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Challenges and Opportunities in Implementing the Ecosystem Approach to Small-scale Fisheries Management (EAFM) in Misamis Occidental, Philippines

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ABSTRACT

This paper presents the challenges and opportunities of small-scale fisheries management in Misamis Occidental, especially in the coastal municipalities of Aloran, Jimenez, Lopez Jaena, Panaon, Plaridel, Sinacaban, Tudela, and Oroquieta City. A site diagnosis was conducted as part of the participatory diagnosis and adaptive management framework to characterize the governance of small-scale fisheries in the area and to determine the potential for adopting the ecosystem approach to fisheries. Stakeholders identified, in order of priority, the following issues affecting fisheries and coastal resource management in Iligan Bay: depleted fishery resources, lack of alternative livelihood, and limited institutional capabilities. In a united response, the local government units in the area formed the Iligan Bay Alliance of Misamis Occidental, through which they explore opportunities to address issues and to restore and sustain the fisheries in Iligan Bay.

Keywords: ecosystem approach to fisheries, Iligan Bay Alliance of Misamis Occidental,
fisheries management, challenges and opportunities in fisheries management

JEL Classification: O35, O43, O44, Q01

INTRODUCTION

In the Philippines, coastal resource management is mandated to various government entities at different levels of the bureaucracy. The Bureau of Fisheries and Aquatic Resources (BFAR) of the Department of Agriculture (DA) sets the policy guidelines. Two of the primary legal bases for national fisheries management are the Agriculture and Fisheries Modernization Act (AFMA) of 1997 and Executive Order (EO) No. 533 or the Integrated Coastal Management (ICM) Law (Garces et al. 2013). The AFMA focuses on food production and food security, while EO 533 establishes ICM as the national strategy for fisheries management.

However, the direct management of coastal resource is a specific mandate of the local government units (LGUs), as provided for under the Local Government Code (LGC) of 1991 (Republic Act 7160 of 1991). In particular, Section 149 of the LGC states that the municipality has the exclusive authority to grant fishery privileges and impose rentals, fees, or charges. Section 447 emphasizes that coastal management is one of the duties of the *Sangguniang Bayan*.¹ The Fishery Code of 1998 (RA 8550 as amended by RA 10654 of 2015) reiterates the LGUs' mandate in managing nearshore municipal waters. It also requires BFAR to provide technical assistance and training to LGUs and to assist organizations and coastal communities in establishing co-management regimes for coastal resources. It recognizes the importance of active participation of local fisherfolk and coastal communities (DENR, BFAR, and DILG 2001a).

Several coastal and fisheries management policies have been passed and ratified but fisheries in the country remains at risk. From the 1950s to the 1960s, Philippine fish production increased dramatically; it continued to grow in the 1970s and 1980s, and leveled off in the 1990s (BFAR 2000; BAS 2002). Municipal fisheries, however, contracted by -2.06 percent on the average from 1991 to 2001. This trend continues to the present, including in the coastal communities of Misamis Occidental along Iligan Bay.

Marine municipal fisheries production steadily increased from 2000 to 2010, but has gradually decreased thereafter. The annual fish catch reached 19,280.5 tons (T) in 2008, then dropped to 17,314.4 T in 2012, a 10.2 percent decline in fish catch within four years (BAS 2012 as cited by Garces et al. 2014). Consequently, fisherfolk have become less economically stable than their counterparts in other sectors. The fisheries sector in Region 10, where Misamis Occidental is located, is one of the poorest in the country with a poverty incidence of 41.4 percent (NSCB 2013).

It is this situation that led eight LGUs in the province—Aloran, Jimenez, Lopez Jaena, Panaon, Plaridel, Sinacaban, Tudela, and Oroquieta City—to organize themselves in 2012 into the Iligan Bay Alliance of Misamis Occidental (IBAMO). The alliance aims to help protect, preserve, manage, and develop Iligan Bay using the Ecosystem Approach to Fisheries Management (EAFM).

This paper presents the perspectives of the various stakeholders on the biophysical, socio-economic, and institutional issues and challenges affecting fisheries management in the eight LGUs, as well as in Iligan Bay. It further shows how common baywide ICM challenges can be turned into a unique opportunity to unite the affected LGUs toward the common goal of conserving and preserving fishery resources. The IBAMO and other

¹ The local legislative branch of municipal LGUs passes ordinances and resolutions for the effective administration of the municipality. Its powers and responsibilities are defined by the Local Government Code of 1991 (The Sangguniang Bayan Tasks and Responsibilities Checklist 2010).

established bay alliances are examples of efforts being done to address the challenges and issues faced by the Philippine marine resources.

