

# Institutionalizing Cooperation and Sustaining Collective Action: The Case of the Binulasan Fisheries and Aquatic Resource Management Association

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**Abstract** Our study describes the process by which mangrove rehabilitation and sustainable management was and continues to be institutionalized in Binulasan through the development and continued operation of the people's organization BFARMA. We co-constructed a highly contextualized narrative of this institutionalization process, highlighting participant views, which we elicited through unstructured, informal interview-conversations. We found that in order to sustain collective action in mangrove sustainable management and ensure BFARMA's effectiveness and resilience as a grassroots NRM institution, it should: (a) improve its ability to adapt to future shocks and innovate by promoting the values emphasized and elevated during the initial stages of community mobilization and developing the capacities of its members; (b) contribute towards rural poverty alleviation objectives by facilitating local livelihood development so that the undertaking remains attractive to locals; and (c) continue to strengthen its capacity to influence as an NRM agent by working in close partnership with the LGU and by encouraging the participation of the

larger community. Our study contributes to existing work that aims to better understand the issues that surround and affect the effectiveness and resilience of NRM institutions at the grassroots level.

**Keywords** Collective Action, CBFMA, NRM Institutions, Mangrove Rehabilitation and Sustainable Management

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## 1. Introduction

The shift in paradigm from modernization to dependency to participatory is largely driven by a de-emphasis on technical expertise and Western-centric science and a corresponding emphasis on local knowledge, systems, and culture [1,2]. In the context of natural resource management, the participatory approach became operationalized in community-based natural resource management (CBNRM) efforts. Such efforts aim for more efficient, equitable, and sustainable resource management

outcomes through the fuller participation of local communities and resource users in decision-making processes and the incorporation of local practices, institutions, and knowledge systems in its design [3-8]. It therefore became common practice to distinguish between three modes of management when dealing with village-level resources: private, public (or state), and community management [7,9]. Best practices in CBNRM have been recognized in several reports and case studies [10-13], particularly the coastal resource management (CRM) initiatives in Infanta, Quezon, Philippines.

The case studies on Infanta's CRM initiatives have largely focused on the conflict between the locals and a Manila-based politician over access to a 15-hectare mangrove area [14] and the role of the Infanta Integrated Community Development Assistance, Inc. (ICDAI) in community mobilization efforts towards the proper use and maintenance of natural resources [13]. ICDAI's important role in consciousness raising, education, and training of key actors even prior to the conflict over the 15-hectare mangrove area was highlighted in the case study funded by the UNDP Small Grants Programme Philippines in 2003. A community-based non-government organization (NGO), ICDAI is reported to have conducted various capacity building activities with members of the people's organization *Buklod ng Magsasaka na nakaugat sa Kalikasan* (BUKID). The training undergone by BUKID members provided them with the confidence to take on the challenges presented by the case with the Manila-based politician.

The conflict started in July 2000 when the politician went ahead with developing an abandoned fishpond area covering 15.5 ha in Brgy. Binulasan, Infanta without waiting for the approval of his Fishpond Lease Agreement (FLA) application with the Bureau of Fisheries and Aquatic Resources (BFAR) [14]. Locals banded together to fight this "development aggression" and those most active in the fight eventually decided to register their association with the Securities and Exchange Commission (SEC). This marked the birth of the Binulasan Fisheries and Aquatic Resource Management Association, Inc. (BFARMA). BFARMA was later awarded with a Community-Based Forest Management Agreement (CBFMA) by the Department of Environment and Natural Resources (DENR), thus institutionalizing mangrove rehabilitation in the locality.

It is this institutionalization process that our study focuses on describing. Our study builds on these case studies and provides an update on the status of the association by describing its mangrove rehabilitation efforts at the barangay level. Specifically, the study describes: (a) the events and/or factors that facilitated the institutionalization of BFARMA; (b) its mangrove rehabilitation and community participation strategies, structure and membership, economic activities in place, and support received; and (c) the socio-economic sustainability and ecological resiliency of its mangrove

rehabilitation efforts.

## 2. Research Method

### 2.1. Study Site

Infanta, Quezon has five important ecosystems: (a) upland forests; (b) river basin; (c) alluvial plains; (d) mangrove forests; and (e) coastal areas [14]. It is bounded in the north and northwest by the municipality of General Nakar, on the east and southeast by Polillo Strait and Lamong Bay, on the south by the municipality of Real, and on the west by the provinces of Rizal and Laguna (Figure 1). The main sources of livelihood in the municipality are agriculture and inland, coastal, and offshore fisheries [14].

