

## **Development of co-management model for large river system in Bangladesh**

Développement d'un modèle de cogestion pour le grand réseau fluvial au Bangladesh

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### **RÉSUMÉ**

Les communautés de pêche fluviale au Bangladesh sont très menacées en raison de fréquentes catastrophes naturelles, ce qui endommage les systèmes de ressources en eau intérieure. La présente étude vise à établir une cogestion adaptative et à accroître la participation des parties prenantes à la protection des ressources halieutiques fluviales du Bangladesh. L'étude a mené une enquête sur six districts riverains dans 24 villages de pêche couvrant 1200 ménages choisis au hasard pour comprendre les pratiques de gestion. Un modèle de gestion des pêches a été mis au point pour mettre en œuvre la gestion des ressources fluviales dans une approche participative impliquant des pêcheurs, des négociants de poissons, des administrateurs, des dirigeants politiques, des organismes gouvernementaux et d'autres intervenants pertinents. Le modèle donne un indice de gestion des pêcheries qui peut être utilisé pour évaluer et comparer la gestion durable des grandes ressources fluviales. Le modèle se compose de cinq niveaux : i) central, II) district, III) upazila (sous-district), IV) Union et v) comités villageois. L'étude a marqué les arrangements de cogestion en tant qu'outils potentiels pour une gestion plus durable des Pêches et assure la participation des communautés.

### **ABSTRACT**

Riverine fishing communities in Bangladesh are at great threat due to frequent natural disasters, which damages inland water resources systems. Present study aims to establish adaptive co-management and increase involvement of stakeholders to protect riverine fisheries resources of Bangladesh. The study conducted a survey across six riverine districts in 24 fishing villages covering 1200 households randomly selected to understand management practices. A fisheries co-management model was developed to implement riverine resources management in a participatory approach involving fisherman, fish traders, administrators, political leaders, government agencies and other relevant stakeholders. The model yields a fisheries management index which can be used for assessing and comparing the sustainable management of large riverine resources. The model consists of five tiers: i) Central level, ii) District level, iii) Upazila (sub-district) level, iv) Union level and v) Village level committees. The study has flagged the co-management arrangements as potential tools for more sustainable fisheries management and ensures communities' participation.

### **KEYWORDS**

Co-management, ECOFISH-Bangladesh, Hilsa Conservation Group, Meghna River, Riverine fisheries

## 1. INTRODUCTION

Fish from Bangladesh's vast inland waters are vital to millions of poor people and many riverine fishers exist at low-income levels. The fishery sector accounts for 24.41% of agricultural GDP, 3.61% of the total GDP and 60% of animal protein intake (DoF, 2017). Co-management and community-based management approaches have long been advocated as a means to address common failures associated with conventional 'top-down' government-driven approaches to fisheries management but a few studies have been conducted in the large riverine ecosystems and demonstrated its benefits. Fish production and species diversity increased by 233% and 30% respectively due to community management approach in the river Titas in Bangladesh (Mustafa 2009). This paper assesses fisheries co-management and communities' participation in the management process through Enhanced Coastal Fisheries in Bangladesh (ECOFISH-Bangladesh) project in the

riverine and coastal fisheries of Bangladesh. The ECOFISH-Bangladesh is an initiative funded by USAID and jointly implemented by the WorldFish and the Department of Fisheries (DoF), Bangladesh

(<https://www.worldfishcenter.org/content/enhance-d-coastal-fisheries-bangladesh-ecofish-bd>).

The initiative support riverine and coastal fishing communities and other key stakeholders to improve the resilience of the Meghna River ecosystem and communities reliant on fisheries. The ECOFISH-Bangladesh is working in 123 fishing villages in nine coastal districts and formed 448 Hilsa Conservation Groups (HCGs) involving 15,149 fisher's households where 30% members are women (Table 1) (ECOFISH-Bangladesh 2017).

In the present study, a structural analytical hierarchy process was followed to assess the fisheries co-management indicators based on respondents management options. The model was verified through direct field observation and expert judgement. The co-management model yields a fisheries management index which can be used for assessing and comparing the sustainable management of large riverine resources. The model was applied with information from 6 major riverine districts of Bangladesh and its implication of other riverine areas having similar settings.

## 2. METHODS

The study was covered the vast Meghna Rivers systems and its tributaries, including five fish sanctuaries along a 400 km stretch of rivers. The study was carried out in 2016 and conducted a survey in 24 fishing villages covering 1200 fisher's households randomly selected across six riverine districts- Barisal, Bhola, Chandpur, Jhalokathi, Laxmipur and Pirojpur incorporating 500, 200, 100, 100, 150 and 150 households respectively. The survey used an interview guide in this study to collect information on management practices, conservation initiatives, participation in the fishery management activities and fisher's opinion regarding co-management approaches. The study was also undertaken a desk-based review of the available secondary information, with a particular focus on capture fisheries. The survey used qualitative information and analysed the data using SPSS.

## 3. RESULTS AND DISCUSSION

ECOFISH-Bangladesh encourages fishing communities to form 'Hilsa Conservation Groups' (HCGs), landing center's stakeholders 'Hilsa Ghat Groups' (HGGs) and fishers' women 'Community Savings Groups' (CSGs), with the aim to inform, empower, and encourage participation of community members in protecting their fishery. These HCGs, HGGs and CSGs are the backbone of grass root level co-management activities. This study support development of co-management frame-work to build scientific basis for riverine fishery co-management through involvement of government agencies, river fishers, fish traders and relevant stakeholders. The proposed framework of co-management was constructed, which somewhat implemented and facilitated the sustainable fishery management and conservation in the Meghna River systems (Figure 1). ECOFISH-Bangladesh (2017) reported that fish production increased by 146% and, 10 fish species re-appeared in the Andharmanik River sanctuary. Besides, the huge production of Hilsa shad during 2015-16 and 2016-17 financial years may be probable success of co-management initiatives (ECOFISH-Bangladesh 2017).

