Participatory Conservation in the Philippines: The Case of Luyang Mangrove Reserve in Siquijor, Central Philippines

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In this paper, we present the results of a case study (conducted in 2006-2007) of Luyang Mangrove Reserve, a project managed by a local fisherfolks' association on the island of Siquijor in the central Visayas region of the Philippines. We determined the level of environmental awareness and perception of the community on the mangrove reserve. Crucial issues and shortcomings are also presented for possible improvements of participatory conservation effort in the Philippines.

KEYWORDS: ecotourism, mangrove, fisherfolk, livelihood, Philippines

INTRODUCTION

Mangrove forests are among the world's most productive ecosystems (Calumpong & Meñez, 1997). They enrich coastal waters, yield commercial forest products, protect coastlines, and support coastal fisheries (Kathiresan & Bingham, 2001). However, mangrove ecosystems are rapidly declining in many parts of the world resulting in the loss of important environmental and economic products and services including forest products, flood mitigation, and nursery grounds for fish (Kathiresan & Bingham, 2001). Polidoro et al. (2010) projected that 16% of 70 species are at

elevated threat to global extinction.

In the Philippines, approximately half of the 279,000 ha of mangroves have been lost from 1951 to 1988 due to aquaculture development and other human activities (Primavera, 2000), although conversion of the remaining mangrove stands was already prohibited by law in 1981 (Ron & Padilla, 1999). To address this problem, several approaches have been implemented elsewhere in the country, one of which includes community-based reforestation and protection of remaining mangrove stands.

The success of Apo Island Marine Reserve, the first community-based conservation in the country, has been described by many authors in terms of biological restoration and ecotourism (Oracion, 2006a,b, 2007; Alcala, Bucol, & Nillos-Kleiven, 2008). However, the shift in the management scheme from bottom-top to top-bottom approach due to implementation of the National Integrated Protected Area Systems (NIPAS) Act of 1991 also gained criticism (see Hind, Hiponia, & Gray 2010). Like Apo Island, many protected areas in the Philippines have both positive and negative management experiences.

The present paper describes a case study done in Siquijor Island on the level of awareness of the stakeholders in terms of the over-all status of the environment, natural resource in the area, and knowledge on the mangrove protected area, including management controversies and issues that might serve as lessons for other community-based participatory conservation initiatives.

METHODS

The Study Site

The Luyang Mangrove Reserve is located in Barangay Luyang (9.23616°N, 123.56295°E), Siquijor, Siquijor (Figure 1). It has an area of 10.0 hectares of mangroves, dominated by pagatpat (*Sonneratia alba*). This strip of mangroves is continuous to the west in Olo, Siquijor and to the northeast in Sabang, Larena. By coastal highway, this reserve lies approximately six kilometers from downtown Siquijor and four kilometers from downtown Larena in the municipality to the east.

The mangrove reserve was established in 2003 by St. Catherine Family Helper Project Inc. (SCFHPI), a non-government organization based in Dumaguete City, through the Siquijor Integrated Management of Coastal Resources (SIMCOR) Project in collaboration

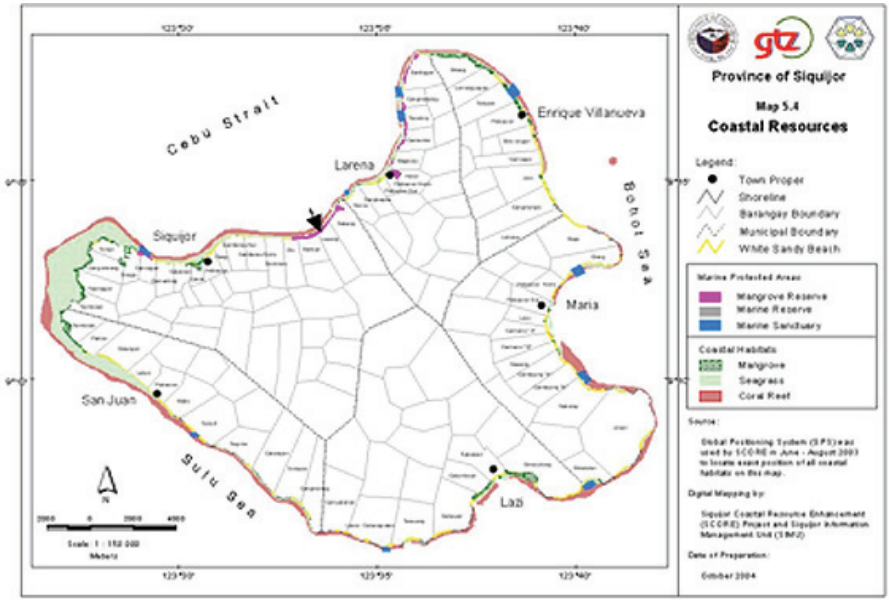

Figure 1. **Map of Coastal Resources in the Province of Siquijor. Courtesy of the Siquijor Coastal Resource Enhancement (SCORE) Project and Siquijor Information Management Unit (SIMU). Location of Barangay Luyang indicated by a shaded arrow.**

with the local government unit (LGU), and the Bureau of Fisheries and Aquatic Resources (BFAR). The local people's organization, the Luyang Fisherfolks' Association (LUFA) is managing the mangrove reserve and is at the same time operating the Guiwanon Spring Park Resort as an income-generating project.