Ecosystem Approach to Fisheries (EAF)

The situation of fisheries in Misamis Occidental is not unique to the province. Other places in the Philippines (e.g., San Miguel Bay, Camarines Sur), as well as in other parts of the world (Indonesia, Solomon Islands, and Tanzania), also struggle to resolve fisheries issues that lead to the general poor quality of life among fisherfolk.

When one or more municipalities share a water body, they must also share in the management of this common resource. This sharing provides an opportunity for collective action and the sharing of effort, resources, and costs among LGUs. Nevertheless, it can also serve to increase the complexities and difficulties of management efforts (BFAR 2006).

In San Miguel Bay, for instance, the respondents identified the following major problems (in ranked order): lack of government funds, ineffective enforcement of laws and regulations, and lack of community influence on formal management (Pomeroy, Samonte, and Sunderlin 1993). Fishery in San Miguel Bay is managed by the seven LGUs surrounding the bay. On the other hand, respondents in the survey on the institutional arrangement for fisheries management indicated that for the most part, the government had been effective.

Through the San Miguel Bay Management Council (SMBMC,) the Integrated Coastal Fisheries Management Plan (ICFMP), a holistic approach to fishery resource management, has been put in place for the San Miguel Bay municipalities. In fact, Calabanga, Camarines Sur (one of the member LGUs) qualified as one of the six outstanding municipalities for the Best Coastal Management Program Awards in 1998 (OneOcean 1998).

Silvestre (1996) draws lessons from the WorldFish experience in San Miguel Bay. These include (1) the importance of stakeholder participation at key stages of the research, planning, and management processes; and (2) the usefulness of decision method in structuring research, planning, and associated debates.

It is within this context of declining fish catch, deteriorating marine habitats, and less than effective fisheries management that the Food and Agriculture Organization (FAO) of the United Nations adopted the EAF. The EAF promotes application of an integrated approach to fisheries within ecologically meaningful boundaries. It strives to balance diverse societal objectives by considering the biotic, abiotic, and human components of the ecosystem and their interactions (FAO 2003). Compared with earlier management approaches, EAF is more holistic and more comprehensive.

Pilot implementation of EAF in the Philippines became possible through a governance project funded by the European Commission (EC). This project was implemented through a partnership among the WorldFish-Philippine Country Office, the Southeast Asian Regional Center for Graduate Study and Research in Agriculture (SEARCA), BFAR Region 10, Department of Environment and Natural Resources (DENR) Region 10, and Department of Science and Technology (DOST) Region 10. It also involved the eight LGU members of IBAMO.

The project had the following objectives: (1) assess existing institutional arrangements and understand how an EAF can overcome barriers to effective, integrated small-scale fisheries (SSF) management; (2) develop EAF strategies and actions for SSF management that are suitable for developing country contexts; and (3) strengthen the capacity of local fishery stakeholders and government agencies

to collaborate and work within an EAF. Overall, it demonstrated an EAF framework to improve SSF management in developing countries and to enhance their contribution to poverty reduction.

METHODOLOGY

The focal site is located in the province of Misamis Occidental in northern Mindanao, southern Philippines (Figure 1). The province is bounded by two mountain ranges and three marine water bodies: Mindanao Sea in the northeast, Iligan Bay in the east, and Panguil Bay in the southeast. The project area spans a coastline of about 60.6 kilometers (km) (the total coastline of Misamis Occidental is 169 km), drawn from Plaridel in the north down to Tudela in the south. The coastal area is also endowed with fringes of mangroves and coral reef habitats. SSF is characterized by multi-

species fisheries; the catch usually comprised small pelagics, reef fishes, and shellfish (invertebrates). Fishing gears used include hook and lines (*pasul*), gill nets (*pukot*), and fish traps (*bobo*) (Garces et al. 2013). Industrial (commercial) fishing fleets are also present, employing seine nets. They are also important to the overall fisheries production in Iligan Bay.

The project was implemented and organized in two phases: (1) participatory diagnosis and identification of suitable EAF strategies implemented in 2012; and (2) collaborative pilot implementation of EAF strategies implemented since 2013. To better understand the existing institutional arrangements of SSF, stakeholder participation was encouraged using the Participatory Diagnosis and Adaptive Management Framework (PDAM) (Figure 2). A simpler version of FAO's integrated assessment and advice framework, PDAM was specifically designed for EAF management (Garcia et al. 2003 in Garces et al. 2013).

