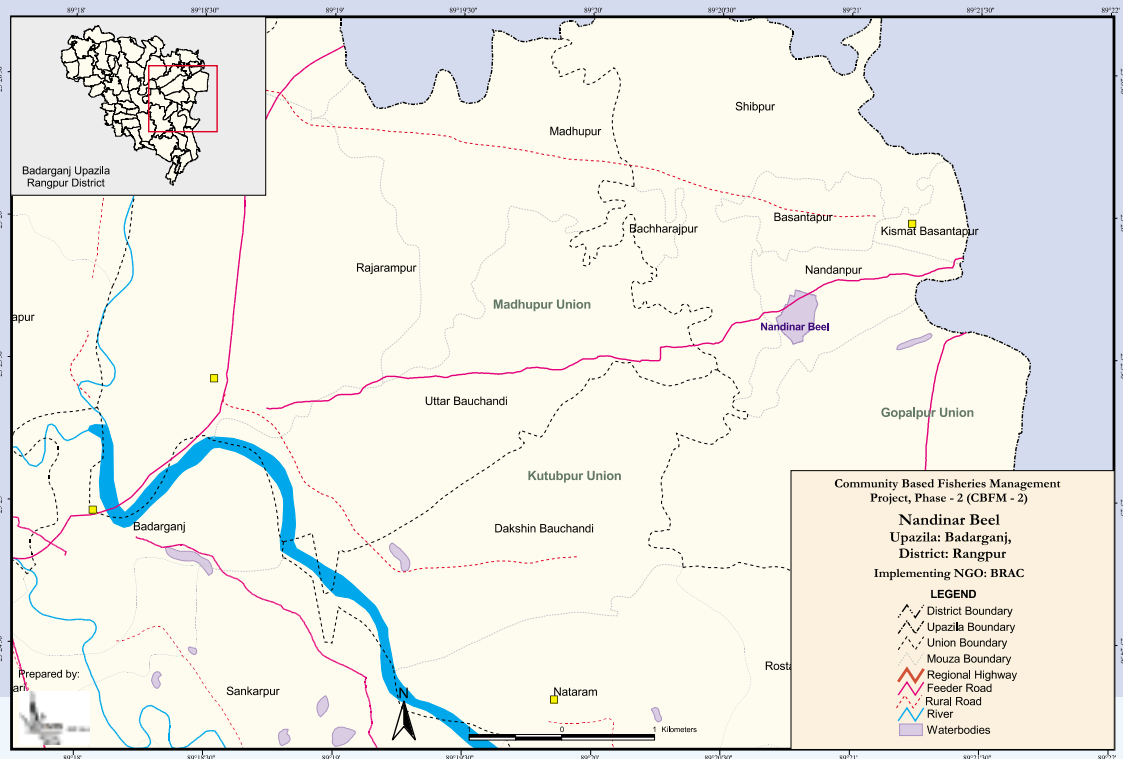




# COMMUNITY BASED FISHERIES MANAGEMENT

## *Livelihoods Impact*





## BACKGROUND

The Community Based Fisheries Management Project has been implemented since 1995 by the Department of Fisheries (DoF) with the assistance of the WorldFish Center. It has worked in a range of water bodies across Bangladesh, including government owned fisheries (*jalmohals*) and privately owned fisheries in closed *beels*, open *beels*, floodplains and rivers. The second phase of the project, CBFM-2, supported by DFID, is now in its last year of operation and covers 116 water bodies. It has resulted in the establishment of 130 Community Based Organisations (CBOs) through community development work by 11 partner NGOs.

The terms closed *beel*, open *beel*, floodplain and river are names given to different types of aquatic resources and there are also major differences in the way they are managed. Closed *beels* and open *beels* are government owned water bodies that have been leased out to individuals or groups as *jalmohals*. The cost of the lease varies according to what has been paid in the past for that water body. The lease fees tend to be higher for more productive and more easily controlled water bodies, particularly closed *beels*. Floodplains are seasonally flooded areas in which the land is privately owned when it is dry but the fisheries are traditionally open-access when the land is flooded. Most of the CBFM-2 river-sections are former *jalmohals* where a lease was applied. However for

the last 10 years since the lease system was withdrawn they have also been open-access.