Using the 2020 market price for aboveground carbon stock, the municipality's mangroves are estimated to be worth at least USD 45.5 million [15]. According to its *Forest Land Use Plan, 2012-2017* (FLUP), Infanta's mangrove timberland covers 2,341 ha [16]. Of this, 139 ha are tenured through two CBFMAs, one of which is BFARMA's. About 634 ha have been converted to fishponds, of which 79 ha are abandoned, 141 ha have existing FLAs, and 413 ha are without FLAs [16]. When the FLUP was prepared in 2011, only 23 FLAs are legally operating out of the more than 150 fishponds. The FLUP also reveals that the uncollected annual dues from fishpond operation have reached PHP 1.4 million.

### 2.2. Data and Analytic Method

To construct a contextualized and textured account of BFARMA's institutionalization process, we collected stories from selected BFARMA members and officers as well as representatives from the barangay and municipal government of Binulasan and Infanta, respectively, through unstructured, informal interview-as-conversations. Themes were then identified through the coding of these conversations, which mainly centered on: (a) how BFARMA started, (b) its present status, and (c) its plans for the future. This allowed us to develop a shared narrative of the process, through which community-based mangrove management (CBMM) was institutionalized in Binulasan.

As research that uses the qualitative lens in which "the researcher[s] are] the primary instrument[s] for data collection and analysis" [17], we thus co-constructed the emergent story of institutionalization with our interviewees. As such, it is important to emphasize that although every effort was made to suspend our preconceptions about CBMM in particular and CBNRM in general to increase the credibility, dependability, and confirmability of our resulting interpretation [18], our personal experiences as professionals in our respective disciplines of agricultural economics, biology, development communication, and environmental science and management also informed the structure and contextualization of this narrative.

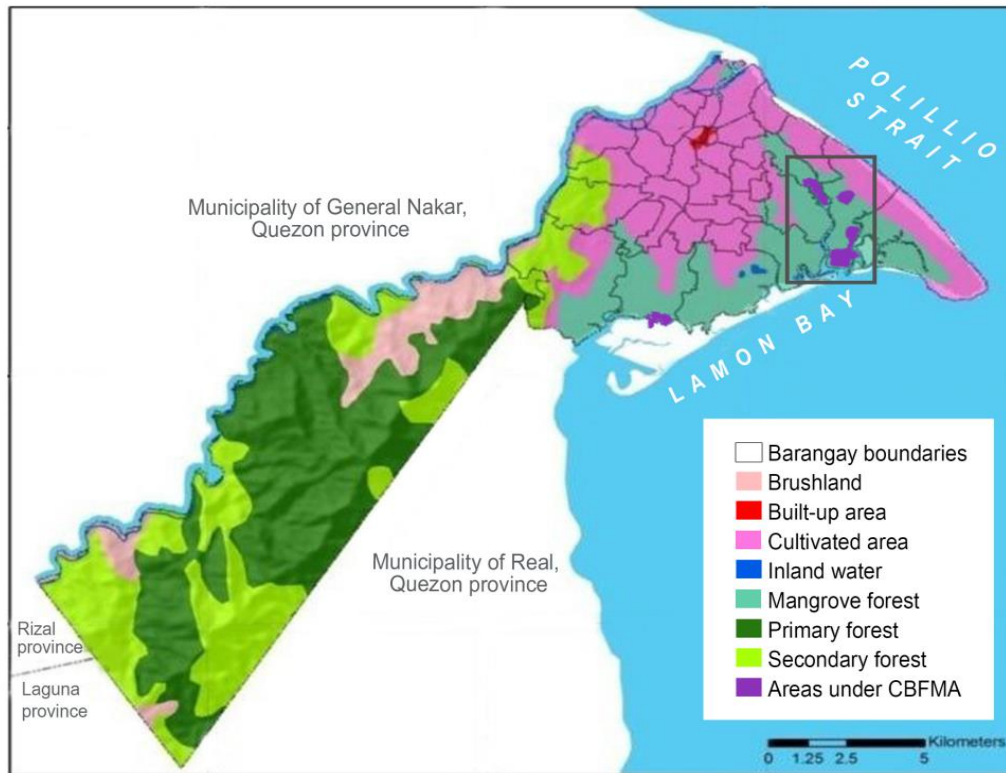


Figure 1. Infanta's Land Cover Map and BFARMA's CBFM Area (in box) [16]

### 3. Thematic Narratives

We identified three themes in BFARMA's emergent story of institutionalization: (a) collective recognition, which centered on the association's fight for mangrove access and subsequent recognition as a local institution engaged in mangrove management; (b) poverty alleviation, which centered on the association's attempts to create viable livelihood alternatives to help its members improve their economic security; and (c) innovation, which centered on the association's identified strategies in order to ensure its and its CBFM site's sustainability.