Figure 1. Map of the eight coastal LGUs under IBAMO, Misamis Occidental

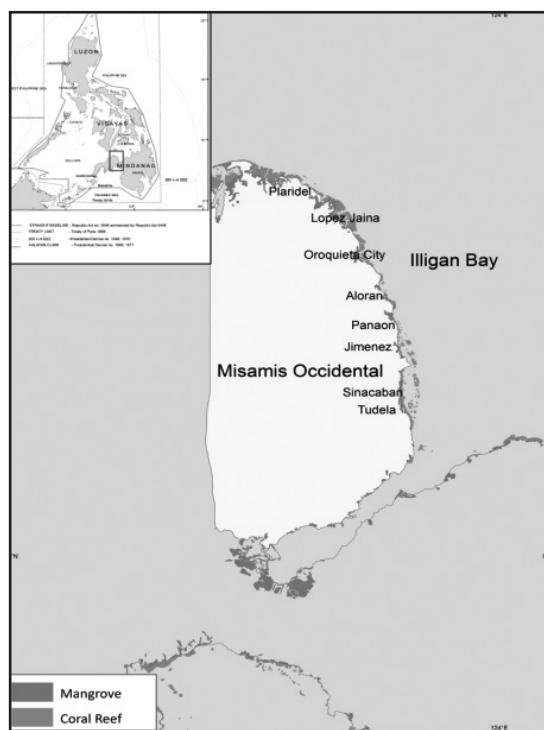
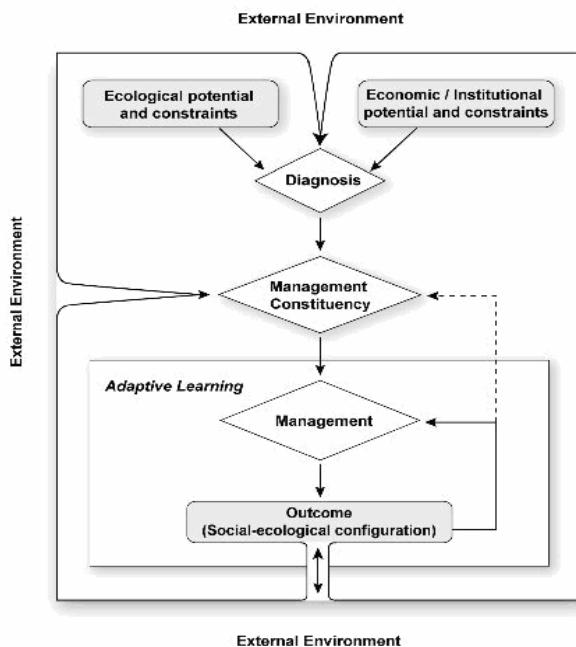


Figure 2. Participatory Diagnosis and Adaptive Management (PDAM) framework (Andrew et al. 2007)



The use of the Rapid Appraisal of a Fisheries Management System (RAFMS) methodology complemented the PDAM.

Activities under the first phase included a national consultation, stakeholders' consultation, and site diagnosis. All were designed and conducted to identify threats and opportunities to the SSF sector.

The site diagnosis, which covered the eight LGU members of IBAMO, was done mainly via key informant interviews (KII). It collected data on various governance dimensions including fisheries management bodies and institutional processes. The gathered information helped to (1) understand the different ecological and administrative scales that can define different fishery systems; (2) clarify past and existing governance and policy on fisheries and related sectors; and (3) identify threats and opportunities to a national EAF strategy.

An integrated survey instrument was prepared to collect data on the following key

subjects: (1) issues/problems, management measures, and success indicators related to fisheries; (2) fisheries management bodies and governance processes related to fisheries; and (3) upscaling of fisheries management (Table 1). The first part aimed to determine the perception of stakeholders on the biophysical, socio-economic, and institutional issues affecting fisheries management in the eight study sites. Respondents' perspective on violations and level of policy implementation (e.g., existing, implemented, and should be adopted) were obtained.

Respondents

For the site diagnosis, 157 key informants (resource managers and other stakeholders) were interviewed, representing fisheries-related government agencies, people's organizations, private sector, civil society groups, and other stakeholders of Iligan Bay. They included the following: regional directors of BFAR and DENR in Region 10; provincial fisheries

managers and the local chief executives of each LGU member of IBAMO; Municipal Agricultural Officers (MAO); Municipal/City Planning and Development Officers (MPDOs/CPDO); Municipal/City Environment and Natural Resources Officers (MENROs/CENROs) and other fisheries management-related officers; representatives of relevant institutions like law enforcers (Philippine National Police-Maritime Command, Philippine Coast Guard, and deputized fish wardens), the academe, and other groups related to fisheries (nongovernment organizations, Fisheries and Aquatic Resource Management Councils, and fish traders).

The respondents were clustered into three groups: national government agencies (NGAs), LGUs, and civil society organizations (CSOs) and other groups (Table 2). The NGAs included the regional government levels and a few may have been assigned to certain municipal

districts. Those in the LGU cluster were from the local level (i.e., provincial, municipal/city, and barangay/village). The local chief executives or the municipal/city mayors were classified under this group.