Under the CBFM-2 project, responsibility for management of specific water bodies was transferred to community groups formed following a census and poverty ranking process by partner NGOs. Pre-conditions for group membership varied between NGOs and water body type. The main priority was to include poor fishers at closed *beel* sites, and a mixture of poor fishers and other poor stakeholders at open *beels*, floodplain and riverine sites. One of the partner NGOs, Banchte Shekha, prioritised female membership in the eight Community Based Organisations (CBOs) formed under their supervision. The main actions taken by the CBOs in all types of water body were to install fish sanctuaries, observe closed fishing seasons and control the use of certain harmful fishing gears.

In closed and open *beels*, CBOs had to take over a commitment to pay the lease fees in return for which they secured control over management of the water body. This involved a clear change in tenure and access as in most cases fishers in the newly established CBFM-2 community groups (CBOs) had no access to fishing in those water bodies before the project because the lease was held by a single person or a 'fishermen's co-operative' controlled by a few rich and influential individuals. Where CBO members had opportunities to fish, it was as a wage labourer or after they had paid a fee to the leaseholder. Closed *beels* are usually managed as





stocked fisheries which result in high production levels. But then, this is generally not a practical strategy in most open *beels*.

In floodplains, the land was privately owned before the project and there was no effective change in access or tenure because no lease was required. The community groups operating in these areas were encouraged to implement measures to improve the state of the fish stocks in the floodplain, in particular, by excavating dry season refuges for fish. The situation in rivers was similar because leasing was abolished in 1995. This led to a free-for-all which tended to favour the most powerful who could afford to install and maintain fish aggregating areas known as *kathas*. Under the CBFM-2 project, CBOs were able to establish control over river sections, significantly reducing the number of *kathas* and establishing no-fish zones or sanctuaries.

While the main thrust of the project has been to test models for sustainable management of the fisheries that might find wider application in the future, it has also tried to encourage fishers and others living in project areas to develop alternative livelihoods through training and credit support.

Action research has been at the heart of the project and one of the main objectives has been to determine whether the project has had a positive impact on livelihoods. Intensive fisheries monitoring has been able to show that fish catches increased over the project period. However the benefits, in terms of increased incomes and other livelihood improvements, will not be shared equally across project sites and households. In order to understand

how they are likely to be spread it is necessary to consider the range of approaches used and type of resources being managed by communities in the project.

The main tool for assessing livelihood impacts was a pair of questionnaire-based field surveys - a baseline study carried out in 2002 shortly after the start of CBFM-2 and an impact study carried out in mid-2006, just before the end of the planned project period. Both surveys included project water bodies, where community based fisheries management was promoted, and control (non-project) water bodies. Household selection was based on random sampling of a comprehensive census in project areas. Therefore the results provide a snap-shot of the situation in the community as a whole rather than just households that became directly involved with the project as fishers, CBO group members or recipients of micro-credit.

The impact survey covered around half the sites covered by the baseline study sampling 1994 households (including both project beneficiaries and others) at 34 project water bodies plus 832 households in 10 control water bodies. Survey results were analysed according to water body type (closed *beels*, open *beels*, floodplains, rivers) and household type (poor and moderately poor fishers, poor and moderately poor non-fishing households and 'better offs'). Qualitative studies have been used to complement the surveys, and improve the interpretation of the observed impacts.

