

Results Appendix 2
Field Work Report (Bangladesh)

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DISCLAIMERS AND ACKNOWLEDGEMENTS

The fieldwork was conducted by CEMARE and BCAS, however, this report has been compiled by Elizabeth Bennett and Benjamin Cattermoul (CEMARE) who remain responsible for its content. The views expressed in this report do not necessarily reflect the views of BCAS.

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Country context

From 1757 the region now known as Bangladesh was part of the British Empire (Bengal) and run, to all intents and purposes by the East India Company. Prior to British occupation Dhaka had been a thriving centre but, when Calcutta was established as the seat of government for the region, Bengal was reduced to the position of a primary materials producer and Dhaka's importance waned. Jute was the region's principle crop, it was shipped to Calcutta where it was further processed and exported. Cotton was also a major product and material and profits generated were largely responsible for maintaining British growth during the industrial revolution. The British exploited the Muslim-Hindu rivalry that had existed in Bangladesh for many centuries: the Hindus had the more important jobs and were generally the large landowners, the Muslims were often reduced to the status of poor or landless peasants.

In 1945 India gained independence from Britain and then in 1947 East and West Pakistan (incorporating part of the State of Bengal) were created on the partition of India. Following the creation of West and East Pakistan in 1947, West Pakistan was the dominant section of the country: it was the seat of government and was the first (and often last) stop for overseas aid. Modern day Bangladesh was East Pakistan. The favoured ethnic group in East Pakistan was the Biharis, not the majority Bengalis who often found themselves excluded from skilled jobs. Partition, based largely along religious lines, had seen a mass exodus of Hindus from East Pakistan back to the State of Bengal in India and even now Bengalis still maintain a powerful identification with their ethnic sister state in India. Hindus had held some of the more important and skilled posts under the British administration so after the 1947 exodus of many Hindus, the resulting administration in East Pakistan was considerably poorer than that which had existed prior to 1947. The government of the newly created Pakistan was based on the old Vice Regal system and was heavily dependent upon family, ethnic and local loyalties rather than any sense of national unity, and there was little limit to the power vested in the government. In East Pakistan, Bangla, the language of the majority, was effectively discounted when Urdu became the official language of the country.

Following a cyclone in 1970 that caused the worst floods yet seen in the country, riots and general strikes threaten peace in East Pakistan. Added to this disaster was the increasing poverty in East Pakistan, largely a result of neglect and corruption by West Pakistan. Repeated calls for independence by East Pakistan were inconsistent with West Pakistan's aim of unity and its goal of a Muslim state did not sit easily with East Pakistan's support of a secular state. Finally in 1971 West Pakistan sent the army into East Pakistan to restore stability and quash the fledgling independence movement. Thousands died in the attempt to restore order and memories of this period are still fresh in many middle-aged Bangladeshis today. Always keen to enter the fray, particularly where Pakistan was concerned, in December 1971 the Indian Army invaded East Pakistan and in 2 weeks had routed the Pakistan army (with considerable loss of life) and provided the opportunity for Bangladesh to declare independence.

Since Independence Bangladesh has had a number of attempts at installing democracy, but controlling the power of the army has always been an issue. Democratic government currently rules Bangladesh, and as is described below, considerable advances have been made in improving the social and economic indicators. That said, Bangladesh is still one of the world's largest recipients of aid and one of the poorest countries in Asia.

The Environment

Bangladesh lies at the confluence of 3 major rivers: the Jamuna, the Padma and the Brahmaputra all of which rise outside Bangladesh and flow into the Bay of Bengal. As a consequence, Bangladesh (as its name in Bengali signifies) is a vast delta floodplain and it is estimated that up to 50% of the country is actually wetland. The country is accustomed to flooding, the annual flood not only deposits valuable silt onto the ground and cleans out debris but also provides the vehicle by which fish populations breed and migrate. However, periodically flood levels rise to abnormal levels, causing widespread destruction of life and habitats. After the catastrophic floods of 1988, the Flood Action Plan (FAP) was put into place in an attempt to control the impact of abnormal floods. Although the FAP has had beneficial effects in a number of areas, it is estimated that some 2.1 million hectares of wetlands have been lost to flood control and drainage in the Ganges-Brahmaputra flood plain alone. Irrigation development has also been implicated in this loss of flood land. Bangladesh is just about self sufficient in grains, largely due to the rapid expansion of rice cultivation in the past 20 or so years. However, the need to control flooding and improve irrigation has had knock-on effects on the ecology of the wetlands, and, as will be seen below, is frequently a source of conflict between farmers and fishermen.

Climatically Bangladesh has 3 seasons: the dry season which runs between November and February (sometimes called the cold season); the hot season which runs between March and May and the wet season between June and October. The rains begin in June, although the monsoon proper does not begin until August. The country's dependence on water explains the different economic activities that occur at specific points throughout the year.

Fish congregate the permanent water bodies during the dry season and juveniles grow into adults. As water levels start to rise between April and June (mostly due to rising levels further upstream in India), so the fish start to move out with the rising waters seeking shallow water in which to spawn. As the rains begin in earnest, so the waters continue to rise and fry move out across the floodplain to feed. It is during this time that part-time fishermen move from agricultural and off-farm activities back into fishing as the floodplain (which is open access) expands. As the waters drop, so the fish congregate once more in the deeper permanent water. Wealthier fishermen with access to permanent water bodies (ditches, kuas or larger bodies if they are very wealthy) are able to continue to fish all year, although as will become apparent in Section 4, the means by

Wetlands of Bangladesh, Bangladesh Centre for Advanced Studies & Nature Conservation Movement, Dhaka (1994)

M Youssouf Ali (1997), *Fish, Water and People*, Dhaka: The University Press Limited

which they do this is a major cause of conflict.

In a country with very little land to spare, every available, useful plot is put to use throughout the year. Rice in particular is well suited to wet conditions. There are three principal varieties grown in Bangladesh: B. Aman, T. Aman and High Yield Variety Boro . Most crops are transplanted in bundles into bunded, irrigated fields during the dry season, and harvested at the beginning of the wet season. Other crops can withstand being submerged by floodwaters and are harvest as the waters recede. As a result of the three varieties, it is now possible to produce rice almost year round.

The Economy

Bangladesh is one of the poorest countries in the world and, since its independence from Pakistan in 1971 has become a focus for international aid. Despite its position close to the bottom of many poverty league tables, considerable advances have been made over the years. The population is rising fast, which is a function of both improving child mortality rates, improved living conditions and improved life expectancy rates. It will be some time before these improvements see a reduction in the population growth rate. The birth rate has decreased from 44 per 1000 in 1963 to 19.9 per 1000 in 1998. Infant mortality has decreased from 116 per 1000 in 1988 to 67 per 1000 in 1996 and life expectancy has risen from 56.4 years in 1987 to 60.8 years in 1998 with the disparity between rural and urban rates declining.

