

**PRIVATE AND PUBLIC INVESTMENTS IN MANGROVE AREAS UNDER THE CBFMA: Case Studies in
Malhiao, Cebu and San Juan and Talisay in Surigao del Sur¹**

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I. Introduction

This research is a comparative study of the experiences of fishing communities in the implementation of a Community-Based Forest Management Agreement (CBFMA) that covered mangrove areas. Presidential Executive Order 263 envisioned forest governance to become participatory with both upland migrant communities and indigenous peoples partaking in the protection and management of the country's forests. EO 263 was a welcome development among Community-Based Coastal Resources Management (CB-CRM) advocates and practitioners because it was believed that through this policy instrument fishing communities and local government units will address the degrading mangrove forest conditions in the Philippines.

Mangrove stand in the Philippines covers an estimated 248,813 hectares (as cited in Philippine Environment Monitor, DENR, 2005:9). This is down from an estimated 450,000 hectares of mangroves in 1914. This estimate, however, has yet to be validated on the ground. Mangroves serve as nursery grounds for fish, prawns and crabs, among others. They are important ecosystem for fisheries production by providing shelter for marine and aquatic species. Aside from this, there are several environmental services that can be derived out of healthy mangrove ecosystems. Mangrove forests serve as natural barriers for coastal areas from storm surges, strong waves and typhoons. The strong roots and stems of mangrove trees provide 'physical barriers' and break strong waves before they reach the shores thus saving lives and properties in most fishing communities in the Philippines. Moreover, mangroves tend to reduce organic pollution near shore by sequestering carbon. Based on scientific studies, mangroves can sequester around 25.5 million tons of carbon every year (as cited in Miththapala, Mangroves: Coastal Ecosystem Series, Volume 2, 2008:18). Mangroves are also good sources of significant products of economic value. Mangrove areas are primarily sources of fries and crablets for aquaculture industry. Mangrove seeds and propagules can be sold at the market. Mangroves and their associated species are also sources of alcohol and medicine. The extensive uses of mangroves are

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acknowledged by resource economists. White and Cruz-Trinidad (as cited in Melana et. al., 2000:3) for example, pointed out that a mangrove ecosystem is valued at US\$600 or Php252,200 per hectare per year. In 2012, Barbier et al (as cited in Primavera, 2012:7) put the total valuation of mangrove services to higher estimate that ranged from US\$14,000 to US\$16,000 per hectare per year.

The case study showed how three fishing communities managed mangroves through CBFMA. The case study also showed how private and public investments affect the conditions of mangroves, which is a contested resource.

II. RESEARCH AREAS

Malhiao Resource Management Multi-purpose Cooperative (MRMMPC) started as an organization of Certificate of Stewardship Contract (CSC) Holders in Barangay Malhiao, Badian with the name of Malhiao Pundok Mauswagon(MAPUMA). It was registered with the Department of Labor in 1995. The organization was spearheaded by the Department of Environment and Natural Resources (DENR) during the implementation of the Coastal Environmental Project.(CEP) that ended in year 2000. Initially, MAPUMA in partnership with DENR's Coastal Environmental Project started rehabilitating the mangrove area of Barangay Malhiao.

MAPUMA was transformed into a cooperative in the later part of year 2000 when Tambuyog Development Center started its partnership with the organization for the expansion of the Sustainable Coastal Area Development - Community –based Coastal Resource Management (SCAD –CBCRM) program. It was finally registered into a cooperative in December 5, 2001. The cooperative underwent a series of cooperative development conducted by Tambuyog and the Cooperative Development Authority. Through the years, MRMMPC is religiously complying the requirements of the Cooperative Development Authority and (CDA) and Bureau of Internal Revenue (BIR)

The Malhiao Resource Management Multi-Purpose Cooperative (MRMMPC) in Malhiao, Badian, Cebu was contracted by the Department of Environment and Natural Resources (DENR) in 2001 to manage the 73-hectare mangrove and seagrass areas through Community-Based Forest Management Agreement (CBFMA). This is an effort by both the fisherfolk and the government to protect mangrove forests in the Philippines. MRMMPC has developed a 25-Year management plan in 2002 in relation to managing the mangrove forest . The organization has been doing mangrove replanting and protection since then. The DENR sometimes provides technical support. However, with the department's lack of funds and personnel, it cannot fully support the 25-Year Plan of the organization and other similar plans of other

organizations with CBFMA. One of the major components of the 25-Year Plan of MRMMPC is to establish infrastructures to effectively guard the forest and to receive tourist who may want to stay in a setting close to nature. However, due to limitations of funds, MRMMPC cannot implement the plan using their own resources. Over the years, the organization continues to spearhead activities that address the general problem of continued cutting of mangrove forest and reversing the trend through awareness and action of people by educating them and advocating to the public the importance of mangrove and other coastal resources. It has also started an eco-tourism.educational project with facilities for lodging and with intent of generating income from the forest management. These past two years, with support from a local Foundation and Tambuyog Development Center, MRMMPC has started the establishment of Coastal Education Center in the CBFMA areas.

