Local stakeholder criteria for successful integrated floodplain management – A review of performance[1]

Parvin Sultana and Mahbub Alam

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Integrated floodplain management –
Institutional environments and participatory methods

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The following review was conducted to triangulate IFM performance from a community perspective. It is important to build an understanding of the local perceived legitimacy of IFM institutions and impacts and in this regard the review set out to consult the range of local stakeholders with respect to *"successful management*" and *"suitable institutions".*

The case studies were selected to represent the range of NGO, GO and local initiatives across a range of waterbody types.

1. Methodology

The researcher discussed with the project team leader/field staff and explained the objective of the research. The project team leader/field staff suggested the site(s). The stakeholder groups were identified by the relevant project staff in the area. The date for the discussion meetings were suggested by the field staff and stakeholder groups according to their convenience. Discussion meetings with each group were conducted at a suitable location such as the local school or community centre.

The methodology involved the following steps:

- Rapid stakeholder analysis (using key informants). These groups were different for different case studies.
- Formation of stakeholder sub-groups
- With each group, the background to the IFM project was explained
- Brainstorm indicators of success and failure in IFM
    1). Rank indicators according to number of people agreeing
    2.) The project/case study in question was scored using a force-field analysis
- Notions of good organisations / institutions were discussed with each group
- The groups' concepts and translations of 'institutions' were recorded
- Brainstorm indicators of success and failure of RMIs
    1.) Rank indicators
    2.) The project/case study in question was scored using a force-field analysis

2. Case Study 1 - Local Initiatives at Chaptir Haor

Local initiatives refer to indigenous water management practices such as the construction and maintenance of cross-dams, contour bundhs, irrigation systems, embankments, drainages outlets, irrigation inlets, compartmental dykes, and to "operation" activities, such as cutting and closing embankments. Usually the higher level officials consider these cases as dysfunctional, or technically inferior and non-viable. Some studies on local initiatives revealed that embankment cuts (public cuts) are traditional but often functional and cost effective water management practices. These local initiatives were taken in order to manage immediate risks/threats to their assets and many require continued action such as the future closure of cuts in the embankment. These voluntary, self-organised, local initiatives may face certain structural limits at times that could relate to the magnitude and organisational scale of the problems involved. Some of the initiatives, such as the annual construction and demolition of cross-dams, maintenance of ancient irrigation systems (palla) and contour bundhs are recurrent activities that have taken place every year since time immemorial. Other initiatives included construction of relatively large structures and may be followed by rigorous maintenance activities. Some involved just a small group of people for a few hours, while others involved thousands of people for several days and large amounts of locally mobilised funds. None of these initiatives were the results of impulsive decisions. Even embankment cuts proved to serve a constructive role, within a carefully planned indigenous water management culture offering an alternative substantially cheaper and more appropriate than regulators. Resource mobilisation strategies are quite flexible and equitable, to the extent that poor people contribute with their labour and wealthier people with their material resources. The key to successful mobilisation of material resources appears to be local control, transparency, accountability and cost-effective use of scarce resources.

2.1. Background

Haors are vast natural depressions situated mainly in northeast part of Bangladesh. The haor basins are not clearly delineated. During the high flood (June – October), all the haors are covered under 3 to 6 m of water, forming one single inland ocean. When the waters recede, however, the various haor basins can be roughly recognised. During the dry season (December to March), only a number of slightly deeper shallow depressions (beels) in the haor basins contain water. Villages in the haor areas are built on privately initiated and manually raised hills. However, during dry season water scarcity is a common phenomenon.

Chaptir haor receives water from the Mohasing, Dahuka, old Surma, and Kamarkhali rivers. These rivers originate from Surma river and Dekhar haor and discharge to the Kalni, Chamti Nadi and Kamarkhali Nadi. The main problems of the protection bunds are erosion, overtopping, breaches and public cuts. Chaptir haor, like other haors generally remain under water for five to six months a year. Although this abundance of water benefits the fishery, haor farmers can only harvest one crop in the winter season Boro paddy). This crop is again in risk if there is an early flash flood during the harvesting period and local people struggle with this situation almost every year. These people migrated here in the early fourteenth century and were attracted by the enormous fishing potential. The settlers realised that with some collective effort one paddy crop can be cultivated. Farmers cultivate local Boro varieties which are well adapted to the haor situation – a short growing period and flood resistant.

The Bangladesh Water Development Board's initiative to build submersible embankments is based on the traditional initiatives. Chaptir Haor water management initiatives are traditionally taken by farmers and beel leaseholders and the objective of all initiatives is to maximise crop and fish production and protect houses from erosion. These initiatives included cutting of

closures (built on drainage channels as a part of submersible embankment) to drain excessive water inside the polder during post monsoon period, to build closures at the opening of the drainage canal in order to keep water for dry season crop irrigation, and also to raise bunds in order to prevent early flash floods. The beel leaseholders who lease beels for fishing are also involved in several local initiatives in water management, in particular cutting and building cross-dams for protecting both agriculture and fishery. Conflicts over natural resources happen rarely.

2.2. Institutions

No formal institution exist for the motivation and organisation of local people. The school committee and Masjid committee, however, take initiatives through local, large farmers. Village leaders (*mathbor*) are also responsible for organising such initiatives and this is a regular phenomenon so that a range of people living near the breaches or khals around the problematic area are involved in these initiatives. If it is a major problem, needing more people to be involved, they may have to organise a meeting between different *mathbors.* Details of the decision (when and where, how many people needed) are communicated to all villages through Masjid mikes. For the cutting of embankment on the drainage canals, the beel lease holders are responsible. The water is drained from the beel and all the fish are harvested. In this case, a meeting is organised with the beel leaseholders and *mathbors* to fix a date for drainage. Usually, when a flash flood occurs in March/April people of all strata (all types of farmers, fishers, landless, agricultural labour and sharecroppers) participate in strengthening the vulnerable spots voluntarily. Richer farmers do not work by themselves but provide substitute labourers. More people involve themselves in early flash flood protection but the post-monsoon cutting and closing initiatives are taken by the specific interest groups.