One consequence of a rising population is the added pressure this puts on government resources. However, literacy rates are improving, although there is still a marked difference between attainment reached by men and women: in 1991 35.32% of the adult population was considered literate in Bengali (44% of this figure were men, 25% women). NGO activity in the education sector (where in fact primary education management has passed to BRAC, a national NGO) has seen improvement here also. While more women attend school in the early years, the disparity between male and female widens as school years advance. 68% of women and 55% of men complete the first 5 years in school, but only 15% of men and 7 % of women go on to get a high school certificate. Poverty remains a significant issue for the Bangladeshi economy. Even allowing for the problems associated with measuring poverty, during the Household Expenditure Survey (1995-1996) estimated that 35.6% of the population were living below the upper poverty line (39% of them in rural areas, 14% in urban areas) .

Agriculture is the main economic activity employing 68.5% of the labour force (most of whom are small-scale farmers) and the sector as a whole contributes 32% to GDP. Fishing overall contributes just 6% to GDP, most of this deriving from the shrimp export

High Yield Variety or HYV is also referred to as IRRI rice after the International Rice Research Institute in the Philippines that was largely responsible for developing HYV rice during the green revolution in the 1970s-1980s. 52% of Bangladesh's rice production is now HYV rice, which, whilst producing significantly higher yields than other varieties, does require greater inputs and there is doubt about how long soil resources can continue to support such intense production.

All statistics from the Statistical Yearbook of Bangladesh, 1998, Bangladesh Bureau of Statistics, Dhaka.

sector. The industrial sector contributes 11.5% to GDP and is dominated by the jute processing industries, cotton textiles and garment industry – much of which is exported. Lack of infrastructural capacity, lack of investment and a skilled labour force are hampering any attempts to move the economy out of the primary products sector into more industrialised sectors.

1 The Fishing sector

Fish and rice are the two principle ingredients of the Bangladeshi diet, yet while rice production has expanded considerably since independence, fisheries has not. The 1985-1990 5 Year Plan notes that whilst average consumption of fish in 1962/63 was 33 gm per day, by 1979/80 it had dropped to 20 gm per day. It rose slightly to 21 gm five years later in 1984/85 and by the time the 1997-2002 plan was written it had risen again slightly to 25 gm. Whilst fish production (net of exports) is slightly higher than population growth, it will be a while before consumption once again reaches the figures attained in the early 1960s. Despite government attempts to continually improve production, there are physical limits to how much fish the country can produce. Targets set for fish production in the 5 Year Plans have consistently failed – not only to meet production figures, but also to spend money allocated to developing the sector.

Year Target Achievement Sterling	Equiv.	1973-1980	1,020,000	mt
production 636,000 mt produced	1980-1985	1,743,000,000	fisheries development	
budget 1,583,000,000 spent	£21.7 million budget			
£19.7 million spent	1985-1990	1,000,000	mt	production 847,000
produced	1990-1995	7,490,000,000	fisheries development	budget 300,000,000
spent	£93.6 million budget			
£37.5 million spent				

Source: Fifth Five Year Plan, Government of Bangladesh, 1998

In 1985 the government recognised that ‘reduced investment, lack of infrastructural facilities for culture of fish, organisational weakness and environmental effects of irrigation and chemical use in crop production’ had all contributed to under-performance. In the current Five Year Plan, lack of technical knowledge, fish seed, proper management, disease control and suitable manpower were also added to the list. The marine sector has fared somewhat better than the inland sector: exports of shrimp continue to rise much faster than improvements to inland fisheries.

Although fishing does not contribute as much to GDP as agriculture, it holds a very important place in the country’s economy. Fish supplies the bulk of animal protein intake of the population, it provides employment to anything up to 11 million people through out the year – particularly to marginal farmers/fishermen who alternate their activities as the floodwater rise and recede.

A variety of gear is used throughout the floodplain. Traps, set nets and dip nets are passive gears; push and drag nets are used to actively collect fish – these are often used

by women and children; bamboo barriers are often set up in rivers to impede the movement of fish (and are often a source of conflict as will be seen in Section 4).

Carps and catfish are the major species caught in inland fishes, which as the table below demonstrates is nearly 80% of total fish catch.

Distribution of in-land catches in Metric Tonnes

1995-1996	1996-1997	Major Carp	226,844	276,045	Exotic		
Carp	6,980	96,280	Other Carp	14,825	3,171	Cat	
fish	34,274	28,435	Snake head	68,329	40,643	Live	
fish	70,262	6,1080	Other inland				
fish	332,972	349,235	Hilsa	80,625	83,230	Shrimp	90,302 93,916 TOT
AL	988,238	1,032,035	% of total catch	78.56	78.98	Source: Statistical Yearbook	

of Bangladesh, 1998, Bangladesh Bureau of Statistics, Dhaka

1.1 Government Level Fisheries Management Institutions

Government administration of fisheries in Bangladesh is highly complex and bureaucratic, an issue which is not unrelated to the level of conflict in fisheries at the local level. What is more, all 5 year plans issued since independence have placed a heavy emphasis on production and it is not until the 1990-1995 5 year plan that any reference is made to improving the lot of the fishermen and their communities. As a result, the emphasis is heavily on management of fish rather than the management of fishing communities. In fact Thompson et al note that fisheries policies in the past have discouraged local institutions from emerging by placing clear focus on production and the state of fish stocks with little reference to the fishing communities reliant upon these .

There are privately owned fisheries, commonly-accessed fisheries and open access fisheries in Bangladesh. The status of many fisheries is dictated by the rising and falling levels of water within the system during the year. The contents of privately owned fish ponds may escape onto the wider flood plain during the monsoon, effectively making those fish common property. Fish on open access floodplains become private property as the waters recede and the fish congregate in natural, or indeed man-made depressions on the flood plain.

Two Ministries have input to fisheries management in Bangladesh. The Ministry of Land (MOL) owns all inland fisheries resources, except those held privately and is responsible for the administration of leases and access to these fisheries resources. The Ministry of Fisheries and Livestock (MoFL) is responsible for the conservation, protection and management of the fish stocks. However, not all water bodies conform to this scheme. Some are leased through the MoFL (authority having been passed to them by the MoL)

For further information on fishing gears, see Alam, Ali and Tsai 'Fishing gear of floodplain fisheries in Bangladesh: a case study of Chanda, BSKB and Halti Beels' in Tsai and Ali (eds) *Openwater Fisheries of Bangladesh* (1997), The University Press Limited: Dhaka.

Thompson, P; Sultana, P and Islam, Md. N Cooperation, 'Conflicts and Sustainability in Community managed Fisheries in Bangladesh', ICLARM, Dhaka, 2000

by fisheries cooperatives or powerful non-fishers, some are managed through licences, although in other areas licences have been abolished. In other areas, the leasing system is now defunct, licences being the management instrument used. There is a complex array of management and ownership patterns in Bangladesh, each area possessing a slightly different mix of types.

The auctioning of leases for water bodies was the norm in Bangladesh until 1986 when the government overhauled the system in a bid to promoting co-management. Since that point, auctioning was replaced by a sealed-bid process (see below for more details). This overhaul was part of the New Fisheries Management Policy (NFMP). Important and crucial though the NFMP may have been, no mention is made of it in the relevant 5 year plans issued around this period. Briefly, the aim of the NFMP was to ensure that benefits from fishing went to the fishermen, and not to the middle-men who were reaping many of the benefits. One means of doing this was to distinguish between genuine and non-genuine fishermen and then to licence these fishermen. However, the licence system proved costly to implement and run and was abolished (in some areas) in 1995 (at the point that rivers were declared open access). Although abolishing licences has removed the ability to collect revenue, there is an argument that fishermen are better off because the river fisheries in particular are open to all. The issue of non-fishermen, licences and the issuance of leases forms the basis of many of the conflicts reported during the field work.

