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# **AN UPLAND COMMUNITY IN TRANSITION**

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# **AN UPLAND COMMUNITY IN TRANSITION**

**Institutional Innovations for  
Sustainable Development  
in Rural Philippines**

Agnes C. Rola



S E A M E O  
**SEARCA**

**SOUTHEAST ASIAN REGIONAL CENTER FOR  
GRADUATE STUDY AND RESEARCH IN AGRICULTURE**  
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# Contents

<i>Tables</i>	<i>viii</i>
<i>Figures</i>	<i>xi</i>
<i>Acronyms</i>	<i>xii</i>
<i>Foreword</i>	<i>xvii</i>
<i>Preface</i>	<i>xviii</i>
<i>Acknowledgements</i>	<i>xxii</i>
<b>1 INTRODUCTION</b>	<b>1</b>
Upland Economic Development and Institutional Evolution: An Analytical Framework	2
Tension in the Uplands and Its Institutional and Policy Context	5
Approach to the Study	11
<b>2 AN UPLAND COMMUNITY IN TRANSITION</b>	<b>17</b>
Introduction	17
Biophysical Conditions	19
Social and Economic Conditions	27
Agriculture	31
Environment and Natural Resources	40
Governance	45
Conclusions	46
<b>3 THE ECONOMY OF AN UPLAND COMMUNITY</b>	<b>53</b>
Introduction	53
Surveys	53
Social and Demographic Characteristics of Households	61
Agricultural Economy and Trends	65
The Poor in a Market-based Upland Economy	77
Conclusions	80
<b>4 LAND USE AND LABOR ALLOCATION</b>	<b>83</b>
Introduction	83
Farm Land and Labor Use Decisions	85
Propensity to Participate in Non-farm and Off-farm Employment	93
Impact of Non-farm Employment on Soil Conservation Decisions	97
Conclusions and Policy Implications	101

<b>5</b>	<b>DEVELOPMENT PATHWAYS OF UPLAND HOUSEHOLDS</b>	<b>107</b>
	Introduction	107
	Drivers of Change and Development Pathways: An Analytical Framework	108
	Determinants and Outcomes of Development Pathways: Empirical Methods	109
	Determinants and Outcomes of Pathways: Results and Discussion	113
	Changes in Farm Practices Across Pathways	123
	The Faces Behind the Pathways: Farmer Case Studies	127
	Conclusions	140
<b>6</b>	<b>PROPERTY RIGHTS, EXTERNALITIES, AND UPLAND SUSTAINABILITY</b>	<b>149</b>
	Introduction	149
	Evolution of Property Rights in the Uplands	150
	Evolution of Property Rights in Bukidnon	151
	Who Owns the Water in the Uplands?	153
	Conclusions	162
<b>7</b>	<b>DECENTRALIZATION, GOVERNANCE, AND NATURAL RESOURCE MANAGEMENT</b>	<b>167</b>
	Introduction	167
	Decentralized Environmental Governance in Practice in Bukidnon Province	169
	Municipal Governance Under Decentralization: The Watershed Management Plan in Lantapan	175
	Challenges for Sustainable Outcomes	187
	Conclusions	190
<b>8</b>	<b>TOWARDS A SUSTAINABLE UPLAND COMMUNITY</b>	<b>199</b>
	Introduction	199
	Lantapan's Transition to a Sustainable Community: The Institutional Context	201
	Institutions, Resource Use, and Environmental Outcomes	209
	Cultural Diversity in a Modern Rural Economy	211
	Conclusions	214

<b>9</b>	<b>CONCLUSIONS, RECOMMENDATIONS, AND LESSONS LEARNED</b>	219
	Summary	219
	Conclusions	222
	Recommendations	223
	A Researcher's Perspective	226
	<i>Epilogue</i>	233
	<i>About the Author</i>	235

