

# Re-examining User Rights in the Philippines: Selected Cases in Panay

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## Abstracts

Property rights largely influence the manageability and sustainability of renewable resources like fisheries. The area-specific user rights mandated by the Philippine Fisheries Code has provided more secured fishing grounds, particularly for the small-scale fisheries, in the context of competing resource stakeholders. Several variations of user rights have emerged depending on the localization of such fisheries codes in various provinces and municipalities. This paper reviews the overall enabling Philippine legislations (and relevant traditions) on securing user rights in fisheries resources and their conservation, as related to the attainment of relevant, sustainable development goals (SDGs). It looks into existing arrangements in two municipalities of the Iloilo Province in Panay Island. It will attempt to trace back customary tenure rights and traditional practices if they existed.

## 1. INTRODUCTION

The Philippines ranked among the top fish producing countries in the world in 2013 with its total production of 4.7 million metric tons of fish, crustaceans, mollusks, and aquatic plants. The fishing industry contributes some PHP 197 billion in current prices and PHP 130 billion in constant prices to the country's Gross Domestic Products (GDP). The total volume of fisheries production in the Philippines in 2014 reached 4 689 084 metric tons.

The Philippine fishery industry is predominantly small-scale and employed a total of 1 614 368 fishing operators nationwide (NSO 2002 Census for Fisheries). The municipal fisheries sector accounted for more than one million (1 371 676) operators while the commercial and aquaculture sectors added some 16 497 and 226 195 operators, respectively. Given the considerable number of municipal fishermen in the country, the Philippine Fisheries Code of 1996 or Republic Act 8550 expanded coverage of municipal waters from about 5.6 kilometres (km) from the coastline to 15 km from the coastline in order to increase the access of small scale fishermen to coastal resources. The code also protects the rights of municipal fisherfolk of the local communities in the preferential use of the municipal waters.

In addition, the enactment of the Local Government Code of 1991 or Republic Act 7160 ushered the formal devolution of powers and responsibilities from the central government to the local government units (LGU) and people's organizations. RA 7160 enabled local leaders to come together with the community and various stakeholders to plan, enact laws and implement programs suited to the area (Boeh, et al., 2013). The municipality of San Joaquin embraced a co-management arrangement for coastal resources with the LGU and the community that recognizes the territorial use rights of fisherfolks.

This study is a review on tenure and user rights in capture fisheries in the Municipality of San Joaquin, especially among the municipal fishers. It specifically identifies and describes fishery resources, fishing activities and fishery management in the area. It analyzes fishing rights arrangements using the Food and Agriculture Organization of the United Nations (FAO) instrument.

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### 1.1 Description of the fishery

The municipality of San Joaquin is a second-class municipality located in the southern tip of the Province of Iloilo, in the island of Panay. It is composed of 85 barangays (or villages), twenty-two of these are coastal with a population of 51 645 people (Cordero and Subade, 2018). The barangay is the basic political unit of government in the Philippines. In 2011, the coastal barangays in San Joaquin counted 15 marine sanctuaries along the coastline, with each sanctuary covering an area of 2 000 hectares (ha). In the 1970s, prior to the establishment of these marine sanctuaries, some of the areas were used as traditional fishing grounds where destructive fishing practices took place. To develop a practical response to the diminishing fish catches, the LGU classified some fishing areas as sanctuaries. Destructive fishing methods, spearfishing, anchoring, discharge of oil and other harmful substances became forbidden in these areas (Municipal Ordinance, 2009).

Fishing in San Joaquin usually takes place throughout the year, with peak seasons for certain species of fish. The targeted fishes include sardines, tuna, threadfin bream, red snapper, mackerel scad and two spot banded snapper. These fishes are either overexploited or fully exploited. Decreasing fish stock is a perceived threat in the area. Some residents claimed that the decreased fish catch was due to the establishment of marine protected areas (MPA) in regions that were previously their main fishing grounds. Others blamed the issue on the destructive fishing methods that devastated the coral reefs even before the establishment of MPAs.