There is a considerable amount of rivalry and conflict between the various ministries that have an input into fisheries. This conflict is further complicated by the rivalries present between the Ministry of Agriculture and the Ministry of Fisheries and Livestock. The Ministry of Agriculture is considered to be the superior body, officers working there are drawn from the better graduates and much of the recruitment that takes place owes much to the 'old boy' network that pervades the civil service in Bangladesh. Due to the importance of rice as a source of employment and food the Ministry of Agriculture receives a larger budget than the other Ministries who resent the preferential treatment paid to the Ministry of Agriculture. Such rivalries have often hampered cooperative development efforts to bring the Ministries together. (Ministry of Agriculture, private communication, August 2000).

There are many officials that play important roles in the administration and management of fisheries. However, from the point of view of the Conflict project, the Additional District Commissioner (Revenue) plays an important role in fisheries management, with particular reference to leases and licences (ie access issues). The issue of leases was particularly relevant to the Tangail case study (see section 4.1), the issue of licences to the Brahmanbaria case study (see section 4.2).

The Additional District Commissioner (Revenue) has a significant influence on the management of fisheries and the allocation of resources under his control due to the historical development of land administration and revenue collection in Bangladesh. The ADC (Revenue) is responsible to the District Commissioner and is one of 3 posts at this level (the others being the ADC (Land) and the ADC (General)). The ADC (Revenue) has

a number of duties. Firstly he has to ensure that Government owned land (*khas* land) is maintained and managed properly – this includes both agricultural and non-agricultural *khas* land. Secondly, there is the administration of the government programme to redistribute *khas* land to the landless.

Fisheries matters fall under the category of non-agricultural *khas* land. All water bodies not on private land are owned by the government, this includes rivers, canals, beels and baors and also includes the fish and animals that live in the water.

Government ownership of water resources falls into two categories: open access waters and closed access waters. All water bodies that have a continuous flow of water throughout the year are managed as open access resources: the government collects no revenue from these and anyone may fish in them. All other water bodies: that is those that are only seasonally connected to rivers and canals are available for lease-hold and known as closed access waters. Leases are issued on a 3 year basis for the purposes of aquaculture, and they have to be used for this purpose. Leases are distributed once a year by sealed bid auction, advertised in the local papers. The first bids for a water body lease must come from fishermen's organisations resident in the locality of the water body. If it is found that the highest bid does not meet the minimum asking price, the auction is reopened to anyone, again on a sealed bid process. The results of the auction process are considered to be final though where a previous leaseholder objects to losing the lease the case can go to the civil court. The reality, however, is often that cooperative leaders, wealthy and powerful men (the so-called influentials) outside the area, acquire the lease and prevent the villagers from fishing. These 'influentials' often stock the beels, thus increasing the incentive to protect their investment and prevent poaching by villagers. Although on many occasions leases are acquired through influential persuasion, on others the cost of the lease and the cost of stocking the beel are prohibitive and beyond the means of the fishermen's association. In this case, the lease is often sub-leased (as is the case in one of the case study sites). For beels of less than 3 acres, the lease is issued by the ADC (Land), on recommendation by the Thana Nirbahi Officer (TNO, sub-district administrator).

The previous system of management, whereby licenses were issued to fishermen was not considered to be wholly satisfactory because it was often difficult to get fishermen to pay the license fee (based upon the fishermen's fishing capacity) and the TFO were not able to pursue defaulters, hence the scheme was abolished in favour of open access which removed the need for individual revenue collection.

In a bid to improve fish production in Bangladesh, The Ministry of Land has handed over certain fisheries to the Ministry of Livestock and Fisheries for the Community Based Fisheries Management Programme. Within these fisheries fishermen are able to operate under different guidelines aimed at increasing the productivity of the fishery.

The minimum bid price is based on the economic value of the fishery as established by the Department of Fisheries when actual fishermen were issued with licenses under the previous arrangements. The minimum bid price rises by 10% each year.

Most fisheries complaints are dealt with at the Thana or Union Parashad level, but, theoretically the ADC (Revenue) office is open to anyone who has a grievance to air with regard to the fishery. However, it was acknowledged that although fisheries legislation provides adequate enforcement mechanisms, in reality the fisheries officers charged with prosecution are often unable to impose punishment either through undue pressure from mastans and influentials or through the acceptance of bribes.

At a local level the Thana Fisheries Officer is an important key to understanding how policy initiatives from Ministerial level translate into local level management.

The Thana Fisheries Officer acts under jurisdiction as provided for in the Fisheries Act. He is responsible to the District Fisheries Officer. The main duties of the TFO are to provide technical support or extension services to fishermen in the Thana, which can include over 20 unions, each of which can consist of a 6 or so villages. A common complaint of TFOs is that they have insufficient staff to deal with the workload and the geographical area that they have to cover. The local implementation of large scale fisheries projects also falls within the remit of the TFO, in the Chanda Beel area for example, it is the responsibility of the TFO to implement the World Food Programs distribution of food stuffs to destitute women and also to assist in the organisation of the poor people to work on lands to produce their own foods.

In addition to extension work, it is the duty of the TFO and his staff to identify, enforce and prevent the use of illegal fishing practice (such as the catching of under size fish) and illegal fishing gears (such as small mesh nets and monofilament net). In interviews with TFOs it was reported that the use of illegal gears and practices has increased steadily as fish resources have been depleted. However, there was also a perception that more fishermen were moving out of fishing into other occupations as catches decreased. This information, however, was not supported by evidence of fishermen who claim that more are entering the profession as the market price of fish rises. The TFO is responsible for organising the confiscation of illegal gear, alongside the police. It was however acknowledged by the TFOs that they are frequently frustrated in their activities by mastans and influentials who force them to return confiscated gear to the fishermen. The fishermen also claim that TFOs are open to bribery to return such gear.

When the water bodies were under government control with the licensing system far more power and contact was maintained between the TFO and the villages under their remit. Since the advent of Open Access, this contact has diminished, to the long-term detriment of the management of the fisheries. Although many fishermen considered the licensing scheme to be the 'golden age' of fishing in the country, the TFOs regarded the scheme as largely unworkable: fishermen who refused to pay their fee simply moved to another area and were very difficult to monitor.

Community Based Fisheries Management This is an interesting government-NGO initiative, not least because it is a departure from the usual 'production expansion' mind-set of fisheries management in Bangladesh.

In an attempt to provide a framework and platform for co-management initiatives, the Community Based Fisheries Management (CBFM) programme began in 1995. It started on 19 water bodies in Bangladesh to establish local user management institutions with the long term aim of ensuring sustainable exploitation through the cooperation of the local fishing community. A variety of management institutions have arisen from the CBFM initiative: of particular note are the Beel Management Committees and the River Management Committees. This later one is found in the Brahmanbaria study site (see section 4.2).