# Tables

<b>1.1</b>	An analytical framework of economic development and institutional evolution for environmental management	3
<b>2.1</b>	Lower and upper watershed barangay characteristics in terms of population growth, land area (ha), elevation (m), and distance from Poblacion (km), 1990-2002	20
<b>2.2</b>	Total area and barangays covered by sub-watersheds in Lantapan, Bukidnon, Philippines	23
<b>2.3</b>	Land use pattern in Lantapan, Bukidnon, 1994 and 2001	25
<b>2.4</b>	Population growth rate in Lantapan, Bukidnon (by location) and the Philippines, 1970-2000	28
<b>2.5</b>	Annual per capita poverty thresholds	32
<b>2.6</b>	Number of farms by size in Bukidnon and Lantapan, 1971, 1980, 1991, and 2002	34
<b>2.7</b>	Trends in area (ha) of selected crops in Bukidnon, 1991 and 2002	35
<b>2.8</b>	Respondents' perception on the consequences of pesticide runoff from banana farms to the rivers in Lantapan, Bukidnon, 2000	43
<b>3.1</b>	Number of households, estimated number of agricultural households, and sample size by barangay	55
<b>3.2</b>	Number of respondents included in the survey, 1994-2006	57
<b>3.3</b>	Frequency distribution of reasons for dropping out of farming in 2006 from the 2002 survey	58
<b>3.4</b>	Relative frequency (%) of sample population by age, and dependency ratio of the lower and upper watershed in Lantapan, Bukidnon, 1996, 2002, and 2006	61
<b>3.5</b>	Mean educational attainment of sample population adult members, by gender, ethnicity, and class, in the lower and upper watershed in Lantapan, Bukidnon, 1996, 2002, and 2006	62
<b>3.6</b>	Mean educational attainment by age group in the lower and upper watershed in Lantapan, Bukidnon, 1996-2006	63
<b>3.7</b>	Distribution of tenure of the largest parcel of farmer (%), 1994, 2002, and 2006	65
<b>3.8</b>	Number of households with plots in the lower watershed, upper watershed, and both watersheds in Lantapan, Bukidnon, 1994, 2002, and 2006	66



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3.9	Relative distribution of trends in cropping pattern (%) in the lower and upper watershed in Lantapan, Bukidnon, 1994-2006	69
3.10	Poverty incidence among sample households in Lantapan, Bukidnon, 1998-2006	78
3.11	Comparison of characteristics of families below poverty income threshold in Lantapan in 2006 from 1994 (n=37)	79
4.1	Summary statistics of variables	87
4.2	Random effects Tobit estimates	89
4.3	Elasticity estimates from random effects Tobit model	90
4.4	Average daily wages by occupation and location (PhP/day), 1998-2002	92
4.5	Distribution of dry season employment by household members over 15 years old, 1996-2002	93
4.6	Logit estimates on the propensity to participate in off-farm and non-farm activities (1=participating; 0=not participating), 1996-1998	95
4.7	Logit estimates on the propensity to participate in off-farm and non-farm activities (1=participating; 0=not participating), 2000-2002	96
4.8	Labor supply function estimates and propensity to adopt soil conservation measures in Lantapan, Bukidnon, 1996-2000	100
5.1	Frequency of households classified according to their pathways, in the lower and upper watershed in Lantapan, Bukidnon, based on 2002 and 1994 economic activities	111
5.2	Descriptive statistics of biophysical traits of plots and socio-economic characteristics of households in Lantapan, Bukidnon, 1994-2002	114
5.3	Market integration indicators by development pathways in Lantapan, Bukidnon, 1994-2002	117
5.4	Summary of statistically significant determinants of the pathways in Lantapan, Bukidnon, 1994-2002	118
5.5	Mean predicted probabilities of choice of development pathways in Lantapan, Bukidnon (derived from multinomial logit model), 1994-2004	119
5.6	Mean change in outcome variables, except for household income (2002-1998), in the lower and upper watershed, 2002-1994 (in 1994 prices for monetary values)	121
5.7	Qualitative analysis of economic and soil quality outcomes of development pathways in Lantapan, Bukidnon, 1998-2002 (N=109)	122

<b>5.8</b>	Changes in soil and pest management practices by proportion of upland households (%) in Lantapan, Bukidnon, 1994-2002	124
<b>5.9</b>	Changes in soil conservation practices by proportion of upland households (%) in Lantapan, Bukidnon, 1994-2002	126
<b>7.1</b>	Existing environmental programs and projects in Lantapan, 2002	179
<b>7.2</b>	Proposed development projects by ecozone in the four main tributaries of the Manupali watershed in Lantapan	180

