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Community-Led Coastal Management in the Gulf of Mottama  
Project (CLCMGoMP)

**Co-Management of Fisheries in the Gulf of Mottama**

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**CLCMGoMP Project Report: GOMP #**

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## Introduction

A major goal of the Community Lead Coastal Management Gulf of Mottama (CLCMGoM) Project is the equitable and sustainable management of the natural resources of the Gulf of Mottama (GoM) particularly the fisheries resources. This is to be achieved through a process of **Co-management**. Our definition of co-management is a flexible and cooperative management involving all levels of stakeholders (User groups) at Village, Township, State/Region and Union Government, including all fisher groups, fish buyers, processors, etc. The responsibility for managing the resource is shared between the user groups and government, and both the community and government are involved during the decision making, implementation and enforcement processes. This is an important difference from community management where the community often alone is responsible for management.

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## Fisheries in Myanmar

Fisheries in Myanmar can be categorised into three sectors associated with three different fishery laws; Freshwater Fisheries (inland fishery), Marine Fishery (offshore and inshore fishery), and Aquaculture. Previously these laws were Union Laws but the States and Regions have been given power to collect revenue and manage the Fresh Water Fisheries according to 2008 Myanmar Constitution. Both Bago Region and Mon State have enacted their own Fresh Water Fisheries Laws. According to the Myanmar Fresh Water Fishery Law (1991), fresh water fisheries waters are defined as;

*“Fresh water Fisheries water means waters, pond, course, river, stream and lake which is of permanent or temporary nature in which fish live and thrive and which is situated within inland boundary along the sea coast of Myanmar. This expression also includes a leasable fishery, reserved fishery, fishery waters in which rights of fishery are permitted under a license, reservoirs, water in an area belonging to any Government department, inland tidal places, waters on an island, crocodile nets and turtle banks in which crocodile and turtle lay their eggs and brackish waters. Furthermore, water on the inland- side of the straight line drawn from one extreme end of one bank to extreme end of the river mouths and creek mouths continuous to the sea are fresh water fisheries waters”*

Thus the waters of the Gulf of Mottama would appear to be classified as Fresh Water.

Myanmar’s fresh water fisheries are classified according to access rights:

**Leasable Fisheries** (known as “Inn”) - large areas for which exclusive fishing rights are allocated for one to nine years, usually to individuals, by the regional government using an auction system;

**Tender Lot Fisheries** -large stationary fishing gear in specific river locations which are licensed, usually to individuals, by the regional government through an auction system;

**Open access Fisheries** -can be used by all fishers who possess a gear license purchased from DOF, or using small-scale gears that do not require licensing.

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## **The Principles of Common Property Resources Management and Collective Actions**

Collective Action in fisheries is found in many different forms. Kurien (2013), a pioneer on collective action and small scale fisheries, defines collective action as:

*“We consider organization to be human-initiated social-cultural structures (tools) that are utilized by group (members), over time, to achieve collection objectives.” and “Organization and Collective Action should always be seen as two sides of the same coin.”*

Basic principles of using collective action to deliver public goods requires: successful institutions be based on concepts of what is right and proper as dictated by local culture; local priorities as determined by cultural preferences have to be blended with the motivation and skill-sets of the relevant government agencies; and pre-existing institutions need to be treated as a potential resource for reforms that can improve development outcomes and not swept aside.

The principles of common property resources management as outlined by Ostrom (1990) for a community led fishery resources management would need to set up a system, develop the community’s rules and govern based on the following:

1. Define clear group boundaries.
2. Match rules governing use of common goods to local needs and conditions.
3. Ensure that those affected by the rules can participate in modifying the rules.
4. Make sure the rule-making rights of community members are respected by outside authorities.
5. Develop a system, carried out by community members, for monitoring members’ behavior.
6. Use graduated sanctions for rule violators.
7. Provide accessible, low-cost means for dispute resolution.
8. Build responsibility for governing the common resource in nested tiers from the lowest level up to the entire interconnected system.

Community groups may also want to include the collective marketing or small enterprise that may enhance the functioning of group and social cohesion among the members but it should not be the essential criteria for successful community led management system.

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## **NAG Experiences in co-management and Fisheries Partnership**

NAG started the fisheries co-management system in the Ayeyarwady Delta, where private property rights are recognised in the fishery management system. In the Delta, fishing grounds in flood plain areas are identified as leasable fisheries (Inns), and rivers and coastal mudflats areas are identified as tender lots, and sold through an auction system. This has resulted in the lack of access to nearby fishing resources for small scale fishers (SSF). Therefore, the approach to co-management used here was to concentrate on increasing access to the fishing resources for SSF.

