

WORKING PAPER

Monitoring and Evaluation of a Community-Based Marine Sanctuary: the Blongko Village Example

**Prepared for the Coastal Resources Center, University of Rhode Island,
Proyek Pesisir, Jl. Madiun No. 3, Menteng, Jakarta, Indonesia 10320**

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**PROYEK PESISIR
(Coastal Resources Management Project)
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Monitoring and Evaluation of a Community-Based Marine Sanctuary: the Blongko Village Example

In North Sulawesi, Proyek Pesisir is focusing on developing models of community-based coastal management at the village level which will achieve the ultimate goal of improved quality of life and improved quality of environment. One of the models the project is attempting to adapt to the Indonesia context, based on over a decade of Philippine experience, are community-based marine sanctuaries. In the Philippines, community-based marine sanctuaries in some localities have been shown to improve or maintain coral condition and fish abundance inside the sanctuary, and increase fish production of reef-associated species adjacent to the sanctuary (White et al 1989; Russ and Alcala, 1989). In the village field site of Blongko, the first community-based marine sanctuary was established in 1998 and is now in the early stages of implementation. Table 1 outlines the steps that were followed in establishing the marine sanctuary, specific activities undertaken at each step, and the expected intermediate and ultimate objectives to be achieved from these activities, and indicators that the objectives/outcomes have been achieved.

For the process illustrated above, most of the intermediate objectives are sequential, where one must be achieved first before the next one can be achieved, and before the extension team and community can move on to the next steps in establishing the marine sanctuary. For instance, before the ordinance is approved or signed, there should be widespread consensus by the community on its contents. In another example, one of the intermediate objectives was to involve all stakeholder groups who would be affected by the establishment of the marine sanctuary in the planning and decision making process, particularly concerning location, prohibited and allowable activities within the marine sanctuary, and penalties for violations. Widespread participation is assumed to be necessary to achieve another objective - a general consensus agreement among a majority of stakeholders on location and rules governing the sanctuary. Consensus among stakeholders is considered necessary to ensure a high level of compliance with the rules established. A high level of compliance is considered necessary for the effective management of the marine sanctuary in order to achieve improved or stable coral cover, increased fish abundance and increased reef-related fish catch in adjacent areas. If one of the earlier intermediate objectives is not achieved, it reduces the likelihood that the subsequent intermediate objectives will be achieved along with the ultimate objectives.

In other instances, implementation of some actions contributes to achieving several objectives. An example of this is participatory coral reef mapping through Manta-Tow training. It helps community members increase their awareness of local coral reef conditions, increases support for the marine sanctuary concept, and contributes to widespread community participation in site selection for the sanctuary.

In certain instances, monitoring may indicate that intermediate objectives are not being achieved and a change in approach may be required to achieve the intermediate objective. In addition, care must be taken to not only monitor project actions, but ensure they have the intended result

Table 1: Steps, actions, outcomes expected and indicators for establishing a community-based marine sanctuary

Steps in the Planning and Management Process	Actions Taken	Expected Outcomes (Intermediate and Ultimate Objectives)	Indicators that Outcomes/Objectives Achieved
1. Community Socialization	<ul style="list-style-type: none"> • Village site selected. • Extension officer assigned full time to the village. • Baseline surveys conducted. • Ecological history and selected PRA activities conducted. • Informational meetings (formal and informal) and discussions concerning the project conducted by the field extension officer. 	<ul style="list-style-type: none"> • CRM issues in the community identified. • Socio-economic, cultural and environmental context understood by project team. • Widespread community understanding of project objectives and approach. 	<ul style="list-style-type: none"> • Baseline reports prepared with description of CRM issues. • Ecological History prepared and distributed within the community. • Number of formal and informal meetings/presentations on the project by the field extension officer. • Discussions with community key informants and residents demonstrate they can articulate project objectives.
2. Public Education and Capacity Building	<ul style="list-style-type: none"> • Cross visits with successful marine sanctuary sites. • Public education on coral reef ecology, marine sanctuary concept, environmental law. • Training on community monitoring and mapping of coral reef. • Grants program for early actions started. • Selected early actions implemented. • Training on financial management and accounting. • Study tour and training on marine tourism and potential supplemental livelihood opportunities. • Community core group training on coastal management . 	<ul style="list-style-type: none"> • Community understanding of human impacts on marine resources, environmental laws and the marine sanctuary concept. • Map of the coral reef developed by the community to be used as basis of marine sanctuary site selection. • Community awareness of local coral reef conditions and capacity for on-going monitoring established. • Widespread community support for the project objectives and marine sanctuary concept. • Community capacity to engage in participatory planning and implementation processes, and transparent funds management developed and/or strengthened. • Community capacity to address small localized coastal resources management problems with simple solutions strengthened. 	<ul style="list-style-type: none"> • Number of public education, cross-visit and training events held. • Number of participants attending training, public education events, gender and stakeholder group desegregated. • Community drawn map of coral reef conditions prepared. • Number of meetings held to decide on and prepare early action proposals. • Number of participants and stakeholder groups attending early action planning meetings. • Early action proposals prepared and submitted by the community. • Early actions completed successfully by the community and adequate grant and financial reports submitted to granting institution.