#### 3.1. Collective Recognition

Before the late 1950s, Infanta, Quezon had around 3,000 ha of rich mangrove areas under the public domain, which were managed by the DENR [14]. The gradual decrease in mangrove areas came about with the transfer of mangrove timberland management to the Department of Agriculture (DA), which locals understand as being in line with the Philippine government's more intensive focus on attaining food security through its banner program Masagana 99.

##### *Fighting for local access*

Through BFAR, the DA issued FLAs, which gave holders the right to develop mangrove areas into fishponds to produce more affordable protein. According to those interviewed, in Infanta, FLAs were mostly awarded in the

1970s to military officials, likely as a form of incentive to gain and keep their political support for the then president's administration. With the privatization of these commons, Infanta locals lost their access rights.

Through the years, a number of these FLA sites became abandoned and reverted to communal fisheries. Some abandoned sites continued to be operated by the caretakers of previous owners without a valid FLA. Of the 100 FLAs in Infanta, only 21 were operating legally [16]. As per Section 49 of the Philippine Fisheries Code of 1998 (RA 8550), abandoned FLA areas should be reverted to their original mangrove state. However, as an interviewee share, *"We have been requesting DENR and BFAR for quite a while now to conduct an honest-to-goodness ground validation survey. Clearly, these abandoned fishponds should automatically be reverted to their original state based on current legal instruments in place. But this hasn't happened. Perhaps BFAR and DENR don't have enough manpower on the ground to supervise such a survey."*

On May 2000, a powerful Manila-based politician applied for an FLA for a 15.5-hectare site in Binulasan, which was formerly leased to a military officer and had been abandoned for almost a decade [14]. The politician came to Binulasan claiming that he was a legitimate lessee although his FLA application was still pending BFAR's approval.

At the time, there were ongoing plans for the people of Binulasan, through its Barangay Fisheries and Aquatic

Resources Management Council (BFARMC), to use the site in implementing a livelihood development project [13]. The politician's claim was therefore viewed as an impediment, which highlights the importance of local consultation before local lands are leased by national institutions. The politician's FLA application was thus met with strong local opposition. This was compounded by the fact that the politician refused the then Infanta mayor's invitation for a dialogue, as articulated by an interviewee,

*"Others who also applied for FLAs were neighborly. They became part of the community—becoming godfathers to local children and some even married locals. That's a big deal. But if your approach is arrogant, like the politician's, that's a problem. He already didn't give us ordinary folk the time of day and to extend this arrogance to our mayor is too much."*

The politician's perceived arrogance and disregard of due process sparked a movement. Although he had local support in the form of those whom he had employed as workers in his newly-established fish farm, many locals were not swayed and instead focused on the long-term benefits that healthy mangroves provide. People's organizations (POs), NGOs, religious and community leaders, and local elected officials from the municipalities of Infanta, General Nakar and Real came together to support the residents of Binulasan during the two People Power demonstrations organized in protest of politician's FLA application. During these demonstrations, portions of the politician's fishpond were demolished. A summary timeline of the events during the struggle between the Binulasan residents and the politician is presented in Table 1.

### ***Becoming a CBFMA leaseholder***

The conflict with the politician united the people of Binulasan. The core group who was most active in the fight registered their association with the Securities and Exchange Commission (SEC) on May 31, 2001 and

BFARMA was born.

The association was then awarded a CBFMA on June 25, 2008. The CBFMA is a tenurial security agreement between DENR and the participating PO that provides the latter with the right to develop, utilize and manage specific portions of forest lands for a period of 25 years, which is renewable for another 25 years. With its CBFMA, BFARMA has management rights over 149 ha of mangrove forestland, which includes the 15.5 ha they fought for. Since becoming a CBFMA leaseholder, BFARMA has received funds from various sources in support of their mangrove rehabilitation and livelihood development efforts (Table 2).