Most fishers in San Joaquin are from the same barangay or municipality, but fishers from adjacent municipalities occasionally fish in the area as well. Within the 22 coastal barangays, there are over ten fish landing sites. Fishers are permitted to land and sell their catch in their own barangays or in adjacent barangays, with the exception of sanctuary areas. Given that fishing areas are open to other coastal communities, the increase in fishing population will also mean that the area will be shared, eliciting competition between the fishers. Furthermore, commercial fishing vessels that fish within the 15-kilometer municipal waters create additional competition among fishers, thus contributing significantly to the decrease in fish catch. This is one of the reasons why a fishing organization was established that requires the registration of all fishers. Only registered municipal fishers are allowed to fish within the 15-kilometer zone.

The most common fishing gears that are used include hook and lines and gillnets. Some fishermen also use lift nets and seine nets. Most of the fishermen choose fishing grounds near their barangay since their vessels are usually small motorized boats powered by an engine. These boats have outboard engines with less than 100 horsepower (hp), they are also 12 meters (m) in length and less than ten gross tons. Alternatively, some fishers still use non-motorised sailboats. These sailboats are not equipped with cold storage for the catch; thus some fishers use ice boxes on deck. Given the proximity of the coastal barangays to the fishing grounds, some fishers simply refrigerate their harvest when they arrive back on land. Fishing usually takes place alone or in the company of a family member (usually male). Some people also pay crew members to carry out the fishing operation. Some fishermen use fish corrals such as "punots". A "punot" is a fish trap anchored in order to catch fish in open water. A typical deep-water fish corral or "punot" is a fish trap set about 10-15 meters deep at strategic points along the coast. The set-up is made of bamboo poles and slabs of split bamboo. The gear is maintained and operated by 12 to 16 men (Kawamura and Bagarinao, 1980).

According to fishery municipal officers, fishermen in San Joaquin also use fish aggregating devices such as "payao". Payaos consist of a floating raft which is anchored by a weighted rope with suspended materials, such as palm fronds, which serve to attract pelagic and schooling species commonly found in deep waters (Philippine Fisheries Code, 1998). This device was originally intended to serve as a spawning area of fishes

and for sustenance fishing using hook and line. However, studies have shown that it has contributed to overfishing. The deployment of payao inside the municipal waters has encouraged the illegal entry of commercial fishers, most especially the ring net and purse seine operators, who are attracted to the large volume of fish that can be caught in areas surrounding a payao (Babaran and Ishikazi, 2011). This problem prevails in San Joaquin, where there is an existing practice of payao owners entering into an agreement with commercial fishers to have their payao driven by kubkoban or ring nets for a certain share in the total catch. This practice continues despite the Municipal Fishery Ordinance No. 03 s. 2002 that makes it unlawful (Espectato and Napata, 2012).

Fishing vessels that operate in the area are owned by the local communities. Most of the operators are also owners of fishing vessels, but non-fishing individuals are owners as well. Most of the fishing gears are owned by fishers from the local community or nearby communities. Some of the fishermen are part of the crew that maintains the fishing gear such as the “punot”, while fish aggregating devices are only owned by fishers from the local community. Women are allowed to own fishing vessels and gears, but most women, especially fishermen’s wives, often sell the catch as well. Less than 6 hours are usually spent fishing, mainly because fishers often partake in other economic activities to further support their family income. Fishers usually travel between 100 meters to ten kilometres from the shoreline because they only use small motorized boats.

Despite the enactment of the Philippine Fisheries Code of 1998, there are still problems with its enforcement and compliance and some fishery areas remain in a degraded state. Municipal Trial Court statistics in the country reveal cases of outright defiance of the laws by resource stakeholders in some localities (Catedrilla et al., 2012). Conflicts often arise over issues of management between those who manage the fisheries. The Local Government Unit officials of San Joaquin claimed that there were numerous cases of apprehension in the municipality as a result of monitoring and surveillance. There were cases filed in the local court and these cases usually involved the use of trawl and other active gears and fishing without a license. Those who were convicted were fined, and the gears were confiscated. In Southern Iloilo, where San Joaquin is located, a total of 65 fisheries laws violations were recorded for the period 2000-2010 (Catedrilla et al., 2012).

Competition over coastal resources also takes place between fishing communities and other migrant fishers. Most of the cases of apprehension involved commercial fishers — these involved poaching in municipal waters and the use of active gears. Local authorities were also aware of a few cases involving the use of superlight, sonar, cyanide and dynamite. In the case of sonar use, it was apparent that the respondents associate such devices with commercial boats that fish within the municipal waters. Some fishers also perceived the intrusion of “pangayaw” or other fishers from neighbouring towns as cases involving commercial fishers (Catedrilla et al., 2012).