Results of the CBFM initiative have been reported on at length in other places, suffice to mention here that, on analysing impacts of CBFM on study sites, it was found that closed water bodies improvements in institutional efficiency (that is ease of decision making), was found to have improved. On rivers, which are now open access, such improvements were harder to identify and on those waterbodies where influentials/mastans were in evidence it was also not possible to identify improvements with any clarity.

1.2 Local Level Institutions

Running parallel with the myriad government offices is the unofficial power system consisting of influentials and mastans, or muscle men. Although extremely difficult to prove, bribery would appear to operate at all levels of the government system and in all other areas of life. Despite concise rules governing fisheries management, infractions are common-place, those breaking the law either avoid detention through the use of violence or bribes. Illegal fishing gear and practices are commonly and openly used, powerful landlords prevent fishing on open access floodplain waters that lie adjacent to their land and muscle men demand 'payment' to fish in their section of the river or their part of the floodplain. This payment often consists of a percentage of the catch but payment offers no protection from dacoits and thieves which appears to be a growing problem. Any reading of Bangladeshi fisheries has to always look to the alternative and unseen power structure to understand the context within which management operates and the strictures that this places upon any development initiatives.

Villages as institutions. There is no official 'head' of a Bangladeshi village – authority is often vested in power, wealth or education. Villages consist of a number of large extended families that live in compounds. Within the compounds the families often have separate living and cooking areas, but often sharing a tube-well, sanitation facilities and many chores. Although there is no 'leader' as such, the villagers often act in unison and support each other in their day to day lives. Fishing operations are usually small affairs comprising either one man, or one man and a couple of other male relatives (it takes 3 people, for example, to operate a pull net). One unique aspect of fishing communities in Bangladesh is the widespread presence of NGOs. Although many villages have no NGO influence or involvement, a great many are organised and have high degree of cooperation because an NGO, at some point, has come in and helped to organise them. Not all interventions are successful, the omnipotent presence of the influentials and the muscle men provides an invisible barrier to any real development initiatives, but, there

are positive examples of NGO involvement helping fishermen to effectively organise themselves to provide a powerful front to such barriers.

The issue of who was, and who was not a fishermen was a persistent theme throughout the field work. Precise definitions were not forthcoming, but, the following value boundaries were drawn for what are commonly called non-fishermen. A non-fisherman (or preferably, neo-fisherman) is someone who fishes part-time to supplement other economic activity, uses his own gear and labour, but does not come from a traditional fishing village. This is in distinction to a marginal fisherman from a traditional fishing village who fishes using his own gear and labour for part of the year but share-crops or hires out his labour to others in lean periods. On consulting a so-called non-fisherman, it transpired that these were marginal farmers who were forced into fishing as an 'occupation of last resort'. Many have been fishing for years, although the villages they come from are traditionally farming not fishing villages. The term neo-fisherman has been used throughout in preference to that of non-fisherman.

2 The Survey

Bangladesh presents some interesting scenarios with regards to the management of fishing, and the impact of conflict within the sector. In common with a number of other South Asian countries, Bangladesh's fisheries are characterised by two distinct sectors: the coastal, marine sector and the inland, floodplain sector. Given that 70% of Bangladesh is covered with floodwater during the peak of the normal monsoon period, fisheries and their interactions with other sectors on the floodplain are of critical importance to the economy of the country. Although the marine sector is important from an export point of view the floodplain fisheries are a chief contributor of protein, employment and income to a large, and growing, rural population. Conflicts in the coastal area, particularly over the rise in shrimp cultivation, are rising and becoming increasingly violent. However, it was felt that for the purposes of this study attention would be focused on the floodplain where any findings would have a far greater impact for a larger proportion of the population. Were attention to be focused on the coastal (shrimp farming) areas, the impact would more likely be felt within the export sector and its impact on the livelihoods of the rural poor would be lower. The survey took place between mid July and mid August 2000. Two researchers from CEMARE and a researcher from BCAS conducted the interviews, together with a number of locally recruited staff at each study site.

2.1 The problems as posed by collaborators in year 1

- Access conflicts (involving conflicts between farmers and fishermen over water use in the dry season)
- Land use conflicts (involving conflicts between landowners and landless and poor farmers).
- Legislation conflicts (involving lack of clarity of duties and responsibilities between Ministry of Land and the Department of fisheries), which subsequently leads to conflicts over

- Ownership of riparian rights
- Leaseholders' rights
- Legislation on the issue of leases
- Intervention conflicts (involving NGO activity in a variety of forms, but notably conflicts caused by impacts of the Flood Action Plan)

2.2 Theoretical Framework

The purpose of the project is to examine conflict management in tropical fisheries and to ascertain a) the incidence and cause of conflicts; b) how they are managed and c) how present institutional arrangements might be strengthened to better deal with conflict management. The project is working within a new institutional theoretical framework, but specifically interested in how changes in communities affects institutional ability to manage conflict. In particular, the project is interested how transaction costs impact upon the ability of the fisheries management institutions to manage conflict. Bearing in mind that it is not possible to measure transaction costs (although recent work by Kuperan et al may now refute this), the field work had to investigate issues around the subject of transaction costs in order to be able to ascertain a definition of the transaction costs present and the influence they were having on the institutional structure.

2.3 Methodology

With an estimated population of 130 million people, of which there are an estimated 1.5 million full-time professional fishermen and a further 11 million part-time and subsistence fishermen, whose numbers peak during the monsoon season, compiling a representative sample for Bangladesh was clearly unfeasible in terms of both time and money. For this reason, it was felt that a case study approach would be more productive. In order to avoid choosing sites that had exemplary conflict resolution procedures, or excessive conflict problems, it was decided to select sites based on water body type, assessing from there the degree of conflict and conflict resolution procedures in place.

To reflect the wide range of access issues involved in Bangladeshi inland fisheries three study sites were selected representing a river, a permanent and a seasonal water body as their primary water body types. Within each case study a minimum of three villages was selected to ensure that a diverse range of views was collected around the water body. The three study sites were chosen in collaboration with BCAS and consisted of a river fishery in Brahmanbaria on the Titas river, east of Dhaka; a permanent beel in Tangail, north west of Dhaka and Chanda Beel, a large seasonal water body 180 kms south of Dhaka. In both Tangail and Chanda Beel BCAS had office staff that were able to assist in the field work, no such facility existed in Brahmanbaria where local contacts, particularly the Bangladeshi NGO Proshika, were used to assist in identifying a number of villages.

Kuperan, K; Abdullah, N M R; Pomeroy, R S; Genio E L and Salamanca, A M. 1999. Measuring transaction costs of fisheries co-management in San Salvador Island, Philippines. *Naga, the ICLLARM Quarterly*, 24:2, 45-48

In each area a small cluster of villages was selected to provide as broad a picture as possible of the area. In each village respondents were selected for interview on a random basis, always bearing in mind the need to speak to all stakeholders in the fishery. Identifying and accessing the very poorest fishermen was extremely difficult. Despite this one problem interviews were conducted with a wide cross-section of fishermen and other stakeholders in the fishery: poor, landless fishermen who supplement their income through waged labour and share-cropping, comparatively wealthy land-owning fishermen who also worked as fish traders during the dry season, full-time fishermen, government officials and in one case the care-taker of a large, leased water body.

