

Challenges and opportunities in managing Philippine Watersheds: The case of Manupali watershed in the southern Philippines

Delia Catacutan^b and Caroline Duque^b

Abstract

This paper discusses the management of the Manupali watershed in Lantapan, Bukidnon, in the southern Philippines. A case study was conducted to analyse watershed management in the context of local governance. The Philippine Local Government Code provides that local government units (LGUs) should manage the natural resources within their jurisdictions. However, many LGUs experienced difficulties in executing their new management roles. They are met with challenges ranging from lack of budget, manpower, technical skills, and poor community involvement. Apparently, the Municipality of Lantapan did well in overcoming these constraints. The LGU developed their Natural Resource Management and Development Plan (NRMDP) through a participatory planning process. The NRMDP was implemented through public-private partnerships, capitalising the presence of research and non-government organizations, agri-business and other community sectors. A key feature in the NRMDP is the Landcare Program – a grassroots approach for rapid and inexpensive dissemination of agroforestry and conservation practices. The Landcare approach centres on formation of community landcare groups that mobilise resources for wider adoption of conservation practices. The availability of simple, low-cost technologies was a strong success factor. It was found that communities have important roles to play, but LGUs have greater responsibility to provide the policy and institutional basis for community-based initiatives. Community-initiated change is essential for successful watershed management, but such change requires greater push from committed external supporters. This implies that successful management of watersheds requires support from within and outside their immediate environments.

^aPaper presented to the Conference on Watershed Management in the Philippines, Don Mariano Marcos Memorial University, La Union, Philippines, 16-18 May 2006.

^bWorld Agroforestry Centre (ICRAF)
ICRAF - Lantapan Research Site
Avocado Road, Malaybalay City, Bukidnon
Tel: (088) 221-3187; Telefax: (088) 221-3859
Email: delia_icraf@yahoo.com; ronnienite@yahoo.com

Introduction

Decentralisation has taken the world over the past century, especially in developing countries. It is defined as the ‘relocation of administrative [and fiscal] functions away from a central location’ (Fisher 2000). This transfer of responsibilities and functions reconstructed the workings of local government units (LGUs), and the structure and norms of civil society. About 60 countries around the world claimed to have decentralised environmental management (Larson 2004). This is a major shift from the ‘command and control’ strategy in environmental management (Malayang et al 2001) where national governments generally make priorities, set policies, define strategies, assign responsibilities, control budgets, and direct how, where and when services are delivered and to whom, often with minimum participation by LGUs and the civil society. However, decentralization of environmental management did not come easily. Many LGUs are stifling its ability to respond to environmental concerns within their jurisdictions due to myriad of factors.

This paper discusses the management experience of the Manupali watershed in the southern Philippines. It looks at the challenges LGUs faced, and the opportunities that facilitated civil society participation in addressing environmental concerns. It also looks at the Landcare Program as a viable community-based approach for watershed management. It ends by discussing the requirements for governmental and institutional transformation, necessary to meet broader social and environmental goals.

Methodology

The study focused on the Manupali watershed, Lantapan, Bukidnon, in the southern Philippines. In addition, eleven LGUs who have exemplary watershed programs across the country were also examined to enrich our understanding of local environmental issues. An intensive review of environmental policies was also conducted to understand the broader policy and institutional landscape impinging on watershed management. The case studies drew on surveys, key informant interviews and documentary sources of information.

Results and Discussions

Context, challenges and opportunities in decentralized watershed management

In terms of decentralized watershed management, the Philippines has much to share although adverse politics led to challenging implementation of reforms. The Philippine Constitution embodies the advancement of people’s rights to a balanced and healthy ecosystem. In 1989, the government embraced the notion of sustainable development, and formulated the Philippine Strategy for Sustainable Development. In 1991, the Philippines’ decentralisation, articulated in Republic Act 7160, known as the Local Government Code (LGC) brought significant changes in delivering basic services at the local level. The LGC provided major structural adjustments in the Philippine Administrative System. The aim was to transform LGUs into self-reliant communities and active partners in nation building by giving them more responsibility and authority in the performance of corresponding functions, responsibilities and obligations (LGC 1991). This laid more pressure on LGUs to initiate local environmental programs. The Local Agenda 21, adopted during the Earth Summit in 1992, strengthened decentralisation by promoting participatory approaches. Subsequently, the National Integrated Protected Areas Systems Act (NIPAS Act) was passed in 1992, and a management entity was created to manage identified protected areas in the country. In 1997, the Indigenous People’s Rights Act (Republic Act No 8371 or IPRA) was also passed. The

IPRA enables the promotion and enhancement of management of national parks in respect to customary beliefs and laws of indigenous people (IPs) living within the area.