Meanwhile, the CSO cluster comprised nongovernment organizations (NGOs), civic organizations, and peoples' organizations that were not part of the formal government bureaucracy. Other stakeholders like those from the academe and the private sector (e.g., fish traders) were included here.

RESULTS AND DISCUSSION

Challenges to Fisheries Management in Iligan Bay

Stakeholders in Misamis Occidental fully recognized that depleted fishery resources

Table 1. Contextual variables used in the governance integrated survey instrument for the key informant interview

Part I. Issues and problems, management measures, and success indicators related to fisheries

1. Fisheries management issues/problems existing in the project area
2. Violations of fisheries laws and regulations existing in the project area
3. Management measures to be adopted or implemented in addressing key fisheries problems and issues
4. Indicators of successful fisheries management regime

Part II. Fisheries management bodies and governance processes related to fisheries

1. Fisheries management bodies and institutions involved in fisheries governance
2. Assessment of adequacy of existing fisheries plans, regulations, and budgetary allocations
3. Awareness and compliance on the Unified Fishery Code of Misamis Occidental
4. Awareness of the informal fisheries rules and regulations

Part III. Upscaling of fisheries management

1. Need to improve fisheries management to address issues and problems more effectively
2. Awareness of the Iligan Bay Alliance of Misamis Occidental (IBAMO)
3. IBAMO as a useful governance structure for solving problems/issues on fisheries management that are beyond the mandate of the municipality or province
4. Suggestions to make IBAMO an effective governance arrangement that can handle large-scale fisheries systems and broader marine/coastal ecosystem
5. Linkage of local/site level administration with larger scales of fisheries management

Table 2. Classification of respondents

| Cluster | Respondents |
|----------------|--|
| NGA | <ul style="list-style-type: none"> • Regional Directors • Planning Officers • Fishery Officers • Provincial Environment and Natural Resources Officer • Provincial Planning and Development Officer • Maritime Police • Coastguards • Philippine National Police |
| LGU | <ul style="list-style-type: none"> • Mayors • Municipal Fishery Officers • Municipal/City Planning and Development Officer • Sanggunian Secretary • Bantay Dagat/Deputized Fish Warden • Committee on Fisheries • Committee on Agriculture and Fisheries • Committee on Environment • Committee on Environment and Agriculture • Fisheries Technician • Fish Trader |
| CSO and others | <ul style="list-style-type: none"> • Municipal/Barangay Fisheries and Aquatic Resources Management Council |

or low fish catch and lack of alternative livelihood are the primary biophysical and socio-economic issues, respectively. Furthermore, limited institutional capability had exacerbated the problem (Figure 3). These issues are by no means simple concerns, as they threaten the health and survival of fisheries-dependent coastal communities, which also have limited alternatives.

Opportunities for Fisheries Management in Iligan Bay

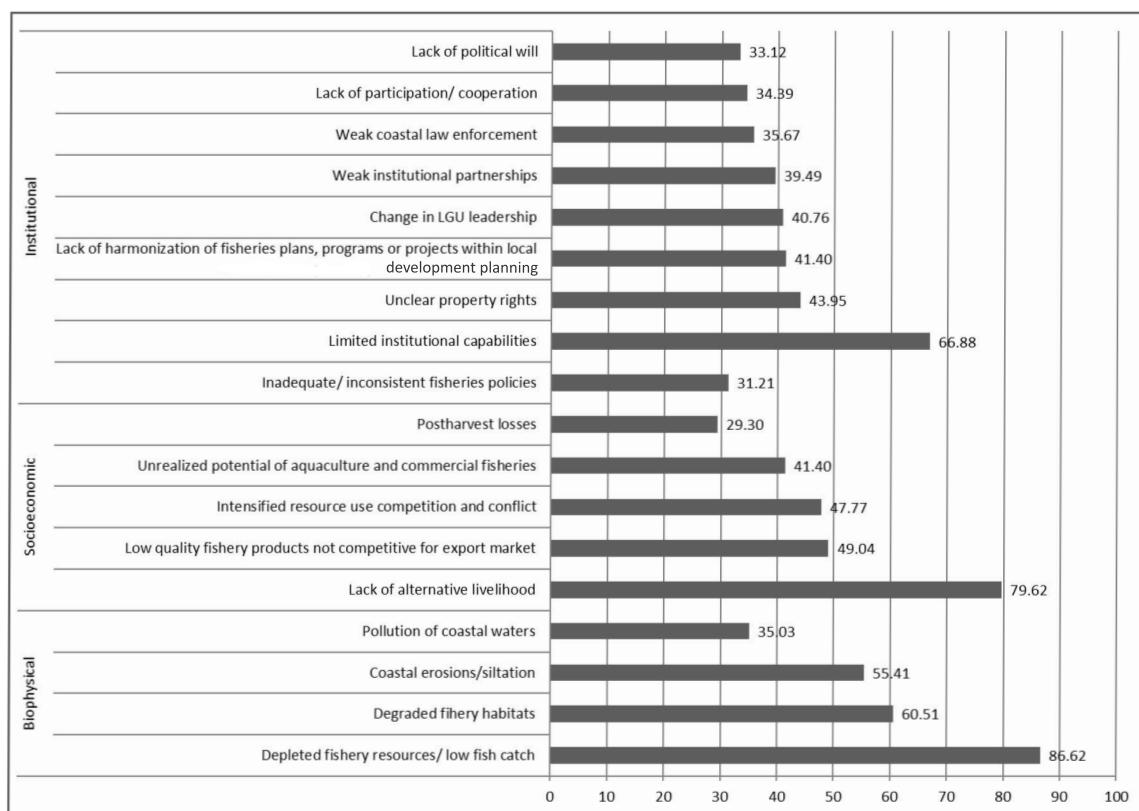
Certain areas of the country like Coron Bay, Danajon Bank, Lanuza Bay, and Tawi-Tawi Bay had experienced the same set of issues (Perez et al. 2012). Nevertheless, they were able to address them by adopting good ecosystem management practices.