# PROJECT FINDINGS

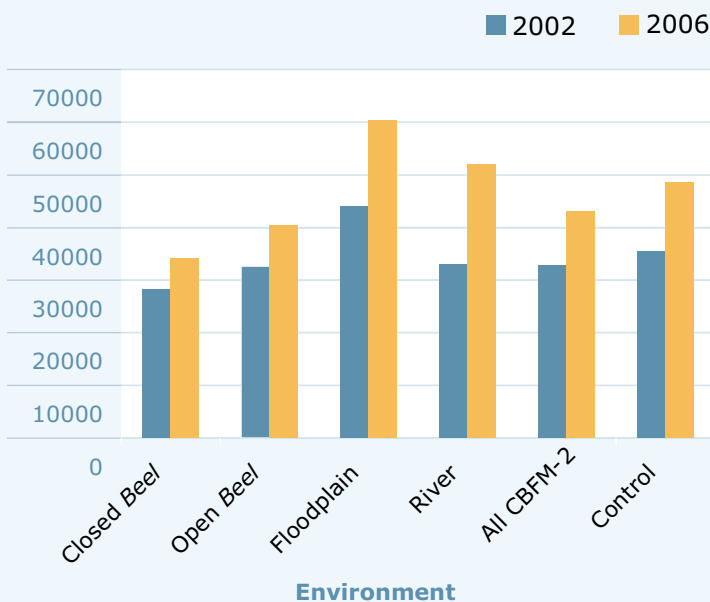
## 1. Overall Household Incomes

At first sight it appears that the project has had clearly positive impacts on overall household incomes<sup>1</sup> as they increased significantly<sup>2</sup> from 2002 to 2006 for households living near all four types of project water bodies. The average level of increase was 31% but ranged from 21% for households near closed *beels* to 57% for those near rivers (Figure 1). While it is tempting to ascribe the increased prosperity to the impact of the CBFM-2 project, the reality is that the project has been implemented during a period of rising rural incomes. In control sites, overall

incomes rose by an average of 37% over the same period.

CBFM-2 may have made a contribution towards enhanced income levels, however this has probably been quite minor. Indeed it would be surprising if CBFM-2 resulted in measurable overall income gains as the gross value of estimated fisheries gains (based on the results of fisheries monitoring) are the equivalent of only around Tk 1000 per household per year in closed *beel*, floodplain areas and around Tk 250 per household per year in open *beel* and river project areas.

**Figure 1 - Average household incomes in CBFM-2 sites and control sites (Taka/year)**



## 2. Fishing Incomes

In order to see clear project impacts, it is necessary to focus on more direct indicators. Fishers' annual income from fishing, averaged across all project water body types, increased significantly<sup>\*\*</sup> from Tk 15,035 in 2002 to Tk 18,189 in 2006. This level of increase (21%) was higher than in control sites (15%) but not significantly higher.

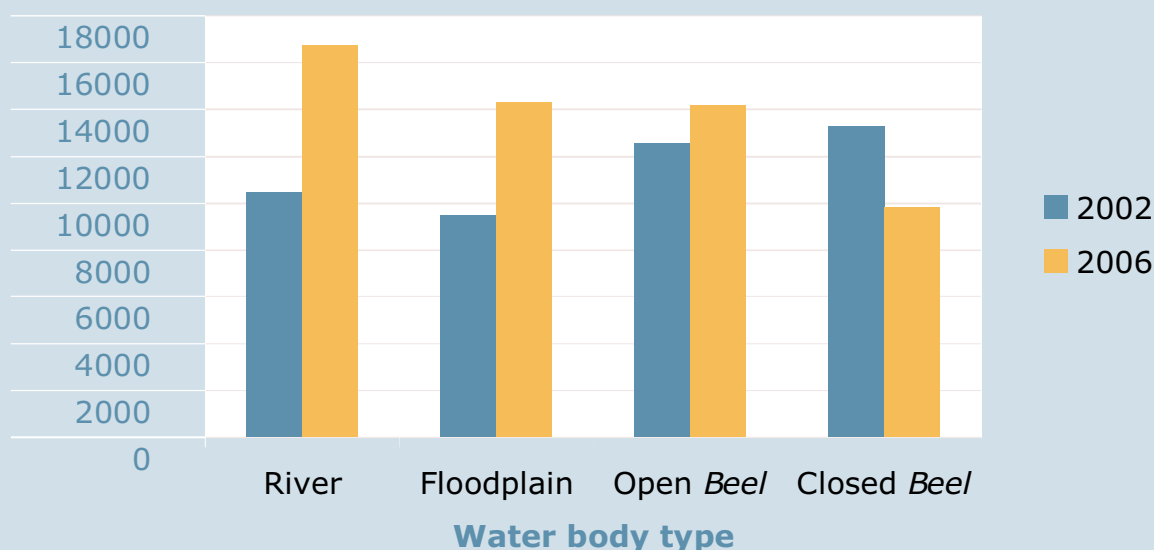
The level of increase varied according to water body type. There were very large increases in fishers' income from fishing in CBFM-2 floodplains (104%) and CBFM-2 rivers (60%), smaller increases in CBFM-2 open *beels* (9%) and a significant\* decrease (-23%) in fishers' average income from fishing activities in CBFM-2 closed *beels* (Table 1). The increases in fishers incomes in CBFM-2 floodplains and rivers were significantly\* higher than those recorded for their control counterparts.



