

Collective action and learning in developing a local monitoring system

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SUMMARY

One of the challenges communities face when managing forests is the lack of a systematic and transparent monitoring system that can be used to monitor their resource management strategies and communicate their successes to outsiders. This paper argues that monitoring efforts will be sustainable only if the system has been developed by the communities in collaboration with other relevant stakeholders, with the aim of enhancing their learning and understanding, rather than for compliance purposes. The paper describes processes used by a People's Organisation in Palawan, Philippines to develop their monitoring system with the support of several key stakeholders. These include the development of a monitoring framework and arrangements (including who collects data, what data to collect, and how to collect it) and negotiation on how to collaborate in this effort. Results indicate that the development process has brought together a range of community groups and stakeholders with different interests, objectives, and mandates for collective action and learning.

Keywords: monitoring, collective action, learning, community forestry, Criteria and Indicators

INTRODUCTION

People monitor the environment as naturally as they look, feel, smell, and listen (Alexandra *et al.* 1996). Monitoring is a fundamental facet of the human process of cognition. More strictly it can be defined as periodic and repeated observations of appropriate parameters to determine the effects of certain management strategies or policies, and the response of systems to change (Bosch *et al.* 1996). From a systems theory perspective, monitoring provides the conduit by which feedback 'closes' the systems loop, without which the system, by definition, remains open and without control. Therefore monitoring is crucial because it enables local managers and decision-makers to understand the impacts of their decisions and of other factors on the resources they manage. Turning this general principle into action results in monitoring programmes designed for various objectives relating to compliance with national or local regulatory requirements, whether practices meet initial objectives, and for accountability purposes (Taylor *et al.* 1997, Abbot and Guijt 1998). However, in the context of forest management, virtually no monitoring programmes have been designed to provide relevant feedback to local managers about the implications or outcomes of a particular management strategy or policy and they are therefore less than optimal tools in managing natural resources successfully. Having failed to satisfy the needs of

those people generating the data (i.e. the local managers), many monitoring efforts could not be sustained or were rejected and thus could not form an integral part of management (Bosch *et al.* 1996).

Monitoring programme initiatives at the community level face similar problems. In many cases, monitoring systems designed to assess community performance in achieving certain project goals limited local participation to data collection only (Ricafort 1996 in Abbott and Guijt 1998). The initiators failed to design monitoring systems that matched the needs and capacities of the communities concerned. Even in cases where these obstacles were overcome, monitoring systems generally had a low rate of adoption by local people because they were not involved in the development processes. Ignoring local stakeholders in the development of these systems meant that the monitoring effort could not be sustained by the communities themselves.

Bosch *et al.* (1996), Guijt and Sidersky (1996), and Abbot and Guijt (1998) amongst others, emphasise that for monitoring to be a part of sustainable learning processes it has to be of local relevance and feasible in the long term. Furthermore, it will only contribute to local understanding and empowerment if the processes motivate all stakeholders and that the results are fed back into the local information system so that monitoring is not merely extractive.

ADAPTIVE COLLABORATIVE MANAGEMENT (ACM)

In managing complex ecosystems, such as forests, where almost by definition there is a dearth of knowledge, we have to learn to live with surprises and uncertainties (Holling 1978, Walters 1986, Lee 1993). Adaptive Collaborative Management (ACM) aims to improve the ability of forests stakeholders to collectively manage a complex and dynamic system through continuous adjustments to their management systems. At the heart of the strategy are the conscious efforts to observe and learn about the impacts of the management on forests and subsequently improve it.

The ACM programme of the Centre for International Forestry Research (CIFOR) started its participatory action research in the Philippines in 1999. It is a part of the global ACM research programme in Asia (Indonesia, Nepal, China), Africa (Zimbabwe, Malawi, Cameroon, Ghana), and Latin America (Brazil, Bolivia). It focuses on developing and testing the concepts, management principles, tools, and policy options needed to strengthen the ability of the people and other stakeholders to manage forest resources in collaborative and adaptive ways. ACM also aims to understand the conditions in which adaptive and collaborative management can lead to real improvements in both the forest's and people's conditions, especially the poor and marginalised.

One of the pillars of ACM in community forestry is that local communities and stakeholders should be able to engage in on-going observations of the impacts of their management practices, continually to reflect and learn from these observations, and subsequently to adapt their management strategies, in a process of conscious continual learning. To optimise the gains from this ACM cycle of learning and improvement, an effective monitoring system is essential (Bosch *et al.* 1996, Taylor *et al.* 1997, Salafsky *et al.* 2001). Therefore, in order to facilitate ACM at the local level, the concept of monitoring should be introduced and, if this meets with interest, local forest managers can be assisted to develop collaborative monitoring systems that are simple, practicable, effective, and will encourage participation from government institutions, as well as various community groups.

SITE DESCRIPTION

The site utilised in this paper is located about 67 km from Puerto Princesa City, Province of Palawan, Philippines. The area is a Community Based Forest Management (CBFM) area that was tenured by the Department of Environment and Natural Resources (DENR) to a People's Organisation (PO) called San Rafael Tanabag and Concepcion Multi-Purpose Cooperative, Inc. (STCMPC). The PO initially received tenure over 1,000 ha of forest in early 1990s under the Community Reforestation Programme, which was initiated based on DENR Administrative Order No. 22. In

1996, the earlier tenure was expanded to 5,006 ha. The area covers a series of watersheds of the three adjoining barangays (villages) in Puerto Princesa City, namely San Rafael, Tanabag and Concepcion. As the recipient of the tenure, the PO is responsible for the protection, rehabilitation, and conservation of the CBFM area. Furthermore, they are also required to assist the government in the protection of the adjacent forest lands, prepare and implement management plans for the area, develop and enforce relevant policies, follow laws, rules and regulations pertinent to forest products utilisation (DENR 1996).