Within the project duration, it was not possible to rehabilitate the marine habitat and

increase fish populations to improve fish catch, as well as improve the ecosystem conditions as a whole. On the other hand, by identifying their respective challenges within the Iligan Bay area, the stakeholders saw the opportunity to unite and cooperatively address their common issues.

IBAMO comprised all eight coastal LGUs in Misamis Occidental with each LGU being represented by their respective resource managers. The alliance is best placed to aid the adoption of EAF, especially as it has the “will” to push for the protection, conservation, and management of the common fisheries resource. IBAMO had become a multi-sectoral group for sustainable fisheries, and was facilitating the completion of the coastal resource management (CRM) plan of each LGU member, so that they can then obtain a CRM certification (DENR-CMMO 2003). IBAMO was set to draft

Figure 3. Perception of respondents on fisheries management issues existing in Iligan Bay



a unified fishery code and form an active and effective fishery law enforcement group.

Founded on institutional partnership, IBAMO is enabled through the support of its stakeholders: (1) the unequivocal administrative and resources support from the chief executives of the LGUs (municipal and provincial), and (2) the technical support from the alliance members who have varied specialization. These include: DENR (concerned with mangrove areas, marine pollution, and environmental impact assessment); DILG (peace and order, public safety, and capability building of LGUs); BFAR (food security); DOST (technological innovation and scientific research); DOT (development and promotion of tourism); PNP-PPO (peace and order, and public safety); Philippine Maritime Police (police

functions in the sea); Maritime Industry Authority (MARINA) (water transport utilities and maritime enterprises); Philippine Coastguard (maritime safety, protection of the marine environment and resources); and the Armed Forces of the Philippines (national defense).

In addition, IBAMO had gained a pledge of support from the academe (Mindanao University of Science and Technology) and the cooperation of some NGOs (e.g., Misamis Occidental Mangrove Management Association, Inc., which is made up of people's organizations from Tudela to Oroquieta).

Together, the various stakeholders can try to gain consensus on the different aspects of the adoption of EAF—consensus that is free or at least removed from conflicts of interest among

the members. IBAMO has been attending to problems that arise (e.g., poaching, fish kill), thus, reducing the potential for such problems to grow and fester. Its members participate in consultation-workshops and capability-building activities (e.g., training in coastal law enforcement, CRM review and certification, information and education communication, among others) to continually upgrade their institutional competence for a more capable and efficient alliance.

Highlights of IBAMO

The IBAMO members met to map out their actions for Iligan Bay and decided to prioritize two activities requiring immediate action—CRM certification and operationalization of a coastal law enforcement team. This section describes the experience of IBAMO on these matters.

CRM certification

The CRM plan (CRMP) of an LGU serves as its roadmap for coastal resource management. Among the eight LGUs in IBAMO, four (Jimenez, Panaon, Sinacaban, and Tudela) already had their CRMPs, which were drafted and approved through the assistance of an earlier project implemented in Misamis Occidental. The other four members had drafted their CRMPs and were hoping to have them approved. With technical assistance from DENR, a training in CRM was conducted for IBAMO, especially on the requirements for CRM certification.

In the course of complying with the requirements for CRM certification, and in implementing their CRMPs, the LGUs were addressing some of the biophysical, socio-economic, and institutional issues identified during the site diagnosis. Table 3 shows the progress of the IBAMO members' compliance with the requirements of DENR. Half of the

LGUs involved in this study had reached level 2, which means that their CRMPs were being well implemented and effectively integrated into the local governance. On top of the list of requirements for CRM certification is a multi-year CRMP, which by itself, already addresses directly and indirectly the concerns regarding fisheries.

