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# Institutional aspects of local participatory strategies in natural resource management

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**Abstract.** The Philippine Local Government Code provides the legal basis for local natural resources management. However, the Code, which was enacted into Law in 1991, is not always the driving force for many Local Government Units (LGU's) that have made breakthroughs in local natural resources management (NRM). This paper provides case studies that reveal the policy and institutional hurdles in implementing local and participatory natural resources management programmes; the lessons and experiences among LGU's in linking good governance with NRM; the research and development activities on local and participatory NRM; and the key institutional and policy issues to be communicated at the national level. Through the development of the Natural Resources Management and Development Plan (NRMDP), employing public-private partnerships and capitalizing on the presence of research and non-governmental organizations (NGO), agri-business and other community sectors, the Municipality of Lantapan, an LGU, succeeded in overcoming constraints such as: lack of budget, manpower, technical skills, and poor community involvement. A key feature of the NRMDP is the Landcare Program which centers on formation of community landcare groups that mobilize resources for wider adoption of conservation practices. The Landcare Program is a grassroots approach for rapid and inexpensive dissemination of available, simple, and lower-cost technologies of agroforestry and conservation practices. It was determined that communities have important roles to play but LGU have greater responsibility to provide the policy and institutional basis for supporting community-based initiatives.

**Keywords.** Public-private partnerships, grassroots approach, community-based initiatives, pragmatic approach.

## 1 Introduction

Watershed management is a multi-dimensional problem that has physical, social, economic, and institutional components. Since population growth and poverty are the driving forces behind resource over-use and degradation, local populations must be active participants in any solution.

Unsustainable development occurs in areas where poor households farm sloping lands that are not suited for intensive cultivation. Upland populations rely almost exclusively on agricultural production and gathering of forest products, and are largely subsistence-oriented. Land use decisions, land expansion and agricultural technology are, therefore, driven largely by local demographic, economic, biological and geological conditions (Coxhead et al, 2001).

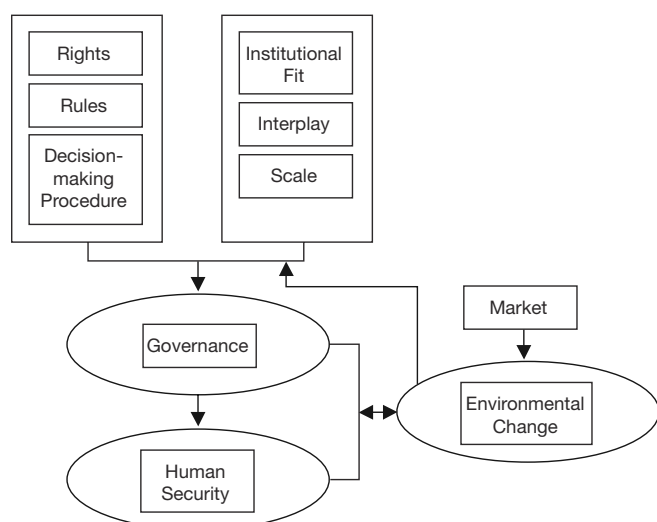
Land-degrading patterns of agricultural growth are thought to be promoted by adverse economic conditions (e.g. poverty) and malfunctioning institutions such as tenure insecurity or open access to land without restraints on its uses. Property rights to uncultivated lands in the Philippine uplands are poorly defined and difficult to enforce. Similarly, the activities of

upland and highland communities are now integrated with national and global markets, which play major roles in determining land use. The history of land use in Lantapan since the 1950s has involved substantial crop substitution in response to new commercial opportunities (Coxhead et al, 2001).

The agricultural practices adopted depend on tenure status, education and wealth (Coxhead et al, 2001). Farmers with more secure tenure have strong incentives to conserve soil resources (Rola et al, 2001). However, a critical factor in practices adopted, besides land tenure, is attitude, educational attainment, and social participation (Sayami, et al 1997).