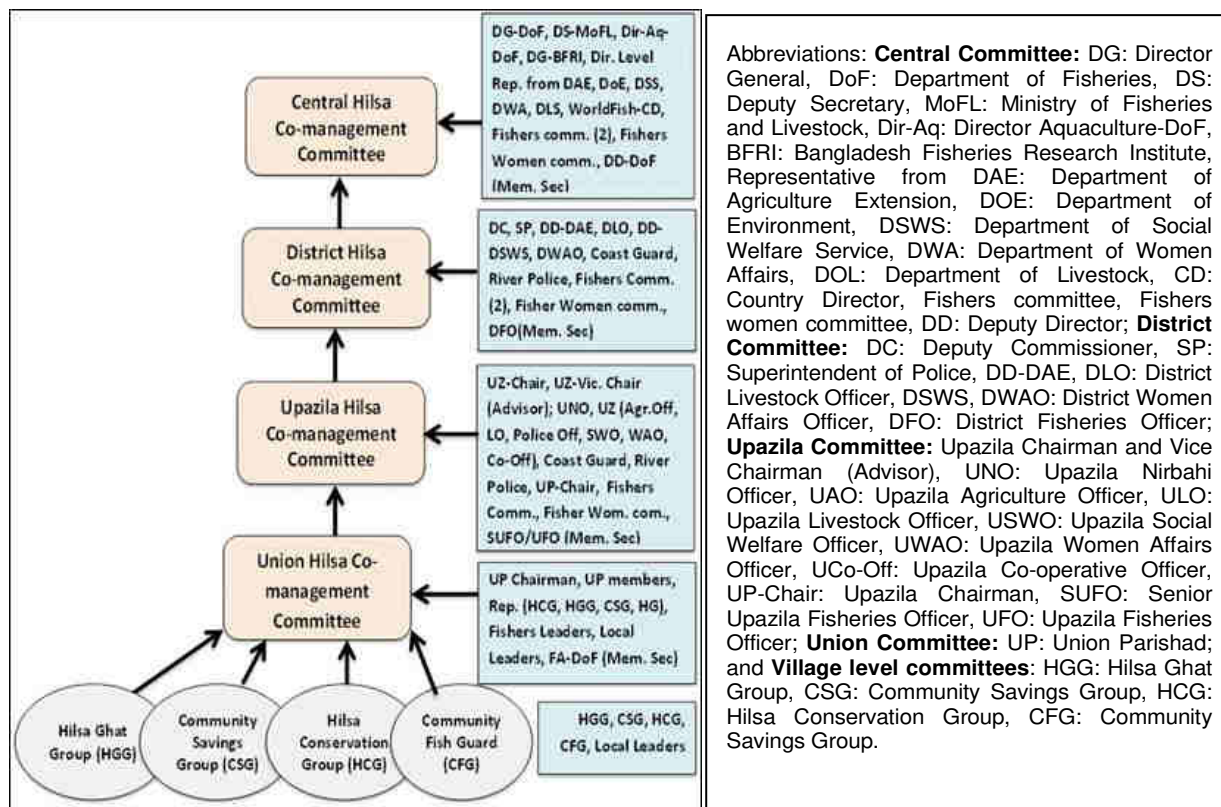
Fishing is the main source of food and money and majority of fishers (90%) believed that there are no

Table 1. Status of HCGs

District	No of villages by Sept'17	No of HCGs by Sept'17	Status of Women member		Status of Men member		Total members
			Number	(%)	Number	(%)	
Barguna	4	16	184	33	381	67	565
Barisal	16	53	561	30	1280	70	1841
Bhola	37	161	1583	30	3668	70	5251
Chandpur	19	61	580	27	1574	73	2154
Jhalokathi	4	7	56	26	158	74	214
Laxmipur	16	59	638	30	1458	70	2096
Patuakhali	17	60	653	33	1309	67	1962
Pirojpur	2	7	83	36	147	64	230
Shariatpur	8	24	266	32	570	68	836
Total/Av.	123	448	4604	30	10545	70	15149

alternative means of livelihood except fishing. Ninety-two per cent of the fisher's thought that co-management will improve the compliance of riverine fishery. Only 3% disagreed about the concept. Study also revealed that about 46% fisher's family participated in the fishery management activities. Fisher's perception regarding management approached found that about 79% responded showed their satisfaction. However, fishers interviewed acknowledged noncompliance and, about 90% thought that extreme poverty is the main cause of noncompliance during ban periods.

Figure 1. Proposed Co-management model



#### 4. CONCLUSION

Bangladesh initiates a participatory fishery resources management approach, a system commonly known as co-management, which is currently employed to conserve riverine fishery resources through management tools in nine coastal districts. The study has flagged the co-management arrangements as potential tools for more sustainable fisheries management and ensures strengthening communities' participation in developing management to a more local level.

#### LIST OF REFERENCES

DoF 2017. National Fish Week (2017). Compendium (In Bengali). Department of Fisheries. Ministry of Fisheries and livestock, Bangladesh. 160p.

ECOFISH-Bangladesh (2017). Enhanced Coastal Fisheries in Bangladesh (ECOFISH-Bangladesh), Annual Report, Year-3, Oct' 2017 – Sept' 2017. WorldFish, Bangladesh.

Mustafa, M. G. 2009. Fishery resources trends and community-based management approaches adopted in the river Titas in Bangladesh. *Int. J. River Basin Management.*, 7(2),(135-145).