Notable CRM activities implemented by the four LGUs that reached level 2 compliance were: (1) dispersal of 24,000 tilapia fingerlings in 2012 and continuous culture of about 500,000 tilapia fingerlings in Jimenez; (2) inclusion of marine protected area (MPA) sites, with funds allocation and monitoring of newly planted mangroves with DENR and BFAR in Tudela; (3) collaboration with DENR, BFAR, and Mindanao University of Science and Technology (MUST), and the Province of Misamis Occidental for mangrove habitat protection and rehabilitation, and fisheries development program in Sinacaban; as well as effective networking, resulting in a high number of livelihood programs (e.g., milkfish in cages, fish processing [bottled salted fish and dried fish], and environmental awareness tourism) funded by the Department of Labor and Employment (DOLE), Mindanao Rural Development Program-Community Fund for Agricultural Development (MRDP-CFAD), and Philippine-Australia Community Assistance Project (PACAP), among others; (4) establishment of fish cages, construction of a Bantay Dagat monitoring station, mangrove rehabilitation project, aquasilviculture project (crab fattening), and construction of a spar dike along the coastline in Plaridel; and (5) continuous mangrove planting and protection of marine sanctuaries in Lopez Jaena.

The level attained by these LGUs serves as a high benchmark of their achievements in doing CRM. This allows them to evaluate their performance and plan future investments to improve their implementation of CRM measures.

Table 3. Benchmark of compliance to the basic requirements and coastal resource management (CRM) best practices of the IBAMO-member LGU members

| Activity | Local Government Unit* | | | | | | | |
|---|------------------------|-----|-----|-----|-----|-----|-----|-----|
| | Alr | Jmz | LzJ | Orq | Pan | Plr | Snc | Tdl |
| Basic Requirements | | | | | | | | |
| Multi-year CRM plan | 1 | 2 | 1 | 1 | 2 | 1 | 2 | 2 |
| Coastal resource assessment | 2 | 1 | 1 | 1 | 1 | 1 | 2 | 1 |
| CRM-related organizations | 2 | 1 | 1 | 2 | 1 | 2 | 2 | 1 |
| Annual CRM programming and budgeting | 1 | 1 | 1 | 1 | 2 | 1 | 2 | 1 |
| Shoreline/foreshore management | 1 | 1 | 1 | 1 | 2 | 1 | 2 | 1 |
| CRM Best Practices | | | | | | | | |
| Local legislation | 1 | 2 | 2 | 1 | 2 | 1 | 2 | 2 |
| Municipal water delineation | 1 | 1 | 1 | 2 | 1 | 2 | 2 | 1 |
| Coastal zoning | 2 | 2 | 1 | 1 | 1 | 2 | 2 | 2 |
| Fisheries management | 2 | 2 | 2 | 2 | 1 | 2 | 2 | 1 |
| Coastal law enforcement | 2 | 3 | 2 | 3 | 3 | 2 | 2 | 2 |
| Marine protected area | 1 | 3 | 2 | 2 | 1 | 2 | 2 | 2 |
| Mangrove management | 1 | 2 | 1 | 2 | 2 | 2 | 2 | 2 |
| Solid waste management | 1 | 2 | 1 | 3 | 2 | 2 | 2 | 2 |
| Upland/watershed management | 2 | 2 | 1 | 2 | 1 | 2 | 2 | 1 |
| Coastal environment-friendly enterprise development | 1 | 2 | 2 | 2 | 1 | 2 | 2 | 1 |
| Revenue generation | 2 | 1 | 2 | 1 | 2 | 1 | 2 | 1 |
| Multi-institutional collaboration for CRM | 2 | 1 | 2 | 2 | 2 | 1 | 2 | 1 |

Source: WorldFish 2013

Note: *Alr - Aloran, Jmz - Jimenez, LzJ - Lopez Jaena, Orq - Oroquieta City, Pan - Panaon, Plr - Plaridel, Snc - Sinacaban, and Tdl - Tudela

Legend:

Level 1: Acceptance of CRM as a basic service of the municipality/city government, with planning and field interventions initiated (1-3 years)

Level 2: Implementation of CRMPs underway, with effective integration in the local governance (2-5 years)

Level 3: Sustained long-term implementation of CRM, with monitoring, measured results, and positive returns (5 years or more)

Coastal law enforcement

IBAMO had come up with the alliance's coastal resource management program, which integrates some aspects of the CRMPs of the LGU members (Table 4). This would allow IBAMO to serve its target beneficiaries while still completing the requirements for CRM certification and reconciling the boundary disputes. As Table 4 shows, the program's activities have to do mostly with law enforcement.