The strategy has been to work at village level to organise SSF communities around the access issues and later township and district level small scale Fisher Development Associations (FDAs) were organised to coordinate with Department of Fisheries and other relevant government departments, Myanmar Fisheries Federation (MFF) and other stakeholders including the

private sector (LIFT, 2014). Ayeyarwady Region Fisher Network (ARFN) evolved from the 20 FDA's of the Ayeyarwady Region. This is now a regional multi-stakeholders platform "Ayeyarwady Fisheries Partnership (AFP)" that has focused on changing fisheries laws and regulations to increase the access of SSF to the fishing resource.

NAG started the fisheries co-management with seven fishing villages in coastal tender lots. NAG and FDA mobilised the villages to start collective efforts to prepare a fishery management plan in tender areas and submitted the proposal to the regional government to access the tender with the floor price. The first fishery management plan was focused on the village level institutional arrangement and regulations related to the fishing gear. In following years, the management plan was gradually improved in conservation aspects including identification of mangrove rehabilitation and protected areas. Even though, fishery co-management was implemented at the village and village tract level, some issues like law enforcement on outsiders<sup>1</sup> was difficult to settle at the village level. Thus, a multi-stakeholders coordination mechanism was established at township, district and regional level; this coordination platform become the Ayeyarwady Fisheries Partnership (AFP).

NAG experienced in fisheries co-management and fishers' institutional models were replicated in Rakhine State through the Rakhine Fisheries Partnership (RFP). As a result in 2014, the Rakhine State Freshwater Fisheries Law was enacted with the recognition of community rights to access the resources and that of fisheries co-management (TWP, 2015).

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### **Fisheries in Gulf of Mottama**

Gulf of Mottama (GoM) is created by the two major rivers the Sittaung and Thanlwin as a result the environment is estuarine and the fisheries are primarily open access fishery, thus all fisheries with sufficient gear and license can fishing anywhere in the GoM. Initially it appeared that the fishery issues would be quite different between the Ayeyarwaddy Delta and GoM, but there are some similarities with fisheries in the mudflat areas, especially in Thaton, Bilin and Kyaikhto, Mon State. Thus, co-management experiences in the Delta fisheries were still applicable in the GOM even though community may not have exclusive right to control over fishing grounds. However, fisheries in GoM are more complex in nature, and there are considerable differences and issues in the fishery between Bago Region and Mon State and between medium scale fishers and SSF (MacKay, 2017). Thus the co-management approach may have to be much more site specific and concentrate on the co-management process rather than one co-management model. In addition there will be a need for a strong awareness and capacity building component for all stakeholders.

As many of the issues in the Gulf are site or region specific we will need to examine a number of individual issues and apply co-management to each of these issues. We also have a number of major constraints to co-management that include: little lack of information on the species, biology, ecology and fishery in the Gulf; unclear understanding of regulations by fishers and even DoF; and limited enforcement, or enforcement capacity resulting in no management.

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<sup>1</sup> Fishers from other villages or other areas invaded the co-management fishing grounds and conducted illegal fishing.

As a result we suggest a broader approach to co-management in the GoM. First, Identify a few major issues or hotspots, some of which may be site (village) specific. Then secondly develop co-management models for the key issues involving the various key actors and stakeholders (in addition to SSF, township level government officials (DoF, GAD, etc), State or Region officials, local fish collectors, MFF, etc.) as a means of providing models to how co-management approaches can address diverse fisheries issues. This approach will involve organising, capacity building and training at all levels some of these achieved through the new Fisheries Development and Research Collaboration Centre. Based on current knowledge a number of issues are suggested in Table 1, the most serious and pressings is the illegal fishing with small mesh size that catches large numbers of juvenile fish (Annex 1; & MacKay & Soe Min 2017).

