

Co-management of a Watershed: The Experience of South Cotabato Province



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ACRONYMS

1. Co-management
co-management refers to the sharing of responsibility for natural resources management between resource user community and the government (LGU's and retired agencies). It can involve assistance from the government in creating livelihood, providing advice in resource management, and assisting a community in establishing a management structure.
2. Natural Resources
natural resources are materials that occur in nature and are essential to humans: such as water, air, land, forest, fish, wildlife, topsoil, and minerals.
3. Participation
participation refers to a “ process through which stakeholders influence and share control over development initiatives, and the decisions and resources that affect them.” (Asian Development Bank.1996. *Framework for Mainstreaming Participatory Development Processes into Bank Operations*.Manila)
4. Partnership
refers to the members of the primary and secondary stakeholders that agreed to improve natural resources management in Lake Seloton.
5. Primary Stakeholders
are those who are intended to benefit directly from a project (e.g. resource use community); the organized community of Lake Seloton
6. Secondary Stakeholders
refers to the government group (local and national) included in the Advisory Council, Technical Working Group and Project Implementation Team.
7. Stakeholders
are those who have interest in the project or its components, either as individuals or representatives of a group or institution. Stakeholders include people who influence the project or those that can influence the project, as well as those affected by a project.
8. Watershed
refers to the area of land that catches rain and drains or seeps into a marsh, stream, river, lake or groundwater.

Co-management of a watershed: the experience of South Cotabato province

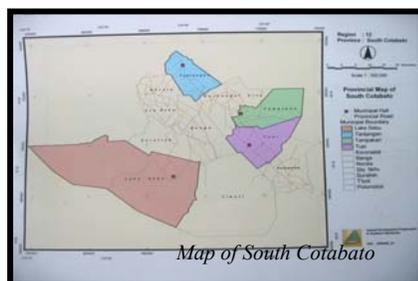
1. Introduction

During the past decade, much emphasis has been given to decentralized and community-based approaches to realize the twin goals of poverty reduction and sustainable management of the environment to prevent further resource degradation. Various approaches mushroomed depending on the implementing agencies and natural resource settings. Their commonality rests on the assumptions that a distinct community exists, that there is declining budgetary support and deteriorating quality of service provision by the national government. All these have prompted interest in collaborative management of a watershed by the government (local and national) and watershed communities.

Of course, definitions of a community vary. For this paper, community refers to "the people of a local administrative unit . . . of a cultural or ethnic group . . . or of a local urban or rural area, such as the people of a neighborhood..." (IUCN/WWF/UNEP 1991:57). This community is also viewed as the appropriate unit to carry out restoration and conservation if it acts collectively towards common environmental goals. With the advent of co-management, local groups or communities in partnership with the government (local and national) apply their skills and knowledge to protect the natural resources while satisfying their livelihood needs (Pretty and Gujt 1992:22)

Co-management represents a relatively new approach to watershed management. To a large degree, watershed co-management in South Cotabato is still in its infancy stage. Thus, it would be premature to draw firm conclusions or outcomes of the co-management arrangement in terms of efficiency.

This paper presents the findings of an early assessment of the co-management arrangement in Barangay Lake Seloton, Lake Sebu, South Cotabato during its second year of implementation in 2005.



2. The Co-management Project Area: Lake Seloton

2.1 Bio-physical profile

Lake Seloton is one of the 19 barangays of Lake Sebu in South Cotabato province. It is located 2.5 km from the town center. It has 11 sitios and the farthest sitio can only be reached by foot.

Based on perimeter survey it has a land area of 696 hectares. Within the barangay is a lake. Because of siltation, its lake area has reduced over time from 75 hectares to its present area of 46.67 hectares. The lake is used by residents for fish (tilapia) culture and open area for fishing.

The barangay has 2 rivers: Elo and Lowo-el. It is also blessed with four creeks and five streams. Water enters the lake through Lowo-el river plus three other creeks while water exits the lake through Elo river. The barangay has 13 springs.

Although Barangay Lake Seloton is a part of the Allah Valley Watershed Reservation and Protected Area, it has very little remaining forest. The Municipal Assessor's Office reports a forest area measuring 32.31 hectares but the community members claim there exists an area of approximately 43 hectares second growth forest and a 40-hectare reforested area by the Sta. Cruz Mission under the Comprehensive Agricultural Program.

Table 1. Land use assessment, 2000

Land use	Area (in ha)	Percent
Forest	32.3100	6.17
Agricultural	488.8958	92.25
Institutional	7.0918	1.35
Residential/Commercial	1.1924	0.23
TOTAL	523.4900	100.00

Source: Municipal Assessor's Office

Barangay Lake Seloton lies on an area with an elevation of 400-800 masl. A little over 70% of the total area has a 3-8% slope on nearly level to undulating while more than a fifth has 8-18% slope of undulating to rolling.

2.2 Co-management activity in Lake Seloton

The choice of Lake Seloton as pilot area for co-management of watershed resources was volunteered by the local government officials

from the barangay, municipal and provincial levels. Criteria used in the site selection included: common interest of the partners, potential resource use, land ownership security, population intensity, presence of denuded areas, indigenous people present, relatively peaceful, no mining activity, relatively accessible, strategically located, and a micro watershed (Arcillas, 2005).

Realizing the local government leaders' interest (*especially that of the provincial leadership*) to pilot a co-management project, the EU-funded Upland Development Program (UDP) provided much of the technical assistance during the conception and birth stages. After series of consultations, more stakeholders from the government side joined the coalition: the Department of Agriculture through its regional field unit (DA-RFU-12), the Agricultural Training Institute (ATI), the Bureau of Fisheries and Aquatic Resources (BFAR) the Department of Environment and Natural Resources (DENR) and the National Commission on Indigenous People (NCIP). Thus, an organizational structure was formed (*Appendix Figure 1*)

Manpower resources from the partners that are involved in the co-management have been organized into three levels: advisory board (highest level of decision-making), the technical working group (TWG), and the project implementation team (PIT). In all three, membership from the partner community is present. However, community manpower is dominant with the PIT. With this organization structure, it may be said that the community has high levels of participation in decision making. Involvement in the technical working group implies accommodation of indigenous knowledge of the community,

Because of the strong political will of the provincial leadership of South Cotabato to pilot a co-management arrangement of a watershed, it has commissioned its Provincial Welfare and Development Office (PSWDO) to organize the project implementation team (PIT) with strong membership from the community. The PIT is assisted by the technical working group (TWG) whose membership came from the various government agencies (local and national).

It is the goal of the co-management arrangement that with multi-stakeholders from the government and community the knowledge and skills of the community will be enhanced in terms of taking responsibility and leadership in preventing further resource degradation via promotion of environment-friendly farming practices that ensure higher farm productivity, encouraging agro-forestry development,

planting of forest trees while protecting both the forest and water resources of the watershed.

3. Assessment framework

The assessment looked at the stakeholders' understanding of co-management, their perceptions on the co-management arrangements and community involvement at the early stage of implementation. Lessons learned from the early experience might shed light on issues that would improve the implementation of the co-management arrangement. Hopefully, this information will be of interest to those involved in watershed management in other provinces, where co-management arrangement on a small watershed is also on the political agenda.