2.3. Resource Management Success Criteria

Stakeholder group: Farmers

Rank	Success criteria	Status
1	No crop damage due to early flooding-100% harvest	− − −
2	Increased catch per unit effort	− − −
3	Available water in the river during dry season	− − −
4	Continued fishing in beel	− − −
5	Water available for irrigation for dry season cropping	− − −
6	Low river bed	− − −
7	Proper drainage after monsoon - timely harvest of paddy and no paddy damage due to sprouting	− − −

Note: +++ Excellent, ++ Very good, + Good, − Bad, − − Very Bad, − − − Worse, = Static

Stakeholder group: Boatmen

Rank	Success criteria	Status
1	Water in the river and beel throughout the year	− − −
2	Boat navigation throughout the year	+
3	Increased catch per effort- fishermen completely dependent on fish	− − −
4	No use of harmful gear	− − −
5	Beels used as dry season fish refuse	− − −
6	Credit available on easy term for alternate livelihoods	− − −
7	Increased resource based employment	− −
8	Low frequency of flooding	− − −

Stakeholder group: Fishermen

Rank	Success criteria	Status
1	Increased dry season fishing area	− − −
2	Less use of fertilizer, more production	− − −
3	Increased catch per unit area and biodiversity	− − −
4	More fish food-aquatic weeds	− − −
5	Beels used as sanctuary only	− − −
6	No harmful gear use	− − −
7	More surface water available in the haor/beel during dry season	− − −
8	Frequency of early flash flood decreased	− −
9	More land under surface water irrigation during dry season	− − −
10	Increased water flow to the haor during dry season-no faulty sluice gate	− − −
11	More grasses and trees	− −

Stakeholder group: Landless

Rank	Success criteria	Status
1	More surface water available in the haor/beel for irrigation during dry season (November-April)	− − −
2	Boat passes throughout the year	− − −
3	No bund in the river	− − −
4	Increased fish availability and biodiversity	− − −
5	No sluice gate – more water storage for dry season	− − −
6	No harmful gear use	− − −
7	Poor have access to fishing everywhere during monsoon	− − −
8	More trees	− − −
9	More aquatic weeds (fish feed)	− − −
10	Less harmful weeds	− − −
11	Decreased labour out-migration	− − −

2.3.1. Comments

Interestingly, the management criteria of all stakeholder groups did coincide (better use of dry season water, continuous fishing etc.). This may relate to the biophysical characteristics of the Haor and the linkages between the various livelihoods in this context.

Although process documentation suggests that local initiatives are widely-supported this feedback suggests that their limitations (with respect to meeting the criteria identified) are recognised.

2.4. Resource Management Institutions - Success criteria

Stakeholder group: Farmer

Rank	Success criteria	Status
1	Participatory decision making	+++
2	Timely meetings held	+++
3	Fund for running the institution	− − −
4	Proper leadership-Leader should be a farmer, honest, kind and strong enough to take decisions during crisis	=
5	Have an executive committee structure	− − −
6	Decision making capacity of the executive committee prior to crisis	+++
7	Flexibility for change (committee, members, rules etc.)	− − −
8	Have constitution/local rules and regulations	− − −
8	Have an office for meeting	− − −

Stakeholder group: Boatmen

Rank	Success criteria	Status
1	Strong leadership-Leader should be active, honest and have strong personality, have no political connection	+++
2	Unity among members	++
3	Fund for sustainability	− − −
4	Have an office for meeting	− − −
5	Electoral power of the committee	=
6	Responsibility fixed and followed by specific members	+++

Stakeholder group: Fishermen

Rank	Success criteria	Status
1	Committee with fishers only	− − −
2	Fund for running the institution	− − −
3	Committee will be able to lease in beels	− − −
4	Proper leadership-Leader should be knowledgeable, honest and respected by all, have no political connection	_ _ _
5	Regular meeting, resolution of meeting	− − −
6	Have member selection criteria	− − −
7	Have constitution/local rules and regulations followed	− −
8	Have an office for meeting	− − −
9	Fixed fees for fishing	− − −

Stakeholder group: Landless

Rank	Success criteria	Status
1	Unity among the members	+++
2	Proper leadership-Leader should be active, honest and have strong personality, have no political connection	_ _ _
3	Fund for running the institution	− − −
4	Have constitution/local rules and regulations	− − −
5	Have an office for meeting	− − −
6	Timely communication among villagers- secretary strong in communication within the institutions	++
7	Better communication channel	+

2.4.1. Comments

All stakeholders identified the need for financial support to the local management committee. The institutional interests of the groups were rather more polarised than the desired management outcomes (solutions to management problems) which suggests that consensus building (perhaps via PAPD) may have great potential in highlighting mutual interests and potential interventions.

3. Case Study 2 MACH

3.1. Resource Management Success Criteria

Stakeholder group: Landless poor

Rank	Success criteria	Status
1	Water area increased by 40%	- -
2	Better fisher management	+
3	Water level in the beel increased by 3 feet during dry season	++
4	High value fish increased by 50%	- - -
5	Hogla (a type of weed) decreased by 40%	- - -
6	Beneficial aquatic weeds increased by 25%	- - -
7	Migratory birds are safe	++
8	Haor basin deeper than now	++
9	Aquatic organisms increased	- -
10	Fingerling/fry survival incresed by 30%	+++
11	Better cooperation between different stakeholder groups	++
12	Chapra-Maguria beel as bird sanctuary	- - -
13	Permanent fish sanctuary established	+
14	No dewatering of beel for fish harvest	- - -

Stakeholder group: Farmer and landowner

Rank	Success criteria	Status
1	Surface water level increased	- - -
2	Shelter for fish increased	+
3	Tree increased	- -
4	Bird hunting decreased	+++
5	Proper share of water for all users	+
6	50% decrease in sand deposition (sand coming with the upstream water flowl	- - -
7	Soil erosion decreased by 60%	++
8	Cattle feed (green grass) increased by 25%	- - -
9	The link canals are open (for increased recruitment of fingerlings)	- --
10	No bund in the river	+

Stakeholder group: Fishers

Rank	Success criteria	Status
1	Water level in the beel increased during dry season	- -
2	Fish diversity and number increased	+
3	Rare fish appear	-
4	Permanent sanctuary for fish conservation	-
5	Fish migration route (link canals) established	- -
6	Harmful gear use 100% decreased	++
7	Fingerlings increased	+
8	Fish disease decreased	- - -
9	Use of pesticide decreased by 60%	- -

10	Less water pollution	- - -
11	Trees increased (Locally adaptable species, Hijol and Korosh	- - -
12	No sand deposition	- - -
13	No bird hunting	- -
14	Cultivable area increased	-

Stakeholder group: Local elites

Rank	Success criteria	Status
1	Water level increased	--
2	Fish increased by 60%	+
3	Fish species diversity increased	+
4	Use of harmful gears decreased by 90%	- - -
5	AIGA for all	+
6	Limited use of pesticide (IPM)	- - -
7	Awareness among all stakeholders increased	- - -
8	Permanent sanctuary for fish conservation	++
9	Fingerlings increased in the beel	+
10	More water resistant trees (25% increase)	-
11	Sufficient water for irrigation	+++
12	Sanctuaries demarcated by red flags	+++
13	No hunters exist	-

3.1.1. Comment

All stakeholder groups prioritised the management of surface water, an issue considered especially serious by landowners and the elite. As primary users of the aquatic resources, fishers identified the need for the improved production and diversity that MACH attempts to achieve. Interestingly, there was also overlap between the priorities of the elites and those of MACH activity (see below).

