Gender Dimensions of Community-Based Management of Marine Protected Areas in Siquijor, Philippines

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Abstract

This case study focuses on the gender dimensions of the management of community-based Marine Protected Areas (CB-MPAs) in Siquijor, Philippines. The objective of this study is to understand the gender dimensions of CB-MPAs in Siquijor in order to improve MPA management policies. The topic of gender is generally missing from MPA management analyses. A mixed-methods qualitative approach was used. Results indicate that women played a significant role in MPA site selection and management, especially the enforcement of MPA policies and livelihood generation. Further implications for MPA management are that 1) changing gender roles and responsibilities has social equity outcomes, 2) action by gender-progressive individuals enabled women's empowerment, 3) local context can override gender-mainstreaming policies, and 4) a lack of gender considerations in MPA management can undermine long-term success.

Keywords: *Community-based Management, Gender Studies, Marine Protected Areas, Natural Resource Management, Women*

Introduction

This case study concerns the gender dimensions of the management of community-based Marine Protected Areas (CB-MPAs) in Siquijor, Philippines. The objective is to understand the gender dimensions of CB-MPAs in Siquijor in order to improve MPA management policies. The study contributes to the growing understanding of effective management of marine and coastal resources. Local NGOs and international development aid agencies strongly influence coastal management in the Philippines and can improve their programs based on analyses of MPA management. This study intends to initiate discussion about the gendered dimensions of marine resource management among those agencies and organizations that fund, implement, and co-manage MPAs. The goals of this study are to 1) characterize gendered involvement in MPA management, 2) understand men's and women's motivations for involvement in MPA management, 3) evaluate women's impact on MPA success, and 4) identify factors aiding and inhibiting women's involvement in MPA management. Accomplishing these goals presents opportunities for gender mainstreaming in MPA management.

Bringing a gender lens to fisheries exposes how women participate in and are impacted by the sector. Though typically men are the fishers, women account for 47% of the global workforce in capture fisheries, holding 56 million jobs in the pre-and post-harvest sectors (World Bank 2012). The gendered division of labor in fisheries permeates household activities where the role of women includes processing, marketing, investment, credit, managing household fishing receipts, and making decisions about family nutrition (World Bank 2012). Women's fish catches and their economic value to the sector are usually not reported, and their nutritional dependence on

near shore resources have been undervalued and ignored in fisheries management (Harper et al. 2013). The recent increase in available literature and reports on gendered roles in global fisheries indicate their growing significance to fisheries policy and management (Harper et al. 2013, Williams et al. 2012). The burden of the global declines in fisheries and the mismanagement of fisheries may appear to fall heaviest on fishermen. However, just as the depletion of forests was shown to disproportionately affect women (Agarwal 1992), it is possible that women are also disproportionately affected by declining fisheries and degraded marine resources.