The need for a more effective fisheries law

enforcement was cited during the site diagnosis; it was also emphasized in other stakeholders' consultations. Hence, coastal law enforcement has become one of the priority tasks of LGUs. Jimenez, Oroquieta, and Panaon reached level 3 in terms of coastal law enforcement. This means that they have sustained long-term implementation and monitoring of activities in this category, and have measured results and positive returns.

Coastal law enforcement is a continuing struggle, if a peaceful and orderly manner of

Table 4. Coastal resource management program of IBAMO

| Program/ Project | Quantity/Unit | No. of Beneficiaries | Remarks |
|--|------------------------------|-------------------------------|--|
| 1. Sea and foot patrol operation | 7 members | 3 coastal barangays | Maintained |
| 2. MPA's restricted area | 30.6 ha | 3 Coastal barangays | Maintained |
| 3. Mangrove rehabilitation | 20,000 hills | Purok 5 | Conducted by WorldFish |
| | | Purok 6 & 7 | Conducted by BFAR |
| 4. Bantay Dagat outpost | 10,000 hills | 1 unit | Functional |
| 5. Hand-held radio | 2 units | 2 Bantay Dagat | 1 Functional |
| 6. Modified rice-fish culture in demo project | 500 sq.m. | 1 barangay demonstration site | Terminated |
| 7. KaEyoy Reef Sanctuary | KaEyoy Reef Sanctuary | 3 coastal barangays | Maintained |
| 8. CRM plan formulation | 4.5 km shoreline | 3 coastal barangays | Completed |
| 9. Tilapia dispersal | 24,000 fingerlings | 5 rural barangays | Completed |
| 10. Local Poverty Reduction Project (LPRAP) tilapia culture | 500,000.00 fingerlings | 5 POs | Ongoing |
| 11. Deputized fish wardens training | 115 participants | 3 coastal barangays | Completed |
| 12. Fish examination training | 1 participant | 3 coastal barangays | Completed |
| 13. Community funds for agricultural development livelihood training | 1 people's organization (PO) | 1 coastal barangay of Palilan | Postharvest facility project turned over |

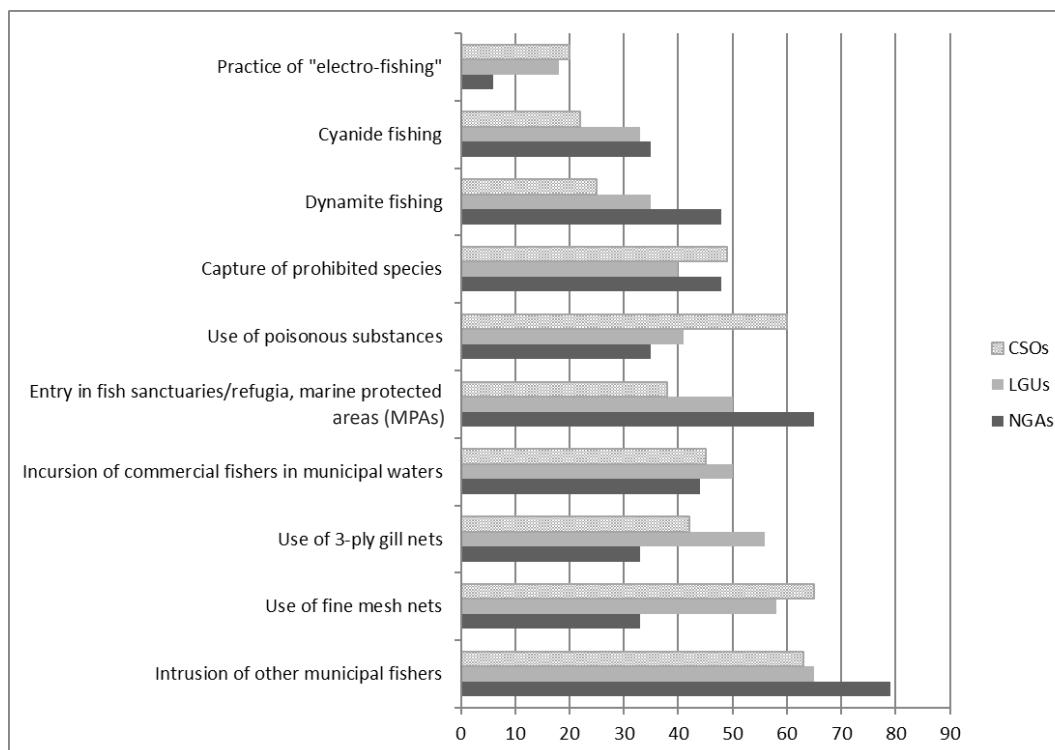
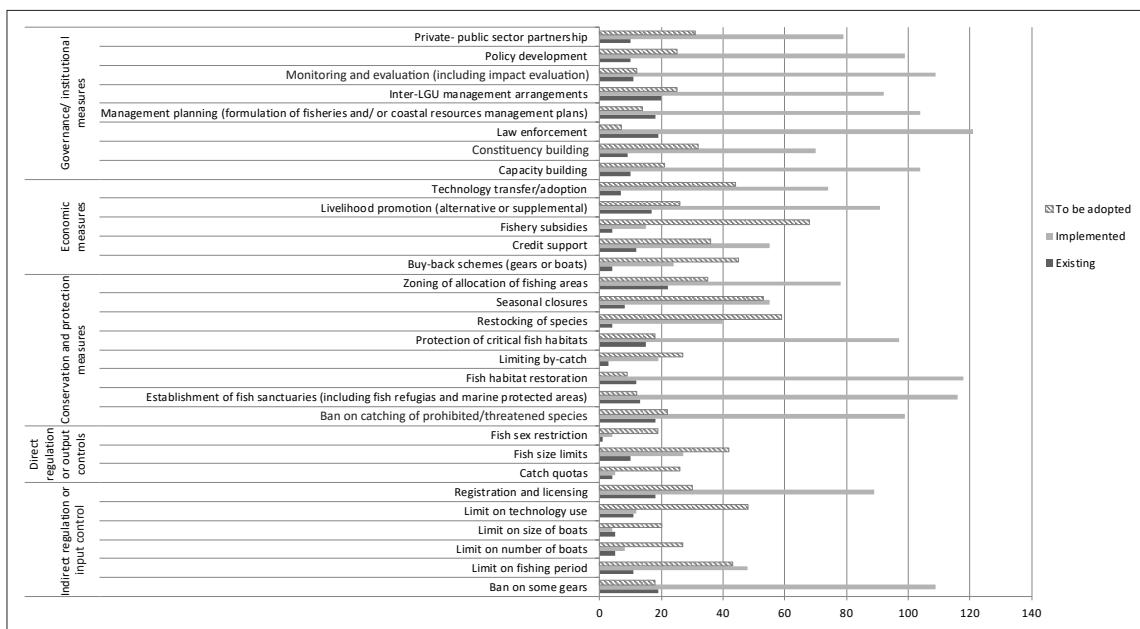
Figure 4. Fisheries laws/regulations perceived to be violated in Iligan Bay