1 Adjusted for inflation  
 2\* Statistical significance of  $P < 0.01$  (significant at 99% confidence level) = highly significant  
 \*\* Statistical significance of  $P < 0.05$  (significant at 95% confidence level) = moderately significant

**Table 1 - Fishing income by fishers (Taka/year)**

	<b>Closed Beel</b>	<b>Open Beel</b>	<b>Floodplain</b>	<b>River</b>
Baseline survey - 2002	12967	15917	15599	14573
Impact survey - 2006	9973	17256	31761	23271
Tk difference	-2994	1339	16162	8698

**Figure 2 - Fishing incomes of project beneficiaries**

Extrapolated on a project-wide basis, this means that over 2,000 fishers in floodplains and almost 16,000 fishers in rivers, or 65% of fishers in project areas, have experienced significant increases in their fishing incomes through the CBFM-2 project. Of these 18,000 fishers, over two-thirds, were classified as 'poor' during the baseline census. The gains in fishing incomes are the equivalent of average overall income gains of 37% for fishers in floodplains and 27.5% for fishers in rivers.

The incomes of project beneficiaries (CBO members) from fishing increased by an average of 11.8% from 2002 to 2006 compared to a 7.6 % fall and a 6.7 % rise in non-beneficiary's and control household's incomes from fishing over the same period. Splitting the beneficiaries by water body type (Figure 2) reveals that those in rivers and floodplains had increased their fishing income substantially whereas those in open *beels* only had small increases and beneficiaries in closed *beels* suffered falling incomes from fishing. This follows the pattern observed in fishers' incomes.

The disappointingly small income rises in fishers' and beneficiary's incomes from fishing in open *beels* and the drop in fishers' and beneficiary's incomes from fishing in closed *beels* correlate closely with what would be expected from the results of fisheries monitoring particularly when costs (open *beel* - lease fee, closed *beel* lease fee and stocking costs) are taken into account. The increased value of fish produced in many of these water bodies is being offset by high costs. It is also clear that disputes with former leaseholders or encroaching farmers have made it difficult for some CBOs to establish effective control and the equitable distribution of benefits from *jalmohals*.





### 3. Changing Occupations and Income Sources

Many households have changed their occupation over the project period. In CBFM-2 project areas, 34% of total households said that their main occupation was agriculture (either on their own land or rented land) in 2002, whereas in 2006 this had increased significantly\*\* to 37.4% of households. In contrast, the shift away from fishing as a main occupation was even more significant. Eight per cent of the total number of households surveyed have left fishing as a primary occupation - a significant\* reduction from 24% of all households in 2002 to 16% in 2006. A similar but less marked trend was observed in control sites with households moving away from fishing and adopting agriculture as their main occupation.

These findings are supported by information on income sources (Table 2). The percentage contribution of fishers' incomes from fishing declined in both CBFM-2 and control sites while farm income and earnings from remittances grew. The remarkable growth in the importance of remittances in control sites is indicative of the major changes affecting rural societies with many households becoming dependent on salaries earned well away from their village.



**Table 2 - Sources of income for fisher households (% of total income)**

Income source	CBFM-2		Control	
	Baseline	Impact	Baseline	Impact
Fishing income	49.2	45.8	48.2	41.6
Farm income	11.9	15.6	11.1	15.4
Wage labour	16.3	12.5	20.7	16.3
Rural transport	2.8	3.6	2.6	1.6
Remittance	1.9	4.1	1.9	9.0
Other	17.9	18.4	15.5	16.1

Rising farming incomes of fishers in both project and control sites are supported by the fact that they have significantly\* increased their land holding through share cropping and renting land.



#### 4. Credit

Households in both project and control sites have almost doubled the average amount of credit taken per household between baseline and impact. The main sources of credit are from NGOs (usually not from project partner NGOs), relatives and money lenders (*mohajans*). Project beneficiaries (CBO members) have become increasingly reliant on NGOs and relatives whereas non-beneficiaries in CBFM-2 sites and households in control sites have also increased their dependence on banks and *mohajans*. Average borrowing from *mohajans* increased by 163% for non-beneficiaries in CBFM-2 sites and 173% for households in control sites while CBFM-2 beneficiaries only increased their borrowing from *mohajans* by 34%. This is the most exploitative source of credit available for rural households indicating that CBFM-2 beneficiaries are more credit-worthy than their non-CBFM counterparts.