On the other hand, the Municipality of Hinatuan is part of the province of Surigao del Sur in Mindanao. There are two (2) CBFMA areas in the municipality. One is located in Brgy. Talisay that covers 555 hectares and the other one is located in Brgy. San Juan with 410 hectares. These areas are managed by the Socially Enlightened Association of Girls in the Rural Areas for the Sustainability of the Sea (SEAGRASS) and Barangay United for Development of Aqua Marine Sustainability (BUDAS) in Brgy. Talisay and Active Native Develop and Unite for Human Aqua-Marine Wealth (ANDUHAW) in Brgy. San Juan. Both CBFMA areas are mangrove areas. Last year, both areas have been included in the National Greening Program of the national government. Notably, women-managed area (WMA) has been established in Brgy. San Juan. WMA are areas in the coastal zone that are traditionally used by women fisherfolk. Enforcement of laws is one of the hindering factors in the success of CBFMA in Hinatuan. There were reports that mangrove cutting is still in practice inside the CBFMA. Fishpond areas were also found within the CBFMA areas.

The CBFMA area in Cebu showcased an innovative strategy of managing mangrove resources for eco-tourism purposes. Investments on this area benefited the community through the eco-tourism education project that depended on users' fee to sustain its initiatives. On the other hand, the community in Hinatuan struggled to come to terms with land investment inside the CBFMA. Fishpond development legalized under the Fishpond Lease Agreement, which is issued by the Department of Agriculture-Bureau of Fisheries and Aquatic Resources (DA-BFAR) resulted in further deterioration of mangrove areas. This is coupled with the issuance of tax declaration by the local government units for areas to be developed as fishponds. Unregulated mangrove tree cutting defeats the purpose of managing the mangrove forest sustainably.

III. CONDITIONS OF COASTAL RESOURCES IN THE RESEARCH AREAS

Mangroves serve as nursery grounds for fish, prawns and crabs, among others. They are important ecosystems for fisheries production by providing shelter and habitat for marine and aquatic species. Aside from this, there are several environmental services that can be derived out of healthy mangrove ecosystems. Mangrove forests serve as natural barriers for coastal areas from storm surges, strong waves and typhoons. The strong roots and stems of mangrove trees provide 'physical barriers' and break strong waves before they reach the shores thus saving lives and properties in most fishing communities in the Philippines. Moreover, mangroves tend to reduce organic pollution near shore by sequestering carbon. Based on scientific studies, mangroves can sequester around 25.5 million tons of carbon every year (as cited in Miththapala, Mangroves: Coastal Ecosystem Series, Volume 2, 2008:18).

Mangroves are also good sources of significant products of economic value. Mangrove areas are primarily sources of fries and crablets for aquaculture industry. Mangrove seeds and propagules can be sold at the market. Mangroves and their associated species are also sources of alcohol and medicine. The extensive uses of mangroves are acknowledged by resource economists. White and Cruz-Trinidad (as cited in Melana et. al., 2000:3) for example, pointed out that a mangrove ecosystem is valued at US\$600 or Php252,200 per hectare per year. In 2012, Barbier et al (as cited in Primavera, 2012:7) put the total valuation of mangrove services to higher estimate that ranged from US\$14,000 to US\$16,000 per hectare per year.

Mangrove stand in the Philippines covers an estimated 248,813 hectares (as cited in Philippine Environment Monitor, DENR, 2005:9). This is down from an estimated 450,000 hectares of mangroves in 1914. This estimate, however, has yet to be validated on the ground. The primary threat to mangroves is its conversion to fish/shrimp ponds. At present, the pond to mangrove ratio is 1:1, where there are around 232,000 hectares of fish/shrimp ponds and 256,000 hectares of mangroves (Primavera, 2012:8).

TABLE 1. Number of mangroves and FLAs by hectares and by region (2009).