Fishers have a negative outlook on the establishment of the Marine Protected Area (MPA). This is due to the fact that fishers are not allowed to extract any of the marine resources within the boundaries of the MPA. They consider these restricted resources as a source and support for their livelihood. While there are many factors contributing to the decrease of fish catch, such as encroachment of commercial fishing, overfishing, and climate change, the constraints imposed by the establishment of the MPA was the main factor that the fishers associated with their decrease in fish catch (Cordero and Subade, 2018).

Despite management efforts to address concerns regarding the fishery in San Joaquin, fishing pressures remain, both because of natural disturbances and human activity. The usual hindrances to fishing are storms and typhoon, which usually visit the area from July to September. These cause strong waves and surges as well as floods. These events can cause damage to the fishermen, fishing vessel, and gears. After

each typhoon, fishermen refrain from fishing for up to three days, waiting for the sea to calm down. For instance, some fishers remember the repercussions of a large tsunami that occurred during the 1940s. Others recall the world coral bleaching phenomenon that took place in 1998 when the municipality's coral reefs were greatly affected as well (Apresto and Reyes, 2005).

The considerable amount of solid waste in the coastal waters, especially during rainy days or after storms is another major problem in the area. Some residents do not follow local ordinances for waste disposal. In addition, the coastal waters are affected by siltation and agricultural pollution brought about by some unsustainable agricultural activities by the upper agricultural communities (Apresto and Reyes, 2005).

### **1.2 Economic contribution and social implications of the fishing activity**

The majority of catches from the municipal fisheries are either for household consumption or they are sold, mostly in retail quantities, directly in traditional landing sites or local market. None of the catch is used for non-human consumption. Women or fishermen's wives usually vend the fish caught in small volumes by going house-to-house in the surrounding communities. There are usually middle persons who buy fish from fishers. The catches are either frozen for local processing, sold at wet markets or processed into dried, cured, smoked or fermented products.

The municipality of San Joaquin has about 1 298 fishermen. They are either full-time or part-time fishers. Full-time fishers are entirely reliant on fishing as their source of income, while part-time fishers receive other sources of income as well. The majority of the fishers choose to have a second source of income in addition to the revenue they receive from fishing. Only about 25 percent of their income comes from fishing. The fishers have attested that income from fishing alone is insufficient to meet their daily needs.

Most of the fishers are engaged in farming; some are farm labourers helping the farmers during harvest season or in the tilling of the grounds. Others are engaged in boat renting, jeepney drivers, construction workers, carpenters, privately employed or own a business, such as a "sari-sari store" (Cordero and Subade, 2018). Only about 25 percent of the people involved in the fishery are women; they are either gleaners or fish vendors.

## **2. MANAGEMENT OF THE FISHERY AND RIGHTS-BASED APPROACH**

### **2.1 Management of the fishery**

In the Philippines, the enactment of the Local Government Code of 1991 or Republic Act 7160 (RA 7160) ushered the formal devolution of powers and responsibilities from the central government to the local government units (LGU) and people's organizations. Administrative arrangements resulting from RA 7160 have encouraged an environment for co-management to prosper. An administrative power shift placed the local governments at the forefront of coastal resource management (CRM) and enabled the local leaders to come together with the community and various stakeholders to plan, enact laws and implement programmes suited to the area.

At present, co-management is increasingly used in the Philippines to manage resources. In areas where there are shared common resources, co-management utilizes the involvement of several sectors in the society collaborating with inter-LGU partnerships and different resource sharing schemes among stakeholders (Adan, 2004; Napilan, 2004). Resource sharing schemes and power are delegated among several stakeholders and several LGUs that form alliances or integrated councils. Due to the nature of common coastal resources, problems in coastal areas of a particular local government go beyond its jurisdictional boundaries and can only be addressed effectively through collaborative management with adjacent coastal governments (Christie and White, 1997).

The Southern Iloilo Coastal Resource Management Council (SICRMC) is one of the examples of the co-management alliances formed to manage and develop coastal and marine resources in Iloilo's southern coastal communities. The municipality of San Joaquin is one of the five members of the council, together with the coastal municipalities of Oton, Tigbauan, Guimbal and Miag-ao.