## **Appendix Tables**

<b>A5.1</b>	Multinomial logit regression results of determinants of the pathways of lower and upper watershed households in Lantapan, Bukidnon, 1994-2002 (N=109)	142
<b>A5.2</b>	Multinomial logit regression results of determinants of the pathways of lower watershed households in Lantapan, Bukidnon, 1994-2002 (N=40)	144
<b>A5.3</b>	Multinomial logit regression results of determinants of the pathways of upper watershed households in Lantapan, Bukidnon, 1994-2002 (N=69)	145

# Figures

<b>2.1</b>	Location map of Lantapan	19
<b>2.2</b>	Location map of the Manupali watershed	21
<b>2.3</b>	The four main tributaries of the Manupali River in Lantapan, Bukidnon, Philippines	22
<b>2.4</b>	Slope map of Lantapan	24
<b>2.5</b>	Land use map of Lantapan	26
<b>3.1</b>	Average farm size by ethnicity of all farms in the lower and upper watershed in Lantapan, Bukidnon, 1994-2006	67
<b>3.2</b>	Farm area (%) planted to annual crops in the (a) lower and (b) upper watershed	70
<b>3.3</b>	Trends in yield (kg/ha) of (a) white corn, (b) yellow corn, (c) coffee, and (d) cabbage, by watershed, in Lantapan, Bukidnon, 1994-2006	71
<b>3.4</b>	Trends in production cost (per kg) and farm price (per kg) of various crops in the lower and upper watershed in Lantapan, Bukidnon, 1994-2006	74
<b>3.5</b>	Distribution of monthly income of household (%; in real term, 1994=100), based on their dominant cropping pattern, in the lower watershed in Lantapan, Bukidnon, 1998-2006	77
<b>4.1</b>	Trends in the nominal protection rate for corn in the Philippines	84
<b>5.1</b>	An analytical framework of household development pathways in the uplands	109
<b>7.1</b>	Operational structure of the Bukidnon Watershed Protection and Development Council	172
<b>7.2</b>	Linkages of management entities of Lantapan environmental resources	176

# Acronyms

A and D	Alienable and disposable
ABC	Association of Barangay Captains
ACIAR	Australian Center for International Agricultural Research
ACM	Adaptive Co-Management
ADB	Asian Development Bank
APRAAP	Agricultural Policy Research-Advocacy Assistance Program
ATSAL	Agroforestry Tree Seed Association of Lantapan
AusAID	Australian Agency for International Development
BAS	Bureau of Agricultural Statistics
BENRO	Bukidnon Environment and Natural Resources Office
BIDANI	Barangay International Development Approach for Nutrition Improvement
BSWM	Bureau of Soils and Water Management
BUSCO	Bukidnon Sugar Milling Corporation
BWPDC	Bukidnon Watershed Protection and Development Council
CAC	Community Advisory Council
CADC	Certificate of Ancestral Domain Claim
CADT	Certificate of Ancestral Domain Title
CARP	Comprehensive Agrarian Reform Program
CBFM	Community-based Forest Management
CBFMA	Community-based Forest Management Agreements
CACLE	Center for Continuing Legal Education
CDF	Countrywide Development Fund
CDO	Cagayan de Oro
CENRO	Community Environment and Natural Resources Office
CFMA	Community Forestry Management Agreement
CFP	Community Forestry Program
CHP	Cold Chain Program
CIDA	Canadian International Development Agency
CLOA	Certificate of Land Ownership Award
CLT	Certificate of Land Transfer
CMU	Central Mindanao University
CNI	Commission on National Integration

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COE	Council of Elders
CPPAP	Conservation of Priority Protected Areas Project
CSC	Certificate of Stewardship Contract
DA	Department of Agriculture
DA-GMA	Department of Agriculture-Ginintuang Masaganang Ani
DA-HVCC	Department of Agriculture-High Value Commercial Crop Program
DAR	Department of Agrarian Reform
DECS	Department of Education, Culture, and Sports
DENR	Department of Environment and Natural Resources
DILG	Department of Interior and Local Government
DSWD	Department of Social Welfare and Development
ECC	Environmental Compliance Certificate
EIA	Environmental Impact Assessment
EMB	Environmental Management Bureau
ENRO	Environmental and Natural Resources Office
EO	Executive Order
EP	Emancipation Patents
ERDS	Environmental Research Development System
ERP	Effective rate of protection
ESCAP-ADB	Economic and Social Commission for Asia and the Pacific-ADB
FAO	Food and Agriculture Organization
FASPO	Foreign-Assisted and Special Projects Office
FFS	Farmer Field Schools
FIDA	Fiber Industry Development Authority
FITS	Farmers' Information and Technology Services
FORI	Forest Research Institute
FPIC	Free and prior informed consent
FPL	Free Patent Law
GATT	General Agreement on Tariffs and Trade
GDP	Gross Domestic Product
GMA-CARES-HCPP	GMA-Countrywide Assistance for Rural Employment and Services for Hybrid Corn Production Program
GNP	Gross National Product
GOCC	Government Owned and Controlled Corporations Reform
GVA	Gross value added
Ha	Hectare/s