Summary descriptive of each Case Study:

Case study Primary waterbody Secondary waterbody Tangail One large permanent beel, under lease; a number of smaller beels, under a variety of access arrangements Logala and Jumuna River, open access **Brahman Baria** River Titas, open access A variety of beels, under different access arrangements **Chanda Beel** Seasonal water body Madaripur Beel Route Canal

2.4 The questionnaire

The questionnaire for use with the fishermen:

For reasons of simplicity and speed a number of tools were adapted from the extensive PRA 'toolbox' to help build the Participatory Institutional Survey and Conflict Evaluation Study (PISCES). PISCES was developed by Bennett and Jolley (2000) for use with artisanal fishing communities to gather information on institutional arrangements in general and conflicts specifically. Whilst PRA is very useful to gain a detailed yet rapid picture of a community, it does not lend itself easily to gathering information on a specific subject such as conflict. PISCES therefore combines a number of PRA-type techniques and the more formal semi-structured interview format.

PISCES consists of 5 parts: a village transact, a mapping exercise, an institutional linkages exercise, a time-line and a semi-structured questionnaire. The purpose of PISCES is to provide a toolkit that is flexible enough to be adapted to the local context.

The Village transact: With each new village visited, a walk was taken through the village, notes were taken on the different economic activities observed, the type of housing that predominated (tin, grass, brick etc), fishing gear being used, animals and crops around the site, schools, places of worship and market, hats and bazaars. As the walk was conducted we would be introduced to various fishermen and other members of the community who would come and talk to us as we walked through the village. The following day the other exercises were conducted. The purpose of the transact was to gain an idea of the socio-economic context of the study site and also to conduct a rapid appraisal of the economic activities being conducted, always bearing in mind that these were only the *visible* economic activities.

The Mapping exercise: The Participatory Geographic Information Exercise (PGIE) was first devised and used by Jolley and Neiland (1995) in Northern Nigeria. PGIE is a more advanced version of a spot map, enabling vital information about the context of the

village to be gathered. Thus details such as neighbouring villages and their fishing or farming grounds could be gathered along with information about land use and important infrastructural points such as major roads. Due to sheer complexity of the region, and the tendency for any discussion to attract a large crowd, it was decided to use the mapping exercise as a separate element to the questionnaire. The mapping was done as the initial exercise in the village, questionnaires then being conducted with individuals not present at the mapping exercise.

The Institutional Ladder: It was felt here that the status and nature of relationships between institutions was the important aspect to be studied. Therefore participants were asked to represent the relationships between a number of pre-determined and volunteered institutions, organisations, groupings and individuals using lines and + and – signs to indicate the nature of the relationship (positive, negative or 0 for neutral).

A Time-line was used to gather further information on the chronological order of events: both through time and over a 12 month period.

Finally, the questionnaire consisted of two parts: the first dealt with conflicts and their management, the second with peripheral issues such as government policy, access to credit and change in the community. The questions were constructed in such a way as to allow the community to volunteer information, rather than asking them leading questions and eliciting information on the ‘non-problem’.

3 Conflicts identified and their management

As the following table demonstrates, there is little perceptible difference between the conflicts reported at each of the three study sites. The only difference in terms of access is seen at Chanda Beel (section 4.3) where access conflicts were not significant. As will be become evident, conflict management and resolution institutions in each of the three study sites were either non-existent, inadequate or ineffective. This is discussed further in section 5.

Conflict profile of the villages studied

Village name	Landowners or water body owners?	Dacoity attacks	Access works?
Shabazpur	((((Sitnagar	((((Kalikatcha	((((Sharduladi
dottokhola	((((Kathua	Jugini	((((Krishnapur
Madda	((((Krishnapur	West	((((Bil
Chanda	((((Kaligram	((((Goalgram	((((

3.1 Tangail

Village name	Number of fishing households that participated in data collection	Total
Kathua	30	49
Jugini	9	
Krishnapur (Madda)	10	
Krisnapur (West)	10	

The fishing villages of this study site are located around the permanent water body Jugini beel and alongside the River Logala. There are 7 beels within the study area, the largest being Jugini Beel. The fishermen of the villages surrounding the beel have traditionally

exploited the fish resources within the beel. However, the introduction of a lease system has curtailed access to many of the beels (including Jugini). This has had a number of knock-on effects. Because of the scarcity of fish within the locality, over time the fishermen have been forced to move further and further afield. When fishing outside of their locality the fishermen were faced with three problems. Firstly they were, more often than not, required to give 25-50% of their catch to the influentials/muscle men of that area, secondly they became far more likely to experience theft of their fishing gear; thirdly the fishermen often faced opposition from the local fishermen of that area .

Under the FAP 20 Compartmentalisation Pilot Project (CPP) in the late 1980s, early 1990s 13,000 hectares in the Tangail district became part of a “flood management laboratory”. The project area was divided into compartments, into which the flow of floodwater was to be regulated by sluice gates and embankments . The main objective of the CPP was to “provide a secure environment for intensive agriculture, fisheries and integrated rural/urban development through controlled flooding and drainage” (Ali, 1997). This was to be achieved through the involvement of the local people, or “stakeholders”. The impact of the sluice gates upon the Logala River has, according to the fishermen, been dramatic. A number of problems have arisen due to the gates:

1. The reduction of flood inundation has reduced the areas available for fishing
2. The sluice gate is operated in such a way that it does not allow the fish the chance to enter the floodplain to spawn.
3. The river has silted up which has reduced fish numbers.
4. Water is not allowed into the surrounding beels in adequate quantity to maintain the levels.
5. Restriction of movement of boats along the river.

The sluice gates are controlled by a management committee, but is considered to be ineffective and this has compounded the problem. Although the committee is made up of representatives of all the various stakeholders, the fishermen considered themselves to be token members of the committee with little power. The sluice has, however, controlled flooding in the area as it was designed to do. During the 1998 floods, much of the region was free from abnormal flooding levels.

The conflicts cited by each of the villages in the study area were similar. They are explained in detail below, but briefly consisted of:

- Decreased access to traditional fishing areas

PANOS/BCAS (1994) *Rivers of Life*, BCAS: Dhaka/PANOS: London

M Youssouf Ali, (1997) *Fish, Water and People: Reflections on inland Openwater Fisheries Resources of Bangladesh*, The University Press Limited: Dhaka

This usually included inability to fish in the largest beel because this is now leased and stocked by influentials living outside the area. Although subsistence fishing is allowed in the beel, there are problems over defining who is a subsistence fisherman, and getting the beel caretaker to allow this legal activity to take place. Other smaller beels have also been closed to local fishermen as stocking programmes by outsiders have been introduced.

- Mastan or influential activity

The consequence of reduced access to traditional (and local) fishing grounds means that the fishermen are travelling further away to fish and thus have to negotiate access to grounds controlled by mastans or influentials. Although there is no legal basis for their actions, the fishermen accept that they have to pay to fish in what is by law an open access fishery (the river). Payment is either in money or a percentage of the catch and violence is used to extract payment.