Table 1: Steps, actions, outcomes expected and indicators for establishing a community-based marine sanctuary (continued)

Steps in the Planning and Management Process	Actions Taken	Expected Outcomes (Intermediate and Ultimate Objectives)	Indicators that Outcomes/Objectives Achieved
3. Community Consultation and Village Ordinance Formulation	<ul style="list-style-type: none"> • Village ordinance contents drafted. • Community consultation meetings and discussions (formal and informal) conducted. • Village ordinance contents revised and final version completed. 	<ul style="list-style-type: none"> • Widespread participation of stakeholders in marine sanctuary planning. • Widespread/majority village consensus on marine sanctuary location, size, allowable and prohibited activities, sanctions, and management arrangements. 	<ul style="list-style-type: none"> • Number of formal and informal meetings held to decide on and prepare location and contents of village ordinance. • Number of participants and stakeholder groups attending formal and informal meetings to decide on and prepare location and contents of village ordinance. • Number of persons and stakeholder groups expressing agreement and objecting to ordinance content during meetings.
4. Village Ordinance Approval	<ul style="list-style-type: none"> • Vote for approval of ordinance at an all-village meeting. • Signatures on the ordinance by the head of village and district. • Formal opening ceremony conducted with provincial government representatives in attendance. 	<ul style="list-style-type: none"> • Formal acceptance of the marine sanctuary by the community and local government. • Sound legal basis for management and enforcement. 	<ul style="list-style-type: none"> • Village meeting and vote on ordinance held. • Minutes of meeting indicate ordinance approved. • Ordinance signed by head of village. • Ordinance signed by District head. • High level provincial officials attend ceremony formally establishing the marine sanctuary, or are quoted in newspaper articles as supporting the sanctuary.
5. Implementation	<ul style="list-style-type: none"> • Boundary markers installed and maintained. • Information signboards installed. • Management plan developed. • Management committee meeting. • Reef and fisheries monitoring conducted. • Enforcement actions occurring. • Sanctions taken against violators. • Public education ongoing. 	<ul style="list-style-type: none"> • High compliance with rules governing the marine sanctuary. • Effective management of the marine sanctuary occurring. • Improved coral cover inside the marine sanctuary. • Increased fish abundance in the marine sanctuary. • Increased catch of reef-related target fish species. 	<ul style="list-style-type: none"> • Numbers of violations to the marine sanctuary reported. • Number of “arrests” and enforcement actions conducted by the community. • Number of times sanctions for violations have been applied. • Number of sanctuary committee meetings being held. • Manta tow surveys of coral cover. • LIT transects of coral cover and visual fish census surveys. • Fish catch statistics by village fishers of reef-related species

of achieving the objective desired. In this regard, indicators are used for monitoring to determine whether the objectives are achieved. Project staff need to collect information on the indicators and then interpret what it means. They may want to establish criteria or thresholds for these indicators to determine whether objectives are met. For instance, more than 30 percent of adult participants at the meetings are female, all stakeholder groups affected are represented by at least one individual in key meetings, all stakeholder groups are present during village vote on the ordinance, total live coral cover greater than 50%, fish production increases by at least 20% over a four year period. In other instances, a more qualitative approach could be applied: Is stakeholder participation considered sufficient by project staff, the field extension officer and community key informants? Does the community generally believe they have greater control over the resources or feel they have benefited from the sanctuary establishment? Criteria may vary depending on the site. For instance, in the United States, it is not unusual to have less than one percent of the population attend a town meeting. This is not viewed as a participation problem necessarily, as individuals know that they can attend a meeting if they have a strong opinion on any given issue on the town council agenda, and all meetings by law must be announced publicly and are open to citizen participation. In one example from Rhode Island, the town meeting venue had to be changed from the town hall to the local university gymnasium when a contentious issue over taxes and school budget was tabled, as several thousand people were expected and showed up to this meeting. The following year, less than 50 citizens attended the budget meeting. In a location where there is no previous history of substantive local citizen participation, it may be felt that an adequate participation level would require that more than 50 percent of the adult residents of the village attend the vote on the marine sanctuary ordinance.

Example 1 below illustrates one aspect of monitoring conducted within one step of the planning process during development of the marine sanctuary in Blongko. Project actions were occurring but were not initially achieving the intended intermediate objective. Monitoring indicated a change in approach of the extension officer was required, which then ultimately led to the result desired. This then allowed the extension team to continue the next steps in the marine sanctuary planning process. This brings up another important consideration. It is often difficult to predetermine how long each step or achievement of each objective will take. As Example 1 below illustrates, a period of trial and error of several approaches was required before it was felt widespread consensus was achieved. This slowed down the process but reduced the likelihood that one group of stakeholders, if not included in the process, would not agree or violate the marine sanctuary rules once it was established. There is often a tendency among projects to meet externally driven time deadlines to show achievements quickly, so ensuring intermediate objectives are met (consensus achieved) is often ignored, with the emphasis being on reaching an activity output (ordinance approved). However, the consequence may be that subsequent intermediate objectives (high compliance with sanctuary rules) or ultimate objectives (improved reef quality and fish production) may not be achieved.