3.2. Resource Management Institutions - Success Criteria

Stakeholder group: Landless poor

Rank	Success criteria	Status
1	Institutions take care of some community welfare activities	- - -
2	Transparency in finance	+++
3	Members play their own role successfully	+++
4	80% attendance in the meeting held	++
5	Two-thirds of the members attend meeting	++
6	Fund available for BMC	+
7	Regular meeting held	++
8	Unity among members	++
9	Management plan exist	++
10	Timely implementation of agreements	+
11	Leaders are honest and respectable	+++

12	Ownership feelings for the resources	++
13	Constitution exists	+++
14	90% people comply to the local rules	++

Stakeholder group: Farmers and land owners

Rank	Success criteria	Status
1	Unity among all stakeholders	+++
2	Cooperation with others in the community	++
3	Members active - fulfill their responsibility	++
4	Fund available for BMC	+
5	Regular meeting	+++
6	Leader honest, mentally and physically sound, have respect in the society	+++
7	75% meeting attendance	++
8	Rules and regulations of the organisation	+
9	BMC follow constitution	++
10	Other stakeholders in the community aware of the objectives and activities of the organisation	+

Stakeholder group: Fishers

Rank	Success criteria	Status
1	Members united	+++
2	Alternative income generating activities for all needy fishers	++
2	Fund for BMC operation	+++
3	Regular meeting held	+
4	Two-thirds of the members attend meeting	++
5	Members can sacrifice time for resource management activities	+++
6	Leader honest and active	+++
7	Constitution exists	++
8	All the decisions recorded for future use-resolution book	+++
9	Organisation registered	+++

Stakeholder group: Local elites

Rank	Success criteria	Status
1	Constant monitoring of programme	+++
2	Members sacrificing and united	++
3	Members dedicated to their responsibilities	++
4	Objectives of the organisation clear to all stakeholders	++
5	Constitution exists	++
6	Organisation manifesto exists	++
7	Timely meeting organised for appropriate decision making	++
8	100% attendance in the meeetings	++
9	Publicity exist	++
10	Bank account exists	-
11	Transparency in all matters	+++
12	An executive body exist	++
13	Leader educated, knowledgeable and capable of taking decision in any	+++

	circumstance	
14	A permanent office for BMC	+

3.2.1. Comment

The main difference between the institutional criteria identified was a desire by fishers and landless for greater transparency in financing and record-keeping. This is likely to relate to the opportunity costs incurred in participating in the RMOs.

4. Case study 3 Dampara Water Management Project

Dampara is a Bangladesh Water Development Board (BWDB) project located in Netrokona District in northeast Bangladesh where a flood control embankment and water control structures were built in 1998-2001. Following a decade of developing guidelines for participation in the water development sector (Ministry of Water Resources, 2001), the project aimed from the outset to involve the residents in its planning and to mitigate any adverse effects. Fisheries are widely regarded as having been adversely affected by past flood control projects (Ali, 1997) and so were an obvious target for mitigation. The project area covers 15,000 ha and within this area are a number of jalmohals, rivers, canals, beels, and private floodplain wetlands. While there were some efforts to extend aquaculture technology, the NGOs contracted to support the fisheries component of the project focused more on conservation measures – within one year promoting a network of 40 small fish sanctuaries (BWDB, undated) as a technology that built on local practice and experience in the CBFM-1 project.

The Dampara project fisheries mitigation component had a limited time to plan and initiate measures that would improve fisheries management in a robust way that would help compensate for any adverse impacts of the completion of the embankment and water control structures. The approach adopted was to focus mainly on conservation measures for the natural fisheries, but also to extend a wide range of aquaculture technologies for farmers. Here we focus on the fishery initiatives. Most of the area is seasonal floodplain where some landowners have kuas (ditches) in their own land which they use to trap fish during the monsoon and they then pump out the kuas to catch all the fish leaving little or no habitat for fish to survive in the dry season.

One of the Dampara project consultants visited Goakhola-Hatiara Beel (under CBFM-1 project and in the same sub-district as Shuluar Beel) and was impressed by the BMC activities for fish conservation and management – from 1997 the community had leased in and protected kuas as dry season fish sanctuaries. He then identfied some people from different seasonal beels in the Dampara project area who were personally interested in the fishery, owned land in the deeper parts of the beels, owned more than one kua (ditch) and who were socially respected and philanthropic. He persuaded the project authorities to fund an exchange visit. A group of 14 of these selected villagers visited Ashurer Beel and Goakhola-Hatiara Beel to see the sanctuaries and management committee activities. They discussed with the beel management committees about the management patterns of fish sanctuaries and the impacts. After the exchange visit the selected kua owners were convinced through talking with people in those locations that setting aside kuas as fish sanctuaries would improve the situation of their fish stocks. Based on this each of the participant kua owners decided to set aside one of their kuas for fish conservation and not to harvest it each year. However, under the Dampara project a difference in management of the kuas was introduced. In Goakhola-Hatiara Beel the NGO was paying some kua owners a lease fee for the kuas with their fish for one year, then after one year of conservation the owner regained fishing rights and was harvesting all the fish. In Dampara it depended on voluntary agreement of the kua owners, the project excavated kuas at a low cost – e.g. 500 m^3 of earth excavated for deepening of a mini-sanctuary at a cost of US$65 – and the owners benefited from better catches in their other kuas.

To strengthen the movement the project helped form local advisory committees for each beel with kua owners, their friends and relatives (co-owners) and fishers from the surrounding villages having some use rights in the beel. They also formed an apex committee of sanctuary owners/leaders which meets every month with the Department of Fisheries sub-district officer to exchange their experiences and opinions. The committee managed to establish these types of

sanctuary in 21 locations with the help of kua owners. Out of these locations the kua owners decided to keep one kua as a sanctuary in six locations, two kuas in 12 locations and three as sanctuaries in three locations. Decisions on the numbers of sanctuary kuas were largely dependent on the willingness of key kua owners and the views of the local advisory committees as to the suitable ditches, there was no scientific modeling of the numbers or areas of dry season water to be protected for overwintering fish. However, the participants and wider community are happy with the arrangement so far, they have kept their kuas as sanctuaries for 2 years and plan to harvest them alternately. Except in two locations, all the kuas are reported to have shown a satisfactory increase in the amount of fish as well as number of species.