The CBFM area consists of a strip of disturbed forestlands in need of some form of rehabilitation and development. Prior to 1970, forest conditions in the area were good. A diversity of plant species was observed, with almaciga (*Agathis damarra*), ipil (*Instia bijuga*) and narra (*Pterocarpus indicus*) as the dominant tree species. In 1970, pressure on the forests increased significantly with the operation of a logging concession and the in-flow of migrants who practiced slash-and-burn agriculture. As a result, the forest's condition started to decline. In 1986, a logging ban was imposed in the Philippines, which also included Palawan (Hartanto *et al.* 2000)

LOCAL MONITORING INITIATIVES IN PALAWAN

Natural resource management in Palawan has been the result of the interplay of many government and civil society institutions with dynamic relationships and interactions. These different institutions often have conflicting views on how to manage natural resources. At our site the key stakeholders included the People's Organisation (STCMPC), Department of Environment and Natural Resources (DENR), Local Government Unit at the provincial, municipal, and barangay level, a special unit of Municipal Government called City Environment and Natural Resource Office (City ENRO), Palawan Council for Sustainable Development (PCSD), and local NGOs.

Many of those key institutions developed and conducted monitoring programmes as part of their management strategies. So terms such as *monitoring*, *participatory monitoring*, *monitoring and evaluation*, etc. were not particularly new to most of the stakeholders. Several local monitoring programmes that were developed by key institutions in Palawan are described below, along with what drives these institutions to foster such initiatives, as well as how the monitoring programmes were implemented.

Department of Environment and Natural Resources (DENR)

DENR is the government agency in charge of the environment and natural resource protection and management. As the authority responsible for implementing the community forestry programme in the Philippines, DENR has to prove that CBFM is really the appropriate strategy for improving forest conditions and hence the situation of local communities. DENR initiated

and developed a monitoring system entitled Environmental Performance Monitoring, to be implemented by the People's Organisations in the CBFM area. In parallel with this, at the national level, DENR assessed the performance of CBFM at a landscape level, recording a reduced rate of forest degradation, stabilisation of forest cover, and an actual increase in forest cover (Johnson 1998).

Environmental Performance Monitoring was developed by DENR in collaboration with NGOs, local government unit staff and around 120 community members in selected CBFM areas. There are two groups of indicators proposed in the EPM monitoring framework: core environmental indicators and process indicators. Core environmental indicators include biophysical indicators such as forest cover, water quality and quantity, stabilisation of soil, and biodiversity. Process indicators include indicators related to the capability of the PO in implementing CBFM activities, their forest resource use and management practices, finance, organisation, and socio-economics (Paz 1999). The DENR field-tested Environmental Performance Monitoring in certain CBFM areas in five regions of the Philippines. In May 2002, they held a seminar to evaluate the findings of the field tests and improve the existing Environmental Performance Monitoring (DENR CBFM Staff, personal communication, May 2002).

DENR did not intend to enforce Environmental Performance Monitoring implementation. It was designed to serve as an internal review by the PO, on a voluntary basis, to assess their own performance against management objectives, and to monitor the impact of their forest management on the environment (Director of Forest Management Bureau, DENR, pers. comm.). Unfortunately, until now, EPM has not been widely carried out by the PO in the Philippines. For example, the PO in Palawan perceived EPM as just another task adding to existing obligations to DENR. Furthermore, there was a concern that Environmental Performance Monitoring would be used by DENR to assess their performance. The reluctance to adopt Environmental Performance Monitoring may be due to the lack of processes to adapt it to local conditions and the lack of the PO's participation in developing the monitoring framework.

The Provincial Government

The Provincial Government developed a province-wide monitoring system called the Community Based Monitoring System (CBMS). This aimed to collect, process, and organise data on socio-economic and human development in Palawan, including information on population and household characteristics, employment and livelihood, the peace and order situation, water, health, sanitation, nutrition, education, community development, etc. It is supposed to help provincial decision-and policymakers to effectively set the framework for desired development in the province. Currently, questionnaires are used to collect data from every household in the barangay by barangay officials and barangay nutrition scholars. The

community members' involvement in the process so far has been limited to providing and validating information (Escaño *et al.* 2001).

It is clear that CBMS was designed to provide decision makers and policy makers with related information on the socio-economic and human development of the Province only, without any information on natural resource management. Despite the fact that the scope of the socio-economic information collected would be quite broad, it would still be difficult to establish causal linkages between any changes observed on socio-economic and human development conditions with the existing natural resource management interventions. Consequently, CBMS may have limited use to guide provincial natural resource management, let alone natural resource management at the local level.

Enterprise Works Worldwide (EWW)

A local level-monitoring program that existed in the study area that could be of use for natural resource management purpose is the Enterprise Works Worldwide's (EWW) Internal Tracking System (ITS). EWW is an NGO that has been assisting the People's Organisation since 2000 in implementing their business operation of extracting and marketing fallen logs. It was designed as a tool to monitor EWW's own performance, in terms of enterprise productivity, producer incomes and employment. The ITS was planned to provide EWW managers and programme directors with the information that they need for donor agencies, decision making, and to attract new donors and partners. The information was planned to be collected on annual basis (Stosch and Hyman 1999).