- Problems caused by the FAP structures

Although the FAP structures have prevented major flooding, they have also created problems for the fishermen: navigation around the flood plain is hampered by the structures which do not allow boats through, fishermen believe that reduced water flow has reduced fish stock in the water and, perhaps more importantly, the management of the sluice gates is impacting upon fishermen's perceptions of fairness and conflict management institutions.

Kathua Jugini: This is a predominantly Hindu village made up of professional fishermen, of 75 households, 60 of them were estimated to be professional fishers.

The fishers of Kathua Jugini have traditionally fished all available water bodies within their locality, this includes the river, the beels and the floodplain. Over recent years the extent of the fishing activities has been curtailed both by legal and illegal means.

The fishermen's activities on the Logala river have been curtailed in two ways. Firstly the construction of the sluice gates prevents boats from moving freely along the river, the gate is not big enough to allow country boats to pass through. Secondly, the stretch of river marked on the map has been closed to them by the landowners at the side of the river, who exploit the fisheries resources themselves. In order to compensate for this, the fishermen often travel to the Jamuna River but there they face problems with both the influentials, who demand 50% of their catch, and the "new" Muslim fishermen, who obstruct them

The fishing co-operative within Kathua Jugini own the lease to fish on the beel, but they have sub-leased it to influential men from Tangail. This has restricted their activities on the beel to occasional waged labour (8 or 9 fishermen a season might hope to be employed in this way). The villagers have been given assurances that the rights to fish on the beel will be returned to them when the lease is renewed in 2001, although it

remains to be seen if they will be able to afford the lease or the cost of stocking the beel which is why they sub-leased in the first place. In the meantime however, their inability to fish in the Beel was the primary focus of discussions about conflicts.

In order to get a more objective view of the beel lease issue, the caretaker of the beel was interviewed (attempts to find the leaseholder proved futile). He maintains that the reason the villagers of Kathua Jugini do not hold the lease is because they opted to sub-lease it to wealthy individuals in Tangail because they were unable to raise the capital to stock the beel. The lease for the beel was sold for 1 lakh 20,000 Taka, stocking would have added a considerable amount on top of this sum. Most of the fish in the beel have been stocked by the leaseholder, and the caretaker acknowledged that this had had an impact on the biodiversity of the beel (there are now only 3 or 4 species of fish in it), although catch rates have improved as a consequence. Initially poaching had been a problem in the beel, but this has now apparently decreased since the local fishermen recognise the power of the sub-leaseholders. Now they may find a poacher every 2-3 months who they may either rebuke or sometimes will pardon them if they plead or pay money. Although according to law subsistence fishing is allowed in leased waterbodies, the caretaker reported that this was not the case – it may well be the case that those accused of poaching were in fact subsistence fishing. Water based activities that do not have an impact on the fish stock are allowed around the edges of the beel such as jute retting, bathing and washing. During the rainy season a restriction is placed on fishing on the adjacent floodplain as it is full of the fish from the beel – he believes that this right has been granted them by the fisheries office.

Fishing activities by the villagers in both Gagorzan and Kanda Para beel have also been restricted to fishing as waged labour. They are able to fish in Vatchanda Beel but are required to give the owners of the surrounding farmland 50% of the catch. The floodplain surrounding Jugini Beel has also been closed to them by the influentials. To the south of Jugini Beel is an embankment, the floodplain to the south of this is now stocked by a local NGO who have banned all fishing in the vicinity and will not buy fry or fingerlings from the local fishermen.

The sluice gate was reported to be causing problems because it prevents unrestricted navigation by boats and disrupts the natural breeding cycle of fish.

Krisnapur Madda: This village is located to the south of Jugini Beel and is dominated by Muslim part-time fishermen. The fishing community itself is not organised in a coherent fashion which is evident in the fishermen's lack of knowledge on the existing fisheries regulations in particular.

As with the fishers from Kathua Jugini, fishing activities have traditionally been focused upon Jugini Beel, and so the closure of this fishery was mentioned as the foremost conflict by those interviewed. The fishermen from this village also had access to a

The term NGO as used in Bangladesh refers to any non-governmental organisation. These are frequently small, private enterprises set up as NGOs to qualify for aid money and do not necessarily conform to the European notion of an NGO as a not-for-profit organisation working toward altruistic goals.

number of other nearby beels which have also been closed to them. Access to the floodplain fishery had also been curtailed by influentials who have investments in restocking the beels on the floodplain. As with all fishermen in this area the problems relating to the operation of the sluice gate by the CPP committee was highlighted by the respondents.

As a result of the on-going conflicts, the respondents considered that the level of conflict in the area was higher than it had been 10-12 years ago since both the size of the fish stock and the fishing area had been reduced. The fishermen therefore felt that the level of conflict could only be abated by opening access to the floodplain waters and the beel and also through favourable management of the sluice gate. The fishermen felt they had been removed from the sluice gate decision making process and so did not have high expectations that this conflict could be resolved. In terms of future access, to Jugini Beel in particular, though the fishermen felt the fishing rights may revert back to the local fishing co-op, their status as Muslim part-time fishermen or 'non fishermen' means that they would be unlikely to realise the benefits.

The reduction in the fishing income caused access restrictions and the decline in the stock has lead some of the fishers in Krishnapur Mada to look elsewhere for employment.

Krisnapur West: This is a predominantly Muslim village, most of the fishermen were part timers who also farmed (mostly share cropping). They focus their fishing activities upon the beels and the surrounding flooded areas. The extent of their fishing activities has been curtailed over recent years through both legal and illegal means. Ten or twelve years ago they had access to four beels – Jugini Beel, Sugerghana Beel, Krisnapur East Beel and Doli Beel. Of the 4 beels in the locality of the village they are now only able to fish in two, Doli beel and Krisnapur East Beel. Jugini Beel has been leased out and so is “legally” restricted while Sugerghana Beel, though not leased, has been stocked by influentials and access is now barred.

While the fishery at Krisnapur East Beel is not closed the villagers of Krisnapur West face opposition from the fishermen of Krisnapur East when they try to fish there. One woman had been given permission, after pleading, to lay *ramani* (fish traps) in the beel. Fourteen of these had been stolen in the previous week, but she felt powerless to do anything about this. Villagers living adjacent to Sugerghana Beel are also prevented from fishing, by the fishers of Krisnapur West, in Doli Beel since there is no reciprocal access.

The fishers of Krisnapur West have traditionally exploited the floodplain fisheries surrounding their village, which have in the past provided them with a good source of fish during the rainy season. Now they are restricted to two distinct floodplain areas (see map). The floodplain that surrounds Jugini Beel has been closed by the leaseholders of the beel because they need to protect their investment in re-stocking programmes. The floodplain area below this has been enclosed by embankments and has been stocked by the Bangladeshi NGO SDS who own a hatchery and do not buy fingerlings from the local fishermen This area is also closed to local fishermen as a result.

Fishermen from Krisnapur West own farmland in both of these areas and yet are still unable to fish on the floodwater above their land. In floodplain area 1 the fishermen must gain permission from the farmers to fish on the waters above their land.

A lack of access to credit was not an issue amongst the fishermen interviewed, although the rates charged for credit were. Credit from NGOs offering micro-credit at reasonable interest rates was available, although not always in sufficient quantities. When demand required, fishermen often resorted to money lenders for credit. Common levels of interest charged by money lenders were 10% per month, although one fishermen reported being charged 120% over a 3 month repayment period. Other sources of credit available to the fishermen were household savings (from other activities such as farming, trading and weaving) and savings were often used to pre-finance fishing activities.