REGION	NUMBER OF MANGROVES OF NATURAL GROWTH*	NUMBER OF FLAS**
I	584.55	1,271.99
II	6,050.47	78.70
III	1,019.31	519.66
IV-A	11,690.35	11,645.53
IV-B	67,645.63	
V	20,030.72	7,299.55
VI	7,978.93	14,266.11
VII	25,355.87	4,602.60
VIII	34,963.83	5,580.99
IX	15,195	8,308.92
X	10,013.41	1,524.99
XI	1,482.64	1,441.94
XII	2,440.08	1,200.98
XIII	26,793.07	2,548.22
ARMM		776.36
TOTAL	231,268.04	61,066.60

**Presented by Dir. Carlo Custodio during the Luzon consultation on FLA-Cancellation and AUU Reversion to Mangroves held at the Institute of Social Order, Quezon City last January 12, 2010.*

As cited in Primavera et al (2012), this is way below the ideal ratio of 4:1 as recommended by Saenger et al (1983) that 'the amount of mangrove forest converted into ponds should not exceed one hectare of ponds for four hectares of natural mangrove kept untouched'. Primavera et al (2012) suggested that no more than 20% of a discrete mangrove area in the country should be converted to ponds.

Worst, many of these once thriving mangrove areas that were converted to fish/shrimp ponds are partly functional or totally no longer operational. Section 43 of Presidential Decree 705 or the Forestry Code of the Philippines of 1975, provides that mangrove and other swamps released to the Bureau of Fisheries and Aquatic Resources for fishpond purposes which are not utilized, or which have been abandoned for five (5) years from the date of such release shall revert to the category of forest land. Further, by virtue of Section 49 of Republic Act 8550 or the Philippine Fisheries Code of 1998, all abandoned, undeveloped and underutilized (AUUs) fishponds shall be reverted back to mangroves, once the best use of the areas have been assessed and determined by the DENR, the Department of Agriculture-Bureau of Fisheries and Aquatic Resources (DA-BFAR), the local government units, other government agencies and the National Fisheries and Aquatic Resources Management Council (NFARMC). The problem with the implementation of Section 49 is that there is yet clear implementing rules and regulations on how to cancel Fishpond Lease Agreements (FLAs) and how to revert AUUs under FLAs to mangroves.

The national situation of mangroves is rather dismal. For the past several decades, there is an observed decline in the number of hectares of mangroves due to continuing conversion of mangroves into fishponds. This is the context where local mangrove management efforts are being conducted especially in the Municipality of Badian in Cebu and Municipality of Hinatuan in Surigao del Sur.

The coastal and marine resources of Badian are in abundance. It has approximately 65 hectares of coral reef, 203 hectares of seagrass, and 117 hectares of vegetated mangrove areas. Thick mangrove forests are located in Barangays Poblacion, Malhiao, Manduyong, and Bugas. Poblacion has the extensive mangrove areas in the municipality. These barangays are surrounding Badian Bay. There are more than



11 species of mangrove in the bay. Some of them are the following: the *Rhizophora stylosa*, *apiculata* and *mucronata* (*bakauan bato*, *lalaki* and *babae*), *Bruguiera gymnorhiza* (*Busain group*), *B. Pototan*, *Ceriops tagal*(*tangal*), *Nypa fruticans*, *Sonneratia alba*, *Avicennia alba*, *Avicennia lanata*, *Aigeceras floridum* (*sagingsaging*), and *Tabigue / Bantigue*). *Tabigue* or *Bantigue* (endangered mangrove specie in the

Philippines according to Dr. Jurgenne Primavera, mangrove scientist who was able to visit the mangrove area of Poblacion and Malhiao in 2003 is found along Sima River. There are three mature bantigue trees along the river (diameter at the base of the trunk almost 1.5ft). It bears pomelo size fruits but there are no natural grown saplings in the vicinity. Another specie, the Nigad (local name) is declining because the plants were indiscriminately harvested / uprooted by bonsai enthusiasts years back.

On the other hand, the Municipality of Hinatuan is part of the province of Surigao del Sur in Mindanao. The province itself has 66 Fishpond Lease Agreements that cover 1,182.2442 hectares. The Municipality of Hinatuan has 8.91 hectares of fishponds that are abandoned. Production areas that are covered by FLAs are estimated to be around 206.7138 hectares. Some of the highlights of our study include the following:

1. **Civil society organization's and community based organizations' Roles in Capacity Building and Policy Advocacy.** The results showed that the community depends on CSOs and CBOs in terms of capacitating them in the right mangrove reforestation and management. It was highlighted in the research that there are several mangrove reforestation programs that were conducted in the community. But these programs mainly focused on planting mangrove propagules and seedlings and less on monitoring whether these mangroves have thrived or not. The community also sees CSOs and CBOs as a facilitator to bridge the gap between the LGU and the community given the ambivalence between the two. CSOs and CBOs are also expected to be one of the advocates in terms of cancellation of fishpond lease agreements and reversion of AUUs to mangroves.
2. **LGU not aware of their mandates.** In terms of the process of FLA-cancellation and AUU reversion to mangroves, it is necessary that LGUs be informed of their mandates in terms of FLA cancellation and identification of areas that are recommended for reforestation. LGUs in consultation with the Municipal Fisheries and Aquatic Resources Management Council (MFARMC) should write the regional office of the Bureau of Fisheries and Aquatic Resources (BFAR) to assess the identified areas. It was highlighted in the research that the LGU did not know their mandates. Consequently, several fishpond areas remained operational despite violations of their FLAs. Moreover, based on the Department of Finance opinion with regard to tax declaration, it was opined that LGUs should not be issuing tax declaration for areas to be developed as fishponds.
3. **Discrepancy in records of National BFAR office and MAO on FLAs in the Municipality of Hinatuan.** There are nine FLAs that were recorded in the Municipality of Hinatuan in Surigao del Sur. This covered around 206.7138 hectares.

Table 1. **Fishpond Lease Agreements in the Municipality of Hinatuan in Surigao del Sur**

BARANGAY	FLA NUMBER	AREA (has.)
Hinatuan, Surigao Del Sur	4188	23.9345
Loyola	3159	49.9989
Loyola	4122	25.9127
Tiwi	3501	10.311
Tiwi	3474	26.4689
Tiwi	2693	24.3913
Pisaw	4342	11.7841
Pisaw	3920	8.912
Loyola	2876	25.0004
TOTAL		206.7138

4. **All FLAs in the Municipality of Hinatuan are expired.** Although the 9 FLAs have already expired, the issue on abandoned, undeveloped and underutilized fishponds is still a central issue because of these conditions being met before the expiration of their FLAs. If the LGU is aware of the rules and regulations as well as its mandate, these FLAs should have been cancelled. Table 2 shows the status of FLAs in the Municipality of Hinatuan in Surigao del Sur.

Table2. Status of Fishpond Lease Agreement in the Municipality of Hinatuan in Surigao del Sur

FLA NUMBER	DATE ISSUED	EXPIRY DATE
4188	November 6, 1984	December 31, 2005
3159	March 26, 1980	December 31, 2003
4122	April 23, 1984	December 31, 2007
3501	March 25, 1981	December 31, 2005

3474	April 9, 1981	December 31, 2005
2693	August 14, 1977	December 31, 2001
4342	March 13, 1985	December 31, 2009
3920	December 27, 1982	December 31, 2006
2876	August 25, 1978	December 31, 2002

IV. ISSUES AND CHALLENGES

The Issues that prevailed in Malhiao, Cebu includes the following: (1) illegal cutting of mangroves for posts, firewood and forage of livestock.; (2) illegal structures along mangrove areas;(3) improper solid waste disposal that damages newly grown mangroves; (4) Low awareness of the community members on the importance of the coastal habitats; and(5) weak support of the LGU in the enforcement of the Comprehensive Municipal Fishery Ordinance.

Deforesting the mangrove areas started in late 1970s wherein there was massive conversion of mangrove areas for fishpond development and followed by the establishment of beach resorts, utilization of mangrove stands as firewood in bakeries and salt –making production at that time.

On the other hand, the issues that prevailed in the Municipality of Hinatuan includes the overlapping of jurisdiction and conflicting policies particularly on mangrove management. For instance, despite the granting of CBFMA to ANDUHAW and BUNLOD, the area was still able to be converted into residential area. A case had been raised to the Regional Executive Director of the DENR in Region XIII with regard to the foreshore lease application of a certain Mr. Jaime Baldomero for residential purposes in 2006. The private individual is believed to cut mangrove trees within the CBFMA area. Fortunately, with the vigilance of the communities, the foreshore lease application within the CBFMA area dd not materialized. Moreover, both CBFMA areas in Brgy. San Juan and Brgy. Talisay in Hinatuan are threatened by the establishment of fishpond structures and expansion of existing fishpond areas. Primary of these threats are the tax declaration issued by the LGUs for fishpond development.

V. GAINS FROM PUBLIC AND PRIVATE INVESTMENTS

As part of the conservation activities of the community under the CBFMA, trainings were conducted on Environmental Education. The following activities were accomplished and being done by the MRMMPC and the LGU of Malhiao in Cebu.