Since the early 90s, many opportunities were opened to LGUs and the civil society to actively involve in local environmental governance. During this time, the IPs gained rights over the control of natural resources within their ancestral domain. Environmental NGOs proliferated, and have successfully formed into alliances to challenge the centralised environmental management (Catacutan D. et al.2003). Indeed, a new paradigm of state governance where the centre of political power is shifted away from the central government is mobilised, ensuring that civil society does not lend itself as passive recipients of development interventions.

The Department of Environment and Natural Resources (DENR) is the central agency in charged of environment, forestry and NRM, but with decentralization, some ENR functions were devolved to LGUs. Ironically, the Code mandated the ‘optional’ creation of a city or municipal Environment and Natural Resource Office (ENRO). This limits the LGUs, particularly low-income municipalities, to perform their devolved functions and to initiate local NRM programs. Similarly, the Department of Agriculture (DA) was devolved, but unlike the DENR, Municipal Agriculture’s Offices (MAO) were set up, and LGUs are swamped with devolved personnel that are to be paid using local resources (Catacutan 2004). This leaves the LGUs with very limited funds for effective extension programs.

In general, the current the policy and institutional landscape in the Philippines primed local watershed management. However, it has not been easy for many LGUs. Problems persist because of the inherit flaws of the Code and the lack of capacity and sincerity of authorities and politicians to effectively implement environmental policies. LGUs are also affected by political dynamics, change in leadership or change in goals and priorities (Catacutan et al 2001), and in winning the cooperation of stakeholders in the affected communities (Ellison 1999). There is difficulty among government leaders to overcome the constraints to their ability to enforce policies, especially those with national or regional scope. According to Malayang et al (2001), this traditional policy practice is stifling the LGU’s ability to response to changing global situations. LGUs’ response to national or global challenges is critical determinant to the success and sustainability of localised watershed management. In areas where reliance on natural resources as a source of income remains high, LGUs are faced between the tension of economic growth and environmental protection. Generally, politicians tend to favour development at the expense of the environment, simply for political gains. Executive decisions for planning and implementation are indeed influenced by various political and economic considerations. Also, LGUs operate in situations where natural resources are often under legal supervision and control of the national government like forests (Ellison 1999), or shared by many LGUs like watersheds (Queblatin et al 2001). This is complicated not only because of the intricate relationships and values of various watershed users, but also their opposing and competing interests for the resources therein. This resulted in various approaches, including the cluster approach to watershed management. The effectiveness of various watershed management strategies however, needs assessment for further improvement of these strategies.

Case study: Managing the Manupali watershed

Lantapan is an upland municipality in Bukidnon province, in the southern Philippines. It has a total land area of 31,820 hectares (Lantapan NRMDP 1998), has an agriculture-based economy, and considered as the 'vegetable basket' of the south. Other agricultural products include rice, maize, sugarcane, livestock, poultry, and banana. Majority of its people are cultivating on small farms averaging about two hectares for subsistence and commercial production. The municipality shares 60% of the Manupali Watershed (Rola et al 2004), which is a tributary of the Pulangui River that flows into the National Power Corporation's reservoir for hydroelectric power generation. It also supplies water to the Manupali Irrigation System servicing 4,395 hectares (Rola et al 2004). It also provides water for agri-business industries, agriculture and for household use. Lantapan also borders Mt. Kitanglad Range Natural Park (MKNRP), which is the habitat of many endangered, endemic and economically important species of animals and plants, as well as thousand of indigenous peoples (IPs). MKNRP is acknowledged as one of the most important biodiversity reserves in the country, and one the world's 25 biodiversity hotspots. The inhabitants of Lantapan exert pressures on both the remaining protected forests and managed ecosystems. Amoroso (1997) noted an alarming rate of habitat destruction due to human activities, including shifting and conversion of forestlands into agriculture production. Natural growth and migration resulted to farmers cultivating in steeper slopes and poorer soils, leaving lands in shorter fallow periods. The growth of agri-business also exacerbated the situation.