**Table 1: List of Major Issues for co-management in the Gulf of Mottama**

<b>Issue</b>	<b>Location</b>	<b>Priority</b>	<b>Notes</b>
Than Za Gar Pike Illegal stake nets	Kyaikhto to Thaton Mon State especially on the mud flats	1**	Illegal nets with Small Mesh (2cm), long (1-5 km). (Annex 1 & MacKay & Soe Min 2017
Erosion	Bago Coastal Vil- lages	2	Co-management could assist in re- settlement & livelihood schemes.
Aung Khan Thar Management Zone (AKTMZ)	Thaton Township, Mon State	3	AKTMZ has been designated as a pilot co-management area by Mon State: plans include; enforcing fishing laws, developing crab fish- ing zones & mangroves replanting
Spawning Ground & Juvenile nursery area pro- tection	Upper part of the Gulf, Sut Pa Nu to above the old bridge on the Sittaung River & Bilin River	4	Spawning areas for anadromous species (Hilsa, Mango Fish, & Croaker), freshwater Prawn & Mul- let (Bilin River); research starting with Mawlamyine University
Management of Inns	<b>Mu Thin Village</b> , Bilin Township & <b>Kha War Chaung</b> Village, Kyaikhto Township	5	Mu Thin fishers are charge when they pass the Inn on the way to their fishing grounds. Kha War Chaung Inn prevents fish migrating back to the river and de- creases their fishing
Mud Crab Fishery	Bago Region & Mon State villages (SSF, women & children)	6	Community management models from elsewhere could assist in in- creasing income & sustainability
New Land	Mon State Side	7	Apply co- management to issues of new land development, access to fishers & farmers.

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## **Model for Co-management and Implementation steps**

Although different approaches of co-management can be implemented in the GOM, the issue of the illegal fishing with small mesh size is the first priority and the success of this co-management approach will contribute to other co-management approaches. Unless resolving or reducing the illegal fishing, the interest of the local fishers and stakeholders for other types of fishery co-management will be difficult to mobilise. Further, the small mesh illegal fishing issue has been highlighted recently in local news media, and pointing out as weakness in law enforcement and institutional capacity of DOF. Thus, DOF have a strong interest in resolving the issues, and cooperation on a co-management mechanism is essential for DoF rather than to proceed alone.

The possible solutions through co-management arrangements are complex but it is important to carefully develop a strategy with the various stakeholders to address this issue. With the close collaboration between DOF and CLCMGOMP, the following implementation steps are suggested and the Institutional/Organisational arrangements are outlined in Chart 1.

**Step 1:** Document and summarise all that is known of the illegal fishery (see MacKay & Soe Min 2017); This can also be compliment by village level documentation of the illegal fishing including pictures of boats, nets, catch and careful interviews to enable identification of fishers.

**Step 2:** Working with key actors to increase understanding and capacity to co-manage and implement the solutions; in which fisher leaders from targeted townships, DOF staffs, private sector/ MFF and other political actors will be involved.

**Step 3:** Organise and strengthen the lager fisher representation body such as Township, District and State/Region fisher associations. According to Delta and Rakhine experiences, fisher groups in village level alone could not resolve all the challenges in implementing co-management and higher level representation bodies are necessary for dealing with stakeholders at different levels and improving the policy related issues.

**Step 4:** Identification of the potential co-management areas and prioritise the first fishing ground for starting co-management. In this regards, co-management areas will be demarcated in township wide since the fishing practices in GOM change seasonally and fishing trips may cover the whole Gulf, from up-stream in the Sittaung River to the mouth near Mawlamyine. Thaton Township will be the first township (focusing on Aung Kan Tar Village and Village Tract) to implementing the co-management in terms of institutional capacity of fishers in villages and townships as well as lager fisher population who are mainly affected by the small mesh illegal fishing.