For the past years, the LGU of San Joaquin initiated a co-management arrangement involving the coastal communities. The LGU has entered into a partnership with the community through fisheries ordinances and resolutions. The municipality has designated an authority structure delegated to the community through a Municipal Technical Working Group (MTWG) led by the municipal mayor as the chief administrator. The MTWG implements all administrative orders to the community with the help of the Municipal Marine Sanctuary Management Board that consists of the barangay representatives from the coastal communities. Several municipal ordinances and resolutions were passed to manage and protect their coastal resources, and to establish marine protected areas (MPAs) or sanctuaries in 15 of the 22 coastal barangays from 2009 to 2011 (Boeh et al., 2013).

The LGU of San Joaquin together with SICRMC came up with a 5-year coastal resource management plan that serves as a guide in the rehabilitation, protection and preservation of the coastal resources. All barangays with MPAs are tasked to institute a Barangay Marine Sanctuary Board under the umbrella of the Municipal Marine Sanctuary Management Board which was put in place to oversee activities or programmes in the MPAs or marine sanctuaries (Boeh, et al., 2013).

In particular, the LGU still initiates plans and programmes as well as ensures participation among stakeholders. In response to LGUs management plans, community groups (e.g. barangay council, fisherfolk association, women's group, youth group, senior citizens group, NGOs) were organized at different levels. These community-level groups were expected to give their support, cooperation and participation to LGU's activities. The LGU still oversees all management efforts at the municipal and community-level.

The LGU of San Joaquin has issued several ordinances for coastal management, one of these is the Municipal Ordinance No. 03 series of 2002. This is an ordinance that provides provisions for the regulation, development, management, protection and conservation of fisheries and aquatic resources of the Municipality of San Joaquin. Closed season was established to regulate the use of particular fishing gears.

In MPA areas, no person is allowed to engage in any form of activity within the Core Zone of the Marine Sanctuary except for recreational, educational and research purpose upon payment of a fee (Municipal Ordinance No. 7, 2009).

Licensing grants fishers the right to gain access to the fishery resource and to engage in fishing activities for a specified period. The legal basis for granting fishing privileges in municipal waters through fishery licensing is embedded in Fisheries Code and the Local Government Code. The LGU is tasked with maintaining a registry of municipal fisherfolk who are fishing or may desire to fish in municipal waters. In addition, it seeks to limit the entry into the municipal waters, and monitor fishing activities. In Southern Iloilo, local officials have complained about the low number of applicants for fishing permits (Espectato and Napata, 2012). Not all of the fishers are registered or are members of the fisherfolk organizations (Cordero and Subade, 2018).

The physical boundaries of the coastal areas are defined to avoid possible conflicts related to resource utilization and jurisdictional responsibilities. The National Mapping and Resource Information Authority

has clearly defined and certified the boundaries of the municipal waters of San Joaquin and officially landmarked it in 2002 (Boeh et al., 2013).

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In order to operationalize fishery law enforcement, a Law Enforcement Committee was formed. Members of the committee are the Philippine National Police (PNP), Philippine Coast Guard Auxiliary (PCGA) assigned to the Municipality of San Joaquin, the Punong Barangay, Barangay Kagawads and Barangay Tanods/ Barangay Police Security Officer, MFARMC/BFARMC, members of Fisherfolks Organization, and members of the Marine Sanctuary Management Board who have undergone fishery law enforcement training conducted by the BFAR and have been designated by the Municipal Mayor of San Joaquin as Deputized Fish Wardens.

Each Marine Sanctuary area has organized Deputy Fish Wardens/Bantay Dagat Groups, as part of the Law Enforcement Committee which conduct surveillance and operation. The Law Enforcement Committee is responsible for the enforcement of the municipal ordinance.

On the other hand, the establishment of the Southern Iloilo Coastal Resource Management Council (SICRMC) by the five LGUs to jointly manage their resource was a major factor in strengthening of law enforcement operation in the coastal waters in Southern Iloilo.