The assessment framework employs a systems approach of analysis. The components of the institutional and organizational set-up of the co-management project arrangement are identified. A graphical representation of the framework is given in Figure 1. The framework intends to describe a dynamic process where outcomes, incentives and patterns of interaction can affect the co-management arrangement. That means that the 'system' is continually adjusting and reacting to changes.

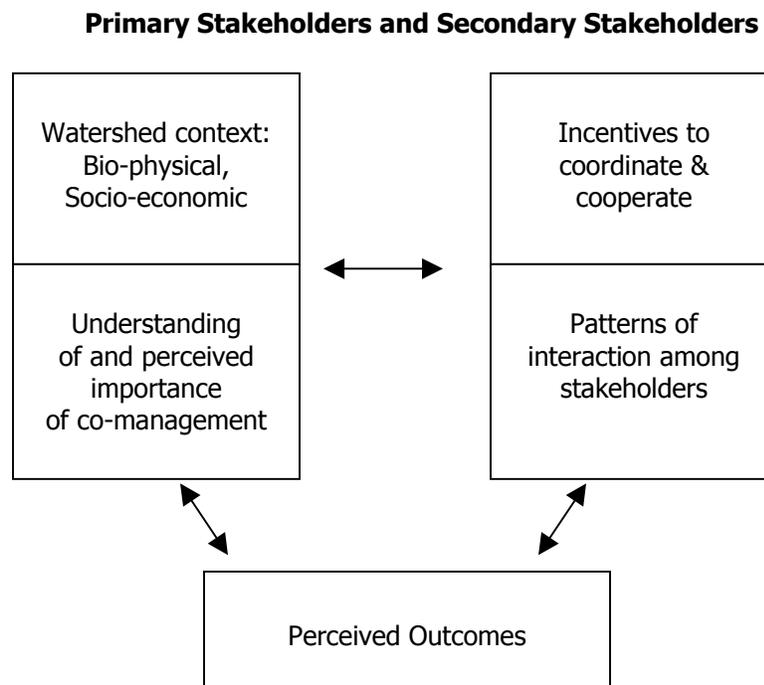


Figure 1. Assessment framework

3.1 Objectives

The early assessment attempted to look at the institutional arrangements for the co-management project. Specifically, it looked at the stakeholders' understanding of the arrangement and its importance, their resource capacity to cooperate, and their perceptions on benefits and outcome of the co-management.

3.2 Methodology

The assessment used the following methodologies:

- a. Meetings and interviews with key informants from the primary and secondary stakeholders to determine level of support to the co-management project
- b. Collection of secondary data (from project documents and reports)
- c. Questionnaire survey for primary and secondary stakeholders to elicit their opinions or perceptions on the co-management arrangement outcomes.

A survey was conducted among 138 respondents: 90 primary stakeholders who were mostly farmers and residents of Lake Seloton and 48 secondary stakeholders who were officials of the different government agencies partnering in this new management arrangement for a particular watershed (Table 2).

Table 2. Distribution of respondents.

Classification	Number of respondents
Primary stakeholders	90
Secondary stakeholders	48
Total	138

4. Discussion of Findings

4.1 Contextual setting of the co-management project

The incentives of primary and secondary stakeholders to cooperate among themselves and with national agencies in the management of a watershed are of two types:

- 1) level of cooperation
- 2) incentives for cooperation

Their level of cooperation depends on factors relating to bio-physical, economic, and socio-cultural. This means that their participation response hinges upon the co-management arrangement's ability to address their problems. On the other hand, the incentives for cooperation are usually determined by stakeholders' understanding of and perceived importance of the co-management arrangement.

4.1.1 Stakeholders' understanding of the co-management arrangement

In a survey of stakeholders' perceptions on the co-management pilot project, they were asked to state in their commonly used language their understanding and rate the importance of the co-management arrangement. With the use of content analysis, the researcher was able to assess the primary and secondary stakeholders' level of understanding on the co-management arrangement entered into by the community and various partners from the government (LGUs and national). Understanding levels ranged from adequate, a little and lack of it.

The primary and secondary stakeholders had different levels of understanding of the watershed co-management. Of the 90 primary stakeholders, a little more than half of the group (51%) had a little understanding of the arrangement and 38 (42%) failed to understand what the co-management arrangement is all about. Only 6 (6.67%) fully understood the arrangement and its goals. Of the 48 secondary stakeholders, almost three-fourths of them (72.9%) somewhat understood the watershed co-management while one-fifth of the group (20.83%) adequately understood what the co-management was all about. Only 3 (6.25%) of the secondary stakeholders said that co-management arrangement is not clear to them (Table 3). On the whole, majority (70%) of both groups combined had a little to a high degree of understanding of the co-management arrangement of Lake Seloton watershed. Understanding levels achieved by the primary stakeholders could have been influenced by their low educational attainment and their expectations from interventions initiated by the government. Past experiences would show beneficiary communities of government interventions receiving material assistance even in the forms of private goods such as farm inputs (seeds or livestock, fertilizers, farm working animals, to mention some).

This finding would seem to indicate some gains in the capacity building activities of the government partners with strong support from the UDP. It may be inferred that the partner community has a good chance of moving towards an empowerment level that is required for sustainable management of the watershed.

Table 3. Stakeholders' understanding of watershed co-management, 2005.

Degree of understanding	Primary stakeholders (n=90)		Secondary stakeholders (n=48)	
	<i>f</i>	%	<i>f</i>	%
Adequate understanding	6	6.66	10	20.83
A little understanding	46	51.11	35	72.92
Lack of understanding	38	42.22	3	6.25
TOTAL	90	100	48	100

4.1.2 Importance of co-managing the watershed resources

Stakeholders' perceived importance of the co-management arrangement can trigger involvement or participation in the project. Table 4 shows the degree of importance of watershed co-management to its stakeholders. Since a good number of the primary stakeholders had low to nil understanding of the co-management arrangement (Table 3), it is not surprising to find 49 (54.44%) out of the 90 respondents reporting that at most it is somewhat important. However, a good number of them (41.11%) perceived the co-management project as very important to their community and only 4 (4.44%) said that it is not important. On the other hand, a large percentage (85.42%) of the secondary stakeholders rated the co-management arrangement as very important. Very few said it was either somewhat important (12.5%) or not important (2.08%).

Stakeholders' opinions on the importance of the co-management project would influence their willingness to participate or provide support (material or otherwise) to the project activities. For the majority of the primary stakeholders perceiving the co-management project only as somewhat important may be related to their degree of satisfaction of the benefits they have initially derived from participating in the project. Past experience with government programs that make them mere recipients of project rather than active partners might partially explain their behavior.

Table 4. Stakeholders' perceptions on the importance of watershed co-management, 2005.

Degree of importance	Primary stakeholders (n=90)		Secondary stakeholders (n=48)	
	<i>f</i>	%	<i>f</i>	%
very important	37	41.11	41	85.42
somewhat important	49	54.44	6	12.5
not important	4	4.44	1	2.08
TOTAL	90	100	48	100

Apparently, there are those who seem skeptical about the co-management arrangement. This usually happens when the government (whether local or national) introduces a new approach or project. The partner community tends to be suspicious of the nature and sincerity of government authorities when they promote collaboration and the sharing of management responsibilities. In their experience, the community members view the government to be setting the rules and regulations, thus, having the responsibility for their enforcement and of providing resources to sustain the activities.