After almost two decades of mangrove rehabilitation and reforestation activities, the dominant species of mangroves present in BFARMA's CBFM site are *Rhizophora mucronata* (*Bakhawan babae*) and *Rhizophora appiculata* (*Bakhawan lalaki*). During our visit in 2018, we observed no regeneration of dominant mangrove species yet and the distance of one meter between each plant can be clearly seen. This one-meter distance between plants was the advice that BFARMA received from DENR during their reforestation activities.

Mangrove areas with low diversity are very prone to pests and diseases [19]. BFARMA started planting other species during its project with DBP (see Table 2), which included the planting of *Nypa fruticans* (Nipa or Sasa) as a source of non-timber forest products (NTFPs). Nipa is therefore the dominant mangrove-associated species in the area. As a BFARMA officer shared,

*"The DBP-Forest project is of the view that aside from conservation, the mangrove species planted should also be able to provide locals with livelihood. For how can you expect people to conserve or protect [the mangroves] if they are hungry. Like nipa, it can serve as a source of leaves [to be used as roofing material] as well as ingredients in making vinegar and wine."*

**Table 1.** Summary of events in the conflict with the Manila-based politician\*

Date	Summary of Events
30 May	Politician applies for FLA
10 Jul	Politician starts introducing premature improvements to site without approved FLA
15 & 31 Jul	Binulasan residents sign petition in opposition to politician's site developments; Binulasan officials' and Infanta Vice Mayor's offer of dialogue with politician
2 Aug	Politician replied to Vice Mayor explaining that: (a) his application is with BFAR; (b) he has already spent Php 100,000 on site improvements, which includes the employment of 70 Infanta locals; (c) he will continue introducing site improvements.
10 Aug	Binulasan barangay officials hand-carried to DA and DENR a complaint resolution and the July 31 signed petition to deny politician's application
16 Aug	DENR-CENRO issued a cease-and-desist order for politician; defied by the politician
24 Aug	Representatives from the local government unit (LGU), Philippine National Police, Philippine Navy, NGOs, Lucena's Tangol Kalikasan, and people's organizations stopped politician's workers from doing more work in the area, their tools confiscated
29 Aug	Criminal complaint I.S. 1-2000 017) for violation of Section 68 of the Forestry Code (PD 705) filed in the Office of the Provincial Prosecutor by DENR-CENRO
13 Oct	Infanta Mayor filed criminal complaint for violation of Section 94 of RA 8550
12 Dec	BFAR issued cease and desist order for politician; defied by politician
18 Dec	DA-BFAR, DENR, Infanta LGU investigate politician's fishpond
12 Jan	BFAR Director released conditional permit in favor of the politician
8 Feb	1 <sup>st</sup> Infanta People Power in protest of conditional permit granted; parts of politician illegal fishpond demolished; caught media attention, i.e., Philippine Daily Inquirer (11 Feb issue), Kabayan (21 Feb issue), Probe Team "Lupang Inagaw" (Stolen Land) documentary (20 Feb)
15 Feb	BFAR rejected the politician's FLA application
2001	The politician retaliated, filing the following: SLAPP (strategic legal actions against people's participation) suits filed against those who joined 1 <sup>st</sup> Infanta People Power Robbery complaint filed at the Municipal Circuit Trial Court (MCTC) against 41 people including the Mayor; dismissed by the Provincial Prosecutor on July 4, 2001. Civil case filed for Php 7M worth of damages at the Regional Trial Court, Caloocan Motion of appeal contesting BFAR's rejection of FLA application, which Infanta residents answered by filing a comment that refuted his arguments
30 May	The politician files a rebuttal citing BFAR's acceptance of the required cash bond as part of FLA application already gives him rights to the land
14 Jun	DA Secretary orders politician to vacate the area; reverted the area to DENR for restoration as per RA 8550
21 Jun	Politician filed notice of appeal to the Office of the President
2002	13 Sep Politician's appeal to the Office of the President denied
10 Dec	Politician's appeal for reconsideration denied by Office of the President
2003	27 Mar DA's final order of execution in favor of the people of Binulasan received
7 May	DA's order of execution implemented through 2 <sup>nd</sup> Infanta People Power demonstration

Source: Adapted from Crisostomo [14]