Mobilizing local resources for Municipal NRM planning

In 1996, a research-based municipal-led NRM planning started in Lantapan. The aim was to develop an NRM program that addresses many environmental and economic concerns. Since 1980s, Lantapan has been home to various donor-supported research and development projects, which helped to develop a stock of social capital for natural resource management. In 1998, the municipality received support from a consortium of research and development agencies, under the USAID-funded *Sustainable Agriculture and Natural Resources Management-Collaborative Research Support Project* (SANREM-CRSP), to develop a comprehensive Municipal Natural Resources Management and Development Plan (NRMDP). The LGU provided human and financial resources to develop and implement the NRMDP, for which there was no precedent in the country. One remarkable feature of the NRMDP was the multi-sectoral Natural Resources Management Council (NRMC) with members from farmers, church, business, youth, academe, and tribal sectors. The NRMC underwent a series of capacity-building activities to equip them with basic technical knowledge and planning skills. Participatory and consensus-building workshops were implemented using an innovative group discussion process called the Technology of Participation (ToP) (Queblatin et al 2001; Ellison 1999). The NRMDP had three key objective-strategies: 1) improvement of water quality, quantity and distribution; 2) conservation of soil resources for sustained agricultural production; and 3) protection of the remaining forests and increasing biodiversity. Support programs and policies, including capability-building, information, education and communication were also part of the NRMDP.

Harnessing Public-private partnership

The NRMDP was implemented using public-private partnerships. Project holders and *barangay* (village) governments were encouraged to mainstream their projects and programs within the NRMDP. For instance, through the Landcare Program, the World Agroforestry

Centre (ICRAF) led the dissemination of agroforestry and conservation practices under the biodiversity and soil conservation component of the NRMDP (Lai et al 2000), and the Heifer Project International (HPI) co-implemented a livestock dispersal project with the LGU. In the absence of a municipal ENR office, a temporary Project Management Office was created, and local government staff was appointed to coordinate implementation activities.

The Lantapan experience was a significant advancement in municipal-led and participatory local NRM planning. In 1998, it was identified by the DENR as a model under its National Strategy for Improved Watershed Resource Management, and was replicated in neighbouring LGUs in Bukidnon province. Today, Lantapan is actively implementing its five-year Municipal Watershed Management Plan, following the NRMD Framework, and is a frequent site of local and international visitors who are interested to learn from their experience.

Landcare as a grassroots approach for implementing the NRMDP

A major transformation within the context of Philippine decentralisation is the advancement of citizen participation and involvement in assessing local problems and initiating actions to solve these. This has been widely applied, especially in forest management and upland agricultural development. The goal is to empower local communities to become effective partners in environmental management.

Landcare in the Philippines

The Landcare Program in the southern Philippines developed separately from Landcare in Australia, but share common principles. In Australia, Landcare started in the early 1980s with now over 4,000 community landcare groups tackling broad NRM issues. In the Philippines, Landcare originated in Claveria, Misamis Oriental, an upland municipality in northern Mindanao in 1996. The World Agroforestry Centre (ICRAF) has been instrumental in facilitating its development with support from the LGU and other international agencies.

Landcare is an approach that rapidly and inexpensively disseminates conservation farming technologies in the uplands, including agroforestry systems. It relies on effective partnership of three key stakeholders namely, farmers, LGUs and technical service providers (Catacutan & Mercado 2001). Farmers share their knowledge and experiences apart from labour, time and low-cost materials that they put together for group activities. The LGU provides policy support and funding for trainings and projects. Technical service providers such as NGOs, private companies, the academe and others, share knowledge and skills about sustainable farming, as well as in facilitating landcare groups.

As an approach, Landcare is based on three cornerstones namely, *provision of appropriate technologies, institution building and partnership building*. The approach resulted in widespread adoption of soil conservation and agroforestry practices and, as a consequence, has been scaled up to several other LGUs to achieve wider adoption (Catacutan & Cramb 2003). Approximately, more than 500 Landcare groups and 10,000 farmers across the southern and central Philippines are now involved in conservation farming. Majority of these farmers practiced simple soil conservation technologies based on natural vegetative strips (NVS) to control soil erosion and improve land productivity. The NVS evolved as a variant of the SALT system when farmers experimented with the hedgerow concept by placing crop residues along the contour lines and leaving the native weeds to re-vegetate in the unplanted strips, eventually forming stable natural barriers to erosion (Garrity & Mercado 1994; Sabio

2002; Stark 2000; Catacutan 2005). The NVS provide minimal below and above ground competition effects, and are effective in filtering field run-off by more than 90 per cent in a sloping farm of 40-60 per cent slope (Garrity et al. 2002; Garrity et al. 1998; Catacutan 2003, 2005). The NVS also serves as a foundation for agroforestry development in sloping farms, where farmers enriched the grass-strips (NVS) with fruit and timber tree species. To make quality tree planting materials readily available, farmers were trained on seedling production and established more than 500 nurseries of timber and fruit trees. The Landcare program has become phenomenal, and received national recognition as an outstanding agroforestry program in 2003. More and more LGUs, NGOs and foreign-funded projects have expressed interest to learn about Landcare.