Through the SICRMC, the Maritime Group of the PNP was requested to assist in the fisheries law enforcement by providing massive seaborne operation and patrolling of the waters of Southern Iloilo to apprehend illegal fishers. The SICRMC provided a system where point persons were identified. Mobile phone cards were provided to allow them to immediately send text messages to the hotline number of the Maritime Group. As a result, enforcement activities were facilitated, and cases were, therefore immediately filed in court.

The violators usually settle and pay the fines. There were convictions that were usually in the form of fines and confiscation of fishing gears. However, very few cases have been closed, and where a verdict has already been reached, the accused were made to pay the fines or imprisoned for the offense. Cases that have been dismissed or withdrawn were usually due to the lack of substantial evidence or the failure of the prosecution to present evidence. The paid administrative fine is the amount agreed upon by the parties concerned without any court proceeding (Catedrilla et al., 2012).

The MTWG through the Philippine National Police serves as venues for arbitration and resolution of conflicts among fishers in the municipality of San Joaquin, especially those involved in conflicts in resource use and enforcement of the fisheries laws. Most of the complaints raised about resource use are brought to the attention of the management board. A case is elevated to the Municipal Trial Court if it cannot be resolved in the board. About 50 percent of concerns brought to the management board were immediately and amicably resolved. The Municipal Judge also confirms that issues are usually resolved peacefully (Boeh et al., 2013).

## **2.2 Brief history of the former rights-based approaches used in the fishery**

Previous rights-based management systems among municipal fishers are common in the country and among municipalities. The discussion in this section is primarily based on the work by Barut et al., 2003 entitled "Assessment, management and future directions for coastal fisheries in Asian countries". Before the institution of a centralized fisheries management by the Spanish and American colonizers, the resource utilization and property rights in the Philippines were based on common property principles within a barangay and managed by those who belonged to the barangay. The Philippines has a long history of indigenous fisheries and resource management systems where the barangay had jurisdiction over natural resource use and access (Pomeroy and Carlos, 1997).

When the Spaniards arrived in the country, they established a centralized system of government, including a state-led, centralized system for managing fisheries (Pomeroy and Carlos, 1997). The barangays were eliminated as administrative entities and with them went the territorial fishing rights claimed by each barangay. This ushered in the decline of common property management and open access use of resources. Later, American colonizers continued the centralized scheme translated to a development thrust with progressively increasing fishing effort and resource utilization. Thus, several fish companies embarked on large scale (or commercial) fishing, while poor coastal communities were encouraged to exploit their adjacent fisheries resource intensively. This pattern of centralized governance prevailed through the fifties and sixties (Pomeroy and Carlos, 1997).

During the 1970s, the expansion, use and development orientation of the country's fisheries policy continued under Presidential Decree 704 also known as the Fisheries Decree of 1975. The government continued to support the needs of the sector through the Expanded Fish Production Program (EFPP). In the small-scale fisheries sector, the strategy of the program was geared towards enabling the small fishers to venture into deeper waters by equipping them with more efficient boats and fishing gears with the underlying assumption that the fishery resources could support the increased fishing effort. However, the effects of a virtually open-access regime began to manifest in declining catches, rent dissipation and increasing poverty among small scale fishers (Barut et al., 2003).

Due to the overexploitation of the resource and the extreme perishability of the catch, fisheries policy gradually shifted towards decentralized management. Although the Fisheries Decree of 1975 granted overall control over management and regulation of fisheries to the then Secretary of Agriculture and Natural Resources, the Decree recognized that small scale or municipal fishing was within the jurisdiction of municipalities. The latter had the authority to issue licenses and grant fishing rights to small scale fishers (which can operate within 7 km from shore). From the mid-1980s, the policy environment for fisheries was generally characterized by the following shifts: a. from centralized governance to localized system; b. from open access to limited access, and; c. from development focus to management (Barut et al., 2003).

## **2.3 Rights-based approach: allocation and characteristics**

The enactment of the Local Government Code (LGC) of 1991 firmly established the jurisdiction of municipalities over small scale fishing. The LGC expanded the coverage of municipal waters from 7 km from the shoreline to 15 km from the shoreline. The expansion of municipal waters aimed to limit the access of commercial fishers and to provide a more equitable distribution of benefits to the marginalized municipal fishers.