## 5. Household Expenditure Patterns

Key indicators for poor households in project areas show that they have improved their living standards over the project period. In the baseline survey only 41% of poor households had a toilet but this has increased to 73% by 2006. There was also a 35% increase in the proportion of poor households that had houses with brick or tin sheet walls and a 17% increase in poor households with a tin roof.

Expenditure patterns for poor households reveal that while their spending on basic needs (food, clothing, housing, education and health) remained almost static, they had increased their spending on finance (accumulating savings and paying off loans), production (fuel, land rent, livestock) and non-essential spending (travel, furniture, festivals). This indicates that in the average poor household, where spending increased by Tk. 7400/year between baseline and impact surveys, they are now prosperous enough to spend extra income on less essential items rather than the basic necessities.

Few clear differences were revealed in the impact study between the expenditure patterns of project and control households. Spending on health and sanitation increased significantly\* in project areas but not in control sites. And in project areas, but not control sites, both fishers and non-fishers significantly\* increased their spending on land, and also accumulating savings at a significantly\*\* higher rate.







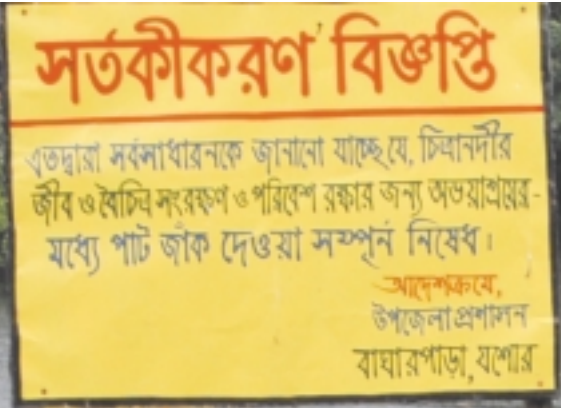
## 6. Gender Impact

It is difficult to involve women directly in fishing in Bangladesh because it involves being away from the homestead in a society where being seen in public is discouraged. The impact survey concluded that only 4% of women in project sites and 2.3% of women in control sites were involved in fish-related activities. Of these, the most frequent types of activity were net making (52%) and drying fish (17%). Only 16% of women involved in fish-related activities were directly involved in fishing and this only increased slightly as a result of the project. Women in all types of sites had increased their earnings from non-fishing sources, in particular from livestock and poultry, however labouring and handicrafts were also important income sources.

The project included a gender focus point of 7 women-managed CBOs, with mainly Hindu membership in the south-western districts of Jessore and Narail organised by the NGO, Banchte Shekha. The results of fisheries monitoring indicated that the women-managed fisheries improved, in terms of yields and sustainability, as well as any of the fisheries managed by male dominated CBOs. The baseline and impact survey show that although the number of women who said they were involved in fish related activities in these areas only increased slightly they had very large average income rises from these sources (from Tk. 1200 to Tk. 5719 per household per year).







## 7. Social Benefits

As part of the impact study, heads of households were asked about their attitudes to social issues. The responses to many of the questions, indicate that there has been a very marked change in relationships and attitudes in project areas over the period 2002 to 2006.

There were significantly improved attitudes from baseline to impact with respect to 7 social capital indicators in project sites (influence on community affairs, influence on fisheries, control over the fisheries resource, community compliance with fishery resource, active fishery management, conflict resolving speed and information flow among fishers) whereas in control sites there was only one social capital indicator showing a significant improvement and 6 where there were significantly worse attitudes.

This carried through to attitudes on the best way to resolve conflicts. In project sites fewer people said they would file a case to resolve a serious conflict in the impact survey compared to baseline whereas the opposite was found in control sites.

## LESSONS LEARNT

It is impossible to attribute the remarkable overall improvements in household incomes in CBFM-2 sites to the project alone because similar rises were recorded in control areas. It reflects the rapidly changing situation in rural societies rather than project impact.