Sustainable management of land resources must become a central task for politicians at the local and national levels. In response to Agenda 21, the Philippine government created the Philippine Council for Sustainable Development (PCSD). PCSD paved the way for democratic forest management, where forest governance resides in civil society, and legal authority and institutional capacities are transferred to rural groups to protect natural forests.

The Community-based Forest Management Program is one of the four people-oriented programs of Department of Environment and Natural Resources DENR designed to suit the specific conditions of different kinds of upland forest



**Figure 1.** Conceptual Framework

occupants. This initiative by the Philippine Government through DENR is an attempt to operationalize the concept of the Philippine Local Government Code alongside the Philippine Council for Sustainable Development (PCSD). The Local Government Code provides for the autonomy of local government units at provincial, municipal and barangay levels and mandates that they play leading roles in promoting sustainable development within their areas of jurisdiction.

Among the management strategies attempted to sustainably manage the remaining forests in the country is the institutionalization of community-based forest management (CBFM) as a national strategy. According to CBFM, the focus of decision-making lies with the people in the communities, thus allowing people to define their needs, goals and aspirations. CBFM's framework also includes provisions for subsidies and incentives for rural communities that rehabilitate denuded areas, and protect and manage forests. The government's share can take the form of cash payments, or reforestation can be undertaken by the holders of the lands. In another form of incentive, communities are helped to invest their incomes into viable livelihood projects so that they become less dependent on the forest for subsistence.

It is not lack of knowledge that prevents us from alleviating or eliminating many of the serious environmental problems that we face today. However this knowledge is not always used due, in large measure, to a lack of political will. Political decisions affect how resources are managed.

Local government and communities have to grapple with conflicting national policies in mining and forestry, the undefined mandates of some government organizations that often overlap with each other, and the absence of clear guidance on laws and policies affecting forests and watersheds (Sumbalan, 2001). Government policies have created conditions that have resulted in decreased political power, but local communities fare better when they are empowered with their own local forest management schemes. Only through a transfer of power from the State to the community, and thus community empowerment in forest management, can we make a shift from mistrust to participation.

## 2 Conceptual Framework

Institutions could be contextualized as clusters of rights, rules, and decision-making procedures occurring at all levels of social organizations and with an emphasis on environmental and resource regimes.

Sustainable natural resource use depends critically on decisions of the land-users, which are the farmers. The farmers are typically poor, risk averse and highly constrained in terms of access to credit, information and technology, while their behavior is driven by the desire to maximize the well-being of their household, or at least of their local community (Coxhead et al, 2001). Decision makers operate through a set of institutions. Foremost among these are markets which often do well in ensuring essential services for groups of stakeholders. However, if market links to the rest of the economy are tenuous, the most effective instruments for promoting sustainable agriculture in the uplands would be direct interventions such as technology transfer and education (Coxhead et al, 2001).

There needs to be a reliance on consensus rules in decision-making. Human insecurities are high in coastal and urban areas, where issues of governance are critical. Human security is achieved when individuals and communities have the ability to mitigate or adapt to threats to their human, environmental and social rights (Contreras, 1991). Environmental change interacts with other processes of change and geological, biological, social, economic, institutional, and technological conditions. This dynamic influences outcomes, including conflict and cooperation (Revilla, 2000).

Figure 1 shows the interplay of processes of change and its effect on governance, and human security, which eventually affects environmental change.

## 3 Methodology

### 3.1 Collection of Data

Lantapan, the study area, is an upland municipality in the Manupali Watershed of Bukidnon province in Southern Philippines, and has a total land area of 31,820 hectares (Lantapan NRMDP 1998). The study area is representative of upland agricultural conditions in the humid tropics, and displays common features of environmental stress associated with unchecked resource exploitation (Coxhead et al, 2001).

The activities/projects focused in the conservation and management of watershed and natural resources include: implementation of the devolved Integrated Social Forestry Program to ensure that the forest occupants participating in the program are convinced of the economic value of reforestation, and to ensure partnership between tree planters and the province; establishment of a mechanism for coordination and complementation of efforts among LGU's and national agencies and NGO in watershed development and protection (important outputs of this activity include properly documented consensus on the current situation of the watershed and proposed intervention); and environmental management planning and development policy analysis using a watershed model. Policy briefs are very useful to the

local decision makers and to the national agencies operating in the province.