A gender-sensitive approach to fisheries management in the Philippines begins to reveal the impact of degraded marine resources on women. Many researchers have noted the exclusion of women from research on natural resource management (Mai et al. 2010, Walker 2009, Westermann et al. 2005), and others have found a lack of research about and support for women in fisheries management (Bennett 2005, Williams et al. 2012). The Bureau of Fisheries and Aquatic Resources (BFAR) is the Philippine agency responsible for fisheries management and focuses its monitoring, outreach and educational programs, and assistance mainly on the capture phase of fisheries. Pursuant to RA 7160 (Local Government Code), which devolved governing authority to Local Government Units (LGUs), and RA 8550 (Philippine Fisheries Code), the LGUs are also primary managers of fisheries within municipal waters- up to 15 kilometers from the coastline. Concentrating the agency and LGU efforts on the capture phase, a predominantly male role around the world, results in gender-blindness. The Philippine Census of Fisheries (2002) asserts 95% of those directly engaged in municipal fisheries capture are male (Quist and Polotan-De la Cruz 2008) ignoring the unpaid labor of women and children. One of BFAR's publications of fisheries sector statistics notes that, "the catch per unit effort has declined dramatically for Filipino fishers, in some places it is less than 5% of levels from a few decades ago" (Green et al. 2003). However, nowhere in this annual report do they acknowledge the loss in employment and income that women—who are subsistence gleaners, fish processors, or fisher-dependents—may have suffered. These gender-blind statistics illustrate why women's employment is not often considered in fisheries management (Williams et al. 2012). Though Filipina's roles in fishing are seen as secondary to men's (D'Agnes et al. 2005), coastal women in the Philippines play a significant role in supporting their families, "especially when fishing income is not sufficient" (D'Agnes et al. 2005). Poor Filipinas are increasingly supporting the household through alternative livelihoods and are becoming the main breadwinners in Filipino households (Aganon 2003 p. 129). Due to the gender-blindness of marine resource management in the Philippines, it is unknown whether this 'feminization of responsibility and obligation' (Chant 2007) is linked to degraded fisheries. Further, South Asian studies find that resource degradation impacts women's nutrition (Agarwal 1997). Women are more likely than men to skip meals in order to feed their children when resources are lacking in Bangladesh (Quisumbing et al. 2008). The lack of gender-sensitive information makes it difficult to assess the long-term impact of degraded fisheries on women's employment, well-being, and nutrition.

Marine Protected Areas (MPAs) are an important fisheries management tool used globally (Jameson 2002). An array of conservation NGOs, development organizations, aid agencies, and natural resource management agencies support the establishment of Community Based Marine Protected Areas (CB-MPAs) (White et al. 2002). CB-MPAs are a bottom-up approach to marine

resource management. The establishment of many CB-MPAs is not entirely grass-roots but based off a model influenced by international objectives, expertise, and shared learning. Several analyses find that social and economic impacts of protected areas on local people should be considered in management strategies in order for the protected area to be successful (Deng 2010, Oracion et al. 2005, Weiant 2005, Duthy 2003). Those who study the social and economic impacts of CB-MPAs only mention *gender* and *women* in passing and fail to incorporate women's interests in discussion of management principles (Balgos 2005) or power relations and poverty (Rivera 1997). Balgos (2005) initially designates gender fairness as one of five necessary principles of MPA management but then fails to include gender fairness in her subsequent analysis. Indicators of MPA management effectiveness that include social aspects overlook "gender" and "women" (Pomeroy et al. 2005). The success of Apo Island's Marine Protected Area (MPA) is attributed to *community support,* but specifically fishermen's approval (Russ 1999). However, subsistence fishwives on Apo not only supported the sanctuary but in fact guard the sanctuary while their husbands are out fishing (Oracion 2000). Women's unique knowledge of the intertidal zone due to gleaning activities indicates their perspectives should be taken into account to utilize the most complete information available for management decisions (Siar 2003, Suntornratana 2003). There is an opportunity to include gender considerations in fisheries management.

Approximately 95% of existing MPAs in the Philippines are CB-MPAs (Weeks et al. 2009). The Philippines has been recognized as a global conservation priority due to its marine life diversity as part of the Coral Triangle (CTI-CFF 2009). 85% of reefs in the Coral Triangle are threatened, with nearly 45% considered at high or very high risk due to pollution, coastal development, thermal stress, overfishing and destructive fishing (Burke et al. 2012). MPAs are a significant tool to abate the pressure of unsustainable fishing (Burke et al. 2012). The Philippines has been a leader in establishing and managing MPAs (White et al. 2006). There are approximately 1,000 MPAs in the Philippines due to support from external funders including the Asian Development Bank, U.S. Agency for International Development, and the World Bank (Weeks et al. 2009, Balgos, 2005). To meet the 2020 target of the Philippine Marine Sanctuary Strategy- to protect 10% of the nation's coral reefs- 545 MPAs would have to be established every year (CTI-CFF 2009, Weeks et al. 2009). It is highly likely that newly established MPAs will be community-based.