With the knowledge gained from visiting Ashurar Beel, the Dampara project made some kata as fish sanctuaries in the river and some permanent beels. Local people participated, but it was also an experiment by the project staff to modify traditional practice of fish aggregating devices to try to develop this into a more effective form of sanctuary. They used different materials to see their efficiency in conserving different types of fish. To protect smaller fishes from predatory fishes, the apex committee proposed placing bamboo cages of different gap sizes in the katas so that the small fish could hide where larger fish would be unable to swim (see Table 1 for a summary of past and present management issues at Dampara).

Issue	Present	Past
Flooding	None	High
Water logging	High	Low
Water level	High outside the embankment, Outsiders adversely affected	Same in both sides
Fish culture	High	Low
Sanctuary	Yes	None
Free access of fish	None	High
Crop production	Doubled	
Cropping area	Increased	
Irrigation	STW	Surface water
Crop	HYV Boro, Aman decreased	Local Aman
Fish	80% decreased	
Fish type	Small	Large
Herbicide use	High	None
Kua	Dries up	Dewatered
Fallow land	50%	
Trees	Decreased	

Table 1. Past and present management issues at Dampara. (Livelihoods strategies: 50% Farmers, 30% Fishers, 20% Labourers.)

4.1. Resource Management Success Criteria

Stakeholder group: BMC

Rank	Success criteria	Status
1	Catch per unit effort increased	−
2	Increased surface water available during dry season	− − −
3	Fish conserved, habitat restored	+
4	More fry & brood fish	− − −
5	More trees in the project area	− − −
6	People more aware of the project activities	− − −
7	No use of harmful gear	+
8	Genuine fisher's rights established	=
9	More people skilled in different activities	− − −
10	No water-logging	=

Stakeholder group: Water User group (Farmer and Kua owner)

Rank	Success Criteria	Status
1	Catch per unit effort high	− − −
2	No water-logging	− −
3	Better quality seeds available	++
4	Increased surface water for irrigation	− − −
5	Low cost of irrigation	− − −
6	More people skilled in different trade	− − −
7	Alternate income generation for fishers-more people changing profession	− − −
8	Credit available for alternative livelihood	++

Stakeholder group: Fishers

Rank	Success Criteria	Status
1	Integrated management of water	− −
2	Water retained in proper place for fishery	+
3	Increased fish catch	−
4	Increased Boro production	++
5	Diversity of species	− − −
6	Fish migration route established	− − −
7	Fish conservation devices established	+
8	Fishing tools increased	− −
9	No malnutrition	+
10	Increased awareness about fish conservation	− −
11	Healthy fish	− −

4.1.1. Comment

The requirements of the BMC were rather more development/project-specific (skills, CPUE, brood-fish conservation etc.) while those of fishers and farmers were more specific to livelihoods issues (costs of production, health issues, seed quality etc.).

4.2. Resource Management Institutions- Success criteria

Stakeholder group: BMC

Rank	Success criteria	Status
1	Unity among members	++
2	Members honest and willing to work voluntarily	++
3	Rules and regulations set and 75% community members comply	+
4	Constitution in place	− − −
5	Institution registered with proper government authority	− − −
6	Fund for running the executive body	− − −
7	Have a fixed place for meeting/discussion	− − −
8	Regular meeting of the executive body and proper feedback to the general members	+++
9	Two-thirds attendance in the meetings	+++
10	Strong leadership (honest, just, devoted, selfless, ideal and socially acceptable, social worker)	++
11	Members are time conscious	++
12	Management plan exists	− − −
13	Committee on the basis of consensus	− − −

Stakeholder group: Water User group (Farmer, kua owner)

Rank	Success criteria	Status
1	Members honest	+
2	Confidence among members	+
3	Proper leadership-Leader should be honest, enthusiastic, kind and strong enough to take decision during crisis	− − −
4	Fund for running management committee	− − −
5	Committee transparent and accountable to others	− − −
6	Management plan in place	− − −
7	Rules and regulations set and 90% community comply to those	− − −
8	Regular meeting and resolution of the meeting	− − −
9	Organisations own office for meeting	− − −

Stakeholder group: Fishers

Rank	Success criteria	Status
1	Committee with 100% traditional fishers	++
2	Institution registered with proper authority	− − −
3	Regular meeting held	+++
4	80% members attend regular meetings	++
5	Workplan prepared and being implemented on participatory basis	− −
6	Local rules and regulations in place and 80% community members follow rules	− − −
7	Proper leadership (selfless, strong personality bearing, socially acceptable, respected by all) for the local committee	++
8	A fixed place for meeting/discussion established	− − −
9	Fund raised for office maintenance	− −

4.2.1. Comment

Institutional requirements by the BMC tended to relate to procedural and technical aspects of management (attendance, constitution, registration etc.) while of those of the farmer and fishers groups were related to perceived legitimacy and honesty of the members themselves. Fishers considered the performance of the BMC more satisfactory than farmers did, reflecting the CBFM focus.

5. Case Study 4 Goakhola Hatiara Beel (seasonal CBFM beel)

Goakhola-Hatiara Beel is a seasonal beel covering at its maximum extent around 250 ha. It is located 17 km from the headquarters of Narail District in southwest Bangladesh. The beel is connected by Goakhola Khal to Afra Khal (a secondary river), which connects to Bhairab River some 3 km downstream of the beel, but local rainfall is the main source of water in the beel. All of the land in the beel is private and is cultivated mainly with paddy. The area is under up to 1.2-1.8 m of water for 5-6 months of the monsoon each year.

The beel is protected by a flood control embankment constructed by the Bangladesh Water Development Board in 1994. The water level in Goakhola-Hatiara and the adjoining beels is now controlled by a sluice gate located at the mouth of Goakhola Khal.

Environmental changes are summarised in Table 2. The water in the area is normally fresh, but before the sluice gate was built saline water sometimes entered the beel in March-May when river water is brackish. Since the embankment and sluice gate were built, the irrigated area has increased, as has cropping intensity. Now, HYV boro paddy and rabi crops followed by mixed aus and aman paddy are the main crops.

The five villages around the beel (Hatiara, Goakhola, Bakali, Mandiarchor and Debbhog) are entirely Hindu communities. In December 1996, there were 355 households living around the beel of which 89 were already Banchte Shekha group members. Almost all of the households catch fish at some time in the year, over a third sell fish, the remainder fish just for their own consumption.