Figure 1. Natural Vegetative Strips (NVS)

Landcare in Lantapan

In 1998, Landcare was introduced in Lantapan as an approach to promote wider adoption of conservation farming and agroforestry practices within the NRMDP framework (Lai et al 1998). Through Landcare, farmers learned manifold of methods and skills they can use to control erosion and environmental degradation through farmer-to-farmer knowledge sharing. Within two years, more than 50 Landcare groups were federated at the municipal level. These groups shared conservation practices and worked together in establishing contoured farms and agroforestry nurseries. By the middle of 2003, the total number of farmers adopting NVS and agroforestry practices reached 917 (Fig. 2) (Catacutan 2005). Of these, 712 (70 per cent) were adopters during the Landcare Program. The average number of adopters was 178 per year. The total area applied with conservation technologies was almost 1,230 hectares (Table 1), representing 11 per cent of the total farmed area. Today, more than 1000 farmers, which is about 15% of the total farming households have adopted various agroforestry practices and soil conservation technologies, and are also engaged in community-wide activities such as river rehabilitation, and NRM-based livelihood and marketing activities (Catacutan 2005). It was found that the simplicity and effectiveness of farming technologies promoted farmer adoption, but facilitators also play important roles in farmer trainings, organizing farm visits, facilitating meetings, and linking Landcare groups to the LGU and other service providers. The LGU's contribution was important especially in activities where the resources needed are beyond the farmers' capacity. Landcare groups respond to issues they see as locally important, and solve problems their own way, but they endorse participation, cost sharing and co-management to address scarcity of resources in NRM. Landcare depend so much on self-motivated community groups responding to community issues.

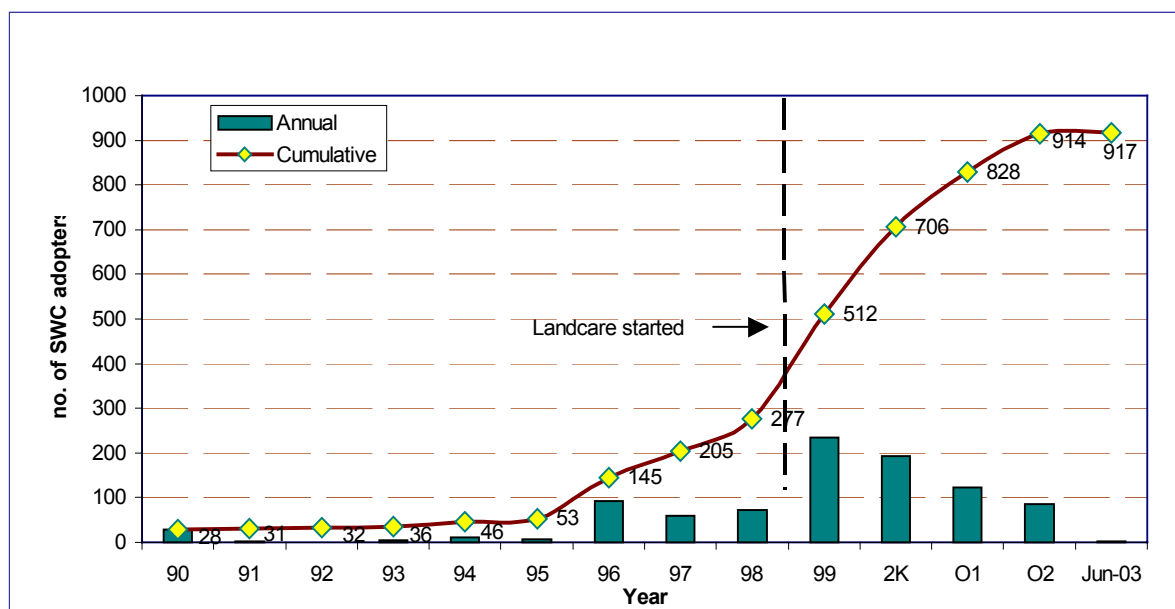


Figure 2. Annual and cumulative adoption of NVS and agroforestry practices, 1990-2003
Source: ICRAF database, Lantapan