Example 1: Building consensus and widespread participation for establishing a community-based marine sanctuary.

As part of the process of establishing a marine sanctuary in Blongko village, the extension officer held formal dusun-level meetings to discuss the sanctuary concept, its expected benefits to the community (ultimate objectives) specific location of the marine sanctuary proposed, prohibitions and allowable activities within the sanctuary, and penalties for violators. The extension officer reported the number of persons and gender distribution attending these meetings in her monthly written report. A problem however was brought to light in monthly discussions with the field extension officers as to who attended these meetings. The marine sanctuary was in an area used by and crossed over by reef flat gleaners, but this stakeholder group did not attend the meetings which were well attended by other members of the community. In the meetings, it was proposed that no walking over the reef flat would be allowed. This would affect gleaners in two ways. First, they could no longer glean in the marine sanctuary area which included the reef flat, and secondly, this created a difficulty in reaching the reef flat on the far side of the sanctuary. The extension team concluded that this group had to be consulted and their concerns addressed along with other members of the community (either agree to the prohibited activity proposed by other members of the community, or revise the prohibition to address what might be some of gleaners concerns.) The extension officer personally invited gleaners to attend subsequent meetings and some did, however, they never spoke at the formal meetings. At the same time, the extension team found out from visiting the sanctuary site and talking to community members, that there was a footpath behind the mangroves which could reach the reef flat on the far side of the sanctuary and could serve as an alternative route for gleaners, but the footpath was inside the original boundaries of the sanctuary drawn on a map (where it was proposed, no walking inside the sanctuary would be allowed). This footpath was proposed as a reasonable route for the gleaners to get around the reef flat. Since gleaners would not attend or speak up in formal meetings, the extension worker met with gleaners informally at their homes to discuss the reef walking prohibition and use of the footpath. From the informal discussions gleaners expressed their support for the marine sanctuary and agreed to use the footpath behind the mangroves to reach the reef flat on the other side. The use of the footpath by gleaners was also discussed in formal meetings where the rest of the community agreed this should be allowed, and the sanctuary boundary should not include the footpath – would not extend above the high tide line. Subsequently, the marine sanctuary village ordinance indicating location, allowable and prohibited activities and penalties was approved in an all-village meeting. The ordinance was then formally signed and approved by the head of village and other local officials.

Example 2 below illustrates how additional monitoring information or baselines may be needed once certain actions are taken or programs established. It includes information for monitoring and evaluating ultimate as well as intermediate objectives of the marine sanctuary. In many cases, the indicators chosen or site locations which need to be monitored, may differ with those obtained during the initial baseline surveys.

Example 2: Monitoring and evaluating the impact of the community-based marine sanctuary.

Once the Blongko marine sanctuary was formally established through a village ordinance, the extension team reconsidered what information would be needed to determine whether the sanctuary was “successful”. To determine success, the team felt they need to know whether the sanctuary achieves it’s ultimate objectives concerning improvements in quality of life and environment. The extension team reviewed existing information and drew up new plans for monitoring the impact of the marine sanctuary. They concluded that the monitoring program would need to be simple, involve the community as much as possible, and should at a minimum include several key indicators in the following categories:

Biophysical: improved coral reef condition as evidenced by live coral cover and measured by community-conducted Manta Tow surveys, and, line intercept transects and visual fish census conducted by technical extension officers.

Socio-Economic: Increases in reef-related fish production as evidenced by trends in catch statistics kept on key target species by spear fishers.

Governance: effective management of the sanctuary as evidenced by simple narrative log entries kept by the management committee in a bound notebook with notes on violations occurring if any, enforcement actions taken if any, meetings held by the management committee, etc.

Attitudes and Beliefs: Surveys to gauge community perceptions concerning local control over the resources, well-being of the resource, and benefits received from the sanctuary.

Some of this monitoring data will be simply presented and posted in the community information center as a means of allowing the full community to be aware of trends and impacts from the marine sanctuary.

While the bio-physical and socio-economic indicators described above focus on the ultimate objectives and impact of marine sanctuary implementation (which may take years to observe changes), the governance and attitudes and beliefs objectives emphasize intermediate objectives which will suggest that the ultimate indicators will eventually be achieved. Original baseline data on reef conditions (LIT coral cover and visual fish census surveys) was only gathered at stations outside of the designated marine sanctuary in Blongko. While these stations serve as general indicators of reef condition as a whole in the area of Blongko, they also can serve as controls for comparing changes in coral reef conditions within the sanctuary and outside the sanctuary. However, since no data has been collected at a point inside the sanctuary, new baseline surveys of coral reef condition need to be made in the sanctuary. In addition, baseline data already collected in Blongko on material style of life measures, perceptions of resource impacts of human activities, and perceptions of well being, among others, collected again at some point after implementation has begun, at the end of the project, and/or some time after the project has ended (but sanctuary implementation is hopefully continuing) will also provide useful indicators as to changes in their quality of life.

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