**Table 2.** Funding support received by BFARMA

Year	Amount (Php)	Fund source	Notes
2003	300,000	Quezon Provincial Government	Mangrove reforestation
2003	15,000	United Nations Development Programme – Small Grants Programme (UNDP-SGP) through the Infanta Integrated Community Development Assistance, Inc. (ICDAI)	Biodiversity conservation and mangrove reforestation
2005	500,000	Development Bank of the Philippines Forest Program (DBP-Forest)	Mangrove reforestation
2005	455,000	ABS-CBN Foundation (soft loan)	Aquasilviculture development
2010	150,000	BFAR*	Mangrove reforestation
2011	50,000	BFAR*	Mangrove reforestation
2012	150,000	BFAR*	Mangrove reforestation
2013	200,000	Department of Environment and Natural Resources (DENR)*	Mangrove reforestation
2014	500,000	DENR*	Mangrove reforestation
2014	75,000	Infanta Mayor's Office	Ecotourism development
2015	170,000	Infanta Mayor's Office	Ecotourism development
2015	250,000	DENR National Greening Program (NGP)*	Mangrove reforestation
2016	200,000	DENR-NGP*	Mangrove reforestation
2017	1.4 M	DENR CARP Mangrove Rehabilitation with Aquasilviculture project	Mangrove reforestation and aquasilviculture
	4.4 M	TOTAL	

\* Barangay Binulanan LGU implemented the project in partnership with BFARMA. Funding support was downloaded to municipal-level LGU who is charged with disbursement upon submission by Binulanan LGU of required supporting papers.

BFARMA has since received advice from DENR to plant other species of mangroves to improve the CBFMA area's ecological resilience. The additional species planted are summarized in Table 3. Earlier reforestation efforts, however, did not observe proper mangrove zonation. For instance, *Avicennia alba* and *Sonneratia alba*, which are best planted on fringing zones, were planted in intermediate zones along with *Rhizophora spp.* [19].

Initially, all mangroves were planted using propagules instead of seedlings. Locals found propagules to be more resilient to wind and water current. The propagules collected from adjacent mangrove areas with mature trees are tied to bamboo sticks for temporary support. More recently, the association established two mangrove seedling nurseries and now use seedlings in planting specific mangrove species.

For at least six months after planting, BFARMA monitors newly planted propagules until they take root and produce at least six leaves. Once the newly planted mangroves have taken root, monitoring is done only once a week. Generally, the estimated survival rate of mangroves planted is 90%.

**Table 3.** Mangrove species planted by BFARMA, by type

Common Name	Scientific Name
<b>Initial Species Planted</b>	
Bakhaw babae	<i>Rhizophora mucronata</i>
Bakhaw lalaki	<i>Rhizophora appiculata</i>
<b>Additional Species Planted</b>	
Bakhaw bato	<i>Rhizophora stylosa</i>
Bungalon puti	<i>Avicennia alba</i>
Tabigi	<i>Xylocarpus granatum</i>
Pagatpat	<i>Sonneratia alba</i>
Tangal	<i>Ceriops tagal</i>
<b>Mangrove-Associated Species</b>	
Nipa or Sasa	<i>Nypa fruticans</i>

Interviewees from the Binulanan local government unit

(LGU) shared that monitoring is highly dependent on reports from locals who see outsiders cutting mangroves, usually for use in *sasa lambanog* (i.e., liquor made from the distilled sap of *Nypa fruticans* Wurmb) distilleries.

It is useful to note that although the CBFM site is leased to and managed by BFARMA, non-members are allowed site access and are free to gather marine resources such as fishes, crabs, and shrimps; only the timber harvesting is disallowed.

### 3.2. Poverty Alleviation

Aside from being able to thwart various forms of “development aggression” in their CBFM site, the CBFMA allows BFARMA to engage in activities that ensure its proper management and sustainable use for local livelihood creation. As explained by a BFARMA officer,

*“Not purely for the environment—to conserve the environment so that the community can benefit from it. It would be difficult if it’s purely for the environment. God made nature so that humans can benefit. So it shouldn’t be all about nature. How about subsistence? At the community level, it is always about ‘usaping sikmura’ (poverty alleviation concerns). If this is addressed, interest in ‘usaping kalikasan (environmental concerns) will follow. They won’t appreciate all our environment-related advocacies if they’re hungry. They have to be able to earn a living.”*

#### Community participation

BFARMA’s mangrove planting activities are used to be open to members and non-members alike. As a former BFARMA officer shared,

*“We open the planting of mangroves to all community members so that all experience the hardship of planting them and therefore become defenders of the mangrove ecosystem.”*

Hence, all community members who join the rehabilitation effort every time the association receives a mangrove reforestation project are able to earn some extra cash. However, payment usually comes six to eight months after the work given the usual delay in the release of government funds and the need to provide donors with evidence of seedling survival. The community’s willingness to provide labor months before payment exhibits their dedication to the rehabilitation process as well as their trust in BFARMA that they will be paid once funds are released.