Type of Conservation Practice	Total area (ha)
NVS alone	314.2
NVS enriched with annual & perennials i.e., pineapple, taro, coffee, banana (Agroforestry Type 1)	141.9
NVS enriched with fruit and timber trees (Agroforestry Type 2)	72.8
Trees planted in woodlots, in farm boundaries, etc.	700.2
Total area with combined practices	1,229.1

Table 1. Total area applied with NVS and agroforestry, 1999-2003

Preconditions for successful watershed management

The municipality of Lantapan demonstrated an innovative way of managing the Manupali watershed, showing that balancing economic growth with environmental protection is possible. An important feature of the Manupali watershed management strategy is the involvement of farming communities and various sectors in pursuit of environmental goals. The essence of democratization lies in the way the “public” participates in decision-making, planning and implementation. However, the emergence and contribution of local Landcare groups is a not a panacea to sustainable watershed management. It is only a necessary step—the whole community, the LGU, the national government, and their external supporters require the necessary political and institutional transformation to effectuate an effective watershed management strategy. The study revealed that there are four essential conditions impinging upon successful watershed management programs at the local level. These are presented in turn.

- *Local financial investments.* LGUs must allocate financial resources for strategic NRM investments on a continued basis. This is possible by enacting a policy to allocate environmental management funds, as a priority sector. Environmental expenditures should form part of the basic social services.

- *Local technical and managerial capacity.* LGUs must establish an institutional infrastructure by creating a functional ENRO, with technically qualified staff capable of overcoming constraints to performing the devolved functions, in enforcing policies and implementing programs. Local chief executives and policy makers also require the capability to shift from traditional management of politics and administrative bureaucracies, to managing productive change.
- *Sound political culture.* Politicians must create a political culture that is away from ‘patronage politics’. A political culture that is proactive, catalytic and inclusive of paradigm shifts. This includes a culture of initiating and supporting changes in technologies, approaches, and development processes.
- *Clear national mandates.* The national government needs to improve its policy-making process, ensuring clarity in policy intent and practice. Subsequently, LGUs must be clarified with ‘conflict-generating’ national policies, particularly their devolved functions and responsibilities.

Conclusion

In summary, the Philippines’ policy and institutional landscape for watershed management is generally complete. Community-initiated change is primed with existing policy and institutional framework. Community-based initiatives are more effective in partnership with LGUs and external service providers along with appropriate technological and institutional innovations. However, there are serious bottlenecks that limit wider implementation of successful watershed management strategies. At the national level, policy constrains and or disincentives need to be replaced with effective policy instruments. At the LGU level, watershed management should not be considered an expenditure activity, but a social activity within the broader development framework. At the community level, collective action needs nurturing — such social capital is important for long-term progress, but requires repairs and maintenance. This implies an investment in human and social capital development. Such collective action is essential for effective management of natural resources, but both national and local governments have the fundamental responsibility to provide the policy and institutional contexts, to which grassroots-initiated change are supported. A necessary pressure, if not motivation and support from external supporters maybe also desirable. This implies that effective watershed management requires support from within and outside their respective environments.

Reference

- Amoroso, Vic 1997, *Pteridophyte diversity in the Philippines: Status, issues and conservation initiatives*, Paper presented during the National Seminar-Workshop on Environmental Education and Management held at CMU on 2-3 July 1997.
- Catacutan, D and A Mercado 2001, *Technical Innovations and Institution-Building for Sustainable Upland Development: Landcare in the Philippines*. Paper presented to the International Conference on Sustaining Upland Development in Southeast Asia: Issues, Tools and Institutions for Local Natural Resource Management in Makati City, Philippines, 27-30 May 2001.
- Catacutan, D, D Garrity and C Duque 2001, *Governance and Natural Resources Management: Emerging Lessons from ICRAF-SANREM Collaboration in the Philippines*, Paper presented