Data Gathering

We conducted semi-structured interviews (N=41) with the pre-determined stakeholders in the vicinity of Luyang Mangrove Reserve in 2006-2007. Prior to the survey, the Principal Investigator (M. Chassels) consulted with the barangay captain (head of the local community) and explained the purpose of the study. We then began individualized introductions of the project to potential participants. Staff working at Guiwanon Spring Park helped identify current, inactive, and former LUFA members and gave directions to their homes. We then spent several days going from house to house to make the subjects more familiar with us and what we were doing in the community. In any case, these unstructured interviews were a valuable tool for acquiring background data, building rapport, and

familiarizing participants with the research.

We asked respondents to sign a consent form agreeing to be a part of the study and granting permission to audiotape the interview. Interviews were audio-taped using a microcassette for transcription purposes. The questions were in three categories: socio-economic background, environmental awareness, and the protected area/ environmental conservation project. We intentionally incorporated some redundancies in the questions to check if the same subject area when approached in a different way might generate more complete responses. We tailored the questions in a manner that would better translate linguistically and culturally. After the first set of interviews, we re-examined the questions and rephrased and expanded them as deemed necessary.

When the interviews were completed, we asked the respondents' permission to photograph them, their families, and their homes. These photographs served as further evidence of economic status.

RESULTS AND DISCUSSION

Socio-Economic Status and the Perception of Poverty

If one relied on interview transcriptions alone, one could easily conclude that most of our subjects were of the same, poor, economic status. However, when field notes and photographs were compared with the interview responses, a common incongruity became apparent. Despite drastic, observable differences in the quality of domiciles and standards of living, most respondents described their own situation as though they were living dangerously close to or below the poverty line. Residents of cement houses with metal roofs, running water, and indoor, tiled comfort rooms (CRs) described the same standard of living as community members inhabiting dilapidated structures with no running water and an unfinished, exterior CR. We find it very difficult to believe that subjects with office jobs, big screen televisions, and abundant carved and/or upholstered furniture endured the same threat of poverty as those surviving off of the land/sea or manual labor whose houses were furnished with rudimentary basics. Often, even houses with dirt floors would contain small television sets and stereos; however, some houses did not have any element of luxury. Many interviewees likely underrepresented their economic status, probably due to a colonial mindset.

Because the succeeding sections will tackle some management issues involving the fisherfolk association and the community, we opted not to present photos of houses mentioned above so as to protect the interest of our sources.

Environmental Awareness

In general, the concept of natural resources was poorly understood. The phrase was difficult to translate to Cebuano, and even when translated, it holds little meaning. If any examples of natural resources were given to aid comprehension, then respondents seemed to think that the example was the actual definition of a natural resource. At least 46.3% of the respondents could list one or two resources beyond any example given, while only 7.3% could list three or more natural resources (Table 1). Even though they could list few, if any, natural resources found in their community, they could identify ways in which they relied upon mangroves and the sea as sources of products.

Only 85.3% of respondents were asked if they viewed mangroves and corals as beneficial (Table 1). Of these, 100% stated that the mangroves and/or corals are beneficial. Additionally, 51.2% of them recognized mangroves and/or coral as breeding ground, shelter, and/or habitat for fish and sea life while 17.1% of them named other benefits of mangroves and corals (Table 1). In fact, many community members articulated benefits of mangroves and corals quite well. There have been several educational campaigns and seminars in Siquijor on coastal resources. It is possible that such widespread awareness of the benefits of mangroves and corals can be attributed to the success of these efforts.

Views on the sustainability of resource use were mixed (Table 1). There were 19.5% of the respondents who expressed unconditional optimism that natural resources will be available for future generations. Many of them credited the protected area as the reason resources would be available while 48.8% of them articulated conditional optimism that resources would be available in the future. They expressed that the sustainability of resources is contingent upon certain conditions such as the cessation of illegal fishing. On the other hand, 14.6% expressed doubts that natural resources will be available for future generations.

The interconnectedness among different aspects of nature was poorly understood. Most respondents did not associate the way one person uses land as affecting other land around him/her. While 56.1%

Table 1.