Aside from the payment received from planting efforts, Binulanan locals believe that planting mangroves will benefit them in the future. As mentioned by an interviewee,

*“We plant and take care of our mangroves because they serve as breeding areas for the fish on which our livelihood depends on. Also, before when there was a typhoon and storm surges, we were not affected because of our mangroves”*

In late 2018, however, mangrove planting activities have been limited to BFARMA members only. Membership has also been limited to only one member per nuclear family. This is so that more families in the community can benefit from the donor-supported mangrove reforestation projects that BFARMA receives instead of tending to be concentrated in the original members’ family and friends, as it was once perceived.

#### Alternative livelihood development

At first, BFARMA started with only a little more than 20 members. It now has over 80 members, and its activities and projects and the potential additional source of income they represent attract more community members to join.

Like any organization, however, not all BFARMA members actively participate in its activities. About half of its members are mainly inactive, preferring to attend the monthly BFARMA general assembly only when there is an ongoing mangrove reforestation project as such opportunities represent the possibility of additional income. This tendency among most members makes sustaining collective action—and therefore the creation of viable livelihood alternatives—difficult. As shared by one of the group’s officers,

*“Our members really need values formation so they may appreciate what the samahan is doing, which is also for their benefit. The samahan needs to learn to engage in a business together. It would be a waste not to benefit from such a huge resource—149 hectares. We can’t just plant and plant.”*

BFARMA’s inability to take advantage of its CBFM site to develop alternative livelihoods is perhaps also influenced by its failed attempts at it. The failure of the association’s 2005 aquasilviculture project, for instance, severely demoralized the group as it is believed to involve “bantay-salakay”.

*Bantay salakay*, a Tagalog term that literally means “guard raid”, describes a form of betrayal wherein the one entrusted to guard something is that who steals. In the case of BFARMA’s aquasilviculture project, the fish harvest was stolen and there are strongly-held suspicions that the theft was done with the help of some association members. This led to BFARMA defaulting on the soft loan that financed the project (see Table 2) and to the group being inactive for several years afterwards as a result of the members’ collective dismay. As a member shared,

*“What made it worse was that we were working hard to improve local livelihood after the struggle with the Manila-based politician’s development aggression. But now our enemy is no longer the politician but locals from Barangay Binulanan. It was very disappointing that some did not seem to understand what the association is working towards.”*

BFARMA’s attempts at developing its CBFM site into an ecotourism destination have also failed. With funds from the Infanta Mayor’s Office, in 2014 and 2015 (see

Table 2), the association built a small hut to serve as rest area in the middle of their CBFM site and a bamboo boardwalk for those who wish to explore the site on foot. After only a few years, the boardwalk and hut fell into disrepair as the association was not able to develop a system through which they can charge users for their repair and upkeep. Members explain that since they used government funds to develop the site, they were uncertain if they were allowed to charge for their use.

### 3.3. Innovation

As a PO, BFARMA is continually finding ways to ensure its sustainability in order to continue its mangrove rehabilitation efforts and ensure the sustainable use of the mangrove forestland it manages. Based on the stories gathered, their planned strategies to achieve these goals focus on these three areas: (a) ensuring ecosystem resilience by planting more diverse mangrove species; (b) diversifying local sources of livelihood to sustain member participation and interest; and (c) strengthening organizational capacity and values.

#### *Ensuring ecological resilience*

The establishment of BFARMA's mangrove species nurseries has greatly facilitated the association's efforts towards following proper mangrove species zonation to fully maximize the potential of the mangrove area and to ensure its ecological resilience. Local nursery establishment is important in order to produce seedlings that are always ready to replace propagules or seedlings planted that do not survive. The ecological resilience of the mangrove area will prove useful to the community in terms of improved food production, continuous source of income, and reliable coastal protection [19].

#### *Diversifying livelihood*

Since its beginnings, BFARMA works closely with barangay and municipal LGUs. Infanta's mayor was among the champions during the fight against the Manila-based politician. Some of BFARMA officers work for the municipal government, specifically in the Local Disaster Risk Reduction and Management Office (LDRRMO) and the Municipal Planning and Development Office (MPDO). Binulasan's past two barangay captains are BFARMA members. One was the barangay captain when BFARMA was formed; he was among those who led the opposition against the Manila-based politician's FLA application. The other served as BFARMA secretary since the second year of the association's establishment until 2017.