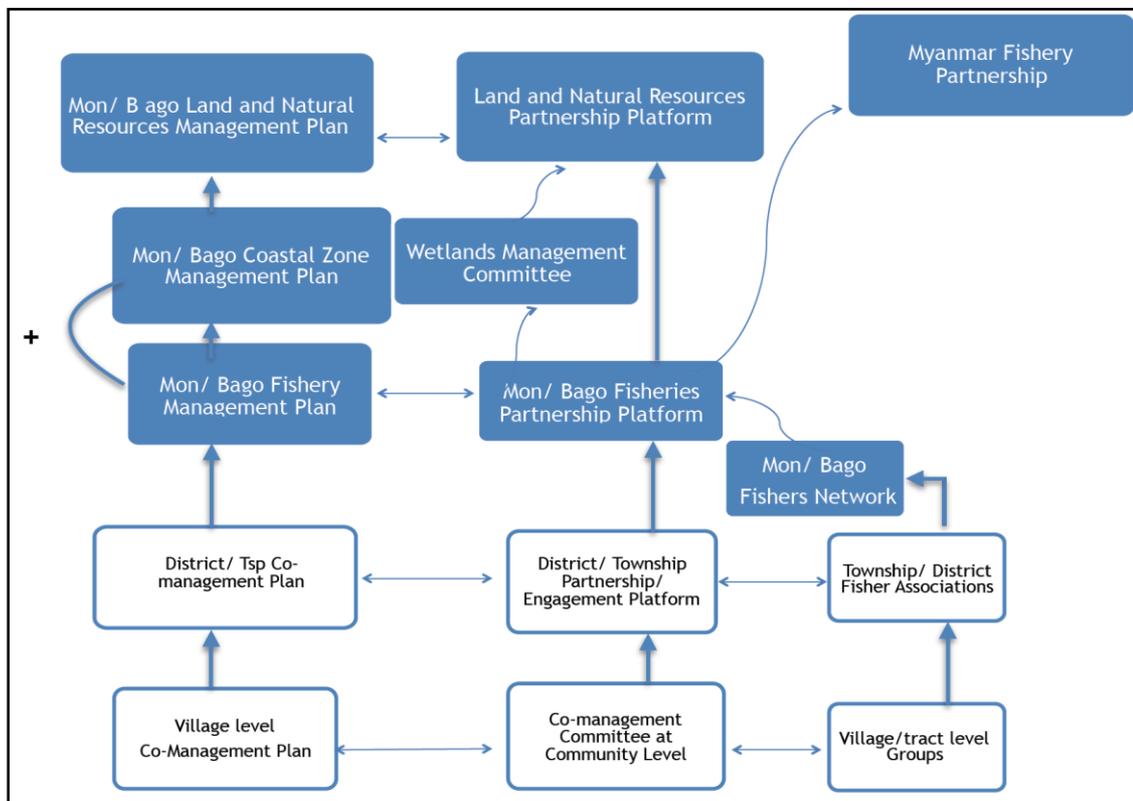
**Step 5:** Developing the Co-management Plan and official announcement of co-management area by DOF. The co-management Plan in Thaton will be developed with the participation of fishers, DOF and stakeholders in Thaton Township. Then, DOF will announce the Thaton area as co-management fishing ground though the approval of Mon state government. The initial co-management Plan will be simple with emphasis on law enforcement and area demarcation; but will be in the following years it will include broader issues of wetlands resources conservation based on the institutional capacity of the community.

**Step 6:** Expansion of co-management arrangement to adjacent townships (Biin and Paung) to decrease the fishing areas of the Kyaikhto illegal fishers. Strategically, this extension will put pressure on illegal fishers and assist in setting up a coordination mechanism with them.

**Step 7:** Establishing the coordination mechanism with illegal fishers and different stakeholders in Townships. The coordination mechanism with stakeholders will be established in all the targeted townships. In Kyaikhto, the coordination mechanism with illegal fishers will be initiated to find ways to compromise/reduce the illegal fishing practices gradually and then the arrangement will lead toward co-management in Kyaikhto Township.

**Step 8:** Improving the Townships' Fishery Co-management Plans and strengthening the linkages of coordination platforms. The initial co-management plans will be expanded to include other issues (Table 1) (spawning grounds protectio, etc). Besides, the coordination platforms at different levels will be strengthened in terms of functions and hierarchical linkages.

**Step 9:** Increase the scope of Management Plan integrating fishery, wetlands resources conservation and local livelihood. In this stage, co-management arrangement will broaden towards wetland resources and the plan will ensuring that different aspects of fisheries, wetlands resources and local livelihood are included thus evolving/linking with the Coastal Management Plan (Ramsar). In other words, it will be the local implementation plans for the Coastal Management Plan.



**Chart 1: Institutional Arrangement for Co-management**

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**Annex 1: Case Study on Illegal Fishing with Small Mesh long stake nets (Than Za Gar Pike) catching small fish<sup>2</sup>**

**Description & History:** All Mon State coastal villages from Kyaikhto to Thaton have identified the use of Than Za Gar Pike nets as the major issue that is leading to a reduction in their fish catch in the Gulf of Mottama. This has been echoed by Myanmar Fisheries Federation and BANCA. Some informants have indicated that this practice has been going on for 25 years but there appears to have been an increase in the past four years possibly related to the previous Mon State government's poverty reduction strategy that subsidised the purchase of new nets and possibly boats.

