. Y. (1982). *Community resource management: lessons from the Zanjera*. Quezon City, Philippines: [Honolulu], University of the Philippines Press; Distributed outside the Philippines by the University of Hawaii Press.