About 97 MPAs are established every year in the Philippines (Weeks et al. 2009) although studies suggest that the majority of MPA management globally is ineffective (Halpenny 2003). Findings that community and institutional capacity are important determinants of MPA success (Rudd et al. 2001) indicate that gender-blind MPA management may undermine long-term success. Conflict around MPAs is acknowledged (Christie et al. 2009). The inclusion of women may reduce conflict (Coleman and Mwangi 2013) and increase self-sustaining collective action (Westermann et al. 2005). Positive social and conservation outcomes are documented in female-inclusive South Asian community-based forestry management (Agarwal 2009). There is a lack of recognition of the potential benefits of women's participation in community-based marine resource management (Di Ciomma 2012) as well as the challenges involved and the drawbacks.

Analysis of gendered dimensions of CB-MPA management is valuable for implementing organizations and agencies in the Philippines. Though the topic of 'gendered dimensions'

indicates the roles and relationships of men and women can be equally considered, men's perspectives are limited in this study. Fishermen's behavior and interests in relation to MPAs are relatively well documented. This case study is focused on Filipinas in rural coastal areas with intentional effort to hear the underrepresented side of the story. As Sarmento (2012) advises- by "listening to women's voices and their life stories, we learn about their experiences, real needs, doubts, fears, and requests".