HPI	Heifer Project International
HPI-SANREM	Heifer Project International-Sustainable Agriculture and Natural Resources Management
HVCC	High Value Commercial Crop
HYV	High Yielding Varieties
IARCs	International Agricultural Research Centers
ICC	Indigenous Cultural Communities
ICRAF	International Council for Research in Agroforestry (World Agroforestry Center)
IFMA	Industrial Forestry Management Agreement
IIRR	International Institute of Rural Reconstruction
IP	Indigenous person/people
IPM	Integrated pest management
IPM-KasaKalikasan	IPM-Kasaganaan ng Sakahan at Kalikasan
IPRA	Indigenous People's Rights Act
ISF	Integrated Social Forestry
ISPPS-UPLB	Institute of Strategic Planning and Policy Studies of the University of the Philippines Los Baños
IWMI	International Water Management Institute
kg	Kilogram/s
KGV	Kitanglad Guard Volunteers
KIN	Kitanglad Integrated NGOs
km	Kilometer/s
LGA	Local Government Academy
LGC	Local Government Code
LGSP	Local Government Support Program
LGU	Local Government Unit
Livecor	Livelihood Corporations
LLCA	Lantapan Landcare Association
LWMC	Lantapan Watershed Management Council
m	Meter/s
MA	Millennium Ecosystem Assessment
ManRIS	Manupali River Irrigation System
MAO	Municipal Agricultural Office
MARDI	Malaysian Agricultural Research and Development Institute
MARO	Municipal Agrarian Reform Office
mcm	Million cubic meters

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masl	Meters above sea level
MENRO	Municipal Environment and Natural Resources Office
MKAVI	Mt. Kitanglad Agri-Ventures, Inc.
MKRNPN	Mt. Kitanglad Range Natural Park
MLGU	Municipal Local Government Unit
MMO	Municipal Management Office
MMT	Multi-agency Monitoring Team
MMWDP	Muleta Manupali Watershed Development Project
MOA	Memorandum of Agreement
MOL	Municipality of Lantapan
MSEC	Management of Soil Erosion Consortium
MTWG	Municipal Technical Working Group
NAPOCOR	National Power Corporation
NCIP	National Commission for Indigenous Peoples
NDL	Non-destructive livelihoods
NDLA	Non-destructive livelihood activities
NEDA	National Economic and Development Authority
NFA	National Food Authority
NGA	Non-government agency
NGO	Non-government organization
NIA	National Irrigation Administration
NIPA	NGOs for Integrated Protected Areas
NIPAS	National Integrated Protected Areas Systems
Norminveggies	Northern Mindanao Vegetable Producers' Association, Inc.
NRM	Natural Resources Management
NRMC	Natural Resources Management Council
NRMP	Natural Resources Management Plan
NRMDP	Natural Resources Management Development Plan
NSCB	National Statistical Coordination Board
NSO	National Statistics Office
NVS	Natural vegetative strips
NWRB	National Water Resources Board
OPV	Open pollinated variety
PA 21	Philippine Agenda 21
PAEDA	Philippine Agricultural Economics and Development Association
PAMB	Protected Area Management Board
PAO	Provincial Agricultural Office
PASu	Protected Area Superintendent