The Philippine Fisheries Code of 1998 reinforces provisions in the LGC that are aimed at strengthening local governance of municipal fisheries. The Fisheries Code also seeks to encourage and institutionalize community participation through the creation of Fisheries and Agriculture Management Councils (FARMCs) at the barangay, municipal, regional and national levels. Access limitations are more

straightforward in the Fisheries Code with mechanisms such as: (1) registry of municipal fisherfolk; (2) exclusion of non-resident fishers in certain municipal waters with the attendant coding of vessels; (3) mapping and delineation of municipal waters; (4) traditional limitations such as closed areas and seasons; and (5) non-traditional access limitations such as use of economic rent indicators to set production targets for the fishery. These provisions for access limitation in the Code indicate a progressive shift in policy from full development to co-management (Barut et al., 2003). The devolution is to give substantial participation for the fisherfolk who actually utilize the resources. The old centralized set-up was the reason why some national policies did not succeed since the complex situations at the local levels had never been considered (Martinez, 1998). The new arrangements could provide an opportunity for municipal fishers to obtain considerable participation in the management of resources that they utilize.

In addition to the Local Government Code, the Fisheries Code and the Implementing Rules and Regulations of the Fisheries Code, fisheries are also governed by various fisheries administrative orders issued by the Bureau of Fisheries and Aquatic Resources and Municipal Ordinances issued by LGUs. The LGU of San Joaquin together with SICRMC came up with a 5-year coastal resource management plan that serves as a guide in the rehabilitation, protection and preservation of the coastal resources. The plan was subjected to a series of public consultations to incorporate relevant comments and suggestions from the communities. All barangays with MPAs are tasked to institute Barangay Marine Sanctuary Board (BMSB) under the umbrella of Municipal Marine Sanctuary Management Board which was put in place to oversee activities or programmes in the MPAs or marine sanctuaries. Then the Integrated Coastal Resource Management Plan (ICRMP) was formulated. This ICRMP covers major components in coastal management that include, among others: legal aspects, livelihood, zoning and tourism and waste management. The ICRMP also include programmes on livelihoods and food security of the community, eliminating illegal fishing, regulating activities in the different zones and controlling the entry of fishing vessels and transient fishers in the municipal waters (Boeh et al., 2013).

The Municipal fishing area of the Municipality refers to the area fifteen (15) kilometres from the low water line on toward the sea. These areas may be utilized by the Municipal Fisherfolks and the Peoples Organization or cooperative who are listed as such in the registry of Municipal Fisherfolks. Commercial fishers are not allowed to fish within this area. The use and exploitation of fishery and aquatic resources in the Municipal waters are reserved exclusively to bonafide residents of the Municipality. However, research and survey activities may be allowed under strict regulation for purely research, scientific, technological and educational purposes that would also benefit the residents of the Municipalities.

Although the LGU issues permit to operate to qualified fisherfolk applicant, all municipal fisherfolks engaged in fishing and/or fisheries within the municipal waters are required to register with the BFARMC in their respective barangays for determining priorities among them. Fishers are also given preferential rights in the utilization and management of coastal resources in the municipal waters in compliance with municipal regulations. Women were also allowed to fish, particularly beach seine or "sahid" fishing. Most cleaners are women and children, however, this activity is now regulated.

Fisherfolk from other municipalities may be allowed to undertake fishing activities within the 10.1 kilometres to fifteen (15) kilometres area through a permit issued by the Municipal mayor or his duly assigned representative upon recommendation of the MFARMC. They are also required to pay fees for the permit. No permit to operate is issued to applicant fisherfolk, PO's or Cooperatives who have not previously secured the Certificate of Registration for the fishing vessels and gears. Only fishing gears or equipment considered legal by the FARMC as duly confirmed by Fishery Technician of BFAR Personnel will be allowed to operate in the municipal waters.



The Fishery License is renewed annually. Fishing rights cannot be leased or sold, but they can be inherited. There are no limitations on how many fishing rights can be held by one person, corporation or community. Closed season was established to regulate the use of particular fishing gears rather than to specifically regulate catching of specific species of fish. A municipal ordinance stipulates that, beach seines operation may be allowed to operate starting October of the year to 15 March of the following year. Before and beyond this period beach seines operators are considered illegal unless the legal size mesh nets are used. Danish seines (Hulbot-Hulbot) and encircling gill nets (Likos) are absolutely prohibited in the territorial waters of the municipality. It is unlawful for a payao owner to have his/her payao, which is installed within the ten 10 km exclusive zone, driven by any commercial vessel and it is unlawful to engage in fishing with the use of super lights in the municipal waters (Municipal Ordinance No. 3, 2002).