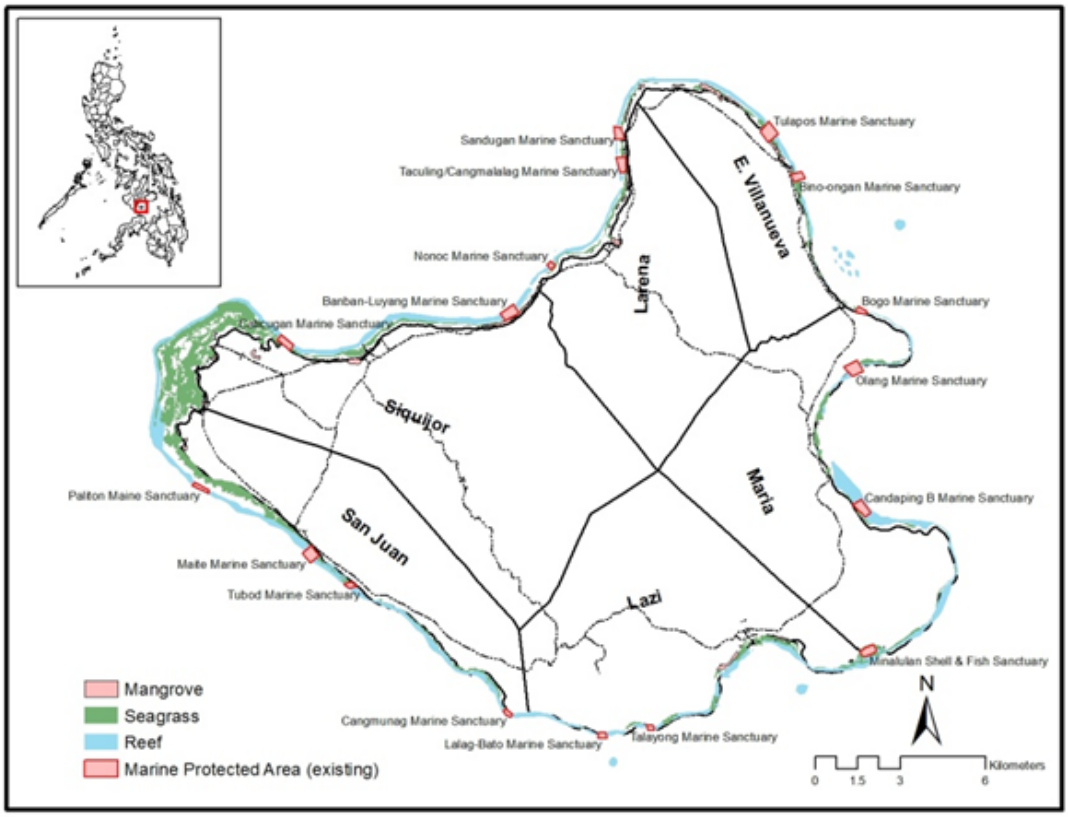
Methods

Site description

The study area is the province of Siquijor, Philippines. Siquijor is an island province in the Central Visayas, Region VII, with municipal waters that are five times the land area of 31,812 km^2 (Bendijo et al. 2004) and a population of 91,066 (National Statistics Office 2010). The residents of Siquijor primarily rely on agriculture and fishing for food, employment, and livelihood (Bendijo et al. 2004). 95% of households in some barangays engage in small-scale fishing (MCEP Lazi 2010). Siquijor has been a recipient of development aid money for coastal resource management, specifically MPA management, since the mid-1980's (Bendijo et al. 2004). Similar to much of the Philippines, challenges for the fisheries sector include a declining fish catch, overexploitation of fisheries, and degraded ecosystems that have been further aggravated by rapid population growth, open-access to fisheries, and use of destructive fishing methods (Bendijo et al. 2004). Three policy responses to degraded coastal resources in Siquijor are: MPAs, information and education drives, and enforcement against illegal fishing methods (Bendijo et al. 2004). Several MPAs function as dive sites and are an important tourist attraction. As of 2009, all MPAs on Siquijor were primarily managed by traditionally male Fisherfolk Organizations (FOs) in partnership with local governments (Maypa et al. 2009).

The three study sites each had an MPA - the *barangays* (the smallest administrative unit in the Philippines) of Maite, Bino-ongan, and Caticugan. The sites were chosen based on local knowledge- Maite and Bino-ongan were chosen due to the presence of women's involvement, and Caticugan was chosen as a comparison site for the lack of women involved. Maite was the primary study site. The Caticugan MPA is one of the largest and oldest MPAs on the island at 13.5 ha and was first established in the late 1980's (Maypa et al. 2009). The Maite MPA was established in 2009 and is 6.3 hectares. The Bino-ongan MPA was established in 2012 and is 13.5 hectares.

Figure 1. Marine Protected Areas in Siquijor



Source:Baird et al. 2012

Data collection

A mixed-methods approach was employed consisting of 13 semi-structured qualitative key informant interviews and 4 focus group discussions over the 3 study sites, as well as a review of NGO and government agency documents relevant to coastal resource management and MPAs. Participant observation was performed of respondents' daily lives and MPA management activities. Key informants included male and female fisher folk, residents, fisheries technicians, and government officials. Interviews were audio recorded and photos were taken. The study period was July-August 2012.

Data analysis

Interviews were transcribed and uploaded into the software program ATLAS.ti (Version 7, http://www.atlasti.com). Observational field notes, documents, and literature review were included as data. Codes were inductively developed, and once all interview transcripts were coded, the codes were grouped and related to one another in order to identify key concepts. These were analyzed for consistency and developed via theoretical memos written throughout data collection and analysis (Glaser 1978). The Harvard Analytical Framework (HAF)- a conceptual framework for gender analysis and planning- provides a foundation from which to address specific questions that make women's roles and gendered differences visible (Overholt et

al. 1984), and a partial audit through the Gender and Development (GAD) Framework (Moser 2005) enriches analysis.

Results

Characterizing a gendered activity profile

An activity profile of gendered roles is central to the HAF. Women were actively engaged in the management of Maite and Bino-ongan's MPAs. In 2009, a group of 12 women in Maite established a People's Organization (PO), Maite Resource Development Association (MRDA) with the primary goal of creating an MPA and charging user fees to dive tourists who come to see mandarin fish (*Synchiropus splendidus)*. The involved women were 23-78 years old and primarily managed their households and ran a variety of small businesses; some occasionally gleaned. Only one man and one woman in the group of 37 had full-time employment. The Bino-ongan MPA is managed by their barangay council and female volunteers.