- to the SANREM CRSP Research Scientific Synthesis Conference in Georgia, USA, 28-30 November 2001.
- Catacutan, D, D Garrity and R Cramb 2003, *Political and Institutional Transformation in Environmental Governance: A Case Study of Local Governments in the Philippines*, Paper submitted to the 3rd Asian Rural Sociology Association Conference. Bali, Indonesia, March 2003.
- Catacutan, D and R Cramb 2003, *Scaling Up Soil Conservation Programs: The case of Landcare in the Southern Philippines*, Paper presented during the 13th ISCO Conference, Brisbane, Australia, July 2004.
- Catacutan, Delia 2005, *Scaling Up Landcare in the Philippines: Issues, Methods and Strategies*, PhD Thesis, University of Queensland, Australia.
- Chan-Robles Virtual Law Library 1999, Philippine Constitution, *Philippine Laws, Statutes and Codes*, online (Available): <http://www.chanrobles.com/philsupremelaw1.htm> (11 May 2006).
- Chan-Robles Virtual Law Library 1999, The Local Government Code of the Philippines, *Philippine Laws, Statutes and Codes*, online (Available): <http://www.chanrobles.com/localgov.htm> (11 May 2006).
- Ellison, Kenneth 1999, *Local Governance and Participatory Natural Resources Management: USAID-GOLD Project in the Philippines*.
- Fisher, R 2000, 'Devolution and decentralization of forest management in Asia and the Pacific' in Enters, T, P Durst and M Victor (Eds), *Decentralization and Devolution of Forest Management in Asia and the Pacific*, Proceedings of an International Seminar held in Davao City, Philippines, RECOFTC Report No.18.
- Garrity, D and A Mercado 1994, 'Reforestation through agroforestry: market-driven small-holder timber production on the frontier' in *Marketing of multipurpose tree products in Asia, Proceedings of an international workshop*, Winrock International, Bangkok, Thailand, pp. 73-82.
- Garrity, D, A Mercado and M Stark 1998, 'Building smallholder into successful natural resource management at the watershed scale' in P de Vries, WT Frits, F Agus & J Kerr (Eds), *Soil erosion at multiple scales: principles and methods for assessing causes and impacts*, CABI and IBSRAM, pp. 73-82.
- Garrity, Dennis 2000, *The Farmer-Driven Landcare Movement: An Institutional Innovation with Implications for Extension and Research*, Southeast Asian Regional Research Programme, International Centre for Research in Agroforestry, Bogor, Indonesia.
- Garrity, D, V Amoroso, S Koffa, D Catacutan, G Buenavista, P Fay and W Dar 2002, 'Landcare on the poverty-protection interface in an Asian Watershed', *Conservation Ecology*, Volume 6, Number 1, Article 12, online (Available): <http://www.consecol.org/vol6/iss1/art12/> (15 May 2006).
- Lai, C., D Catacutan and A Mercado 2000 'Decentralizing Natural Resources Management: Emerging Lessons from ICRAF Collaboration in Southeast Asia' in Enters, T., Durst, P., and Victor, M. (eds), *Decentralization and Devolution of Forest Management in Asia and the Pacific*. Proceedings of an International Seminar held in Davao City, Philippines, RECOFTC Report No.18.
- Lantapan NRM 1998, *Natural Resources Management and Development Plan (NRMDP)*, Lantapan, Bukidnon: Bukidnon Environment and Natural Resources Office.

- Malayang, B et al 2001, *Political and Institutional Transformation of Southeast Asia*, Paper presented at the Global Change and Sustainable Development in Southeast Asia, SARCS Regional Science-Policy Conference in Chang Mai, Thailand, 17-19 February 2001.
- Queblatin, E, D Catacutan and D Garrity 2001, *Managing Natural Resources Locally: An overview of innovations and ten initial steps for local governments*, International Centre for Research in Agroforestry and the International Fund for Agricultural Development.
- Rola, A, A Sumbalan and V Suminguit 2004, *Realities of the Watershed Management Approach: The Manupali Watershed*, Philippine Institute for Development Studies Discussion Paper Series No 2004-23.
- Sabio, EA 2002, 'Social Capital and Transformative Learning: Linkages and Dynamics in Inter-organisational Relations within the Landcare Approach in the Philippines', PhD Dissertation thesis, Cornell University.
- Stark, Marco 2000, *Soil Management Strategies to Sustain Continuous Crop Production Between Vegetative Contour Strips in Humid Tropical Hillsides*, International Centre for Research in Agroforestry, Bogor, Indonesia.
- The Philippine National Watershed Management Strategy* 1998, Department of the Environment and Natural Resources, Manila, Philippines.
- The NIPAS Law Implementing Rules and Regulations* 1992, Republic of the Philippines, Manila.
- The IPRA Law Implementing Rules and Regulations* 1997, Republic of the Philippines, Manila.