PCSD	Philippine Council for Sustainable Development
PENRO	Provincial Environment and Natural Resources Office
PLA	Participatory Landscape Approach
PLUS	Producers' Linkage with Users
PO	People's organization
PTA	Parent-Teacher Association
RA	Republic Act
RABA	Rapid Biodiversity Appraisal
RACSA	Rapid Carbon Stock Appraisal
RDE	Research, Development, and Extension
RH	Relative humidity
RHA	Rapid Hydrological Appraisal
RIS	River Irrigation Systems
RMA	Rapid Market Appraisal
SA	Sustainable agriculture
SAFDZ	Strategic Agricultural and Fisheries Development Zones
SANREM CRSP	Sustainable Agriculture and Natural Resource
SEA	Management Collaborative Research Support Program Southeast Asia
SB	Sangguniang Bayan
SEC	Securities and Exchange Commission
SEF	Special Education Fund
SIFMA	Socialized IFMA
TLA	Timber License Agreement
TR	trans-disciplinary research
TSS	Total suspended solids
TULSEA	Trees in Multiuse Landscape in Southeast Asia
USAID	United States Agency for International Development
USDA	United States Department of Agriculture
VSO	Voluntary Services Overseas
WB	World Bank
WEPP	Water Erosion Prediction Project
WRI	World Resources Institute
WTO	World Trade Organization
WWII	World War II



# Foreword

Sustainable agriculture is desired now more than ever; its necessity becoming increasingly apparent. With the advent of agricultural commercialization and expansion, the growing need for easily accessible income sources in rural areas, and the degradation of the natural environment due to the exploitation of the natural resource base, the creation and evolution of policies and institutions that will safeguard the environment are imperative; even more so, proper implementation of such policies and competence of such institutions.

In the Philippines, upland communities in transition serve as excellent examples of how innovations; community and individual decisions; and the historical, institutional and economic context of upland farming shape economic development in rural areas. They also reflect how economic growth and the introduction of new technologies affect future decisions related to agriculture and the use of natural resources. It is also vital to note that upland activities affect events in the lowlands—with outcomes manifesting almost immediately or in the long term.

The Southeast Asian Regional Center for Graduate Study and Research in Agriculture (SEARCA), as a regional center for agriculture and rural development, realizes the significance and urgency of telling this story of an upland community in transition. The Philippines has a rich natural resource base; if not given due attention and protection now, future efforts to conserve it may become futile. As the environment continues to exhibit both predicted and unforeseen changes, this book sheds light on measures that could reduce the impacts of such changes and strategies for coping with the effects of environmental aberrations. It aids in promoting a greater understanding of sustainable development, not only in the Philippines but also in other developing countries.

**Gil C. Saguiguit, Jr.**  
Director, SEARCA

# Preface

The global program on Sustainable Agriculture and Natural Resource Management (SANREM) is part of the Collaborative Research Support Program (CRSP) funded by the United States Agency for International Development (USAID). SANREM CRSP is expected to generate research results that can contribute to the development of sustainable agricultural technologies and natural resource management strategies in the developing world. It is meant to be a long-term undertaking with partnerships between and among scientists of developing and developed countries, including collaborations with both government and non-government organizations. As articulated by the United States National Research Council in its seminal document about SANREM, the knowledge partners' gain from the SANREM research is expected "to advance both the theory that explains sustainability and the design of practices that promote sustainability at the farm, landscape, and agroecosystem levels" (NRC 1991).

In Southeast Asia, the SANREM CRSP study site was in the Philippines. Field activities started in 1994 with 27 workplans altogether. In 2010, the program started its fourth phase, which will run for the next five years. At this point, the program has produced a wealth of literature about agricultural sustainability and natural resources management strategies. However, most of these focus on landscape management strategies.

This book, on the other hand, focuses on the lifescape component of the program. It relates how upland households responded to economic shocks and climate aberration and other national policy reforms; and how upland local governments addressed institutional changes. It asks how an upland community can attain sustainability, given these external shocks.

## STRUCTURE OF THE BOOK

The subtext of this book is a story about institutions and how they may have to evolve to address the economic and environmental tensions in the uplands. Institutions, rules that may be set officially or may have evolved unofficially, make human behavior predictable (North 1990). There are four levels of institutions, as described below and referred to in the different chapters, according to Williamson's (2000) classification:

*“First-level institutions are embedded and are shaped by informal rules, customs, cultural beliefs, norms, traditions, and religion. Second-level institutions include the institutional environment, such as laws and property rights... the formal rules of the game. Third-level institutions concern the way the game is played, aligning governance structure with transactions... Fourth-level institutions concern the rules for resource allocation and employment” (in Koester 2005, p. 104).*

In this book, it is argued that the primary driver of upland resource degradation is intensive agriculture sans the necessary institutional features for sustainable practices. The brakes to intensification are hypothesized to be in the form of (1) favorable market incentives from the broader economy that can reduce stresses on the fragile upland resources; (2) institutional innovations supportive of a vibrant upland economy such as easy access to appropriate agricultural technologies; (3) well-defined property rights of land and water agricultural resources; and (4) a responsive political or governance structure facilitative of optimal local resource management. When properly tuned, these brakes could bring upland communities to a more sustainable path than the current one.