Women's activities in Maite and Bino-ongan are effective participation under Agarwal's (1997) definition- that includes formal membership on management committees, attending meetings where they are members, and their views given weight in those meetings. The women in Maite reported performing or were observed performing all activities of MPA management that men also perform in Maite or other sites (see Table 2). The women in Bino-ongan identified many management activities they perform, including mangrove restoration. Though women fishers' traditional ecological knowledge, interests, and concerns were excluded from zoning and closed season regulations and co-management structures in Botswana (Ngwenya 2012), the perspectives of women in Bino-ongan and Maite were included in MPA site establishment.

The Caticugan MPA is managed by a committee of 16 fishermen. The fishermen reported that the only time women were involved is if they stayed overnight in the guardhouse when their husbands were on duty.

Table 1. Site characteristics

Study site	**Number of men in MPA management**	**Number of women in MPA management**	**Years since MPA established**	**MPA governing bodies**	**MPA site characteristics**
Maite	9 (5 fishers, 4 non-fishers)	28	3 years	Maite Resource Development Association, Fisherfolk Association, and barangay council	Reef, tidal zone
Bino-ongan	16 (barangay council members)	14 (3 barangay council members and 11 volunteers)	.3 year	Barangay council and volunteers	Reef, mangroves

Caticugan	16 (all fishers)	0	9 years	Marine Management Council	Reef, tidal zone

Table 2. Women's involvement in MPA management

X marks women's observed and reported activities

Management Activity	**Maite**	**Bino-ongan**
Attending meetings	X	X
Guarding the MPA	X	X
Coastal clean-up	X	X
Attending trainings	X	X
Ecological monitoring (snorkel survey or timed swim)	X	X
Buoy and boundary rope maintenance	X	X
Collection of crown of thorns sea star	X	
Collection of user fees	X	N/A. No visitors since establishment.
Accounting	X	N/A. No user fees collected yet.
Record keeping	X	
Educating community	X	X
Guardhouse upkeep	X	N/A. No guardhouse built yet.
Planting mangroves	N/A. Site not appropriate for mangroves.	X
Issuing warnings to violators	X	X

Motivations for involvement

Moser's Gender and Development framework is useful for understanding individual motivations for involvement in MPA management. This reveals insight into local expectations and could predict long-term MPA success. Women reported to be primarily motivated to contribute to MPA management for the benefit of their family and community. The women described their desires:

> "I want to protect the small fishermen's livelihood." (woman from Maite)
>
> "I want to protect our marine sanctuary for our own future, for our own children. If we will die our children can still catch fish." (woman from Bino-ongan)

These responses are consistent with findings that Filipinas' motives in environmental protection and conservation projects were related to recognizing a need to protect the well-being of themselves and their families and to conserve resources for future generations (Guiriba 2010). Fish wives on Apo Island showed greater interest than their husbands regarding their family's

welfare (Oracion 2000). The desire to care for one's family in this case led women to support the MPA. The pressure to meet their family's daily survival and *practical needs* (Moser 2005) can lead women to violate protected areas (Agarwal 2001). Men focused on the benefits they received through participation. Those benefits included supporting their livelihood through improving fish stocks by reducing illegal and destructive fishing and earning a small income from guarding the MPA as well as livelihood projects.

> "For me, I participate because there is an income from the projects like tree planting" (fisherman from Maite)
>
> "The benefit of the marine sanctuary is the amount of fish we catch now. It is increasing because of this marine sanctuary" (fisherman from Caticugan)

Women's interest in supporting the well being of their community fulfills a *strategic need* (Moser 2005) for long-term maintenance of social networks. Some women felt personally responsible for their community, stating:

> "I participate because it is one of my duties as a citizen to help protect and preserve the marine animals" (woman from Maite)

Another women from Maite said she participated "because they need a lot of people to patrol the MPA." Poor women are better off with stronger social networks as they are known to utilize networks to access resources in times of need (Agarwal 1994, Oracion 2000).