In Palawan, EWW introduced the ITS to the PO staff members and trained them on how to collect and analyse data. They had to make calculations to generate data on the quantity of the lumber extracted, the number of people involved, the financial costs of the operation, etc. Not all the PO staff members were capable of performing these complicated calculations with the result that constant supervision and some incentives had to be provided by EWW.

Since it was designed for the purpose of the EWW project, it focused only on the business side of lumber extraction. It did not offer a comprehensive picture about the overall forest resource management. It does, however, have some potential to guide forest resource management if the system is simplified and includes other areas of the PO concerns.

DEVELOPMENT AND APPLICATION OF A LOCAL MONITORING SYSTEM

Despite various attempts made by several local institutions mentioned in the earlier section, only the ITS was carried out by the People's Organisation in 2001 and the monitoring was limited to the PO's business operations only.

The PO has been requested by the local DENR since 1996 to conduct monitoring as a part of their responsibilities as CBFM holder. Through a series of consultations with various local stakeholders, the PO came up with a list of parameters that they planned to monitor. Due to some complications with the approval of their management plan, this monitoring was never carried out. In early 2000 the PO was requested by the local DENR to initiate Participatory Monitoring and Evaluation (PM&E). The PO was committed to undertake monitoring as they thought it would help them to assess their progress with CBFM implementation: “*Dapat masabaybayan kung tumatakbo ang program*” (“We should monitor to see if the programme is on track” – PO members, pers. comm., September 2001). Despite their commitment to do so, the PO had little experience and knowledge on how to develop and conduct monitoring. They requested ACM researchers to assist them in developing a local monitoring system.

The process of developing the monitoring framework in Palawan was facilitated by three workshops and several discussion sessions. The monitoring framework itself went through two iterations before it was implemented. The first workshop was held in February 2001 and was attended by most of the key personnel and members of the PO. Other participants included a representative from the barangay/village council, a representative from City Environment and Natural Resource Office, and two representatives from DENR. The second workshop in September 2001 brought together a wider cross-section of stakeholders and community groups. Besides those who participated in the first workshop, other participants included representatives from the Women’s Group and the Fishermen’s Association, representatives from Palawan Council for Sustainable Development and its special project called Palawan Tropical Forest Protection Programme (PTFPP), and local NGOs (such as EWW, Budyong Rural Development Foundation, Inc., and Haribon Palawan). The third workshop in January 2002 was attended by similar stakeholders as the second, except for DENR and local NGOs, who only attended the pre-workshop session.

The basic framework used for the local monitoring system was the Criteria and Indicators (C&I) framework for Sustainable Forest Management. It provided a common framework to describe, conceptualise, organise, and interpret information relating to sustainable forest management. It has been proven to be a useful communication tool among different stakeholders, including between local communities and other local stakeholders (de Oliveira 1999, Ritchie *et al.* 2000). The C&I Framework is usually composed of a hierarchy of *Principles, Criteria, Indicators, and Verifiers*. The four levels of hierarchy have clear vertical linkages in a comprehensive and coherent manner that can be verified (Prabhu *et al.* 1996, Lammerts van Bueren and Bloom 1997, Prabhu *et al.* 1998).

Ritchie *et al.* (2000) emphasised the need for the development of C&I for Community Managed Forests to be based on fully participatory processes. Thus, through these processes of information sharing, learning, and

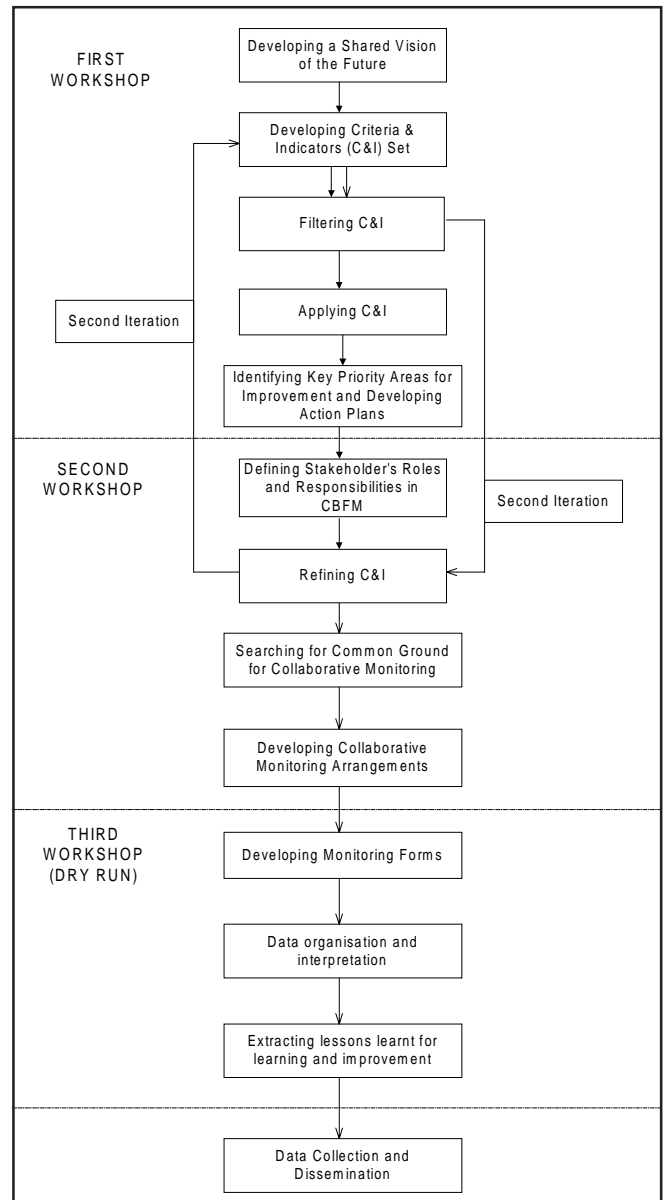


FIGURE 1 The processes of developing local monitoring system in Palawan

awareness building, local communities and local stakeholders could come to a better understanding and agreement on the visions of sustainable forest management and how to go about it. Furthermore, to facilitate and encourage local communities to implement the monitoring framework and use it as a decision-making tool, they need to be engaged as key players and develop strong ownership over the development process.