3.2 Brahmanbaria

Village name	Number of fishing households that participated in data collection
Shabazpur	14
Sitnagar	18
Kalikatcha	10
Sharduladi	
dottokhola	1
TOTAL	43

Brahmanbaria District lies east of Dhaka close to the border with India. The focus river for this case study was the Titas, a secondary river which passes through the district and eventually links with the Meghna. Previously, it had been divided into 'blocks' for revenue administration, these blocks have now been abolished. The region is moderately industrialised with textile mills, some important gas fields, a large power plant and a significant fertilizer manufacturing industry. All the villages in the survey lie on the Titas River and were selected on a random basis with the stipulation that one of them be part of the CBFM project. All three villages were predominantly Hindu, with the exception of the last that was a predominantly Muslim village of so-called neo-fishermen. This case study presents, essentially, 2 distinct sub-case studies. Shabazpur and Sitnagar are two villages that fish in the river and on the floodplain, Kalikatcha, is a village where the majority of the fishermen work has hired labour in the village ponds and only a small number fish in the river or floodplain.

This region was reviewed in 1998 by ICLARM as part of the CBFM initiative. It was found that little progress had in fact been made to date. Power had not been devolved from government to the local communities; distribution of benefits from the fishery had not improved – partly due to the increased use of *kathas* in the river and rising effort over all. Sustainability of the fishery was also called into question, although it was acknowledged that local support for conservation measures and compliance was high.

Conflicts cited in the area are detailed below, but in brief comprised the following:

In fact, none of the villages in this section of the river were handed over by the Ministry of Land to the DOF for community based management. Proshika have, however, been working with the communities since July 1992 (ICLARM, 1998)

- Rising competition for resources on the river

Since the river was declared Open Access (traditional fishermen) complain that the number of fishermen has risen sharply which is causing a number of problems: competition for the resource has risen and as a result enforcement is not as effective as before

- Neo-fishermen

Neo-fishermen are (generally) muslims who have been forced into fishing when their other livelihood options collapse. Because the river is Open Access, this has attracted many neo-fishermen which is part and parcel of the conflict mentioned above.

- Illegal fishing gear disputes

As resources are depleted and commons problems rise, so the use of illegal fishing gear has risen to compensate. This gear not only reduces the amount of fish available for other fishermen, but is also guarded by its owners, leading to rising violence on certain fishing grounds.

- Reduced access to fishing grounds

Fishermen were prevented from fishing at open access areas due to the rising presence of costly and effective illegal fishing gears as noted above.

Shabazpur lies a couple of miles off the main road between the ferry port and Brahmanbaria. It is situated on the banks of the Titas River which at the time was in full flood. Prior to 1995 the river was fished under license. Despite this, the fishermen interviewed claimed that there were at least 3 times as many fishermen fishing this stretch of the river as there were licenses issued. Proshika was eventually called in to help solve this conflict, but before any solution could be found, the licensing system was abolished, effectively legalising those fishing there illegally. The river is now Open Access. This village is one of 12 that form part of the River Management Committee (RMC), a joint initiative of Proshika and DOF set up in 1998. The RMC consists of all major stakeholders on the river: including katha owners, local government, DOF and Proshika however, increasing levels of apathy and disinterest in this village and other participating villages, coupled with lack of financial support has rendered the RMC largely non-functioning. In terms of the make-up of the village, 90% were described as landless, however the village had a Mother and Baby Clinic, a small dispensary (opened in the 1950s) and a mosque (but no temple). Many villagers commented that things have improved in recent years: new schools, free clinic services, a rise in literacy and more years spent in schools were all cited. In terms of negative changes in the village, the rise

A landless person may actually own land in Bangladesh, but is considered not to own enough to provide for his family.

in the number of neo-fishermen fishing in the river and the rise in population were both reported.

Due to the falling catches and rising number of operators on the river – blamed on the ability of anyone to fish the river - the fishermen in this village also rely upon fishing in nearby Chatal Beel. They have been able to acquire the sub-lease for the beel: up to 40 households have the sub-lease which they fund through short-term loans from an NGO who lends money at a much more reasonable rate than the local money lenders. The profit from fishing the beel is sufficient to cover the cost of the loan and provide an income. The persons holding the sub-lease co-operate as a group and operate management rules in the beel: of the two types of nets used in the beel, only one may be used per day – additional payments must be made to use 2 nets.

Fishermen in the village considered the current laws and regulations on fishing to be adequate, but were unanimous in their perception that enforcement of these regulations was not sufficient. Faults in the enforcement system were put down to power differentials between the police, government authorities and the mastans, but also to the frequent use of bribes.

A number of conflicts were mentioned: Firstly, the issue of the number of neo-fishermen on the river. It was strongly felt that open access to the river was prejudicing the livelihoods of professional fishermen and that a return to either the license system (operational until 1995) or the river block management system would be preferable.

The illegal appropriation of resources in the river was another important issue raised, this was related to two separate issues. Firstly, the placing of bamboo fences in the river to prevent fish migrating down stream. These fences are illegal, yet frequently erected by a variety of people (influentials, muscle-men or neo-fishermen). Because they act to congregate fish, the area around them is fiercely guarded, effectively banning fishing in certain sections of the river. Secondly, the use of *kathadam*, (brushpiles or fish shelters), again by influentials, muscle-men or neo-fishermen. These, like the bamboo fences, congregate fish, making fishing easier and thus they are fiercely protected. Additional to the issue of these two devices providing fishermen with a means of appropriating river resources, is the impact that they potentially have on fish reproduction because they disrupt natural migration patterns. The fish move from the river to the beel when the waters start to rise, and return to the river as the waters fall. Disrupted migration patterns are impacting upon fish populations in the river and beel as breeding and reproduction is curtailed. There is no remedy to either of these problems: the TFO is unable to provide support, and recourse to the police is considered futile due to the power and influence of the perpetrators. One additional point mentioned in this village with regards to fish stocks, was the impact that they felt agro-chemicals were having on fish reproduction.

The illegal use of monofilament on the beel is a source of conflict. Monofilament is banned by law, and yet is often used by poachers as it is both effective in catching fish and is also very difficult to detect in the water. The fishermen reported that it was not possible to do much about the monofilament net: the poachers that used it were very

powerful, and they could not appeal to the leaseholder, as he was not powerful enough to counteract the poachers. Occasionally the police would raid the beel to confiscate illegal nets, but frequently they were bribed with large sums of money.

All villagers reported that there were more conflicts now than 12 – 15 years ago. Reasons given for the rise in conflicts were the rise in neo-fishermen using the resource and the decrease in catches (although not all fishermen inferred that these two issues were necessarily connected). It was strongly felt that the abolition of the license system was responsible for the rise in the number of fishermen using the resource. Most conflicts are never resolved because it is felt that there is no mechanism in place to perform this function. Although technically the government authorities and the police should have the role of law enforcement (which while not actually resolving conflicts, would certainly minimise their eruption through deterrence) this is never used as it is perceived as ineffective, or powerless to act in the face of muscle-men and influentials. Suggestions on how the current situation might be improved all centred on a return to the previous form of fisheries management. The preferred option was a return to the system whereby only those living within 5 miles of the beel could fish there. Though they felt there was no conceivable hope that the current power structures would change in their favour in the foreseeable future. The village felt that the hardest problem they currently have to deal with is the high degree of power inequality within the community and the consequences of this, the allocation of resources and the appropriation of access to waterbodies.