Women's impact on MPA success

The basis of the HAF is the Women in Development approach (Overhold et al. 1984) which is focused on improving efficiency. A few staff members of the Coastal Conservation and Education Foundation, a non-governmental organization in the Central Visayas, Philippines, have noted a particular ineffiency- women are frequent violators in MPAs (unpublished data, www.coast.ph). In Maite and Bino-ongan, women positively contributed to the success of MPA management. Women's actions in marking the MPA boundaries, enforcing no-take rules, and patrolling as deputized *bantay dagat,* or fish wardens, influenced the success of their MPAs (Christie et al. 2009). Enforcement in Maite was predominantly effective due to women's involvement. Though men's daily activities took them far from the MPA, several women were able to casually guard the MPA from their yards, vending stands, and cook stoves. When a member was unable to attend their assigned MPA duty, a family member or friend covered the shift-- including teenagers and grandmothers. The women were seen blowing whistles, using a megaphone, and approaching violators to inform them of MPA policies. In several coastal resource management programs in the Philippines, women have been noted to enforce fisheries regulations and confront violators, and are seen as better negotiators and more level headed in handling conflict (Siason 2001).

Respondents from Maite and Bino-ongan consider women's involvement in information and education campaigns (IECs) a significant factor that led to widespread support for the MPAs. Community support is an important factor that can lead to MPA success (Christie et al. 2009). Agency staff noted that 70-80% of attendees at outreach meetings by the Bureau of Fisheries and Aquatic Resources were female. It is common for women to represent their husbands in assemblies of fisher organizations (Siason 2001). A BFAR official in Siquijor said, "They (women) can raise attention of others, and they do not easily get angry. They are more willing to

try out the MPA…and are easier to convince of the MPA. They attend the meetings and we use them to convince their husbands." Women are being used to increase community support but are also gaining access to information on marine resource management. Sharing of information between spouses is not always practiced. In South Asia women were refused information from their husbands who attended community forestry management meetings (Agarwal 2001).

Government staff detailed a variety of benefits from women's involvement in MPA management and other coastal resource management livelihood projects given to POs and FOs. Some focused on women's initiative, organizational abilities, and attention to details improving project outcomes.

> "the females are more detail oriented than the males. I think it will be more organized if there's females in the group" (female fisheries technician).

> "women are the ones doing the mangrove reforestation project… women could also do the secretariat… they could really help because they are very…conscious in their data. And they're the ones who are selling their products and they could also do the accounting…(and) the culturing (of seaweeds)…They could also monitor (the project)…They are more particular about the implementation of a project…and the cleanliness of the area around their project site…And they are particular in the time of feeding (the fingerlings) at the tilapia pond…(but) some men say 'I will just do it later'." (female fisheries technician)

Women's labor and roles in these conservation and livelihood projects often go unpaid and unacknowledged because only their husbands are documented participants. It is typical for women to undertake lesser positions such as secretary and treasurer and only become top officers in all-women associations (Hondrade and Rodriguez 1994). Most of the Maite barangay council and MRDA leaders were female. Upholding Westermann et al.'s (2005) findings, one staff member had seen women improve project accountability and reduce conflict.

> "The women work hard and then we give them more (livelihood) projects…In keeping up records, women are better than men...Now that the treasurer is a female, the records are nicely done compared to men!...And then if there is a conflict between members, it seems like the presence of women can combat the feelings of men because it's only the men who want (to do) boxing…Most likely fishermen are drinking, so what if there is conflict, and then they are drunk- they cannot control themselves. So women can neutralize everything in the organization." (female municipal agriculturist)

Agency staff's awareness of the benefits of women's involvement led them to intentionally support women's leadership. They supported leadership development through building relationships and providing guidance via texting, in-person visits, drafting a management plan, and supplying them with non-violent enforcement equipment such as whistles.