The processes and steps of developing the C&I framework for local monitoring are described in Figure 1. The key steps of the monitoring development process were as follows:

Developing a shared vision for the future

Vision-type scenario building techniques were used as the first step in a C&I framework development process. Scenarios are tools that can be used to anticipate the future

by stimulating people to think creatively, breaking away from their usual patterns of thinking or their mental model of how things work, in order to deal better with complexity and uncertainties (Wollenberg 2000). In this workshop, participants were asked to visualise an ideal future. Their visions could be regarded as the goal or simply the direction in which they would like to move. The agreed and shared components of future conditions that were then grouped together with a general heading ('theme') assigned to each set. The general themes that emerged were *Education, Organisation, Livelihood, Forest Management, Coastal Resource Management, Infrastructure* (including irrigation and electricity), *Health*, and *Policy*.

Developing the Criteria and Indicator set

Each group of participants worked on a different theme. They further detailed the specific conditions that would provide for the ideal of each corresponding theme. These specific conditions were broken down further into measurable or observable smaller units, able to indicate how close local people and stakeholders are to achieving their goal of sustainable forest management. These processes would produce three levels of a C&I framework, with each theme developed as a Criterion. An analogy with tree structure was used (Figure 2) to explain the framework structure and to help the participants in understanding how the different levels in the C&I process relate to each other. The trunk was used to describe criteria, branches described indicators, and leaves described verifiers. Facilitators explained the meaning of *Principles, Criteria, and Indicators* by providing simple definitions and examples and posting these in several places around the workshop room. An exercise was also conducted in which participants were divided into several groups and were given a task to build a house that is 'big', 'strong', and 'beautiful' using plastic straws. They were then requested to select one house among other houses that met the three criteria. This exercise provided an opportunity not only for establishing collaboration and teamwork among participants, but also a lively discussion on the indicators for the three criteria,

the meaning of indicators and criteria, and how they relate to one another.

In developing the C&I framework, we found the participants misunderstood the meaning of the highest level ('vision') as 'dreams' so that their statements of ideal conditions were unrealistic and unattainable. Most of the participants confused the indicator with an action plan, things that needed to be done rather than ideal conditions to be achieved. The facilitators had to explain and clarify the C&I concepts and the different levels repeatedly to overcome these misperceptions. The presence of a facilitator in each group was needed at this stage.

Refining the monitoring framework

To further refine the C&I framework, the concept of filters was introduced. Refinement was necessary to ensure that the C&I are applicable, realistic or attainable, 'do-able' (easy to implement and not costly), and to encourage collaboration across different community groups or stakeholders. To allow the participants to learn what other groups had developed for different themes, the participants reviewed the C&Is produced by other groups, applied these filters, and provided inputs to improve the set.

The monitoring framework underwent two major iterations in the first and second workshop (see Table 1 for summary of changes). The monitoring framework was expanded in the second workshop from 8 Criteria to 10 Criteria. However, in the third workshop, the participants decided to focus their initial monitoring efforts on five Criteria only, i.e. *Education, Livelihood, Organisation, Forest Management, and Coastal Management* (see Table 2A–2E for the complete local monitoring framework).

Identifying priority areas for improvement and actions

By assessing their conditions against the ideal described in the C&I framework, the participants could identify areas that needed to be improved. The PO further prioritised those 'weak' areas and developed strategies to address them in several discussion sessions outside the workshop. The integrated planning for action in the monitoring

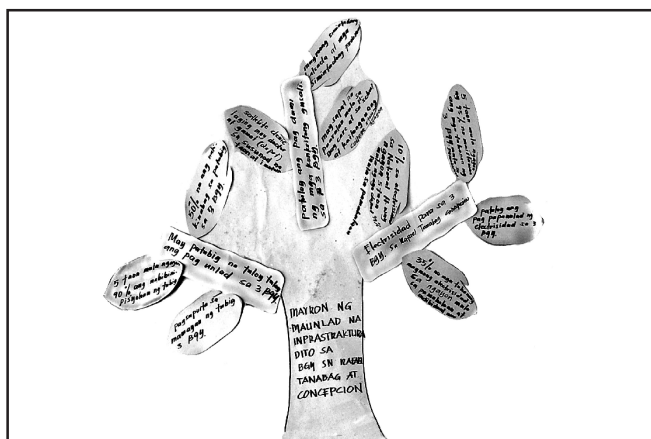


FIGURE 2 The tree structure analogy used to describe the structure of C&I

TABLE 1 Iterations in the Criteria and Indicator structure of the local monitoring framework

Criteria	Feb 2001 Workshop	Sept 2001 Workshop	Feb 2002 Workshop
Policy	3 I, 9 V	2 I, 8 V	–
Education	3 I, 10 V	4 I, 8 V	4 I, 8 V
Livelihood	3 I, 6 V	2 I, 7 V	2 I, 7 V
Organisation	6 I, 10 V	4 I, 8 V	4 I, 8 V
Health	3 I, 14 V	3 I, 6 V	–
Forest management	2 I, 8 V	2 I, 6 V	2 I, 6 V
Coastal management	1 I, 6 V	2 I, 9 V	2 I, 9 V
Infrastructure	3 I, 10 V	1 I, 1 I	–
Social		3 I, 6V	–
Ecology		4 I, 6V	–