**Gear:** The Than Za Gar Pike is a staked set net with small mesh 0.24in (6mm). The nets are between 1.5 to 4 km (1-3) miles long and staked in a line or curved and made into a trap. They are staked at low tide, and remain in place for a week or more, during the monthly high tides (Spring tides) Fish are collected twice a day during low tide. There are 2-4 boats involved. One boat will stake out the place to be fished and wait for the suitable tide then set the nets and other boats will often arrive during the fish harvest. Some fishers may fish cooperatively. During harvest there can be 10-20 crew at the site.

**Catch:** These nets catch some larger fish but mainly juvenile fish. There are no detailed surveys but Tint Wai et al (2014) suggest that River Hilsa (nga tha lauk), Indian thread fin (ka ku yan), catfishes (nga yaung, nga dan) are decreasing as a result of the catch of juveniles. Our interviews indicated that stocks of Toli Hilsa (par mae), and also croaker (nga poke tin), mullet (ka ba lu) and sea bass (ka ka tit), and marine catfish (nga zin yang) may also be affected. Occasional fish are discarded on shore where they rot and make fishing difficult. It has also been reported that these nets block fishing areas where small scale fishers would like to fish.

We have heard various estimates of the catch per day in the range of 80 to 300 Viss (150 to 500kg). This is considerably higher than that from the other fishing gear used by legal fishermen.

**Where:** Fishing is concentrated on the mud flats in the coastal areas of Mon Sate from Kyaikhto to at least Thaton and also on the west side of the GoM near the junction of Bago Region and Yangon District. Recent reports from fishers in Ahlat Village, Paung Township suggest that measures to control this fishery in Thaton may be pushing the fishery south and also to the west side of the Gulf. Although fishermen have also indicated that the environment conditions (mud-flats) in Paung Township are not suitable to this type of fishing. The mud flats where the fishing is concentrated are also feeding sites for shore birds including the spoon bill sandpiper and appear to be critical habitat for juvenile fish. There are reports of some of these fishermen capturing shore birds for food and possibly using cyanide to kill both fish and birds. The critical issue of this fishing is that they are catching juvenile fish on the nursery grounds in very large numbers. Many fishermen suggested this would lead to extinct of the fish in five years.

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<sup>2</sup> A full version of this paper with photos is given in MacKay & Soe Min 2017.

## ANNEX 1

**Who:** The boat owners are medium scale fishers and businessmen mainly from Kyaikhto Town. BANCA reports that some owners are also from Yangon District. They may own two to four boats and employ at least two crew per boat. The crew are reported to be mainly from Kyaikhto Township, elsewhere in Mon State and also Bago region, but are not migrants from other areas. Crew may make three times the value of regular net fishing. The owners are known to people in Kyaikhto and possible also DoF.

**Market:** The larger fish appear to be sold in the Kyaikhto Township market while the small fish are sold for fish paste (nga pei) manufacture. Probably to the same business men who own illegal fishing boats. The main selling area is in the Kyaikhto Creek. BANCA (2015) identified one Kyaikhto fishing boat that had 500 gallons of fish paste on board and more were at his home base.

**Regulations & Enforcement:** Legal mesh size in Mon State is 1 inch (2.5 cm). Frequent reports are that the illegal fishermen have legal size net that they use for inspection and licensing and hide their illegal nets on the coast when they come back to fishing port. It is not clear if these boats also fish legal gear, but we were told that they carry the legal sized nets on board but do not use them.

Previously DoF has not been able or willing to enforce. Very recently there has been increased DoF interest and high level support for co-management particularly in Thaton Township. This has been due to a very active fisheries committee in one Thaton village (Aung Kan Thar), the high interest of DoF through the District Fisheries Officer and the new Mon State Director of Fisheries. This director had previously worked in Rakine State and was very much involved in the Co-management efforts there. DoF has had the Mon State Parliament declare the Thaton Township as a pilot site for co-management, with a focus on Aung Kan Tar Village (GoM project village).

Currently DoF is understaffed. We were told there are 5 DoF staff in Kyaikhto (2 women and 3 men) but only one responsible for fisheries managements in both Kyaikhto and Bilin Township. There is no DoF office in Bilin. There is also little funding for transport and no patrolling assets. We were told that DoF Kyaikhto is well aware of the problem and knows who the illegal fishers are but cannot prove illegal fishing as when the boats land in Kyaikhto they have the legal sized nets on board.

We were also informed by the Divisional Fisheries Officer that the Union Minister has approved new staff one for Bilin and one more for Kyaikhto. That hopefully might improve the staffing situation.