Factors aiding and inhibiting involvement in MPA management

The HAF highlights the relevance of women's access to and control of a development project. South Asian studies on Joint Forestry Management provide comparison studies on women's involvement in natural resource management. Similar to Agarwal's (1997) findings in Joint Forestry Management, the failure of men's groups to become involved in management in

Siquijor led women to form their own groups. Philippine MPAs are often created jointly by the local government and a Fisherfolk Organization (FO). An FO was established in 2010 and joined MPA management after the women of MRDA had already created the MPA and brought benefits to the community through user fees. The interest of fishermen has since waned and membership has dropped to 5 fishermen. The women of MRDA are willing to have the fishermen join their PO so the men may continue to receive benefits from livelihood projects. The declining interest of fishermen in Maite could have been predicted- men's participation in MPA management is higher and more stable over time when they had played a role in the group's creation and were motivated by its goals from the beginning (Di Ciomma 2012). Similarly, the chance of women's sustained participation is greater when women are involved in forming an organization because they are more motivated and their presence gains them legitimacy (Agarwal 1997). There was a continued and growing participation of women in MRDA- membership had more than doubled in 3 years.

The women in Maite and Bino-ongan faced minimal barriers to join MPA management. Environmental degradation can disrupt the social networks women use to maintain and support their families in times of need (Agarwal 1997). In the Philippines, young women are known to leave their natural resource-dependent communities in times of resource scarcity (Oracion 2000). In Maite, the MPA has strengthened women's social networks as well as provided them with income-generating activities that improve the environment. As the Maite MPA President viewed it, "women are powerful nowadays, we can make an organization without men! We can do things done by men!" Additionally, a cross-visit supported the Bino-ongan women who were motivated by learning from the Maite women.

> "they shared their knowledge in making the sanctuary…they in Maite helped us" (woman from Bino-ongan)

The women participated even though they continue to claim they are "only simple housewives", a common self-perception of Filipinas (Chant 2007 p.255, Oracion 2000). Women's role in Siquijor as a conduit of information to fishermen is in divergent from the restricted access to information that is a barrier to women's participation in MPA management in Brazil (Di Ciomma 2012). Other barriers to women's full participation can be meeting specifics- location, timing, lack of formal invitation and childcare (Cornwall 2003, Di Ciomma 2012). The high attendance of women with children in tow at MRDA meetings indicates these barriers were not present in Maite or Bino-ongan.

The women were supported by gender-progressive NGO and government staff and a community activist. This enriches other conclusions that women's success in community based natural resource management was primarily linked to gender-progressive NGOs (Quist and Polotan-De la Cruz 2008, Agarwal 1997). A few NGO and government staff who had undergone gender sensitivity training were very supportive of women's involvement. "(Because) the program of Gender and Development… it has to integrate 35% of women in a group" (female Municipal Agriculturist). She aimed to surpass that percentage and involve every fisherman's wife in MPA management. She noted that each household would benefit if both spouses were involved by receiving double their shares of rice bought from the user fees. Whether rice or cash, putting resources directly into women's hands is a development and empowerment strategy to counter gender-differentiated resource use. Women's having their own resources positively affects their family's health and well-being (Chant 2007 p. 112). Women and children's nutrition suffered

the most due to degraded forestry resources in India (Agarwal 1997). Poor rural women spend their income mostly on family needs (Agarwal 1994), while Filipino men are known to spend a disproportionate amount of their and their wives' incomes on 'ABS'- *alak* (alcohol), *babae* (mistresses), and *sugal* (gambling) (Chant 2007 p. 254).