TABLE 2A *Local monitoring framework on Education*

Criteria: Improved education quality and system in the three barangays.				
Indicators	Verifiers	Data Needed Baseline/Actual	Method of Collection	Source of Information
1. There is a scholarship programme for high schools and colleges	Majority of the poor can study	Number of pupils/students – day care – elementary – high school – college	Teachers' reports	Officials of Parents Teachers Community Association (PTCA)
2. Presence of non-formal education activities	a. Presence of trainers coming from the villages	Number of trainers from the villages	Surveys, interviews	Department of Social Welfare and Development (DSWD), Department of Education, Culture, and Sport (DECS), Barangay Officials
	b. Out-of-school youths attend vocational training	Number of out-of-school youths studying or participating in education activities Number participating in non-formal education	Report School records	Concerned agencies
	c. Training in the villages	Number of training courses conducted in the villages	Records in the villages	Concerned agencies
3. Presence of scholarship program for vocational course/ technical school for CBFM beneficiaries	CBFM beneficiaries are able to study	Number of persons studying vocational courses Number of persons who finished college	Interviews Surveys Records of People's Organisation	Concerned agencies
4. Many people understand CBFM	a. Presence of information and education campaign materials	Number of information and education campaign materials Signboard Pamphlets Radio programme Film showing	Ocular inspection Interviews Radio station	
	b. Regular meetings, dialogues are held	Number of meetings	Records of People's Organisation	People's Organisation
	c. Presence of a newsletter	Number of issues	Records	People's Organisation

TABLE 2B *Local monitoring framework on Livelihood*

Criteria: Existence of sources of income for the community.				
Indicators	Verifiers	Data Needed Baseline/Actual	Method of Collection	Source of Information
1. Increased incomes	a. Crop production for better incomes	Identify capabilities of members	Survey Coordination activities	Department of Agriculture (DA), Department of Social Welfare and Development (DSWD), National Statistic Office (NSO), members of People's Organisation
	b. Savings of Pesos 2,500 a month from increased incomes	Monthly income Interviews	Survey	DA, DSWD, NSO, members of People's Organisation
	c. Enough money for common needs	List of household appliances and other important household items	Survey Simple questionnaires	DA, DSWD, NSO, members of People's Organisation

TABLE 2B (continued) *Local monitoring framework on Livelihood*

Indicators	Verifiers	Data Needed Baseline/Actual	Method of Collection	Source of Information
	d. Almost all residents are gainfully employed	Number of household members who are employed	Survey Simple questionnaires	DA, DSWD, NSO, members of People's Organisation
	e. Parents can send their children to school	Type of school (private, public) Type of course taken	Survey Simple questionnaires	DA, DSWD, NSO, members of People's Organisation
2. Stable and sufficient source of income	a. Presence of livelihood projects	Type of livelihood activities Source of livelihood project funds Identity of project implementers		
	b. There are members who own land	Status of land ownership Assessment value of land	Survey Simple questionnaires	Assessor, Bureau of Land

TABLE 2C *Local monitoring framework on Organisation*

Criteria: A strengthened, empowered and responsible organisation exists.				
Indicators	Verifiers	Data Needed Baseline/Actual	Method of Collection	Source of Information
1. Members are strengthened	a. Actions are guided by principles	Principles of cooperative Sustainable development principle (not all)	Observation of operation Observation of meetings Number of output (volume) Output of main product Income expenses	Board of Directors/ members of People's Organisation Board of Directors/ members of People's Organisation Operation manager Operation manager Operation manager/budget officer
	b. Members are able to stand up to principles	Committee or management group installed Coop operations followed	Collect data or appointment of staff Check manual procedure/observation operation	Board of Directors/committee Operation manager
	c. Act as one toward a desired goal	Policy installed and followed Forms/books installed	Check policy manual/ observation Check existence of used forms	Board of Directors Chairman/ Bookkeeper record
2. Members and officers are dedicated	Complete attendance in meetings, seminars and workshops	Meeting agenda	Collection/copy agenda	Secretary
3. Members and officers follow principles and guidelines	a. Render voluntary services in monitoring illegal activities in CBFM area	Operation record	Collect grading schedule/person involved	Secretary
	b. 100% payment of membership fee and share capital	List of members who pay membership fee and share capital	Check record of secretary or book-keeper	Book-keeper and Secretary
4. There is a sound financial management system	a. Financial statements are submitted 100%	Quarterly financial report submitted Book of accounts	Check with book-keeper	
	b. Book of account is maintained 100%	Book of accounts	Check with book-keeper or records of account	

TABLE 2D *Local monitoring framework on Forest Management.*

Criteria: Sustainable management of forest and forest resources.				
Indicators	Verifiers	Data Needed Baseline/Actual	Method of Collection	Source of Information
1. Sustained forest protection and rehabilitation	Activities to protect the forest and watershed like reforestation, tree planting, nursery establishment and agroforestry timber stand improvement.	Number of trees Number of nurseries Number of hectares	Secondary data, reports	People's Organisation, Department of Environment and Natural Resources (DENR), Palawan Tropical Forest Protection Programme (PTFPP), Local Government Units (LGUs)
2. Management plan and framework exist and are implemented	a. Proper and efficient use of forest resources	Activities in processing forest resources		
	b. Proper technology for processing forest resources	Proper technologies employed		
	c. Timely harvesting of minor forest products	Month of harvest		
	d. Policies for proper use of forest resources are followed	Policies		
	e. Active forest guards	Number of forest guards (bantay gubat)		