It may be worthy of note that the birth of the co-management arrangement has coincided with the onset of low farm productivity due to poor farming practices, overcrowding of fish cages in the lake and prevalence of soil erosion leading to their lake's siltation, and weak extension service for the agriculture and environment.

4.2 Institutional arrangements for co-management

4.2.1 Origin of the co-management project

People participation in the Philippines may have been influenced by the ***bayanihan practice***, a traditional system of cooperation whereby community members join hands in undertaking an activity that cannot be done by just one or a few individuals, each one contributing labor or materials depending on individual capacities and need of the undertaking. However, when this concept is applied beyond individual level where formal organizations or government agencies would be asked to pool their resources to carry out an activity, rules have to be formalized and presence of committed leadership to carry out the partnership or collaborative arrangements would be necessary.

The existing watershed co-management project may have its roots grounded on the *bayanihan* practice. But, it also came when the EU-funded Upland Development Program in Southern Mindanao (UDP) invited the top leadership of South Cotabato province to join an exposure trip to Nueva Vizcaya, where its governor has reported some successes in co-management with the provincial LGU partnering with the targeted upland community. Thus, the institution of co-management arrangement in South Cotabato can be characterized as UDP-inspired but provincial LGU-initiated.

To assist the local government units (provincial, municipal, and barangay levels) and the partner community in implementing the co-management pilot project, the UDP strongly supported capacity building activities, both at organizational/group and individual levels. Such activities ranged from trainings, technology demonstrations, exposure trips to best practices on upland development, consultative meetings and joint planning and conduct of prioritized activities.

While this is so, the drivers of the co-management project from the LGUs end include:

- need to address poverty in the area
- limited to nil visibility of DENR personnel in the area due to decreasing level of public funding
- degradation or depletion of natural resources (e.g. shrinking hectarage of the lake)
- technological development (e.g. availability of environment-friendly farming technologies for the uplands)
- need to pilot a co-management arrangement to develop a model

4.2.2 Resource use problems

Co-management initiatives usually respond to problems. Table 4 shows the stakeholders' perceptions on the existing problems for co-management arrangement. Items having means from 4.50 to 5.00 were perceived as serious problems that should be addressed by the co-management project; 3.50-4.49 as serious; 2.50-3.49 as moderately serious; 1.50-2.29 as less serious; and 1.00-2.49 is not a problem. Item numbers 1 up to 7 were rated as serious (*e.g. lake siltation, soil erosion, overcrowding of fish cages, forest encroachment*) while 8 to 10 were moderately serious (*e.g. weak implementation of environmental laws, slash and burn farming system*). In general, the resource use problems in Lake Seloton were rated as serious with an overall mean of 3.78.

Table 5. Stakeholders' perceptions on resource use problems addressed by the co-management project, 2005.

No.	Items	Mean	Interpretation
1.	Community's dependence on the natural resources for livelihood.	4.38	Serious
2.	Lake siltation.	4.36	Serious
3.	Soil erosion in the area.	4.18	Serious
4.	Inappropriate farming and fishing practices.	3.89	Serious
5.	Overcrowding of fish cages.	3.86	Serious
6.	Heavy use of chemical fertilizers and pesticides.	3.74	Serious
7.	Forest encroachment.	3.56	Serious
8.	Sale of Ancestral Domain land to migrants	3.40	Moderately Serious
9.	Weak implementation of Environmental Laws.	3.34	Moderately Serious
10.	Slash and burn farming.	3.12	Moderately Serious
Overall Mean		3.78	Serious

Legend: 4.50 - 5.00 Very serious 2.50 - 3.49 Moderately serious 1.50 - 2.29 Less serious
3.50 - 4.49 Serious 1.00 - 1.49 Not a problem

In table 6, primary stakeholders' perceptions were separated from those of the secondary stakeholders on the existing problems of the co-management project. It is interesting to note that the two groups differed on their perceptions on the problems regarding resource use. For example in the case of lake siltation (*item number 6*), primary stakeholders rated it as a very serious (4.52) problem while the secondary stakeholders just rated it as serious or a degree lower. However, there were also items that got unanimous ratings from the two groups. For instance, both groups rated only as serious soil erosion, heavy use of chemical fertilizers and pesticides, and overcrowding of fish cages, to name some. Interestingly, the primary stakeholders have rated items 3, 4, 9 and 10 as moderately serious. It appears that these problems do not bother them a great deal yet or they might have thought they could easily handle these problems. But, they have have rated lake siltation as very serious. This means that addressing this problem via co-management arrangement provides an incentive for participation and collaboration. Overall, the primary stakeholders perceived the existing problems as moderately serious (3.41) while the secondary stakeholders said the existing problems are serious (3.87).

Surprisingly, the primary stakeholders perceive the overcrowding of cages not a serious problem but lake siltation a major one. Little did they realize perhaps that overcrowding of fish cages also contribute to the lake siltation due to the waste coming from the fishes. That is

why, many secondary stakeholders have observed the increasing number of fish cages in the lake despite the co-management project.

Observance of existing policies on lake management could be one area for co-management intervention. It was reported in 2004 that the fish cages occupied 7 hectares of the lake. After a year and despite the co-management arrangement even the provincial vice governor observed the increase of fish cages occupying an estimated area of 24 hectares (*Co-management meeting, January 6, 2006*).

Table 6. Stakeholders' perceptions when classified as primary and secondary on the resource use problems addressed by the co-management project, 2005.

No.	Items	Primary		Secondary	
		Mean	Interpretation	Mean	Interpretation
1.	Community's dependence on Natural Resources for livelihood	4.43	S	4.33	S
2.	Soil erosion in the area	4.07	S	4.29	S
3.	Sale of Ancestral Domain land to migrants.	3.16	MS	3.71	S
4.	Slash and burn farming.	2.51	MS	3.73	S
5.	Heavy use of chemical fertilizers and pesticides	3.77	S	3.71	S
6.	Lake siltation.	4.52	VS	4.20	S
7.	Overcrowding of fish cages	3.60	S	4.13	S
8.	Inappropriate farming and fishing practices	3.76	S	4.02	S
9.	Forest encroachment	3.13	MS	3.98	S
10.	Weak implementation of Environmental Laws	2.69	MS	3.98	S
	Overall Mean	3.41	MS	3.87	S

Legend: 4.50 - 5.00 Very serious (VS) 2.50-3.49 Moderately serious (MS) 1.00-1.49 Not a problem (NP)
3.50 - 4.49 Serious (S) 1.50 - 2.29 Less serious (LS)

4.2.3 Policy framework

As yet, there is no law that specifically provides co-management arrangement in the country. There are, however, policies that stipulate people participation in governance at the local level.