To monitor the activities of a panel of farmers in Lantapan, a series of surveys were carried out. The surveys addressed farm production, crop choice, technology and earnings. Parallel surveys were also undertaken to monitor agricultural prices from the farm to provincial and regional markets. Farm surveys were done to obtain basic information about the Lantapan agricultural economy.

A landscape-based rapid rural appraisal (RRA) of the watershed was done to get agroecological and socioeconomic information on the area. For this, a participatory landscape/lifescape appraisal (PLLA) method was used, which considered the watershed from a research perspective.

The Sustainable Agriculture and Natural Resource Management (SANREM)-based research used a panel of observations to permit analysis of changes over time in agricultural technology, prices, income, resource allocation decisions and environmental implications. A series of Surveys was an important component of the research for monitoring progress towards sustainable agricultural developments in the Manupali watershed.

Through the Sustainable Agriculture and Natural Resource Management Collaborative Research Support Program (SANREM CRSP), with the project's primary research site in the municipality of Lantapan, a site-based research program was implemented addressing sustainable development that is cognizant of local as well as national conditions, markets and policies. SANREM CRSP is a comprehensive, interdisciplinary farmer participatory research, training and information exchange program that aims to elucidate and establish the principles of sustainable agriculture and natural resource management at a landscape scale.

### 3.2 Participatory Methods and Approaches

The combination of applied research and participatory information was used to influence the environmental awareness, attitudes and practices of a group of participants – mainly farm households. The methods used to disseminate information and acquire feedback were very informal. This process was also employed to evaluate the achievements of a project.

The site selection process was accompanied by a rapid rural appraisal (Bellows et al, 1995). A number of different research, outreach and training activities have been conducted at the site by SANREM-funded consortia since 1994. These activities have included soil quality and soil erosion measurements on experimental plots and in farmer-managed fields, biodiversity assessments and agroforestry initiatives, water quality monitoring by a local NGO established with SANREM support; survey-based collection and analysis of economic, ethnographic and agronomic data from households; and policy briefings and analysis at local and provincial levels, to name just the most prominent variables.

Impact assessment was also conducted to measure and evaluate the extent to which SANREM activities have influenced processes leading towards the promotion of sustainable agriculture and natural resource management in and around the project site (Sumbalan, 2001). Assessing program

impact posed a challenge in the selection of appropriate measures (indicators) as well as methods to measure change. The impact has been contextualized as a change in the behavior of participants that results in an enhanced quality of life or improvement in environmental conditions such as the quality or quantity of natural resources.

## 4 Findings

### 4.1 Institutional Environment to Support Local Development

In response to the Brundtland Commission Report and the Earth Summit in Rio de Janeiro, the Department of Environment and Natural Resources (DENR), a national Government Agency, designated four people-oriented forestry programs: 1) the Integrated Social Forestry Program (ISFP), 2) the Community-Based Forest Management Program (CBFMP), 3) contract reforestation with a Forest Land Management Agreement (FLMA), and 4) the Ancestral Lands Management Program. These programs were designed to suit the specific conditions of different kinds of upland forest occupants. Potential ISFP sites include land area with already extensive land use and farmed public areas. The target areas for CBFM are residual forests and sites with extensive land use such as kaingin, while the sites that require contracts for reforestation and where occupants are required by DENR to enter with a forest land management agreement are the grasslands and degraded brush lands. These programs may overlap, depending on the needs of the locality.

The government has been aiming to address the tenure and welfare concerns of indigenous groups in the uplands through legislation and developmental interventions, respectively. Concerning legislation, DENR has issued administrative orders (AO) to allow for the certification by the government of the ancestral domain claims of indigenous peoples. AO seek to raise the propensity of indigenous groups to invest in improving the ecological appropriateness of their livelihood systems (Malayang, 2000).