TABLE 2E *Local monitoring framework on Coastal Management.*

Criteria: Sustainable management and protection of coastal areas.				
Indicators	Verifiers	Data Needed Baseline/Actual	Method of Collection	Source of Information
1. Sustained implementation of Community Resource Management Plan (CRMP)	a. Existence of fish sanctuary	Number of fish sanctuaries	Secondary data reports	Department of Environment and Natural Resources (DENR), Environmental Legal Assistance Center (ELAC), coastal guards/bantay dagat, Local Government Unit (LGU)
	b. Existence of buoys to mark fishing boundaries	Number of fishing buoys established	Secondary data reports	DENR ELAC, bantay dagat, LGU
	c. Reduced illegal activities	Number of violators, number of illegal activities	Secondary data reports	DENR ELAC, bantay dagat, LGU
	d. Protection and conservation of coral reefs that serve as breeding grounds for fish	Laws, ordinances that are enforced	Secondary data reports	DENR ELAC, bantay dagat, LGU
	e. Sufficient knowledge of laws on use of fishery resources	Training, seminars attended and information extended to others		DENR ELAC, bantay dagat, LGU
	f. Active, disciplined and dedicated coastal guards	Number of coastal guards and extent of dedication in performing job Number of violators		DENR ELAC, bantay dagat, LGU
	g. Coordination with Local Government Units and other sectors	Frequency of meetings		
	h. Prevention of garbage disposal into sea	Posters, signs installed		
2. Balanced and proper utilisation of coastal resources	Alternative livelihood activities for added household income	Various coastal livelihood activities	Listing	

development process allowed the PO to identify direct linkages between actions and goals of sustainable forest management.

Defining stakeholders' roles and responsibilities in CBFM

This step was undertaken in the second workshop to ensure that monitoring would be a collaborative effort and that the participants were clear about the roles and responsibilities of different groups and institutions. This is important for those who will participate in the effort, as pointed out by a staff of a government institution: "*Okey ang collaborative monitoring basta may tool na gagamitin para dito at defined ang mga function ng maga taong ma involve sa gawain*" ("Collaborative monitoring is good as long as there is a common tool that can be used for this activity and the functions of each group and people are defined" – a member of staff of Palawan Council for Sustainable Development, February 2001).

Venn diagrams were used as a tool to identify local institutions, both formal and informal, and to highlight different and contrasting local perceptions regarding the roles, relative importance and influence of them as compared to other institutions. Pretty *et al.* (1995) pointed out that the Venn diagram exercise can be an illuminating one since it shows how others perceive certain aspects of one's institution and work that may not otherwise be revealed.

The participants came up with three different diagrams showing the roles, responsibilities and interactions among local groups and institutions. However, a common diagram was one that described close coordination and partnerships among all concerned institutions, which assisted and supported the PO in implementing CBFM. In

this vision, the PO would reach out and include various community groups such as the Indigenous People, youth, women, etc.

Seeking common ground for collaborative monitoring

This step was conducted to identify common ground for collaboration. The participants were divided into four homogenous groups, i.e. members of the Fishermen's Association, members of the People's Organisation, representatives from NGOs, and from local government institutions. They reviewed the eight criteria of the monitoring framework produced, identified areas of their interests and concerns based on their roles, responsibilities, and mandates. As a result of the exercise, areas of common interests and possible collaboration among different stakeholders were identified (Table 3).

It was clear from the exercise that the concerns of communities as expressed in the monitoring framework were very broad and comprehensive. Some were beyond the mandates and responsibilities of the local stakeholders present in the workshop. These included health and infrastructure (the responsibility of local government), organisation and livelihood. It would be a great challenge for the PO to monitor these issues and to try to solve related problems without the support from relevant institutions.

Developing collaborative monitoring arrangements

The participants further discussed how to go about gathering data: e.g. identifying data source, methods and frequency of collection, those responsible for collecting each information type, time required, length of monitoring necessary for an effective programme.

TABLE 3 *Areas of interests and concerns of different community groups and local stakeholders*

Criteria	People's Organisation	Fishermen's Association	PCSD ¹	DENR ²	NGOs
Organisation	✓	✓			✓
Livelihood	✓	✓			✓
Forest and Forest Management	✓	✓	✓	✓	✓
Coastal Management	✓	✓	✓	✓	✓
Health	✓	✓			
Infrastructure	✓	✓			
Policy	✓	✓	✓	✓	✓
Social	✓	✓	✓	✓	✓
Ecology	✓	✓	✓	✓	✓
Production	✓	✓	✓	✓	✓

Note: ¹Palawan Council for Sustainable Development, ²Department for Environment and Natural Resources.

Data collection

The People's Organisation members started collecting right after the third workshop, in February 2002. Data or information was gathered based on the interests of the people or institutions involved. For example, most women were interested in monitoring livelihood parameters, some officers of the PO in monitoring the volume of forest resources extracted, such as lumber, rattan, and almaciga resin. The City Environment and Natural Resource Office, through its forest guards, have been monitoring the area to control illegal activities. Community and PO members, other government institutions (such as barangay councils etc.) will collaboratively support this effort by reporting any illegal activities taken place in the area. Collaborative monitoring allowed each institution to contribute based on its mandates and interests.