For instance, the Republic Act No. 7160 otherwise known as the Local Government Code of the Philippines in 1991 has empowered local government units to carry out mandates previously assigned to national government such as agriculture of the Department of

Agriculture (DA) and environment protection of the Department of Environment and Natural Resources (DENR), to mention a few. For instance, the code provides the need for consultations with LGUs, people's organizations and other concerned sectors for any proposed program or project. It also specifies LGUs allowing the participation of the private sector in the delivery of basic services as an alternative strategy for sustainable development.

The executive order issued by the President (EO 15, series of 1992) articulates the action taken by the Philippine government pursuant to its commitment to the Global Agenda 21, an international agreement reached during the Earth Summit in 1992. EO 15 created the Philippine Council for Sustainable Development (PCSD), adopting the principles of counterparting and consensus-building in its organizational structure and institutionalizing the participation of civil society members as counterparts of government representatives. In addition, EO 263 (1995) provides the adoption of community-based forest management as the national strategy to ensure sustainable development of the country's forest lands.

To be specific, only certain forest management functions have been devolved from DENR to the local government units. DENR administrative order 92-30 has provided the following as devolved to LGUs: forest management, protected areas and wild life management; land management, and mines development.

Also devolved are the management and control of communal forests with an area not exceeding 50 square kilometers or 5,000 hectares; management, protection, rehabilitation and maintenance of small watershed areas that are sources of local water supply; enforcement of forest laws in community-based forestry projects, small watershed areas and communal forests, including the apprehension of violators of forests, including the apprehension of violators of forests laws, and the confiscation of illegally extracted forest products on site. In line with this, PP2455 (watershed reservation) and PD 65 (Lake Sebu Forest Reserve) have provided that it is necessary to protect and properly manage the watershed of Allah Valley, particularly the upper reaches and tributaries and Allah River in order to maintain or improve its water supply and to restrain inappropriate forest exploitation and land-use.

4.2.4 Co-management institution

The co-management institution for Lake Seloton has been newly established. Major co-management players included: DENR, NCIP, LGUs (provincial,

municipal, and barangay level), DA RFU XII, UDP (PMO/PPO- South Cotabato) and the partner watershed user community Lake Seloton.

Evidently, the co-management arrangement is a government-watershed community group relationship requiring all stakeholders to mobilize their own resources. As stated by Pinkerton (1989) strong local institutions with human and financial resources are a pre-condition to co-management. Highest level of financial support came from the provincial local government unit (**Figure 2**).

It may be noted that in this co-management endeavor, each of the partners committed manpower and financial resources to support activities included in the co-management agreement. While funds were made available to the project, they were not pooled nor centrally-managed.

Each partner held its own purse and disburses an amount as needed. Activities funded by partners were usually those within their mandate. As stated by Pinkerton (1989) strong local institutions with human and financial resources are a pre-condition to co-management.

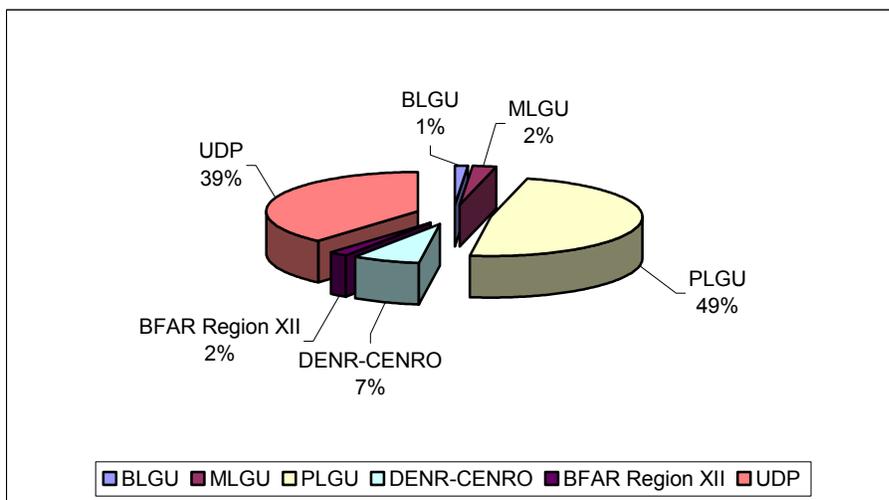
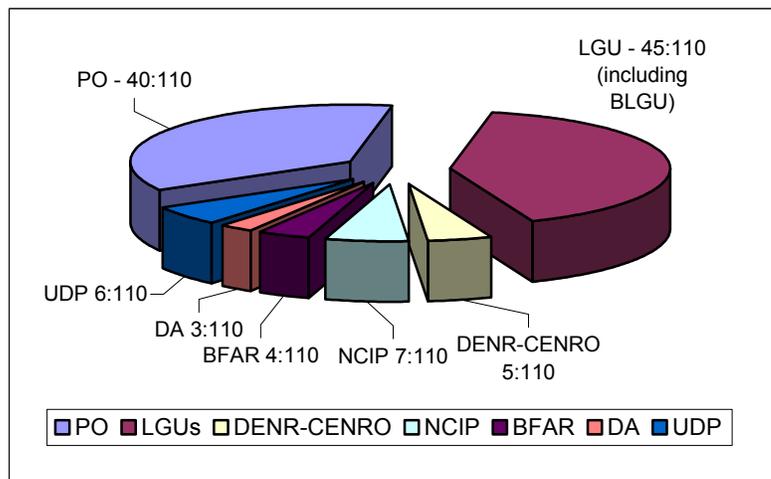


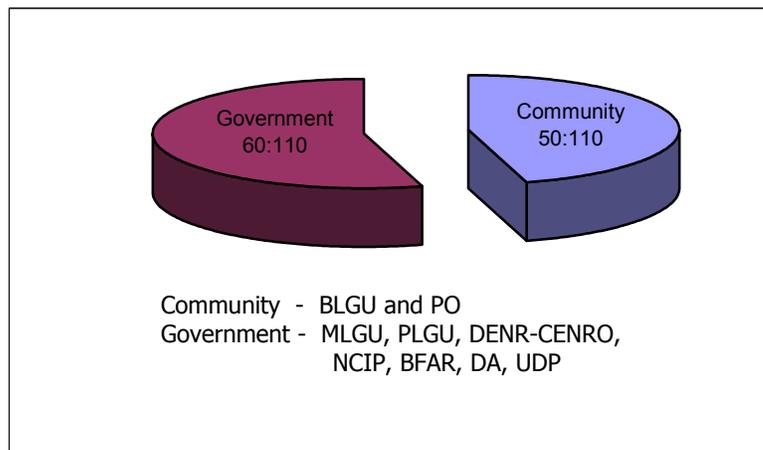
Figure 2. Percentage distribution of financial support to co-management pilot program, 2003-2005.

As to manpower support to the co-management arrangement, there appears to be an almost equal ratio between the government (secondary stakeholders, (60) and the partner community (50). The imbalance could lie on the amount, nature and level of decisions made by those

from the government as compared with those from the community. Higher community membership existed in the project implementation team (PIT) than in the advisory council which is the highest decision-making body of the co-management.



3A



3B

Figure 3A & 3B. Co-management manpower resources ratio between community and government groups.

Generally, the lack of capabilities and/or low aspiration of upland communities as revealed in their degree of understanding of the co-management arrangement explain the nature of their participation early on. That is why the secondary stakeholders represented by the government

agencies invested its resources in information sharing and education of the members of the watershed community. Thus, capacity building has been a pre-requisite for the implementation of the co-management arrangement in Lake Seloton.