The participation of community and private groups (CPG) in the total effort of protecting forests in the country is high. These groups actively participate in decision-making and monitoring processes that were formerly the exclusive domain of DENR (Malayang, 2000).

In recent years, two important institutional developments have been formed: the Multisectoral Forest Protection Committees (MFPC) organized by DENR, and the NGO for Integrated Protected Areas (NIPA) organized by certain NGO. MFPC are forest protection groups operating in specific areas of the country, the members of which come from local NGO and PO, local government units (LGU), the media, religious organizations, military and police units, and DENR offices. They were organized by DENR to widen its regulatory base for enforcing forestry laws (Malayang, 2000).

The concept of MFPC was based on the assumption that broader local participation enforcement would improve the effectiveness of forest protection. The assumption was that effectiveness is directly related to the extent to which local citizens, from diverse interest groups, are allowed to control

the regulatory effort itself. Further, with greater local participation and direct supervision of enforcement, the efforts would tend to be more focused and credible. With closer and more direct access to DENR documents and operations, MFPC have been in a better position to denounce irregularities among DENR operatives and officials, and to evaluate the soundness of DENR decisions on permits and licenses it regularly issues. MFPC have become both sounding boards for DENR on the local acceptability of its policies and procedures, and ombudsmen for DENR. Their net effect has been a marked decline in the prevalence of irregularities in MFPC-supervised DENR offices, and increased credibility of certain DENR programs due to greater public transparency (Malayang, 2000).

MFPC meet regularly to assess the status of forestry protection in their areas of coverage. They evaluate DENR's official assessments, and MFPC members are expected to be critical of the government's environmental activities in their area. They are likewise expected to make suggestions on how to improve forest protection in their coverage area, as well as how to improve the policies of DENR related to the enforcement of forest regulations. They help DENR formulate local strategies on forest protection. In some cases, members of MFPC accompany DENR operatives in enforcement operations (Malayang, 2000).

On the other hand, the trend towards NGO-government partnerships to promote forest protection is also evident in the case of NGO for Integrated Protected Areas (NIPA). The latter is a consortium of NGO that organized themselves to jointly implement the integrated protected area component of the Sector Adjustment Loan (SECAL) Program of DENR. SECAL is funded by the World Bank but the component on protected areas is funded by a grant from the Global Environmental Facility (GEF) (Malayang, 2000).

As regards community and private groups (CPG), their function in the field of forest protection relates not only to their involvement in environmental protection activities such as reforestation or the provision of relevant services such as community organizing, training, and environmental education; it also resides in their capacity to influence the policy process by generating or resolving conflicts (Malayang, 2000). While CPG participation in forest protection has a direct bearing on their members' welfare, the significance and value of CPG participation in the total effort of protecting forests in the country is high.

It has become an article of faith among rural development practitioners that protection of the uplands entails the participation and vigilance of local communities. The policy environment thus strives to empower local communities to exercise more control over forest lands and resources (Severino, 2000).

#### 4.2 Local Government Initiatives

The Local Government Code, which devolves powers and resources in environmental management from central to local governments, directs local officials and community members in decision-making processes as well as in watershed conservation and management.

On the other hand, the SANREM Project, which was based in the municipality of Lantapan, has assisted the local government in carrying out its responsibilities in watershed conservation and management (Sumbalan, 2001). The SANREM Project played a pivotal role in addressing the problem of declining natural resources. The scientific outputs of SANREM research resulted in the formulation of the Municipality-led Natural Resource Management Plan, which presents practical interventions to the critical environment of Lantapan's natural resource endowment. The formulated municipality-led plan is considered a milestone in the decentralization of planning and management to the local level. A shift was made from traditional and top-down planning approach to a participatory, multi-sectoral planning and research-based decision-making approach (Sumbalan, 2001).

Through the Bukidnon Watershed Protection and Development Council (BWPDC), the province held its first Bukidnon Watershed Summit with support from USAID, SANREM, GOLD, and the Growth with Equity for Mindanao (GEM) and AusAID. This locally initiated advocacy for the watershed has inspired other donor organizations to become linked with the province to encourage other LGU for Mindanao-wide activities on watershed advocacy (Sumbalan, 2001).