BFARMA's mangrove rehabilitation efforts are supported by the LGU's ordinance against mangrove cutting. There are also talks at the municipal level to create a system wherein boats will be color-coded per barangay to facilitate offender identification. The association also receives technical and administrative support from the

Municipal Environment and Natural Resources Office (MENRO). Government bureaucracy requires that selected DENR projects, such as those connected to the National Greening Program (NGP), are facilitated by the MENRO (see Table 2).

Members believe that a stronger partnership with the LGU will help them with their livelihood diversification efforts. Specifically, the Real, Infanta, General Nakar (REINA) tourism master plan is seen as an avenue to facilitate the association's ecotourism development efforts.

#### *Strengthening values and organizational capacity*

Engaging in livelihood ventures together is seen as a way by which the association's members can see the value of taking care of the mangroves in generating a sustainable source of livelihood. However, given the previous failed attempts at ecotourism and aquasilviculture, there is as of yet no benefits gained by being an active part of the organization aside from the income from reforestation activities. Member preference for activities that align with their goal of improving their economic security is clear.

It is for this reason that the interviewed BFARMA officers have noted the need not only for continued efforts in diversifying livelihood but also for capacity development and values formation. Capacity development is seen as a way by which the association can better manage its administrative duties such as the preparation of project reports, financial statements, and reporting requirements, among others. It is believed that through capacity development, administrative and leadership skills can be honed so that the future of the association is better assured.

The association's attempts at livelihood diversification also point to their need for technical support and capacity building. Aside from the need for the development of skills such as ecotour guiding and first aid, among others, the creation of a sustainable ecotourism plan is crucial and is best informed by proper research. For instance, in developing the Quezon Protected Landscape, a study that looked into willingness-to-pay (WTP) for ecotourism as input to the proposed payment for ecosystem services (PES) scheme was conducted as well as a study to determine the proposed ecotourism site's carrying capacity [20].

BFARMA's recent attempts at aquaculture with funds from DENR-CARP (see Table 2) also highlight the need for skills in record keeping (i.e., balance sheets, cash flow and income statements) and costs and returns analysis to generate necessary information for farm business planning and management and lessen the impact of uncertainty and risk on their agribusiness venture.

The need for values formation, on the other hand, has been noted by a BFARMA officer interviewed because it is value for the environment and for community building from which members can derive the motivation to continue efforts that ensure the mangrove ecosystem's health and diversity. They recounted a time when the association



received values formation training from ICDAI. The scope and intensity of the association's future impacts will likely improve—if not entirely depend on—BFARMA leadership's efforts in continuing the values formation activities started by ICDAI. This is especially important as it expands its membership.