Figure 5. Management measures that respondents perceive to be existing, implemented, or should be adopted



fishery is to be maintained. Despite efforts, intrusion of other municipal fishers, use of fine mesh nets and 3-ply gill nets, entry of commercial fishers in municipal waters, and use of poisonous substances for fishing continue to exist and proliferate in some areas (Figure 4).

Figure 5 shows the various management measures that are either existing (may or may not be implemented); implemented; or not yet existing but respondents hope the resource managers would adopt. The majority of respondents believed that banning specific gears, requiring registration and licensing, and limiting the fishing period to regulate fishing are already being implemented in Iligan Bay. However, direct management measures like fish size limits, catch quotas, and fish sex restrictions are yet to be widely adopted. Without the LGU providing any alternative source of income, fishers are reticent to comply.

CONCLUSION

The site diagnosis identified and verified the fisheries management issues along the coastal LGUs of Misamis Occidental, the partial results of which are presented in this paper. The study had effectively drawn out the sentiments of various stakeholders on how fisheries is being managed in Misamis Occidental.

Given the results, the challenge for all stakeholders involved is clear: How could each stakeholder contribute to making a better fisheries system in Misamis Occidental? Though the resource managers are seen as the leaders in such endeavors, the participation and cooperation of everyone involved in the fishing industry are essential. To be more effective, fisheries managers are challenged to be more innovative in their implementation of the fisheries policies.

The management issues determined from the site diagnosis are multifaceted, but these are considered in the ecosystem approach to

fisheries. IBAMO was formed specifically to look into and work to address these issues. Both the management approach (EAF) and the alliance offer possible solutions to these dilemmas. EAF offers an environment- and consumer-friendly approach for the resolution of the problems; IBAMO, on the other hand, presents a united front that will spearhead efforts to reverse the fisheries situation and bring about sustainability. Diligence, persistence, additional funds, collaboration, cooperation, and networking are their tools.

IBAMO recognizes that it will always face challenges in its life as a management constituency. On the other hand, it knows there will be opportunities to overcome the challenges, provided such opportunities are immediately recognized and acted on. It will be up to all the stakeholders involved to overcome the challenges and maximize the opportunities that come their way.

As pointed out by Christie et al. (2007), framing the approach as a policy that is beneficial to society by supporting food security, sustainable economic growth, and environmental health is a more tenable strategy of resource management. However, it will take time for a constituency to form around it. In the case of Iligan Bay, IBAMO presents such a relevant and well-placed constituency.

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