The International Council for Research in Agroforestry (ICRAF) has likewise become associated with the province in order to scale-up the natural resource management methodology to the different municipalities of the province. This is being pursued with the introduction of the Landcare movement.

Through a grant from the United States Agency for International Development (USAID) to the Local Government Unit (LGU) of Lantapan via SANREM CRSP, the Natural Resources Management and Development Plan (NRMDP) was formulated and adopted in March 1998. Various sectors in the Lantapan Community, who were all members of the Municipal Natural Resource Management Council (MNRMC) and the regional representative of the Department of the Environment and Natural Resources (DENR), were involved in the planning process using SANREM's landscape-lifescap participatory approach. The partnership resulted in the sharing of knowledge and expertise and joint efforts in the development of approaches for sustainable agriculture and natural resources management. The SANREM CRSP has served both as an inspiration and model for other evolving agriculture and natural resource management-related programs.

#### 4.3 Agroecological Characteristics of the Manupali Watershed Prior Interventions

The geography of the Manupali watershed is a key component of the agricultural economy. However, a soil erosion problem in the watershed is due to the intensification of agricultural land use with corn as the predominant crop. Other important crops distributed throughout the watershed include coffee, beans, tomatoes, cabbage and potatoes. Cultivation of these vegetable crops has gained in economic importance. However, vegetable crops occupy only about 10% of the total agricultural land area in spite of their relative economic importance.

In terms of social indicators, farmers borrow in the informal credit market to cover pre-harvest costs. Lack of access

to timely or affordable credit is frequently cited as a constraint to agricultural development. Hence, the lack of a more developed capital market tends to reduce the profitability of producing long-term perennial crops.

Farmers are aware that a land degradation problem exists due to expansion of corn and vegetable cultivation at higher altitudes, and the replacement of perennial land uses with short-season and annual crops on sloping lands. However, few farmers opt to make significant investment in soil-conserving methods or technologies, even though they know that this could prevent land quality degradation or land abandonment in the future. The lack of well-defined and enforced property rights has been one of the primary factors of forest encroachment. Landlessness and unemployment stimulated searches for open-access resources from which incomes, however tenuous, could be earned. Consequently, farmers are lured to the high benefits of growing and expanding cultivation of high-value crops even into steeply sloping lands and at the margins of the forest. Currently, returns of potatoes and vegetables are higher than the returns to coffee and other perennial crops.

The markets for the major crops grown in the watershed are integrated in regional markets, and farmers in the watershed participate in regional and national markets. The finding that upland farmers are participants in regional markets makes it clear that any meaningful policy changes would have direct effects on farm-gate prices in the uplands (Coxhead et al, 2001).

The above findings strongly indicate the importance of national economic policies in determining profitability of alternative crops in the watershed. Along these lines, an interdisciplinary analysis of social and economic data together with good quality data on biological and physical aspects of sustainability is required to obtain accurate assessments of the private and community costs of existing practices, and of the feasibility and profitability of potential alternatives.

## 5 Some Impacts of Partnerships Initiatives

The success of natural resource conservation depends on the conservation ethic of the community, adaption and adoption of conservation-oriented and productive farming practices, and the development of conservation agreements at the village level (Garrity 1995).

The Landcare movement, a federation of community organizations developed and led by farmers, was started by ICRAF on 1996 in Claveria, Northern Mindanao. Landcare, an institutional innovation, drove the unexpected farmer adoption of soil conservation technologies and agroforestry techniques (Mercado et al. 2000).

Landcare approach, which was introduced in Lantapan in 1998, is based on the farmer's own interest in learning and sharing knowledge about new technologies such as the sloping agricultural land technology (SALT) and natural vegetation strips (NVS) that earn money and conserve natural resources (Garrity and Mercado 1998). The movement is composed of self-governing groups of people concerned about land degradation problems, and interested in working together to improve the long-term health of the land. The movement is continuing to expand rapidly while the municipal and village

governments actively and financially support the Landcare groups through annual budgetary allocations.