4.2.5 *Patterns of shared decision-making*

Raakjaer Nielsen and Vedsmand (1997) has classified co-management arrangement into three: consultative, cooperative, and delegated. Consultative occurs when co-management takes the form of consultation with user groups. Cooperative, when co-management is a cooperative process among the partners usually between the government and the watershed community. Delegated, when the management authority as determined by operational rules is delegated to the user group.

Table 7. Levels of shared decision-making in the co-management project in Lake Seloton, 2005.

	Rating	Example of activities
Government partners consult with individuals and decide (<i>highly consultative</i>)		Co-management concept and activities
Government partners consult with representative group/s of the primary stakeholders and decide (<i>moderately consultative</i>)		Co-management framework, educational tour, model farms, bailey bridge construction
Government partners work with representative group of the primary stakeholders and they jointly decide (<i>collaborative</i>)		Barangay development planning, participatory extension, lake cleaning
Government partners delegate decisions to primary stakeholders (<i>delegated</i>)		Resource delineation and mapping

Adapted from Potapchuk, 1991

It may be assumed that co-management is not a precise management concept but rather a strategy to involve and integrate user groups as participants in the decision-making process. Being so, the nature of co-management arrangement in Lake Seloton is a combination of three types.

However, cooperative management arrangements do exist and for some tasks the upland community is believed to be taking the lead. Data from stakeholders seem to suggest the predominance of the consultative-collaborative arrangement. This is understandable since enhancement of the primary stakeholders (as a group and as individuals) capacity predominated the early phase of implementation.

When asked about their overall perceptions of the co-management arrangement, the primary and secondary stakeholders seemed to differ in their response. Overall, project co-management was perceived excellent (4.75) by the primary stakeholders but it was only very good (4.41) to the secondary stakeholders (Table 8). Despite the difference, the arrangement got a positive evaluation response from both groups. Though it had its own problems, it appears that from the stakeholders perspectives the benefits outweighed the costs of having the arrangement.

Table 8. Stakeholders' perceptions on co-management arrangements, 2005.

No.	Items	Primary		Secondary	
		Mean	Interpretation	Mean	Interpretation
1.	Priority areas agreed upon by the stakeholders.	4.73	E	4.44	VG
2.	Functional organizational structure with defined roles .	4.70	E	4.44	VG
3.	Conduct of regular meetings.	4.83	E	4.49	VG
4.	Participation of community members.	4.85	E	4.58	E
5.	Sanctions done accordingly.	4.67	E	4.20	VG
6.	Action plans formulated.	4.75	E	4.40	VG
7.	Conduct project-planning review.	4.71	E	4.38	VG
8.	Implementing guidelines formulated per activity.	4.74	E	4.29	VG
9.	Working committees organized.	4.70	E	4.33	VG
10.	Regular monitoring and Evaluation.	4.86	E	4.58	VG
	Overall Mean	4.75	E	4.41	VG

Legend: 4.50 - 5.00 Excellent (E) 2.50 – 3.49 Good(G) 1.00 – 1.49 Poor (P)
3.50 – 4.49 Very Good (VG) 1.50 – 2.29 Somewhat Poor (SP)

4.2.6 *Incentives for cooperation*

The co-management arrangement works toward this end: increased mobilization of upland communities and strengthened linkage of various key stakeholders that can provide resources to support the successful implementation of watershed management. It is the partners' vision to see an empowered or modernized upland community that manages a critical watershed.

The most important incentives for the user community to cooperate with the government partners at various levels are:

- Shrinking lake area
- Poverty

On the government side, their most important incentives could be:

- Centralized management on the part of the national government has not succeeded in protecting important natural resources
- Poor levels of compliance with rules
- High costs of resource monitoring and control
- Availability of secondary stakeholders to support the co-management arrangements.

Obviously, the stakeholders from both groups perceived the incentives for cooperation as shown in the high ratings they gave for community participation. Overall, the extent of community participation of the co-management project was high (overall mean was 4.39) as perceived by the stakeholders. Among the items listed to measure the extent of community participation, only item number 1 on educational tours got a very high rating (4.89). All 14 remaining items had high degree of community participation (Table 9).

The community's thirst for knowledge on new farming technologies such as diversified farming system, contour farming as well as agro-forest gardens provided motivation for them to participate highly in educational tours. The primary stakeholders have indicated the weak agriculture extension service delivery system in their barangay.

Table 9. Stakeholders' perceptions on the patterns of community participation in the co-management project, 2005.

No.	Items	Mean	Interpretation
1.	Educational tours	4.84	Very High
2.	Participatory development planning.	4.48	High
3.	Participatory extension	4.47	High
4.	Training/workshop	4.46	High
5.	Consultation/meeting/discussion.	4.46	High
6.	Project implementation and other Activities	4.46	High
7.	Networking/linkaging (<i>social capital</i>)	4.45	High
8.	Survey and resource inventory	4.42	High
9.	Leadership/community/mobilization.	4.41	High
10.	Decision making	4.36	High
11.	Environmental education or economic development projects	4.35	High
12.	Formulation of local ordinances and policies	4.34	High
13.	Working committees	4.34	High
14.	Attendance in public hearings	4.26	High
15.	Counterparting resources.	3.82	High
Overall Mean		4.39	High

Legend: 4.50 - 5.00 Very high 2.50 – 3.49 Average 1.00 – 1.49 Very low
3.50 – 4.49 High 1.50 – 2.29 Low

4.2.7 Priority concerns of the project

Among the prioritized areas of the co-management arrangement were the crafting of the barangay development plan (BDP) upon which major activities were based. Because the primary stakeholders provided much of the information decisions, the BDP truly reflected the community's knowledge of its resources, needs and opportunities for improvement. Table 10 shows the stakeholders' perceptions on the priority areas of the co-management project. Both groups of stakeholders have very high agreement (93%) with the project's prioritized activities. This implies a good match or fit of the activities and their needs. Of the 15 prioritized activities, only timber production earned a modest high agreement.

Table 10. Stakeholders' opinions on the priority areas of the co- management project, 2005.

No.	Items	Mean	Interpretation
1.	Soil and water conservation/ Land and water management	4.88	Very High
2.	Rehabilitating and safeguarding of the lake	4.85	Very High
3.	Effective implementation of Legal Laws and Policies	4.80	Very High
4.	Information/ Education Campaign (IEC) for stakeholders	4.76	Very High
5.	Wildlife conservation	4.71	Very High
6.	Livelihoods and agri-business	4.67	Very High
7.	Biodiversity protection	4.65	Very High
8.	Area boundary delineation and mapping	4.62	Very High
9.	Eco-tourism/recreation	4.54	Very High
10.	Timber production	4.29	Very High
Overall Mean		4.68	Very High

Legend: 4.50 - 5.00 Very high 2.50 – 3.49 Average 1.00 – 1.49 Very low
3.50 – 4.49 High 1.50 – 2.29 Low

4.3 Outcome of co-management experience

Although the co-management project was implemented in the last two years it would be instructive to consider the stakeholders' general observations and perceptions on outcome. In general, outcomes could be observed in terms of the co-management arrangement's performance in terms of equity and sustainability. Even early on the government stakeholders had focused their attention on ways in which they could share management responsibilities with local primary stakeholders through various forms of participatory planning. In fact, active membership of the community in all three levels of decision making in the organization provides evidence for the equity indicator.