Compliance and non-compliance among fishers can be viewed as a result of the interplay of several factors, which include the uniqueness of a fishery in terms of its institutional design and control and enforcement system (Nielsen, 2003). Some fishers have violated ordinance by fishing inside the core zone of MPA. For some fishermen, certain stipulations in the Fisheries Code and in their respective Municipal Fisheries Ordinances are difficult to follow or obey. These were the stipulations on the use of fine-mesh nets, poaching in municipal waters by commercial fishers, and use of active gears. Non-compliance is usually due to 1) many of the fishers have fishing as their only source of livelihood, 2) poverty, 3) rich and powerful men own the active gears, and 4) the existing confusion on fine-mesh net sizes (Catedrilla et al., 2012).

### **3. CONTRIBUTION OF THE RIGHTS-BASED APPROACH TO ACHIEVING SUSTAINABILITY**

#### **3.1 Sustainable use of the resources**

The local community depends mostly on the coastal resource for their economic activities (fishing and gleaning) and recreation (swimming). Sand and stones are occasionally quarried and used as building materials for local constructions. Due to the problem of declining fish catch and degradation of the coral reef areas in the coastal waters of the municipality, the municipality of San Joaquin established the MPAs for resource conservation and protection of marine habitats and aquatic resources. Each MPA has a 2-ha core zone or no-take zone. While it is the municipal LGU that initiated the establishment of the MPAs, the responsibility of sustaining the initiative was turned over to the local community.

Although no stock assessment for fishery has been conducted, according to fishermen, size of target species increased since the establishment of MPAs and regulation of fishing area and gears. This was validated by results of a study on MPAs that reveals an overall increase of 1-5 times in terms of fish biomass from 2007. This is attributed to both an increase in abundance and in fish size, particularly from 2011 to 2013. Several large individuals were observed during the 2013 surveys, which were 2.3-3.3 times larger than the size of fish in 2007. This increase in fish size and the accompanying increase in biomass are typical changes resulting from protective management, particularly the cessation of fishing activity in the area (Espectato et al., 2017).

An initial study of three MPAs recorded a total of 202 reef fish species belonging to 35 families. Overall reef fish abundances ranged from 571 to 1038ind/500m<sup>2</sup>, which registered an overall mean abundance of 841ind/500 m<sup>2</sup>. Results of the biological assessment conducted in this study showed an increase in abundance and fish size, consequently resulting in a significant increase in biomass. These results on fish biomass and abundance are much higher than other MPAs in the country (Espectato et al., 2017). This is indicative that the protection accorded by the no-take zones of the small-sized MPAs can be effective. The increase in the average sizes of target species in the coastal area is attributed to the spillover effects of MPA.

### **3.2 Economic viability of the fishery**

The municipality has 1 065 municipal fishers based on the municipality's 2016 Fish Registration (FishR) data (Espectato et al., 2017). As of 2018, the number of municipal fishers increased to 1 298. The increase in fishing population will also mean that the area will be shared, eliciting competition between the fishers. This competition is also an important factor that could lead to a decrease in fish catch. Fishing activity has not changed much despite the implementation of coastal resource management in the area. Average fishing trip and distance travelled by municipal fishers has not changed. Although there are restrictions on the type of fishing gears to be used, some fishers still used the gears that they were familiar or accustomed with despite the fact that some gears are prohibited.

The use of fish aggregating devices has not changed despite the municipal ordinance prohibiting the use of such to be driven by a commercial vessel. Some payao owners enter into an agreement with commercial fishers to have their payao driven by kubkoban or ring nets for a certain share in the total catch. Adjacent municipalities have different regulations on the use and establishment of payao. In reality, fishers cannot be separated from their livelihood for a long time; thus, there is a need to have a shorter but optimally effective closed season for fishing gears.

Despite the increase in the number of fishers and gears, income from fishing is still low and seasonal. Poverty and hunger are still one of the major problems of fishermen. A number of municipal fishers still remain below the poverty line (Cordero and Subade, 2018). The lack of alternative livelihood only exacerbates the situation. Fishers also have several health problems associated with their occupation and they cannot afford or have access to quality healthcare (Cordero and Subade, 2018).