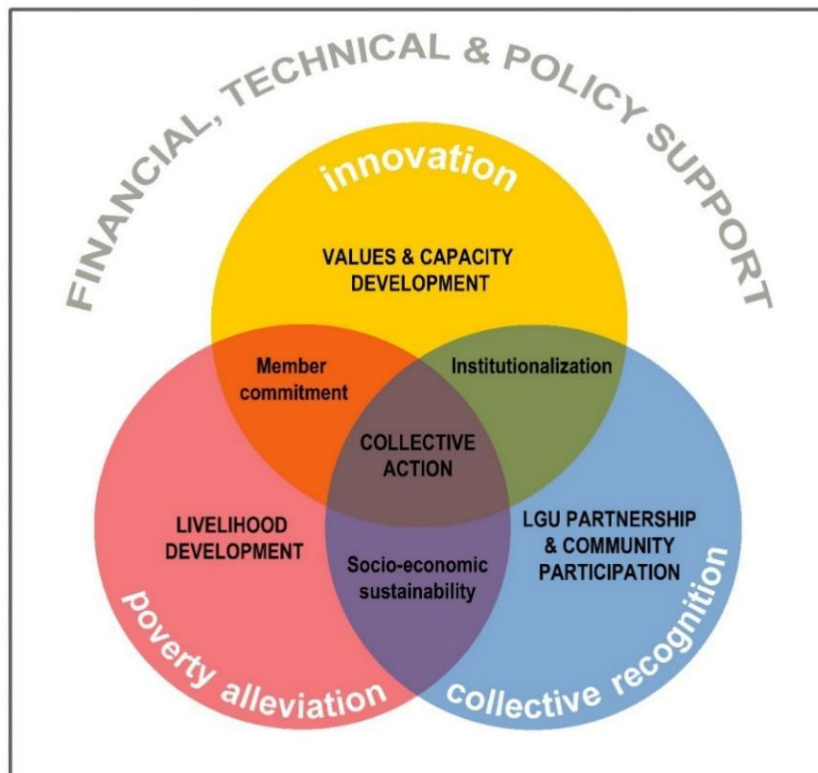
#### 4. Discussion

The case study demonstrates how, through BFARMA's establishment and continued growth as an organization, Binulasan locals have come to accept mangrove rehabilitation and protection as part of their community responsibilities. The initial collective action of the people of Binulasan against the politician's FLA application galvanized community action against the perceived "development aggression." This facilitated the group's recognition as local partner in managing and rehabilitating local mangroves, thus paving the way for changes to property rights that gained local users' decision making authority as their interests match those of national-level actors [21].

After the legal battle against the politician was won, the role of local champions became vital to the continued efforts to rehabilitate Binulasan's mangroves. Without these local champions who invested personal time to get the association registered with the SEC and who applied for CBFMA with DENR, BFARMA may have never become a formal organization.

BFARMA roots as a new social movement (NSM) are clear. It started as a questioning of conventional authoritarian politics and dominant economic and political models with the general aim of creating a "new hegemony of the masses" [22]. NSMs have a sporadic, cyclical orientation. Therefore, "rather than proceeding in a linear progression, development projects might become more sporadic, multifocused, and cyclical in nature to align themselves to the rhythms of the lifeworld reflected in social movements [23]. Now, without a clear antagonist against which activities and efforts are directed at, what has become central to sustaining the collective action that BFARMA inspires is its ability to provide its members with sustainable sources of livelihood.

We therefore offer Figure 2 as a way of visualizing the strategic areas that need attention in order to ensure the continued effectiveness and resilience of CBNRM groups such as BFARMA. As pointed out, values and capacity development can improve BFARMA's ability to adapt to future shocks and innovate. Diversifying livelihood opportunities can contribute towards rural poverty alleviation objectives by developing sustainable sources of income that are in harmony with environmental goals. Livelihood development also helps ensure that mangrove rehabilitation and sustainable management remains an attractive undertaking to locals [24,25]. Continuing its active partnership with the LGU as well as expanding community participation facilitates its collective recognition as a local NRM institution.



**Figure 2.** Strategic framework for sustaining collective action in mangrove rehabilitation and sustainable management

By providing members with alternative livelihood sources and by strengthening their belief towards the importance of sustainable mangrove management, member commitment is fostered. By improving its ability to innovate and by continuing efforts that facilitate its collective recognition as an NRM institution, cooperation towards mangrove rehabilitation and sustainable management remains an institutionalized activity. By supporting the economic security of its members and by ensuring its continued recognition as the local partner for mangrove rehabilitation and protection, BFARMA ensures its socio-economic sustainability. Based on the narrative we co-constructed with the BFARMA members and local stakeholders in Binulasan, a community's group's socio-economic sustainability, its continued institutionalization, and its members' commitment are the main ingredients necessary to sustain collective action in sustainable mangrove management.

## 5. Conclusions

In this study, we focused on the process of institutionalization and the strategies by which institutional resilience may be enhanced. We have focused on why and how mangrove rehabilitation and sustainable management has been institutionalized in Binulasan by linking this to the establishment and operation of BFARMA. Because of this link, we view institutional resilience primarily through ensuring the association's continued operation and influence.

The co-constructed narrative that resulted from our analysis allows community groups like BFARMA to make sense of their reality in a way that helps them determine future strategic responses to make them more resilient. The framework we offer is a highly contextualized conceptual model that doesn't assume to explain all grassroots processes of CBNRM institutionalization and collective action motivation but is of high utility to the locality it aims to explain and those that share similar characteristics. In NRM, the value of praxis, or the localization of theory so it can inform practice, is undeniable. Grand narratives can sometimes be of little use to the highly contextualized situations that govern NRM institutions; hence, the growing disinterest in panaceas in NRM.

At first glance, the conceptual model we offer seems static. However, its dynamism is in the processes that it emphasizes: the continuous process of value and capacity development to ensure the CBNRM group's innovative capacity; the ongoing process of livelihood development to protect the group's capacity to respond to future risks and uncertainties; and the never-ending process of safeguarding the trust that the larger community has given to the CBNRM institution.

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