Moreover, positive results of the co-management approach take the forms of improved farm practices, i.e. farming systems development, increased community awareness on protecting water sources and avoiding poor agricultural practices, community nursery development for forest and fruit trees, and better relationships between the community and government agencies. All these indicate modest gains from the co-management arrangement .

4.3.1 Stakeholders' awareness of co-management

Interestingly, both groups of stakeholders have high to very high awareness of the co-management activities (Table 11). Although it was noted earlier in this paper that the primary stakeholders' understanding of the arrangement was not very high, their awareness of the project's activities was impressively high. Probably, they thought as in the past they were mere recipients of agriculture or training projects. Little did they understand that trainings and cooperative activities were provided to enhance their capacities as individuals and as a group. Overall, the primary stakeholders reported higher degree of awareness than their secondary stakeholders counterpart.

Table 11. Stakeholders' awareness of the co-management project, 2005.

No.	Items	Primary		Secondary	
		Mean	Interpretation	Mean	Interpretation
1.	Co-management project organized meetings in the barangay.	4.89	VH	4.36	H
2.	Every partner knows the different stakeholders of co-management	4.76	VH	4.02	H
3.	People are not difficult to gather during meetings.	4.69	VH	3.62	H
4.	Co-Management partners share information to the community	4.83	VH	4.13	H
5.	Giving information is useful	4.91	VH	4.47	H
6.	People's attitudes towards DENR, LGU, NCIP, and BFAR improved positively.	4.70	VH	4.13	H
7.	Other communities will benefit from the Co-Management of Lake Seloton.	4.77	VH	3.97	H
8.	Other stakeholders are not actively involved	3.65	VH	3.40	MH
9.	Effective dissemination of information re: project.	4.76	VH	3.96	H
10.	There was presentation of the Co-Management concept to all the stakeholders.	4.80	VH	4.22	H
Overall Mean		4.67	VH	4.02	H

Legend: 4.50 - 5.00 Very High (VH) 2.50 - 3.49 Moderately High (MH) 1.00 - 1.49 Very low (VL)
3.50 - 4.49 High (H) 1.50 - 2.49 Low (L)

4.3.2 Capacity building needs

The stakeholders as a whole responded very positively in the following items in terms of training needs: coaching and hands-on; leadership training; resource inventory/mapping/delineation; farm planning; and conduct and management of meeting. Apparently, the five items, which were very highly confirmed, need to be prioritized to enhance the stakeholders' capacity to implement the co-management arrangement. Other items were perceived as 'high' like participatory planning, facilitation skills, networking, record keeping, enterprise development and organizational strengthening among others. The overall mean of the stakeholders' perceptions on the training needs was recorded at 4.46 with a 'high' interpretation (Table 12).

Table 12. Stakeholders' perceptions on the training needs of the co-management project partners, 2005.

No.	Items	Mean	Interpretation
1.	Coaching and hands-on	4.66	Very High
2.	Leadership Training	4.61	Very High
3.	Resource Inventory/Mapping/ Delineation	4.54	Very High
4.	Farm Planning	4.51	Very High
5.	Conduct and management of meeting	4.50	Very High
6.	Participatory planning	4.46	High
7.	Facilitation skills	4.44	High
8.	Networking	4.44	High
9.	Record keeping	4.44	High
10.	On-the-Job training	4.43	High
11.	Technology training	4.42	High
12.	Decision-making skills	4.42	High
13.	Communication skills	4.38	High
14.	Enterprise Development	4.32	High
15.	Organizational Strengthening	4.32	High
Overall Mean		4.46	High
Legend:			
4.50 - 5.00	Very high	2.50 - 3.49	Average
3.50 - 4.49	High	1.50 - 2.29	Low
		1.00 - 1.49	Very low

4.3.3 Sustainability of the arrangement

Secondary stakeholders seemed to be optimistic on the issue on project sustainability. They have reported that the co-management project was highly sustainable as manifested by the overall mean of 4.31 (Table 13). The secondary stakeholders or the government groups are banking on the commitment of all stakeholders in terms of resources support and the policy

support of the provincial LGU. But, the idea of co-management was also meant to make the government (line agencies and local government) make its presence more felt by the community which practically belongs to its area of coverage. It also provides an opportunity for convergence of various agencies in addressing a common issue despite limited financial resources. Probably, it would have been close to impossible if only one agency would bear the cost but with collaborative arrangement responsibilities as well as costs are distributed.

Interestingly enough, with this experience on co-management the provincial government of South Cotabato has embarked on a province-wide development program adopting the arrangement beginning 2006. This is a case of an organizational capacity enhancement resulting from the collaboration with various agencies especially with the Upland Development Program staff who provided the social technology support for collaborative arrangement for more effective and efficient use of resources.

Table 13. Secondary stakeholders' perceptions on the aspects leading to sustainability of the co-management project, 2005.

No.	Items	Secondary	
		Mean	Interpretation
1.	Organized stakeholders	4.38	H
2.	High commitment of the stakeholders	4.31	H
3.	Stakeholders willingness to share their resources	4.31	H
4.	Endorse resolution to support activities in the watershed	4.24	H
5.	Endorsed resolution to the Provincial Government Unit to include the conservation of Lake Seloton in their annual activities.	4.33	H
Overall Mean		4.31	H

Legend: 4.50 - 5.00 Very high (VH) 2.50 - 3.49 Average (A) 1.00 - 1.49 Very low (VL)
3.50 - 4.49 High (H) 1.50 - 2.29 Low (L)

While much lesson has been learned by the from the co-management experience, there seemed to be a strong relationship between resource capacity (human, national, and technical) and project sustainability. Given the modest support to implement some of their activities relative to co-management, majority of the stakeholders from both groups have reported

insufficient resources for them to undertake all the lined up activities of the project (Table 14).

Among the stakeholders, the National Commission for Indigenous Peoples (NCIP) respondents reported sufficient resources from their agency in support to co-management. However, no evidence was found to indicate any financial allocation for the collaboration. For PLGU and the POs, they have perceived very sufficient manpower resource support for the co-management arrangement while the CENRO (DENR) reported very sufficient technical information and access to it for them to do their tasks contribution for the co-management.

Table 14. Stakeholders' perceived sufficiency level of resources in support to co-management project in Lake Seloton, Lake Sebu, South Cotabato, 2005.