Women in Caticugan faced significant barriers to their inclusion. Republic Act 7192 (Women in Development and Nation-Building Act 1992) says "all government departments shall ensure that women benefit equally and participate directly in the development programs and projects of said department, specifically those funded under official foreign development assistance, to ensure the full participation and involvement of women in the development process." MPAs are development projects because they generate income. Some agency staff were not in compliance with Act 7192. Women were excluded from Caticugan's MPA- the men reported that BFAR staff had told them women were "not allowed". Though women guarding MPAs is not unusual in communities like Apo Island (Oracion 2000), some found it unsuitable for women to guard the MPA. The female BFAR staff member responsible for overseeing and supporting Caticugan's management felt it would be particularly unsafe for women to partake in the MPA's guarding.

> "It's very impossible for women to guard (the sanctuary) day and night… if there are intrusions of illegal fishers it's very risky for the women to react in the marine sanctuary during nighttime… With the illegal fishers' forces combined, what can the women do against the men who are illegally fishing? It's very hard for women because we are weaker than men. So when we're in trouble, we'll be put in deep sea." (female Bureau of Fisheries staff)

The fishermen in Caticugan held stereotypical expectations of women's roles and abilities. When asked what including women in MPA management would look like, they replied:

> "Maybe they will mainly cook"
>
> "They will clean. Because women can clean only, give us water, clean our plates…Bringing girls in the guardhouse could only distract our work in watching the sanctuary"
>
> "If the girl will be the one to watch in the guardhouse (with us), the girl could get pregnant"

Gender stereotypes and expectations can create or breakdown women's barriers to participation in MPA management. Inconsistency in upholding gender progressive national policies can limit women's empowerment.

MPA management implications

This case study presents implications for MPA management that are identified through further application of the HAF.

1) Male-dominated management of MPAs is inconsistent with the sector's dependence on women's fishing activities as well as the success of MPA management's dependence on community cooperation.
2) Communities need support during the process of empowerment. As women gain access to information, resources, and power, they can suffer from an initial increase in domestic

violence (Govinda 2012). Increasing women's empowerment should be accompanied by supporting the social acceptance of changing gender roles.

3) There are no mechanisms to ensure males do not usurp benefits of female-run MPAs. Local fishermen benefit from spillover even if they do not participate in MPA establishment or management. In some cases, women's time and resources have been exploited to increase program efficiency (Chant 2007 p.35).
4) Monitoring and evaluations do not measure the impact of MPAs on women. Existing indicators lack sex disaggregated data and make it difficult to assess the impacts of male-dominated MPA management on women's access to and control of marine resources. The possible short and long-term benefits and detriments of women's involvement or lack of involvement could, however, become indicators of MPA management success. The continued lack of sex disaggregated data (Siason 2001) and gender-sensitive MPA evaluation metrics inhibits effective planning and implementation in MPA management.
5) MPA management objectives are not explicitly related to women's needs and by definition of restricting fishing, limit the natural resources available to women. The disregard of women's practical needs contributes to increased MPA violations and undermines opportunities for MPAs to be successful.

There are several positive observations to note identified through the application of the Harvard framework to these cases as well.

1) Some project personnel are aware of and sympathetic to women's needs.
2) Opportunities exist for women to participate in project management positions.
3) Information delivery channels are accessible to women in terms of personnel, location, and timing.
4) There are efficiency benefits of including women, such as decreasing violations by gleaners (Jameson 2002) or achieving better environmental outcomes (Agarwal 2009, Dulal 2011). These are not well recognized, even by local managers.

The Harvard framework is somewhat limiting in that it does not acknowledge women as a heterogeneous group. The HAF would also not identify women's empowerment as a goal in and of itself. Though the focus on efficiency may be consistent with implementing organization's and agencies missions, this has implications for social equity and long-term management goals. Women in higher socioeconomic classes prefer stricter rules in community based forestry which negatively and disproportionately affects poorer women who are more dependent on natural resources (Agarwal 2009). The majority of the women in Maite's MPA management were not subsistence gleaners. Socio-economic barriers may restrain the poorest women from participation and increase the likelihood of MPA violations. This will challenge the long-term success of CB-MPAs. Analysis of gender dimensions of MPA management leads to an improved understanding of the factors leading to success.

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