Results on the Environmental Awareness of the Respondents (N=41)

Environmental Awareness	**No.**	**%**
I. Identification of Natural Resources:		
Three or more resources identified beyond any example given	3	7.32
One or two resources identified beyond any example given	19	46.34
Concept poorly understood / example given was reiterated	10	24.39
No response / concept not understood	7	17.07
None / natural resources are lacking	2	4.88
II. Benefits of mangroves and corals:		
Viewed as beneficial	35	85.37
Recognized as breeding grounds/shelter/habitat for fish and sea life	21	51.22
Other benefits articulated	8	19.51
Not asked	6	14.63
III. Sustainability of resource use:		
Optimism that natural resources will be available for future generations	8	19.51
Conditional optimism expressed	20	48.78
Doubts that natural resources will be available for future generations	6	14.63
Uncertain	4	9.76
No response	1	2.44
Not asked	2	4.88
IV. Interconnectedness among different aspects of nature:		
No effects perceived of land use on neighboring land	23	56.10
Some effects of land use or complaints of neighbors' practices mentioned	5	12.20
Land use impacts well-understood on a larger scale	0	0.00
No relevant response	5	12.20
Not asked	8	19.51

expressed that they were not affected by the way their neighbors use their land (Table 1), it may be important to note that in Filipino culture, individuals do not usually criticize or unearth the secrets of their neighbors especially if the person being asked has benefited from his/her neighbor's help.

Table 2.

Community Perception on the Mangrove Protected Area

Community perception	No.	%
I. Support for the mangrove protected area:		
Supported/benefits seen	36	87.80
Opposed/negative opinions articulated	1	2.44
Unclear	4	9.76
II. Misgivings prior to establishment of protected area:		
No misgivings identified	27	65.85
Misgivings identified	6	14.63
No response	1	2.44
Not asked	7	17.07
III. Community consultation prior to establishment of protected area:		
Individual stated the community had been consulted or informed	28	68.29
Individual felt the community had not been adequately consulted, represented, or informed	1	2.44
Uncertain	4	9.76
No response	1	2.44
Not asked	7	17.07

Perceptions of the Mangrove Protected Area

Support for the mangrove protected area was virtually universal in Luyang (Table 2), where 87.8% of respondents clearly supported or saw the benefits of the mangrove protected area. Only 2.4% (one respondent) expressed negative opinions. It was unclear how the remaining 9.8% felt about the mangrove protected area. There were 65.9% who did not express having had any misgivings about the establishment of the protected area when it was first introduced while 14.6% identified some initial misgivings. Some of the respondents (17.1%) were not asked about this topic.

We suspect that even if more respondents had had misgivings about the establishment of the protected area, they would not have been likely to admit to that after the project showed signs of success. The concept of the "right" answer is very strong in the Filipino education system and is perpetuated into adulthood. It is usually considered unacceptable to be unsure or incorrect. Therefore, many

Filipinos go along with the status quo and retract previous statements that may prove to be "wrong."

The majority of respondents (82.9%) were asked if the community had been consulted prior to the establishment of the mangrove protected area (Table 2); 68.3% stated that the community had been consulted or informed. In most instances, consultation was considered equivalent to being informed. Only one, representing 2.4% of the total, felt that the community had not been adequately consulted, represented, or informed about the establishment of the mangrove protected area while 9.8% were uncertain about consultation. Because consultation was synonymous with being informed, it is difficult to determine whether true community consultations took place in which stakeholders' concerns and interests were addressed and influenced is the establishment of the protected area in any way.

After the establishment of the protected area, interviewees cited noticeable improvements in the health of the mangroves. One aspect repeatedly mentioned was that the branches of the mangroves used to be cut way back to feed cattle (especially during the dry months of March to May) and that the branches have recovered.

It is interesting (but disturbing) that some of the activities claimed by most respondents to have "ceased" after the mangrove protected area was established still persist. Interviewees explained that "formerly" the spring was used for laundering clothes, the intertidal area was used for washing cattle, and the mangroves were used for fuel. LUFA's draft brochure even states, "in the recent past, this area was used as a pasture, as a laundromat, [and] as a source of firewood." Community members seemed well aware that these actions are detrimental to the mangroves, but they are also turning a blind eye to the fact that they still continue.

Undoubtedly, the rate of detrimental use has decreased, but nonetheless, one of us (M. Chassels) personally witnessed these activities on more than one occasion. Community laundry sessions were not a completely uncommon sight in the spring. Additionally, when LUFA members washed the laundry and dishes from Guiwanon, they dumped the soapy water off the boardwalk and into the tidal area below. Cattle were still led through the mangroves and under the boardwalks to be washed in the seawater. LUFA members have also peeled sacks of bark off of the mangroves at Guiwanon for their own benefit—either to personally use as fuel or to sell for this purpose. Supplementing the data from interviews with first-hand observations gives a clearer picture of what is happening in the community.