CAPACITY ASPECT		Level of Sufficiency			
		VS	S	IS	N
Equipment/tools to perform assigned functions	1. DENR				
	1.1 PENRO			/	
	1.2 CENRO			/	
	2. PLGU			/	
	3. MLGU			/	
	4. BLGU			/	
	5. NCIP		/		
Facilities to perform assigned functions (office, space, laboratories, vehicles, libraries, etc.	1. DENR				
	1.1 PENRO			/	
	1.2 CENRO			/	
	2. PLGU			/	
	3. MLGU			/	
	4. BLGU			/	
	5. NCIP		/		
Number of personnel to discharge its mandates and commitment to co-management project.	1. DENR				
	1.1 PENRO			/	
	1.2 CENRO			/	
	2. PLGU	/			
	3. MLGU		/		
	4. BLGU			/	
	5. NCIP		/		
6. PO	/				

CAPACITY ASPECT		Level of Sufficiency				
		VS	S	IS	N	
Availability of information and information access to accomplish assigned tasks in the co-management project.	1. DENR					
	1.1 PENRO		/			
	1.2 CENRO	/				
	2. PLGU		/			
	3. MLGU			/		
	4. BLGU			/		
	5. NCIP		/			
Financial resources to support and sustain the operations of the project	6. PO			/		
	1. DENR					
	1.1 PENRO			/		
	1.2 CENRO			/		
	2. PLGU			/		
	3. MLGU			/		
	4. BLGU			/		
Perceived over-all support of the various partners	5. NCIP		/			
	6. PO			/		
	1. DENR					
	1.1 PENRO			/		
	1.2 CENRO			/		
	2. PLGU		/			
	3. MLGU			/		
	4. BLGU			/		
	5. NCIP		/			
		6. PO			/	

Legend:

VS - Very Sufficient
S - Sufficient
IS - Insufficient
N - None

DENR - Department of Environment & Natural Resources
PENRO - Provincial Environmental Natural Resources Office
CENRO - Community Environment and Natural Resources Office
PLGU - Provincial Local Government Unit
MLGU - Municipal Local Government Unit
BLGU - Barangay Local Government Unit
NCIP - National Commission for Indigenous People
PO - People's Organization

4.3.4 Barriers to co-management success

The primary stakeholders perceived the “no permanent personnel assigned” and change in the program priority of member agencies” to prevent the co-management project from achieving its goals. They have likewise rated “misconception about co-management” as strong barrier to project success. In fact, lukewarm participation of some community members could be due to

their lack of understanding or misconceptions on the co-management arrangement. All items had a mean 3.75 to 4.19. Overall mean was 4.04, which was also interpreted as strong (Table 15).

Table 15. Primary stakeholders' opinions on the barriers to the successful conduct of the co-management project, 2005.

No.	Items	Primary	
		Mean	Interpretation
1.	Misconception about Co-Management	4.08	S
2.	Absence of implementing guidelines	3.75	S
3.	Absence of monitoring and evaluation	4.05	S
4.	No permanent personnel assigned	4.19	S
5.	Lack of commitment among stakeholders	4.03	S
6.	Change in the program priority of member agencies	4.14	S
Overall Mean		4.04	S

Legend: 4.50 - 5.00 Very strong (VS) 2.50 – 3.49 Average (A) 1.00 – 1.49 Very weak (VW)
 3.50 – 4.49 Strong (S) 1.50 – 2.29 Weak (W)

5. Lessons learned

Given the fact that the co-management arrangement is very recent in practice, the researcher takes extra caution not to draw firm conclusions on lessons learned regarding the nature and implementation of the co-management arrangement.

a) Co-management arrangement design

This pilot project was conceived in response to resource depletion particularly the shrinking area of the lake, which is an important fishing ground for some members of the community. The residents' practices of extractive enterprise like overcrowded fish cages in the lake and the destructive forms of farming indicate that the partner community is resource-poor and therefore under such circumstance it would seem critically important that government institutions should not leave their local partners with management

responsibilities that they are not capable of shouldering, be it for lack of reasons or lack of resources. It is therefore the responsibility of government (local and national) to provide scientific advice needed, to train local partners to understand and appreciate the advice, and to ensure that management measures are relevant and appropriate.

It is very laudable that the both primary and secondary stakeholders groups have very positive perceptions on the co-management arrangement. Interestingly, the co-management arrangement has endeavored to address infrastructure, health, water use, agriculture, education/training, lake and other natural resources conservation and protection. In sum, the arrangement looked at the development context in which the co-management arrangement should operate.

b) Predominantly consultative-collaborative

The government group led by the provincial government showed willingness to share powers with the primary stakeholders as could be seen in the membership in the hierarchical levels of decision-making in the co-management structure. With this arrangement, the primary stakeholders have always been challenged to improve on their capacity to manage their depleted natural resources.

c) Mainly in pre-implementation and implementation stages

The primary stakeholders' view on their high involvement in decision making has been corroborated by the secondary stakeholders' perceptions together with the activities carried out by the group not only at the implementation but also in the planning stages. This could also be one reason for their motivation to cooperate in the arrangement.

d) Co-management largely a government-driven (provincial LGU & UDP) initiative

There is no doubt that the province has more resources (human, technical and financial) than the municipal and barangay local government units; thus, the PLGU topped the financial allocation and manpower support to the co-management. Sustained activities for the POs were due to the PLGU's community organizers' efforts. Meanwhile UDP provided the social and technical tools besides the financial support for the capacity building activities on environment management.

e) Good fit of planned activities and community needs

Major incentive on the primary stakeholders to cooperate was the good fit of the prioritized activities and the community's needs especially with regard to livelihood activities.

f) Many primary stakeholders have no clear grasp of management arrangement, objectives

A large percentage of the primary stakeholders failed to grasp the essence of the arrangement including its objectives. This must be the reason why the lake's situation has worsened despite the co-management initiative. Of course, the agriculture sector involved in diversified and contour farming seem to understand where the arrangement was leading to. More focused capacity building activities are needed to improve the community's understanding on co-management of natural resources.

g) Information must be exchanged among stakeholders so that there is common understanding of what co-management means on the ground

Better knowledge management is needed. Both groups of stakeholders must identify who among their manpower resources have a good grasp of the co-management concept piloted. Said personnel should be tasked to take charge of educating the public. Also, a mix of methods should be used in the public education campaign to help meet the learning styles preferences of the public.

h) Political leaders need to ensure that policies (ordinances) governing natural resource use include co-management as the approach.

To sustain the gains learned from the pilot project, it would be helpful for political leaders to formulate a policy concerning the adoption of co-management arrangement in managing the natural resources province-wide. The advantages include: 1) government line agencies will be forced to make themselves visible to their service coverage area, 2) the public will know who are the officials they should connect with for a particular concern, make follow-up communications or exert pressure on concerned government agencies to deliver quality service, 3) it will pave the way to an integrated approach of intervention (multi-agency collaboration), and 4) thus, will ensure the

provision of a sufficient condition for a good natural resource management program to proceed.

6. Recommendations

Co-management presents an opportunity for local government units and line agencies with commitment to work collaboratively with the community to manage their natural resources. Getting quality involvement from the community is a challenge to development agencies as it requires time, energy, and money to build the capacities of individuals and communities.

To make co-management sustainable, efficient leadership, high levels of participation and ability to mobilize funding and good diffusion of information must be in place.

It is recommended that further research the following questions may be focused on: 1) what capacity building activities are required for collaborative processes to be successful, and 2) does successful co-management require minimum institutional and individual capacities? What would be the minimum institutional and individual capacity to ensure successful collaboration?