- Continuous Eco-Education are being conducted by members of the MRMMPC for their members as well as the community residents as the Boardwalk and other infrastructure were completed. This helped them appreciate the project which made them more determined and committed to make it successful as possible.

- With renewed commitment for coastal education, the MRMMPC also solicited help from the LGU which promised to support the project by allocating additional budget to extend the Boardwalk. This is going to be done after all budget have been spent from initial project fund (RAFI and SEACOLOGY)
- This will also translate into more areas reached for conservation as more students and local tourists are able to go around the mangrove area through the Boardwalk and appreciate the beauty and significance of the Mangroves in their community life and economic as well.
- The Teacher's Manual and Workbooks for Students as well as IEC reproduction was finalized and made to aid the Learning processes among the youth and adult community members as well.



A boardwalk is currently being constructed as part of investments of both LGUs and the community in the CBFMA area in Malhiao, Cebu. The cost of constructing a 300 square meters of boardwalk and 20 meters of viewdeck amount to Php616,000.

TOTAL COST OF MATERIALS		8,350.00		
LABOR		2,700.00		
CONTINGENCIES		500.00		
	TOTAL LABOR and MATERIALS (LM)	11,550.00	Divided by	6
				1,925.00 /LM
LM BOARDWALK @ Php 2,000.00	1,925.00	577,500.00		
Plus: 20 LM VIEWDECK	1,925.00	38,500.00		
TOTAL 300 SQM BOARDWALK and 20 m VIEWDECK		616,000.00		

Specifically, the CBFMA project provided alternative venue for experiential learning of grade five (5) elementary pupils from five (5) public elementary schools in Badian with the establishment of a coastal education center. The major accomplishment of the Ecotourism Project is the establishment of the Coastal Education Center complete with academic curriculum on costal education wherein the Department of Education District level officially recognized the learning modules and adopted it as part of public elementary schools teaching and learning activities. The Coastal Education Center, now officially called *Malhiao Mangrove Eco Center*, provides a venue for experiential learning to elementary students of Malhiao. The center, built at the area where the Malhiao Bgy. Hall is located, not only helps to cater to students but to local and foreign tourists as well, as it serves as a learning center on coastal

education, as was the objective of the project. The center serves as the starting point of the eco-tour where at its back door signals the start of the cemented boardwalk that passes through the mangrove area.

The center also was built with a spacious multi-purpose hall mainly for discussion and workshop sessions where eventually a library will also be housed (this will be part of the improvement of the center, as donation for books and other learning materials will be placed there), a small kitchen for food preparations during workshop activities, a bathroom and a storage room for safekeeping of future audio-visual equipments and related learning materials). The center was envisioned as a self-sustaining project eventually, where the learning hall can also be used for other workshop activities (outside of the schools learning activities) for a fee, hence the brochures for its popularization.

On the other hand, the CBFMA areas in the Municipality of Hinatuan facilitated the mangrove reforestation of around 13 hectares under the Upland Development Program in 2009.

VI. POLICY RECOMMENDATIONS

- 1. Harmonization of conflicting laws and overlapping jurisdiction among LGUs, DA-BFAR and the DENR.** As the research showed, mangrove resource is a contested resource. It is noteworthy that the government, both at the local and national levels, are practically asserting their jurisdiction over mangrove resources. The LGU is issuing tax declaration for obvious reason, for its revenue generation. The DA-BFAR, on the other hand, is asserting its jurisdiction over mangrove resource because it is also extracting permits and licenses for fishpond operations. The DENR, meanwhile, is asserting its jurisdiction over the mangrove resource for its mangrove reforestation program.

As for local interventions, among the recommendations that were raised during the key informant interviews are the following:

A. Institutional

1. For the LGU to send a letter to DA-BFAR regarding the status of the 9 FLAs. Prior to this, the SB is tasked to write a resolution asking DA-BFAR to survey the 9 FLA sites and determine the best management options for them;
2. In order to strengthen law enforcement, the LGU should form Bantay Kawakatan or Mangrove Management Convergence Council to primarily see to it that remaining mangroves are properly managed. The body shall also see to it that the 1 hectare of fishpond to 4 hectare of mangroves is maintained or better yet improve it.

B. Awareness Raising and Capacity Building

1. Launch an Information, Education and Communication Campaign aimed to increase the awareness of LGU officials and fishpond operators and caretakers on their responsibilities in mangrove management; and
2. Conduct Dialogue between mangrove resource users to create a consensus on how to properly operate fishponds and how to manage mangroves.