Dissemination of monitoring results

Several forums have been used to share monitoring results, such as the PO's Board of Directors monthly meeting, informal sharing among community members during training sessions, and formal multi-stakeholder meetings. The PO has also made use of their quarterly newsletters and community bulletin boards to post information on data collected (e.g. methods, who carried out the collection etc.). Different ways to disseminate and present the results of monitoring to different groups in the community have been used, including the use of drawings and pictures for those who are not literate.

LESSONS LEARNT AND CHALLENGES

Low participation of People's Organisation members and other community members (non-PO members) used to be a major problem faced by the PO in the past. This was due in part to inadequately disseminated information about CBFM, low benefits enjoyed by the people, lack of support from the village/barangay leaders to CBFM, and hesitation from certain key PO personnel to include other non-PO members in their activities. The process of developing local monitoring provided a platform for collective action and learning among different stakeholders. The integrated planning for collective action was built into the process in order that the PO could directly make an action plan to address those areas that needed improvement. Now, monitoring will not be merely for data extraction, but will be an integral part of their continuous efforts to improve management.

The development of the monitoring system involved representatives of other community groups, such as the Fishermen's Association, women's groups, teachers, health workers, and young people, who were excluded from many CBFM-related activities before. It allowed the participants to learn about the concerns, interests, limitation and constraints of other groups and institutions that lead to increased awareness, mutual respect and understanding. After the second workshop, a gradual change in the way

the PO compiled their management interventions was noted. In the past, the majority of their CBFM activities were designed to involve their members only. Recently, they have begun to encourage the participation of other community groups and non-members. Handicrafts were initiated by several PO women, and their efforts were later expanded to include other non-PO women. The PO also designed a mechanism in which they actively sought and incorporated feedback and inputs from different community groups and stakeholders into their management plan. Such a mechanism had never been applied before. It is likely that other factors contributed to this new approach, in particular reflection on previous attempts to implement action plans, which re-emphasised the importance of engaging other stakeholders in CBFM activities.

Monitoring has also encouraged learning among the PO members. By recording illegal activities in their area, they realised that they did not know the appropriate mechanisms for reporting such activities to concerned agencies, and what information to submit to facilitate an immediate response from investigating teams from those agencies. This awareness prompted them to contact agencies and learn more about reporting mechanisms. The women monitored the time needed to complete handicraft items and got a reasonable estimate on how much time they spent for each product. This information allowed them to determine a reasonable price for the product that not only included the costs of the raw materials but also labour costs. By recording which products were sold, the women learned which products were in demand and could be sold easily and so could determine the kind of products that they should produce in the future. They are also currently monitoring the price of similar products and the variety of designs available on the market.

The degree of involvement of different stakeholders in the process varied depending on their mandates, responsibilities, interests, concerns and information needs. Identification of areas for collaborative monitoring and prioritisation of parameters showed that the interests of government institutions, such as DENR and Palawan Council for Sustainable Development, are natural resource management, environment and forest protection. The interests of the PO and communities were far beyond these and included their needs for food, alternative incomes, education, etc., which may not be of high priority for the government agencies. Consequently, for information collection purposes, the PO and community groups would have to collect related data themselves or get some support from the local NGOs. Despite the fact that there was an agreement that there should be a venue for information sharing between stakeholders, it is still questionable whether such a forum would bring new and useful information, as most government institutions have no systematic monitoring system themselves. In fact, most of the costs and responsibilities for collecting the data so far were actually in the hands of the PO and community members – this may not be a problem for the issues that concern

them, as long as they have sufficient skills and capabilities to carry out the tasks.

Information or data collection was not something new to some of the PO members, particularly those who were involved in the daily CBFM management. They can use and modify the current monitoring formats to record information without too much difficulty. Several PO members even commented that “*Madali lang naman gawin ang pagsubaybay. Lapis at papel ang kailangan. Kung may mahirap pwede namang pag-aralan. Makakatulong naman ito sa amin*” (“Monitoring is easy. We just need pencil and paper. If there are difficulties, we can learn. We know it can be helpful to us” – Merlyn Lumbré, September 2002). However, there was a need for others to undergo further skill-building to enable them to use the format for organising the data. What is most needed, however, is the ability to analyse the information and to generate sound and sensible conclusions about the consequences of their management interventions. Furthermore, there is a need to find suitable discussion formats (i.e. a multi-stakeholder or a less diverse group setting) that would really encourage a closer look at the data collected and honest reflections on the findings. It is likely that several iterations would take place before suitable forums and formats are found. This issue needs to be considered carefully especially with the current prevailing perception of certain government institutions that monitoring is for the purpose of compliance and performance evaluation.

EWV and other local NGOs perceived local monitoring as a useful tool to improve the CBFM implementation by the PO as it could provide a quick feedback mechanism so that adjustments could be made. They commented, however, that the value of monitoring for learning and improvement may take some time before it is internalised by the PO. The City Environment and Natural Resource Office also appreciated the process of developing the monitoring system as it helped them to identify areas where they could extend their support and assistance to the PO. However, the local DENR was hesitant to support the development of the system as they have their own one already and there was a recent indication that they might enforce the implementation of the Environmental Performance Monitoring (EPM) in Palawan. It is difficult to assess whether this will continue without the support from DENR Manila who did not intend to make EPM mandatory. Despite their participation in several monitoring development workshops, representatives from the local DENR were concerned that the system will burden the PO, considering they will have to meet DENR requirements on monitoring and use the EPM framework. It emerged, however, that there is a high degree of similarity between the monitoring framework developed by the PO with the EPM framework. This means the PO should be able to use similar information to meet the requirements of DENR, should the local DENR decide to enforce EPM. However, the PO may be discouraged from sustaining their efforts if the results could be used to assess their performance. This perception could hopefully be changed once the results of the local monitoring system and its

usefulness could be demonstrated to concerned government institutions, especially if this could be coupled with the commitment from the PO to continuously improve their management systems.