Nevertheless there were significant income rises for key groups, in particular for the 12,000 poor fishers in river and floodplain CBFM-2 sites - this correlates with expected benefits from improved fisheries yields in un-leased sites.

The high costs of operating leased fisheries in closed and open *beels* are threatening their sustainable management by community groups. Although the groups are very happy to have gained access to these fisheries through the CBFM-2 project, high lease fees and stocking costs mean that in some cases, the benefits are outweighed by the risks.

The CBFM-2 project has been successful in encouraging fishing households to develop other sources of income which should reduce the fishing pressure on water bodies.

Involvement with CBFM-2, makes households less dependent on exploitative money lending and more likely to be considered as credit worthy by conventional and informal sources of finance.

The CBFM-2 project had a major impact on attitudes of households in project areas. This means that the awareness training given to CBO members and activities such as drama performances for the wider public have had the desired effect - the people are more receptive to community managed approaches.





# POLICY RECOMMENDATIONS

1. Policy makers need to be realistic in their expectations of livelihood benefits from projects such as CBFM-2. While the impacts on fisheries are relatively direct, livelihood impacts are affected by many external factors. In this case the most important were the rapid rise in the prosperity of the general population and the diversity of approaches adopted under the project. The determination of subtle impacts such as increases in the fishing incomes of fishers require extensive monitoring and detailed research programmes which must be included in any further CBFM-type interventions.

2. Closed *beels* are regarded as valuable resources, however this study suggests that actual benefits to poor households have been limited by high operating costs and in some sites, problems with establishing tenure and access. There is an urgent need to reduce lease values for community managed fisheries as is already envisaged in the Inland Capture Fisheries Strategy.

3. Access to credit for households in both project and control sites has increased in recent years, and in project sites this was from a wide range of sources rather than from the credit line project partner NGOs. Fishers are also developing new occupations with many moving away from fishing to agriculture, thus potentially decreasing fishing pressure on vulnerable stocks. Credit has a part to play in future community managed interventions, however its increasing availability suggests that the best approach may be to create stronger links between households and existing credit providers (such as NGOs) rather than opening new credit programmes.

4. Community managed approaches require changed attitudes among many of the stakeholders. In the CBFM project this was achieved through personal involvement, training, media activities and folk groups. Any expansion of CBFM approaches should be preceded by targeted awareness programmes.

5. The overall picture is that community-managed approaches to fisheries have made a significantly positive impact on the livelihoods of households in most CBFM-2 sites. The fishing incomes of 12,000 poor fishers, a particularly vulnerable group in rural Bangladeshi society, have clearly been improved. This supports the strategy of expanding community-managed and co-managed approaches for the inland capture fisheries resource in Bangladesh, particularly in river and floodplain areas.



## Source of Information

1. A Synthesis of Water Body Case Studies, 2006 (Unpublished), WorldFish Center, Bangladesh and South Asia Office, Dhaka, Bangladesh.
2. Livelihoods Impact of CBFM in Bangladesh, 2006 (unpublished) WorldFish Center, Bangladesh and South Asia Office, Dhaka, Bangladesh.
3. Final Assessment of the Impact of the CBFM Project on Community-Managed Fisheries in Bangladesh, Halls & Mustafa, 2006 (Unpublished), WorldFish Center, Bangladesh and South Asia Office, Dhaka, Bangladesh.
4. Bangladesh Bureau of Statistics. 2006: Consumer price index and inflation rate in Bangladesh.

This policy brief is based on the lessons learnt from The Community Based Fisheries Management Project 2nd Phase (CBFM-2), implemented by the Department of Fisheries with research and coordination assistance from the WorldFish Center in 116 water bodies in 48 Upazilas (Sub-district) under 22 Districts in Bangladesh. The NGO partners are Banchte Shekha, BELA, BRAC, CARITAS, CNRS, CRED, FemCom, GHARONI, Proshika, SDC and SHISUK. The CBFM-2 project (2001-2006) is supported by the Department for International Development (DFID), UK.

\*The CBFM-2 Project has been extended up to March 2007.

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## With support from

**The Department for International Development (DFID), UK**

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Photo Credit: Khaled Sattar-MAP-WorldFish

design: INTENT www.intentdesign.net