### 5.1 Economic Aspects

SANREM-sponsored research revealed that the cultivation and spread of corn and vegetable crops was due to restrictive trade policies and price supports (Coxhead, 1997, 2000). Corn, potato and cabbage benefit from trade protection. Conversely, direct and indirect export taxes on coffee, an important commercial crop in the watershed, have discouraged its cultivation (Coxhead, et al, 2001).

Upland populations relied on agricultural production and gathering of forest products, and were largely subsistence-oriented. The influence of government and the market were relatively weak, indirect, and subject to the vagaries of weather and the usability of roads. Land use decisions, land expansion, and agricultural technology were, therefore, largely driven by local demographic, economic and biogeological conditions (Coxhead et al, 2001). The sustainable use of natural resources depends on the private decisions of primary resource managers, and the farmers who are constrained by access to credit, information and technology.

Decisions concerning the use of the upland forest and farm land are influenced by policies. In the Philippines, there is evidence of a pervasive policy bias in favor of crops such as corn and temperate vegetables whose cultivation is most strongly associated with upland agricultural land degradation, soil erosion, and related water pollution. This commodity bias emanates mainly from national-level economic policies. Bukidnon is one of the provinces designated as a key production area (KPA) for corn in the Philippine government's Grain Production Enhancement Program (GPEP). Farmers in KPA are eligible for subsidies and support directed at increasing corn production. As a result, corn accounts for the greatest part of upland agricultural land use (Coxhead et al, 2001).

The availability of markets is also a factor encouraging corn production in Lantapan (Coxhead et al, 2001). The presence of a market would eventually cause farmers to be price-takers. On the other hand, under such a scenario, the most effective instruments for promoting sustainable agriculture in the uplands would direct interventions such as technology transfer and education. However, only a few farmers have adopted effective soil conservation measures. Since this is related to tenure insecurity, there is a need for further policy advocacy to address this issue. The behavior of farmers is driven by their desire to maximize the well-being of their households or at least their local community. These actions may impose social costs when land tenure laws (legal institutions) are imperfect or absent.

Appropriate policies could represent the link between achieving higher incomes and sustaining the productivity of the resource base. These policies are: a package of incentives from the LGU regarding tenure and other economic and non-market incentives such as providing tax credits for farmers practicing contours and hedgerows, and providing interest discounts on loans by the banking sector for farmers planting perennials or adopting best agroforestry practices in their

domain; and incentive packages that could attract investment by the private sector in the local areas (Rola et al, 2001).

## 6 Conclusion

This paper highlights some the key lessons and processes of natural resource management research oriented toward sustainable development in the Philippines. Participation and inter-institutional collaboration played key roles in the success of the process.

In order to empower communities, institutions should engage in institutional partnerships. This partnership creates new opportunities which can ensure that research is relevant, sensitive to local conditions, and oriented towards the solution of specific local problems.

In our study, the willingness of village groups to engage and work with local and national institutions helped to reduce the project's vulnerability to changes in local politics. On the other hand, the convergence of interests between the project and the Lantapan municipal government resulted in the creation of a municipal Natural Resource Management and Development Plan (NRM DP).

Demographic trends, ill-defined land rights, and poverty all contribute to agricultural land area growth and intensification in Lantapan. Farmers in the Lantapan municipality are primarily engaged in commercial production. The trade protection given to corn and vegetables have been major forces behind agricultural expansion in Lantapan. This relationship implies that efforts to alter resource use patterns that do not acknowledge markets and the influence they play are unlikely to achieve lasting success.

Commodity market development, along with policy biases, has contributed to the spread of relatively erosive crops such as corn and vegetables. The environmental ill-effects of these crops could be minimized by adoption of appropriate technologies to reduce erosion and preserve soil quality such as providing contours, hedgerows, trees and fallows to plots or parcels. Trees and fallows were the more popular soil conserving practices in the corn area (Rola et al, 2001).

With strong support for natural resource management planning and implementation, the grassroots Landcare movement is evolving conservation ethic rapidly within the community.

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