The various stakeholders in the beel include: government that has invested in flood control and drainage for agricultural development and that administered the khal as a local fishery; people who catch fish from the beel; landowners who farm the beel area when it is not flooded and who also own *kuas* (catch-ponds) in the beel where fish aggregate; Banchte Shekha, an NGO with headquarters in Jessore that works on behalf of poor people in the area; and local leaders who stand to gain from being associated with development of their area.

The beel is seasonal and in the monsoon there is open access for fishing for members of the surrounding communities. Both men and women fish mainly for home consumption. Notably women in 97% of NGO participant households and in 68% of non-NGO participant households fish. The main gears used are gill nets, traps (including fences with traps), cast nets and hooks. All households fish for 5-7 months in the beel and for 3-7 months of the year in nearby khals and ponds. Fishing with *pata* is common (low bamboo fences with fish traps set with the landowner's permission).

Previously the khal was leased out for fishing. The last leaseholder was a local man who paid Tk 7,000 to the district administration in 1993/94. He reported that his main benefit was from using three *behindi jal* (set bag nets) in the khal that on some nights in the monsoon could catch up to 500-600 kg of shrimp.

5.1. The CBFM management system

The objective of CBFM in Goakhola-Hatiara Beel has been to conserve and enhance the natural fishery by ending the complete harvest of fish after the monsoon, enabling more fish to move into the beel from the river, reducing fishing pressure in the early monsoon, and by helping the

households compensate for any short-term loss of income or food by developing poultry production and supplementary income sources. To achieve this, Banchte Shekha mobilised and expanded its all-women groups in 1997, but realised that coordination with all stakeholders was necessary. From late 1997 the formation of a beel management committee (BMC) was facilitated, the 27-member BMC and a separate sluice management committee were formally constituted in March 1998. The latter did not prove effective and in January 1999 it was disbanded and the BMC was reformed. The BMC comprises 8 female group members and 19 men (including fishers, landowners, and union parishad representatives).

The main activity of the BMC has been to take up fish conservation measures. Following training conducted by DoF, the International Center for Living Aquatic Resources Management and Banchte Shekha; ideas generated in a training program in Philippines arranged for project staff; and a visit to a floodplain beel where Center for Natural Resource Studies has been working in Tangail District; the idea of keeping kuas as over-wintering sanctuaries for fish was introduced. In January 1998, the BMC agreed that 5 kuas would be rented for Tk 22,500 from the grant to Banchte Shekha, complete with their standing stock of fish. The women members of Banchte Shekha guarded these kuas in the day time and men in the BMC and husbands of the women guarded at night. Participants aided by public announcements informed the general community not to poach in these kuas.

The brood fish moved into the flooded fields when early rain in April 1998 overtopped the sanctuary kuas and there was widespread spawning of fish. The BMC had set a ban on fishing after spawning for three months to permit fish to grow but some fishing started. Natural mortality of fry was also high because of drought. After the boro paddy harvest the sluice gate was opened and water and larger fish entered from outside. Overall, with increased spawning and ample monsoon water, the growth of resident species was better than in previous years.

The sluice management committee was intended to operate the sluice to ensure fish could migrate into the khal and beel. However, this has proved difficult since fry and juvenile fish occur in the river outside the sluice in April-June when the gate is closed to keep out floods which would damage standing boro paddy crops. In June-July, when it is safe to open the gate, there are fewer fish moving nearby and the community believe that most of the fish entering the khal swim on into seasonal beels further upstream.

5.2. Institutional changes

The main institutional change has been the establishment of the BMC by the local community with advice from government and the NGO. Participation in the process has been good: at least 90% of the NGO participants attended one or more meetings on CBFM in both 1997 and 1998, while about 50% of non-participants also had attended at least one meeting.

However, the project arrangement has not so far been able to overcome administrative complexities regarding public land in the area. Since starting CBFM activities, Banchte Shekha has made attempts to gain control of and improve the khal fishery resource on behalf of the participants. Its plan is to re-excavate the khal to make it deeper, which it is thought would improve it as an over-wintering area for fish, and might also make pen culture possible. Banchte Shekha applied for food-for-work resources for excavation through DoF, but government approval is required. As a result, they tried to obtain rights over the khal (although since 1995 it has not been leased out) at the district level (Deputy Commissioner) but were referred to the Thana administration under whose jurisdiction the khal has been placed. The Thana took no decision on whether to award the lease, and in fact has not collected money from the khal fishery. In addition,

no assistance for re-excavation been mobilised due to the pressure to allocate resources in other areas.

Period	Change
1960s	Khal silted up but then re-opened and had strong current.
1970s	Increased siltation of beel made it shallower by about 1.2 m (1971 to 1998).
1980s	Salinity of river water gradually increased.
1990-92	25% of the beel area was under water all year, fish species were same as at present. 50% of land was fallow in aman (monsoon season), and 25% was fallow in winter - providing common grazing land and no obstacles for fishing. Irrigation increased in this period.
1994 onwards	Sluice gate constructed, but fishery not changed. All land brought under aman cultivation and all land in winter cultivated (75% under irrigated HYV boro paddy, pesticide use increases). Fish disease outbreaks become serious and frequent. Village roads improved - less muddy.

Table 2. Environmental changes and trends in Goakhola-Hatiara Beel. *Source: group meetings with local people*

5.3. Resource Management Success Criteria

Stakeholder group: BMC

Rank	Success criteria	Status
1	Water preserved for longer period	++
2	More fish available for all	+
3	More land under cultivation- more income	+++
4	Recognised committee for better management of water, /sluice gate committee established	=
5	Permanent sanctuary for fish preservation established	++
6	A permanent place owned by BMC for meeting	- - -
7	Leader showed increased social responsibility	++
8	Better communication between different stakeholder groups	- -
9	High level information and knowledge sharing	---

Stakeholder group: Fishers

Rank	Success criteria	Status
1	Proper timing of sluice gate operation for both fish and crop	- - -
2	Diversified crop grown	- -
3	More water for fish during May-June	- -
4	Rare fish increased	+
5	No fish disease in the kua	- -

Stakeholder group: Farmers

Rank	Success criteria	Status
1	More water through sluice gate	- -
2	Kua owners do not de-water kuas completely for fish harvest	- - -
3	Aman production high	+
4	Rare fish visible	+
5	Members of the fisher's households trained in different trades	- - -

Stakeholder group: Kua owner

Rank	Success criteria	Status
1	Embankment on the Goakhola khal is high	- - -
2	More water through sluice gate	- -
3	Breaches are closed	- - -
4	Permanent sanctuary for dry season fish conservation	- - -
5	Gate operation according to need of all the stakeholders	- -
6	Trained people for beel management	- -

5.3.1. Comment

Many of the BMC-identified criteria actually related to institutional issues (recognised committees and place of meetings etc.) while fishers, farmers and kua owners stressed

seasonal water management issues. Interestingly, farmers stressed the need for AIGAs for fishers which suggests a perception that fishing demands restrict farming potential.