The number of fishing vessels without engines have decreased while vessels with inboard engines have increased. Vessels' characteristics in length, gross tonnage and horsepower (hp) has not changed. Fishing vessels owned and operated by a paid crew has increased while those owned by an individual and leased out to fishers has decreased. This is about the catch sharing system which results in low income for fishing labourers who can neither own a vessel nor gear.

### **3.3 Social equality**

Fishing rights held by individual fishers and fishing vessels have increased. Legally recognized fishing rights take into consideration the ability of poor and vulnerable communities to access their basic livelihood needs.

The privilege of catching Bangus Fry or Prawn Fries is open for free to all fisherfolks in the municipality, provided that the registration fees and permit fees for every unit of their fry-sweeping device used for the said operation are paid annually.

Rights to fish for the next generation of fishers is taken into consideration. However, more women than men involved in fishery recognized the need to manage the sea and the marine resources sustainably for future generations (Espectato et al., 2017). A study found that women in San Joaquin played an important role in resource protection initiatives such as MPAs, even if their roles were not formally recognized. Their delegated task of attending meetings on behalf of their husbands was an additional role they played in the community on top of their productive and reproductive roles. In possessing a "sustainability mindset" and a generally higher level of environmental awareness than men, women could make a very good medium for social marketing programs related to resource management (Espectato et al., 2017).

In the case of a hazardous event occurring, it is possible to identify individual fishing rights holders in order to deliver aid (e.g. emergency relief, cash transfer, replacement of equipment and infrastructure, etc.). The BFARMC has the list of all registered fishers in the barangay; it is therefore easy to identify fishers that could be needed in times of calamities. Fortunately, the municipality was not hit by super typhoon Yolanda.

#### 4. MAIN CHALLENGES AND WAY FORWARD

##### 4.1 Challenges for the fishery

During 1970-1980s, illegal fishing was prevalent in the area with the use of cyanide and dynamite fishing. Cyanide fishers use a poisonous and noxious substance locally known as “lagtang”. There are no strict regulations on fishing, even for commercial fishers, and outsiders were allowed to fish. The coastal fisheries exploited by municipal fishermen are open access in nature in the sense that the resource belongs to the fishermen who harvest the catch. Commonly used gears include mesh nets like sahid (beach seine) and panunton (handline). Despite the existence of illegal fishing, fish was abundant in the area, thus no one cared to prohibit it. In fact, during the 1960s the Development Bank of the Philippines even gave soft loans to fishermen to enable them to purchase motor engines for boats. There are no restrictions on loans as long as they are paid for. This is in support of the expansion program of the government to enable municipal fishers to venture to deeper areas. However, the increasing fishing intensity in the municipal waters has caused overfishing. Coupled with the destruction of coral reefs by dynamite fishing and the use of fine-meshed nets, catches have considerably decreased. When entry to fishing is not restricted or controlled, the inevitability of overexploitation of the resource and over-capitalization of the industry is predictable (Martinez, 1998). Through time, the impact of illegal, unregulated and overfishing activity was evident not only with the reduction in catch but also in declining fishers’ income.

Competition for access and resources involved poaching in municipal waters by the commercial fishers and the use of fine-mesh net, trawl and active gears in municipal waters. There were also a few cases involving the use of superlight, sonar, cyanide, dynamite and fishing without a license. In the case of sonar use, it was apparent that the respondents associate such device with commercial boats that fish within the municipal waters. Conflict in the region is mainly caused by illegal fishing such as the use of payao by municipal fishers, which are dragged by commercial vessels (10 percent of the catch go to the owner of payao). Other issues include encroachment of commercial fishers in municipal waters and the overlapping of fishing areas among barangays and municipalities.

The challenges that the conflicts have created for fishery are (1) To whom does the fishing area belong; (2) Whom to prioritize; (3) Coherent policy on various fishing gears and fish access. Addressing poverty of coastal fishers, (4) Conflict on ownership and access outside MPAs fishing area; (5) Barangays communities are overprotected of their own MPA area. They do not want other barangays fishers to have access to their area. The introduction of a rights-based management system has reduced conflict. However, it has also created confusion in the law and difficulty for local officials to apply the rules.

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