Controversies / Issues

During the course of the interview, several issues arose beyond the scope of the original interview guide. The most puzzling of these issues is that the vast majority of the Luyang Fisherfolks' Association members are not actually sustenance fishers. The few (about five) members who do fish, do so recreationally instead of as a source of income or livelihood. The Philippine government's definition of fisherfolk (see Republic Act 8550), however, may include those that are not actually fishers such as occasional gleaners. The other fisherfolk organizations such as Tubod Fisherfolk Association are also dominated by non-fishers (A. Bucol, pers. obs.).

Why are there so many non-sustenance fisher members of LUFA? It seems that the majority of LUFA members joined the organization either because they were interested in improving the mangroves or because their peers (friends) had joined the organization. Core LUFA members participated in the educational seminars and project planning meetings hosted by SCFHPI and other coastal resource programs. The remainder of members joined LUFA as more of a social networking activity.

Why are the primary local fisherfolk not members of LUFA? When asked about this, the local fisherfolk who rely upon the sea for their livelihood responded that they did not have the time or money to be part of LUFA. They must spend their time hard at work to continue to meet their families' needs [rather than on-duty at Guiwanon or at LUFA meetings]. They cannot afford to take time away from fishing or to pay monthly membership dues. Also evident was a social dichotomy. While there certainly are some members of LUFA with much lower socio-economic status than others, the overall impression of the local fisherfolk seems to be that the LUFA members are well-educated office workers with whom they would not be comfortable associating.

The social dichotomy is most likely the genuine cause for lack of fisherfolk membership in LUFA. While it is true that monthly membership dues must be paid, the LUFA members also share the profits of Guiwanon Spring Park Resort, so the monetary issue cancels itself out. It is also true that fisherfolk must spend a vast amount of time hard at work. However, there is also clearly down time to engage in recreational activities such as drinking circles and cock-fighting (*tare*/*sabong*/*tigbakay*). Therefore, if motivated to do so, the local fisherfolk

could find the means to participate in an association. The question becomes: why should they join an association that does not represent their interests and needs?

Another controversial issue in Luyang is illegal fishing. While highly destructive, illegal methods such as dynamite (blast) fishing are not used, there are still methods currently employed that have been banned. Use of these illegal fishing methods is typically recognized, but ignored. LUFA members may on occasion make derogatory remarks about illegal fishing, but they do not report such activities even though they have a perfect vantage point to witness them. On the other hand, the actual fisherfolk dependent upon fishing for their livelihood are resentful of LUFA members who fish recreationally. The fisherfolk are struggling to make a living from the sea and feel it is inappropriate for recreational fishers to create greater competition for these resources. The fisherfolk also clearly object to the use of illegal fishing methods by recreational fishers. While they may use illegal methods themselves, the fisherfolk seem to feel somewhat justified in doing so because of the difficulty of this livelihood. At the same time, recreational fishers who use illegal practices are faulted with unfairly depleting the fishing stock.

One interviewee was particularly upset because, according to him, LUFA officers were engaging in illegal fishing practices. Of particular note, one officer accused of illegal fishing is also a member of the Bantay Dagat, supposedly a "civilian fisheries patrol force made up of volunteers that try to keep a 24 hour watch on Philippine coastal waters up to 15 kilometers from shore" [Bantay Dagat (Sea Patrol) Forces, n.d.]. So it would be doubly hypocritical for a LUFA officer and member of the Bantay Dagat to engage in illegal fishing practices. The interviewee discussing this situation used it as a reason for his disinterest in joining the association.

Toward the end of the study, seminars and community consultations were being held in Luyang and neighboring barangays regarding the possibility of creating an expanded marine protected area. The possibility of expanding the protected area in Luyang further out into the coastal waters cropped up repeatedly during interviews. This local issue was more the subject of speculation than of opposition. One thing was clear, however. Community consultations were targeting participation of key LUFA members and not a more inclusive sampling of other key stakeholders, e.g. the actual fisherfolk of the area.

CONCLUSION

This case study stressed three major findings, which probably describes the status of participatory conservation in Luyang Mangrove Reserve, Siquijor Island: 1) high level of environmental awareness among stakeholders which might be attributed to several education campaigns conducted by NGOs, LGUs, and academic institutions; 2) lack of participation among primary stakeholders (i.e. full-time fisherfolk), which might be a result of social dichotomy; and 3) persistence of violations within the protected area due to weak enforcement.

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