5.4. Resource Management Institutions- Success criteria

Stakeholder group: BMC

Rank	Success criteria	Status
1	Established authority for resource management	++
2	Social responsibility among community created	++
3	All stakeholders aware about the project objective	+
4	Time maintenance for each activity	++
5	Criteria for sustainability agreed	+++
6	Fund created for future activities	- - -
7	Responsibility of each member of the management committee carried out	++
8	Constitution prepared	+
9	Cooperation, unity, respect and perseverance among members strong	- -
10	Members willing to provide self labour for development works	- -
11	Cooperation with other NGOs strong	+++
12	Committee registered	- - -
13	Regular meeting and 75% attendance	+++
14	Resolution for each meeting exist and available	+++

Stakeholder group: Fishers

Rank	Success criteria	Status
1	Neutral, active, sincere, educated, patient, socially acceptable leader	- - -
2	Unity among members	+++
3	Regular meeting	++
4	Brood fish saved through guarding	- - -
5	Local rules set and <80 compliance	++
6	Constitution for better management	- - -
7	Fixed place for meeting	- - -
8	Fund for management	- - -
9	Committee for management with all stakeholder groups of the community	+++
10	Committee through selection	+++

Stakeholder group: Farmers

Rank	Success criteria	Status
1	Responsible leader for management	+++
2	Cooperation between committee members	++
3	Regular meeting	++
4	Rules set and 90% compliance to the rules	+++
5	Constitution	- - -
6	Proper plan for future activities	+++
7	Coordination with community	++
8	Criteria for sustainability fulfilled	+++

9	Fund for operation of BMC	- - -
10	Permanent place for meeting for the community	- - -

Stakeholder group: Kua owner

Rank	Success criteria	Status
1	Leader educated, respected by the community, honest	+
2	Regular meeting	+
3	Rules and regulations for management	+ + +
4	Permanent sanctuary	---
5	Record keeping up-to-date	+++
6	BMC registered	- - -
7	Fund for sustainability	- - -
8	Strong motivation for the beel management	- - -
9	Compliance to all rules	- - -

5.4.1. Comment

BMC institutional requirements tended to deflect responsibility for management (greater community responsibility, greater authority etc.). Farmers ranked BMC performance rather higher than fishers and kua owners who ranked it lowest. In the case of the kua owners, this may be unsurprising as BMC directives would be expected to negatively impact them. The BMC seemed to be well-respected, however, and scored highly with respect to delivery of plans and rules.

6. Case Study 5 Ashurar Beel (CBFM open beel)

6.1. Resource Management Success Criteria

Stakeholder group: Farmer

Rank	Success criteria	Status
1	Water management for use of all types of stakeholder throughout the year	_ _
2	Sanctuary established for fish conservation	- - -
3	Linkages between deeper pockets (dahas) exist	- - -
4	Aquatic plants and animal increased from previous years	- - -
5	Local fish biodiversity increased	++
6	Local variety of paddy re-introduced and cultivated area increased	- - -
7	Beels hold water throughout the year	- - -

Stakeholder group: Landless

Rank	Success criteria	Status
1	Local Boro rice cultivation increased	+
2	Fish increased	- - -
3	Safe drinking water available for all	- -
4	Water level in the dahas increased	- - -
5	Required amount of water available for dry season paddy cultivation	- -
6	Flash flood frequency decreased	- -

Stakeholder group: Fishers

Rank	Success criteria	Status
1	CPUE increased compared to previous years	+
2	Improved breed of livestock introduced	- -
3	Percentages of educated persons increased	+
4	Water level higher in all dahas during dry season	- - -
5	More water area used for fish conservation	+
6	Alternate IGA practice in order to decrease number of fishers and less fishing days per households	+
7	Water drains away in time	- -
8	No pollution in the water	- - -
9	No out-migration (more work available in the area)	-

Stakeholder group: BMC

Rank	Success criteria	Status
1	Water level in the deeper part of the beel (daha) in the dry season increased	_ _ _
2	Fish increased	- -
3	Paddy harvested on time	- -
4	Linkage between dahas	- -
5	Fishers fish for longer time	++
6	Fishes remain in the beel	-
7	Rare fishes available in the beel (biodiversity increased)	-

8	Other aquatic resources increased and the food chain maintained	+++
9	Proper management of the beel through participatory planning	++
10	Sanctuary for conservation of fishes and aquatic resources	++

6.1.1. Comment

The key management requirement was for increased water levels in the *daha* during the dry season and this was identified by all four stakeholder groups.

While the concerns of the BMC, landless and fishers were similar, it was interesting to note the landowners' demands for fisheries-related initiatives.

6.2. Resource Management Institutions- Success criteria

Stakeholder group: Farmers

Rank	Success criteria	Status
1	Leader honest and respectable	- - -
2	Members united	- -
3	Regular meeting held	+++
4	Two-thirds of the members attend meeting	++
5	Transparency in financial issues	+++
6	Local administration cooperate with the community in resource management	+
7	Community know all the decisions made by the fishers	- -
8	Coordination meetings held among different resource users	+++
9	Community work together for the common interest	+++

Stakeholder group: Landless

Rank	Success criteria	Status
1	Organisation registered	++
2	Leader honest and active	++
3	Permanent place for the organization	- - -
4	Regular meeting held	+
5	A general body with all types of resource users and an executive committee with fishers exist	+++
6	Democratic selection of the committee members	+++

Stakeholder group: Fisher

Rank	Success criteria	Status
1	All resource users have access to the waterbody	+
2	Capacity built among all members	-
3	All members united	++
4	60% traditional fishers in the executive committee	-
5	Decisions taken in time	-
6	Leaders are sincere and unbiased	+++
7	Organisation run with their own fund	+

8	Regular meeting held	-
9	75% members attend meetings	+
10	Community has access to a common meeting place	- - -
11	Organisation has constitution	++
12	90% comply with the rules set by the community	++

Stakeholder group: BMC

Rank	Success criteria	Status
1	Constitution exist	+++
2	Management Committee meet regularly	+++
3	Participatory resolution of problems	+++
4	Required fund to run resource management activities	+++
5	Unity among the members	++
6	Decision of the management committee reached members and they give suggestions and suggestions accepted on agreement of all members	++
7	Proper leadership exist	++
8	Rules and norms set and high compliance shown by the community	++
9	Minutes of all meetings kept and decisions followed	+++
10	Transparency	++
11	Management body accountable to the community/stakeholders	++

6.2.1. Comment

Again, the institutional requirements of BMC members reflected day-to-day procedure within the committee and funding was again identified as a key issue.