The following recommendations may be worth considering:

- A training needs assessment should be carried out and a focused training program developed as required.
- The LGUs must take more affirmative actions to have their policies/ordinances concerning lake and other naturalresources management be complied with.
- A simple term of reference be prepared for the advisory council, technical working group and project implementation team of the organizational structure to understand their roles and responsibilities.
- Secondary stakeholders should utilize the value of informal communication..

7. Acknowledgements

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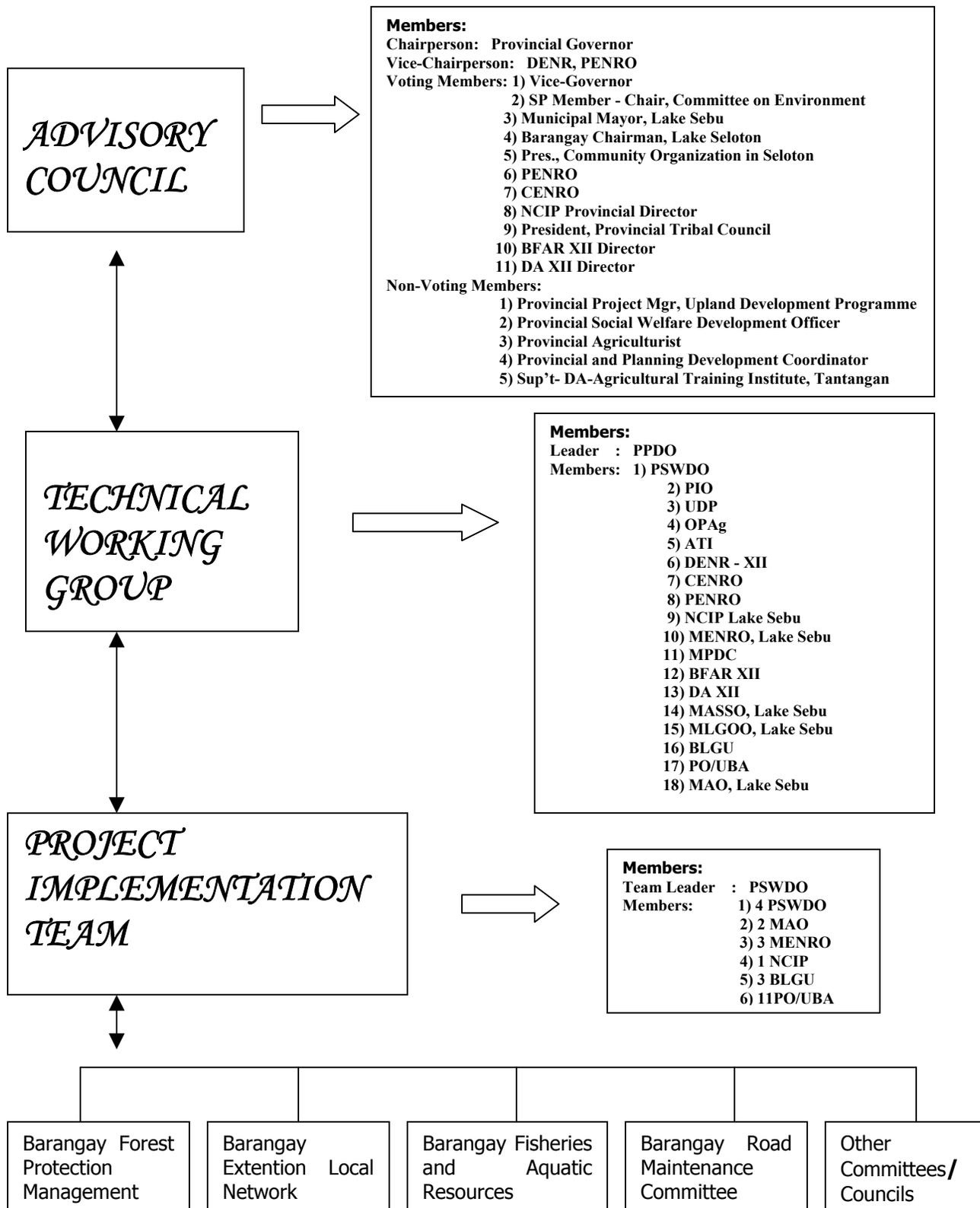
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Appendix A.

THE CO-MANAGEMENT ORGANIZATIONAL STRUCTURE



Appendix B. Co-management in Lake Sebu. December 2005.



Co-Management in Lake Sebu

As of December 2005

	Activities	Actual Date Conducted	Actual Expenditures
1	Co-Management Orientation	17-Sep-03	8,509.09
2	Co-Management Watershed Site Validation	1-Oct-03	3,074.09
3	Co-Management Meeting Watershed Planning	15-Oct-03	3,300.00
4	Co-Management Operations Planning Workshop	11-Dec-03	23,254.82
5	Community Organizing in Co-Management	18-Jan-04	50,000.00
6	Video Script Writing & Editing Workshop	26-Jan-04	15,587.99
7	Co-Management Educational Tour	2-Feb-04	207,695.78
8	Lauching of Co-Management	12-Feb-04	10,934.00
9	BDP Capacity-Building	March 2004-Jan 2005	180,000.00
10	Perimeter Surveu Activity	3-16 March 04	1,730.00
11	Co-Mgt Dev't Planning	6-Jun-04	11,300.00
12	Co-Management Community Cross-Visit to UDP Covered Areas	25-Jun-04	19,101.92
13	Co-Mgt Land & Water Use Planning	6-8 July 2004	43,986.41
14	Co-Mgt Participatory Planning and Lake Resource Assesment	20-Aug-04	12,830.78
15	DFS Orientation	5-12 Nov 04	863.00
16	Co-Management Land & Water Use Folow-up Training	22-26 Nov 2004	23,377.43
17	DFS in Lake Seloton Training	16 Nov-08 Dec 04	13,825.91
18	Support to Co-Mgt	16-17 Dec 04	6,000.00
19	Consultation re: BFPMC	23-Jun-05	3,332.27
20	Public Hearing on Forest Protection	12-Jul-05	6,563.00
21	BFPMC Workshop	9-10 May 2005	2,146.00
22	Forest Development Planning	29 Aug-07 Sept 05	6,060.45
23	Meetings/ Consultation		5,000.00
24	Technical Asssistance (Dr. Hondrade))		240,000.00
25	Technical Asssistance (Anami Canag))		200,000.00
26	DFS Batch 2		75,000.00
27	Community Forest Management		49,500.00
28	Tour with Vice-Governor, Dr. Hondrade & Mgr. Mimi		50,000.00
29	DFS Enhancement cum Sitio Nursery Establishment		13,025.00
30	Learning Site Nursery Establishment		13,025.00
31	DFS-Batch 3		146,971.00
32	BFPMC Forest Protection Law & Enforcement Training Seminar Workshop		23,937.50
33	Farmers Field School on Nursery Establishment & Management		21,851.00
34	Lake Sebu BFPMC Study Tour		39,430.00
35	Workshop Review on the Environmental Code Proposal		75,000.00
36	Co-Management Technical Working Group/PIT Year-End Workshop		5,200.00
37	Establishment of Billboards in Protected Areas		50,000.00