Chapter 1 presents the book's analytical framework, which considers economy and the environment during the three stages of development: (1) the prehistory or subsistence economy; (2) the early development or just about the end of World War II to the 1990s; and (3) the late development or around the 1990s to the present.

The book focuses on the transition to the third stage using the experience of an upland town in the Philippines chronicled from 1994 to 2006—the turn of the 21st century. The introductory chapter provides the background for discussing the sources and consequences of tensions between economic growth and the commercialization of agriculture, and the evolution of institutions and policies for managing natural resources in the environmentally fragile uplands of Southeast Asia.

Chapter 2 describes the elements of Lantapan, the study area and “an upland community in transition,” during the study decade. Using secondary data, it presents the town’s biophysical, social, and economic characteristics. It illustrates agricultural expansion and intensification at the turn of the 21st century; the observed impact of agricultural commercialization on the environment and natural resource base; the local institutions and governance mechanisms that have encouraged such commercialization; and the need for an evolution of appropriate social structures for sustainable upland agriculture.

Chapters 3, 4, and 5 contain analyses of data from the surveys and annual resurveys of the same set of households and plots in the study community of SANREM CRSP Southeast Asia (SEA) from 1994 to 2006. The data and analyses are presented by elevation: the lower watershed villages are areas below 1000 meters above sea level (masl) where corn is a predominant crop; the upper watershed villages are located 1000 masl and higher, and are predominantly vegetable areas.

Chapter 3 explains the trends in the town economy using the panel data. It discusses the evolving features of the study community’s agricultural economy via analysis of trends in agricultural productivity, farm incomes, and household incomes. This chapter also describes the survey methodology.

Chapter 4 investigates farmers’ decisions on the use of key resources under their control, namely, use of agricultural land, allocation of labor, and management of soil quality through on-farm conservation decisions. Using the data summarized in the previous chapter and some econometric methods, this chapter quantifies upland household responses to output price and wage changes. It also discusses the links of economic variables to soil conservation practices.

Chapter 5 deepens the analysis of land use and labor allocation decisions by identifying the conditioning factors that have led such decisions to a particular pathway, the economic and environmental outcomes of which are also analyzed. It also presents nine farmer cases that give a microscopic view of the milieu of factors affecting native tribe members’ and migrants’ resource-use decisions. These essays illustrate the heterogeneity and the complexity of the social and personal conditions

of upland households—important considerations in planning upland development programs.

Chapter 6 elaborates the consequences of community resource use and chronicles the evolution of property rights arrangements in Philippine uplands based on the study site's experience. It discusses the role of property rights in the access and use of upland resources. Property rights arrangements in the Philippines have also evolved as economic development unfolded. Customary rules prevailed during the pre-development period while the State was most powerful during the early development period. Theoretically, the late development period is characterized by the return of these rights to local communities. In this chapter, the opportunities and constraints of the Philippine government in devising more effective rules on bundles of rights of upland land and water are analyzed.

Chapter 7 elucidates on the opportunities and constraints of decentralization policy as a mode of upland resource governance in the Philippines. It broadens the analysis of environmental management from communities to watersheds, highlighting that upland communities' good environmental governance will affect the watershed on a wider scale. The analysis focuses on how Lantapan practices its newly delegated power as provided for in the Local Government Code of the Philippines. It also points out issues accompanying this power shift: (1) the central office's reluctance to yield such power; (2) the multiplicity of local institutions assuming such power; (3) the national and local offices' non-coordination in environmental concerns; (4) and the partners' general lack of capacities to promote environmental management. It describes the municipal government's efforts in and lessons learned from watershed management planning and implementation.

Chapter 8 describes the state of a sustainable community, measured by welfare indicators that are integrated indices of economic, environmental, and social well-being. It integrates the points raised in previous chapters to illustrate the study community's progress towards sustainable development pathways.

Chapter 9 synthesizes study findings, recommendations, and lessons learned from the research. Lastly, an epilogue suggests that the study municipality is in the transition mode to a sustainable community.

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