There was a distinct difference between farmers and fishers in the perceived level of BMC skill and capacity. In particular, farmers did not believe the BMC to be honest and this may reflect the fisher-focus of the interventions within the project.

7. Case Study 6 SEMP at Chanda Beel

7.1. Resource Management Success Criteria

Stakeholder group: Fishers (VRMC members)

Rank	Success criteria	Status
1	Fish and rice both would be increased if the canal were dug	- -
2	Release of fingerlings in Chanda beel	- - -
3	Dhaira and current nets need to be forbidden	+
4	Stopping the lease of the canal mouth	- - -
5	The administration needs to work properly	+
6	Increasing the bushes in order to provide shelters for the animals. Not to kill animal called khatash which helps control rats.	- - -

Stakeholder group: Poor women

Rank	Success criteria	Status
1	Creating scope for alternative income	+
2	Taking decision collectively; to be logical	+
3	The canal excavation is required to increase the irrigation facility	_ _
4	Not to pump out the water from the pond when the fish spawn (the water can be pumped out only once but not twice)	_ _ _
5	The pressure should be created by the government and people jointly in order to prevent over-harvest of fish, snail and birds.	_ _
6	The fish population would increased if the women guard the ponds	+

7.1.1. Comment

The VRMC criteria for NRM were rather technical and related to project activities. While the VRMC stressed canal re-excavation and stocking, for instance, women stressed the need for collective action and AIGAs.

7.2. Resource Management Institutions - Success criteria

Stakeholder group: Fishers (VRMC members)

Rank	Success criteria	Status
1	Follow honest way	+
2	Do the exact work at exact time	+
3	Have harmony, common feelings and sharing	-
4	Good will to judge the proper and improper	-
5	Adaptability; changing decision according the need	- - -
6	Pay attention to the poor	- -

Stakeholder group: Poor women

Rank	Success criteria	Status

1	Obtain social education	_
2	Unity	++
3	Good leadership. (Friendly with the poor, not worried about own benefits)	+
4	Flexibility and politeness.	_
5	To organise meetings regularly and more frequently	+

7.2.1. Comment

Both VRMC and women emphasised the social/human characteristics required of suitable institutions. Women also expressed a demand for social education.

8. Case Study 7 CPP at Tangail

8.1. Resource Management Success Criteria

Stake holder group: Farmers and elite (member of chawk committee)

Rank	Success criteria	Status
1	Obtain training to take measure against pest, rat at the paddy field	- - -
2	Govt. consider issues (not to increase fuel price as it make irrigation costly)	-
3	Proper initiatives of the local organizations	+
4	Proper attention of agriculture office	+
5	Re-excavate canals	- -
6	Use of organic manure	-

Stakeholder group: Hindu Fishermen

Rank	Success criteria	Status
1	Keep the slice gate open to allow water and fish at the beginning of monsoon	- -
2	Excavate canals and river	- - -
3	Support from the government	-
4	Capital for alternative work (importing fish from outside)	- -
5	Easy access to the low line area during the monsoon (farmers has taken over the canal bed)	-
6	Access to the pond	- - -

8.1.1. Comment

Both groups expressed a demand for GO-support and assistance with the Chawk Committee requiring greater interaction with government agencies. Fishers have a quite different set of objectives relating to management (access to fish ponds and canal) which directly relate to post-project impacts (see Report xxx – Process Documentation).

8.2. Resource Management Institutions - Success criteria

Stake holder group: Farmers and elite

Rank	Success criteria	Status
1	Capable leadership	-
2	Unity	+
3	Social awareness	- -
4	Justice	=
5	Regular meeting	+++
6	Sympathy to the poor	=
7	Donate money according to ability	++

Stakeholder group: Fishermen

Rank	Success criteria	Status
1	Supporting the poor	- - -
2	justice	=
3	Proper education	+
4	Easy access of all	+
5	Do the work at proper time	-

8.2.1. Comment

The institutional requirements of fishers prioritised attention to the poor, justice and issues of access and the Chawk Committees were seen to perform inadequately in this respect. Farmer and elite requirements related to institutional procedure within the committees, themselves.

9. Case Study 8 Local Initiatives at Charan village

9.1. Resource Management Success Criteria

Stake holder group: Farmers and fishers

Rank	Success criteria	Status
1	People's (and GO) initiatives to implement law i.e protect small fish, ban gear etc.	- -
2	Mass awareness	-
3	Working together	+
4	Excavate canals	- -
5	Get rid of corruption	- - -

9.2. Resource Management Institution

Stakeholder: Farmers and Fishers

Rank	Success criteria	Status
1	Aware of social responsibility	- -
2	Unity	+
3	Selection of good leadership	- -
4	Exact decision	-
5	Justice	- -

9.2.1. Comment

Collective action (or "working together") was seen as one of the most positive outcomes of the local initiatives at Charan village. However, there was again a demand for external support or facilitation in implementing fisheries law and this may, in fact, extend to GO support in preventing illegal access and leasing arrangements to outsiders.

10. Summary

Most of the responses related to broader water management issues rather issues relating to fisheries, paddy or discrete technical considerations and general water management criteria represented 49% of the responses (see Table 3.). In particular, the conservation of dry season water and better use of surface water for irrigation were frequently prioritised by all stakeholders. In terms of institutional requirements, feedback could be split into 5 basic categories representing leadership, decision-making, constitution and status, regular meeting and delivery and representation of the poor (see Table 4.).