CONCLUSION

The People’s Organisation, community members, and other local stakeholders have successfully developed a C&I-based local monitoring system in Palawan in a participatory way. Despite the diversity of stakeholders, there was a convergence of interests and concerns that brought them together to actively participate in the process.

The development processes of this local monitoring have also fostered collective action and learning on the part of these diverse stakeholders. Several spin-off effects of this initiative were observed in which the People’s Organisation became more active in reaching out and working together with different community members and local stakeholders. Despite the participatory nature of the process, several challenges remain to ensure the sustainability of this monitoring effort in the future. These include capacity building to increase their skills and analytical capability to extract lessons learnt from their monitoring efforts, to make appropriate adjustments to their management strategy, and to ensure necessary institutional arrangements are in place to support the PO and community in sustaining their future efforts. Furthermore, without the awareness of and emphasis on the value of monitoring for learning, especially from government institutions, it will be difficult for local monitoring to fulfil its intended purposes.

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REFERENCES

- ABBOT, J. and GUIJT, I. 1998. Changing views on change: participatory approaches to monitoring the environment. SARL discussion paper No. 2.
- ALEXANDRA, J., HAFFENDEN, S. and WHITE, T. 1996. *Listening to the land. A directory of community environmental monitoring groups in Australia*. Australian Conservation Foundation, Fitzroy, Australia.
- BOSCH, O.J.H., ALLEN, W.J. and GIBSON, R.S. 1996. Monitoring as an integral part of management and policy making. Proceedings of symposium ‘Resource Management: Issues, Visions, Practice’. Lincoln University, New Zealand, 5–8 July 1996, pp. 12–21.

- DE OLIVEIRA, N.B. 1999. Community participation in developing and applying criteria and indicators of sustainable and equitable forest management. CIFOR project report on testing criteria and indicators for the sustainable management of forests. CIFOR, Bogor.
- DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES (DENR) 1996. Rules and Regulations for Implementation of Executive Order 263, The Community Based Forest Management Strategy. DENR, Ouezon City.
- ESCAÑO, J., RABANG, J. and HEINRICH, D. 2001. Human Development Report. Provincial Government of Palawan with the assistance from Center for International Migration and Development (CIMD) and Micro Impacts of Macro Adjustment Policies Project (MIMAP), Puerto Princesa City.
- GUIJT, I. and SIDERSKY, P. 1996. Agreeing on indicators. ILEIA Newsletter 12(3): 9–13.
- HARTANTO, H., VILLANUEVA, T., MALABRIGO, P. and SAPIN, N. 2000. Criteria and Indicator-based Biophysical Assessment. CIFOR, Bogor. Unpublished Report.
- HOLLING, C.S. 1978. *Adaptive Environmental Assessment and Management*. Wiley International Series on Applied Systems Analysis, Vol.3. Wiley, Chichester. 507 pp.
- JOHNSON, T.R. 1998. Measuring the impact of community-based forest management in the Philippines. Natural Resource Management Program, Community-Based Forest Management Office, Manila.
- LAMMERTS VAN BUEREN, E. and BLOM, E. 1997. *Hierarchical Framework for Formulation of Sustainable Forest Management Standards: Principles, Criteria, Indicators*. The Tropenbos Foundation, Wageningen. 82 pp.
- LEE, K.N. 1993. *Compass and Gyroscope: Integrating Science and Politics for the Environment*. Island Press, Washington, D.C. 243 pp.
- PAZ, R.R. 1999. Community-based environmental performance Monitoring: Field Manual. Community-Based Forest Management Office, Manila.
- PRABHU, R., COLFER, C. and SHEPHERD, G. 1998. Criteria and indicators for sustainable forest management : new findings from CIFOR's Forest Management Unit Level Research. Rural Development Forestry Network Paper No. 23, Rural Development Forestry Network, London.
- PRABHU, R., COLFER, C.J.P., VENKATESWARLU, P., TAN, L.C., SOEKMADI, R. and WOLLENBERG, E. 1996. *Testing criteria and indicators for the sustainable management of Forests: Phase I Final report*. CIFOR Special Publication, Bogor. 217 pp.
- PRETTY, J.N., GUIJT, I., THOMPSON, J. and SCOONES, I. 1995. *A trainer's guide for participatory learning and action*. IIED Participatory Methodology Series, London. 267 pp.
- RITCHIE, B., MCDUGALL, C., HAGGITH, M. and DE OLIVEIRA, N.B. 2000. *Criteria and indicators for community managed forest landscapes: an introductory guide*. CIFOR, Bogor. 104 pp.
- SALAFSKY, N., MARGOLUIS, R. and REDFORD, K. 2001. *Adaptive management: atool for conservation practitioners*. Biodiversity Support Program. World Wildlife Fund, Inc., Washington D.C. 100 pp.
- STOSCH, L. and HYMAN, E. 1997. Guidelines for completing the impact tracking system forms. Enterprise Works Worldwide, Washington D.C.
- TAYLOR, B., KREMSATER, L. and ELLIS, R. 1997. *Adaptive management of forests in British Columbia*. British Columbia Ministry of Forests, Victoria. 93 pp.
- WALTERS, C. 1986. *Adaptive management of renewable resources*. MacMillan, New York. 374 pp.
- WOLLENBERG, E. with EDMUNDS, D. and BUCK, L. 2000. *Anticipating change: scenarios as a tool for adaptive forest management. A guide*. CIFOR Publication, Bogor.