In retrospect, the methodology was implemented slightly differently by each of the field researchers (the type of stakeholder groups consulted and the categorisation of their responses, for instance) and this must be taken into account when discussing any apparent trend or themes. However, it is possible to draw some general themes from the feedback. In particular, several types of intervention appear to have polarised management and institutional requirements of the various stakeholder groups. Whereas non-project sites practising autonomous local initiatives revealed a general overlap of concerns and requirements, project interventions that have altered livelihoods activities (and inadvertently local concerns / issues) seem to have established two or more distinct interest groups. In other words, project interventions have created differences in management/institutional requirements. This seems to evolve for two reasons. Firstly, the project interventions always attempt to build RMIs and these quickly take on a local and political significance. There are perceived and real differences between the groups represented by these institutions and many of the responses from the focus group discussions did, in fact, relate to perceived problems at the RMI level (dishonesty, lack of attention poor, lacking transparency etc.). Rather than treating the question of "good institutional performance" in isolation, respondents framed the discussion in relation to existing project institutions and their current experiences. In the case of institutional requirements, then, the issues identified tended to relate to the sectoral focus of the project.

Secondly, differences in opinion seem to relate to project activities and issues related to project outcomes. This might be expected to be most extreme in the case of large engineering interventions. The CPP was the only strictly water-specific project visited in this review (discussion at the Dampara site focussed around the BMC which was partly facilitated by the CBFM project). In this case, the landscape and the pattern of livelihoods have been profoundly altered by compartmentalisation. Differences in institutional and management requirements by fisher and farmers stakeholders related directly to the changes and impacts resulting from the project. Within the CPP area, the main issues concerning fishers were access to fishing sites and representation within the Chawk Committees which are predominantly controlled by landowners.

With respect to themes in management requirements, these again took on some project-specific issues. At Chanda Beel, for instance the VRMC and female stakeholders expressed the need to properly implement AIGAs and other project-related activities. Where management committee stakeholders were consulted on resource management requirements, their feedback tended to emphasise a need to consolidate the work of their institutions, either through greater local, community support or assistance from government agencies (see Box 1.). Adequate funding and support for RMIs was frequently quoted, in fact.

In summary, then, any divergence between stakeholder objectives and concerns often seem to be widened by project interventions. This may occur both because new institutions are seen to

represent distinct interests at the expense of others, and because the physical interventions, themselves, reduce the opportunity for mutual gains and consensus.

Resource Management Institutions – Success Criteria

- Non-participants or non-members tended to stress the human character of RMI members (honesty, wisdom, fairness, transparency etc.)
- Committee members stressed procedural issues which tended to relate to their project (extra GO support, constitution, rules expected by community, attendance requirements) and extend responsibility to other stakeholders
- There are some differences between the criteria identified at Goakhola Hatiara Beel (closed beel) and Ashurar Beel (open beel) that may relate to biophysical character. The BMC has respect from a wider range of stakeholders at the closed beel and this probably relates to the limited externalities of project activities on landowners and farmers in comparison with activity at the open beel.

Resource Management - Success Criteria

- All stakeholders stressed the importance of surface and dry season water management. In the case of the LIs, this creates consensus. In the case of some interventions (especially CPP) the management requirements of the different groups has diverged (interests of fishers and farmers).
- Most stakeholder required general, livelihoods related, indications of success (extended water availability, limited crop damage etc.). RMI members and active project participants tended to reflect the interest of project objectives (biodiversity, gear controls, RMI formation etc.).

Box 1. Resource and Institutional success criteria – key themes.

	Floodplain -Charan	LIs – Chaptir Haor	LIs - Charan	MACH	Dampara WMP	Goakhola Beel (CBFM seasonal)	Ashurar Beel (CBFM open)	SEMP	CPP	*f*	∑
Water Management											
Better surface water use	√	√		√	√	√	√			6	
↑ dry season fishing area	√	√		√	√	√	√			6	
Timely planning	√	√		√		√	√			5	
↓ flood crop damage		√		√			√			3	
↑ irrigation water	√	√		√	√	√	√	√		7	
Paddy dried properly		√								1	
Water management by RMO	√	√			√	√				4	
Timely harvest of paddy		√					√			2	
Excavation between beels etc.			√				√	√	√	4	
Timely drainage of water		√		√		√	√			4	
No bund in the river	√	√								2	**44**
Environment/biodiversity											
Lost/rare species visible		√		√		√	√			4	
More grasses and trees		√					√			2	
↑ fish & biodiversity	√	√		√	√	√	√	√	√	8	
Clean water-no pollution	√			√			√			3	
Beels used as sanctuary		√					√	√		3	
Use of organic fertilizer									√	1	
Limited use of pesticide	√			√			√			3	
↑ local variety of paddy		√			√		√			3	
Control of some gears								√		1	**28**
Livelihoods / access											
Plan for access & sustainability	√			√	√	√	√	√	√	7	
↓ labour migration		√								1	
↑ resource user livelihoods				√		√				2	
Credit for AIGAs		√						√	√	3	
↑ livestock		√					√			2	
Local decisions / GO support			√					√	√	3	**18**

Table 3. Integrated floodplain management - primary stakeholder-identified success criteria.

	Floodplain -Charan	LIs – Chaptir Haor	LIs - Charan	MACH	Dampara WMP	Goakhola Beel (CBFM seasonal)	Ashurar Beel (CBFM open)	SEMP	CPP	*f*	∑
Respected leadership											
Honest & just	√	√	√	√	√	√	√	√		8	
Interested, enthusiastic, educated & respected	√	√		√	√	√	√		√	7	
Unbiased, non-political	√	√		√	√	√	√	√		7	**22**
Decisions / transparency											
Members united			√	√		√	√	√	√	6	
Resolutions in place				√		√	√			3	
Adaptable decisions, rules, agreements & leadership	√					√	√	√		4	
Adaptable to risk – environment-fees, risks	√			√	√	√	√			5	
Local rules for IFM	√	√		√	√	√	√			6	
Committee transparent and accountable to all		√		√	√	√	√			5	**29**
Constitution / status											
Committee registered				√		√	√			3	
Rules flexible	√						√	√		3	
Fund available for RMO		√		√	√	√	√			5	
Structured committee (re-selection members possible)		√		√		√	√			4	
Specific responsibilities for each committee member		√		√			√			3	
Committee leased jalmohals				√	√					2	
Set criteria for membership						√	√			2	
Agreed constitution of RMO		√		√	√	√	√			5	
Local/GO/NGO coordination				√			√			2	
Local support from GO/NGO		√				√	√			3	**32**
Regular meeting/decision											
Regular/timely meeting	√	√		√	√	√	√	√	√	8	
A fixed place for meeting		√				√	√			3	
Early decisions (plan ahead)		√	√				√			3	**14**
Represents the poor											
Traditional fishers in the RMO					√		√			2	
Community-wide / pro-poor	√	√		√	√	√	√	√	√	8	
Justice / fairness			√						√	2	
Capacity building for members							√			1	**13**

Table 4. Resource management institutions – primary stakeholder-identified success criteria