Sitnagar lies on a thin strip of land between the Titas River and one of its redundant arms (referred to as Khajadina Beel). During the raining season the only means of accessing the village is by boat, because the village sits on a seasonal island in the floodplain. A third of the villagers are fishermen, the rest are labourers (making bricks) or cobblers. They fish in the river and in the beel, although this shrinks considerably during the dry season. Most of the fishermen are technically landless, although they do plant HYV paddy on the little land they do own, this is planted out between January and February and then harvested between May and June, before the waters start to rise. They are able to take advantage of fishing opportunities on all the adjacent floodplain.

In common with Shabazpur, the villagers of Sitnagar reported that they felt the laws and regulations regarding fishing to be adequate, but the enforcement mechanisms to be weak or non-existent. One of the reasons given here for the weakness of the enforcement mechanism was the sharp rise in the number of fishermen using the resource: the system was not able to cope with this.

As far as conflicts were concerned, a number were mentioned: restricted access to (legally) open access areas. This was blamed on neo-fishermen who had moved into the fishery to benefit from the rising price of fish. During the monsoon vast areas of the floodplain are declared off limits by neo-fishermen who have discovered a profitable area to fish. The use of monofilament net was also reported: this was a problem because it created a physical problem for real (professional) fishermen who encountered entanglement problems, and also because monofilament is highly efficient at catching

fish. Monofilament is also used in the river during the dry seasons (presumably as this is the more effective means of catching fish when water is low).

Always closely linked to the question of monofilament net was that of *kathadam* (brush-piles or fish shelters) built in the river which are guarded jealously to protect the valuable fish that congregate there. Another issue mentioned in this village was the impact of chemical fertilisers on fish production. HYV paddy requires high inputs (much of Bangladesh's agricultural land is now infertile), fishermen claim that run-off from fields is affecting fish reproduction and hence catch rates, although there is little evidence to substantiate this. While the connection between this cause and effect is a little tentative, it was certainly perceived that the reduced number of fish and the increased number of fishermen was creating greater competition for resources and thus an increase in conflicts.

Fishermen in this village considered the Pakistan era to have been far more peaceful and ordered. Life was considered to be better then, but started to deteriorate after liberation. Prices started to rise, and conflicts arose due to increased competition in the fishery. Of the many conflicts that have arisen since liberation, the stealing of boats and fishing nets was considered to be of particular importance. The change in the fishery was put down to an increasing local population chasing fewer and fewer land and land based resources. Interestingly, one of the fishermen, a merchant, observed that as people acquire more wealth, they consume more, thus causing more conflicts as production on both land and from the water cannot keep pace with consumption.

Fishermen in Sitnagar considered that the only way for the system to improve was for them to be given rights over the fishery. The licensing system (abolished in 1995) was considered to be the ideal path towards establishing some degree of property rights over the fishery. It was, however, acknowledged that even under the licensing system the influentials exercised considerable control. It was believed that the very presence of the licensing system provided some degree of control for the system: there was a reluctance to fish without one. Now that the waters are open access, no such hesitation exists. Coupled with a licensing system of some kind, an improved enforcement mechanism is needed, and this would have to come through the auspices of government and other institutions. It was felt that government officials needed to be organised and monitored so that the taking of bribes could be prevented. In terms of conflict management, it was felt that there was no means of conflict management, nor an institution that effectively served this purpose. The fishermen perceived themselves as powerless and did not have the right to challenge the system. As far as the river was concerned, it was felt that a return to the river block system would be preferred.

As with other villages, many positive changes could be identified – the new school and the rise in literacy were all considered favourable. However in the past couple of years there has been a serious rise in the level of lawlessness with dacoity attacks increasing. These dacoity attacks are often related to any complaints lodged by the fishermen with respect to the use of illegal gear, or the illegal appropriation of resources. Complaints filed are often followed by a night-time visit to the village by a band of dacoits who will wreck

their boats and steal their gear. A member of the village did lodge a complaint with police last year – also copied to the District Commissioner and the Thana office, and although the police came to the island to discuss the issue, nothing came of the meeting.

Interestingly, this village is one of the 12 that make up the River Management Committee, and yet none of the villages professed to know anything about it, although they were aware of its existence. The co-op that operates within the village appears to be a stable institution: although only 4 household contribute to the costs of the co-operative, other households are permitted to fish the beel, on paying a percentage of the catch to those that pay for the lease.

Kalikatcha: Lying somewhat back off the river, Kalikatcha is bordered on one side by a canal, on the other by the floodplain. Due to its comparative distance from the river and the difficulty of navigating the canal, most fishermen work the 256 ponds in the village, only a few bothering to fish on the floodplain itself.

There is a sizeable beel that runs alongside the river, and, in full flood becomes part of the greater flood plain. Fishermen in Kalikatcha used to cooperate with the adjacent village of Dharmathirtha, but, since the beel has now come under the lease system, there is no provision for them to fish there. Pond fishing is done, predominantly, during the dry season when fishing opportunities on the river and floodplain are much reduced. Ponds are generally sub-leased to an interested party who wants to invest in aquaculture, the fishermen in the village (none of whom own, or sub-lease, a pond) are then employed as hired labour to manage and fish the ponds.

The cost of sub-leasing a 30 decimal (=1 acre) pond would be somewhere between 6 – 10,000 taka a year (£80-£130). Stocking a pond would cost around 4,000 taka for fry (£55). After much discussion it was agreed that, were a pond lease to be acquired for 6,000 taka, then, after stocking the pond and selling the fish for 15-16,000 taka (£200-220), a profit of around 6,000 taka could be made. None of the fishermen were wealthy enough to take on a lease or stock a pond.

None of the fishermen reported any serious conflicts in the river, the canal or the floodplain, although, once again the issue of monofilament nets was raised. It transpired through discussion that many fishermen avoid the floodplain because of the high use of monofilament net there. Areas around the monofilament net are protected by mastans, thus constraining the villagers fishing area, and putting them in danger of a beating should they get too close. The Secretary of the National Fishermen's Society lives in the village and confirmed that there was lobbying under way at the moment to remove neo-fishermen from the Titas River, thus restoring the previous arrangement whereby only 'real' fishermen can fish there. Optimism that this would happen was running high, although it appears to be a false hope in reality. The only conflict reported with regard to the ponds was the theft of fish by poachers. Once again, it emerged that poachers were considered to be far more powerful than the fishermen, and it was felt that there was little they could do about this.

3.3 Chanda Beel

Village name Number of fishing households that participated in data collection Bil
Chanda 19 Kaligram 21 Goalgram 10 TOTAL 50

Chanda Beel is a large seasonal water body in Gopalganj District, mid-way between the cities of Faridpur and Barisal. At full flood the beel takes in 9 unions and 45 villages.

The three villages chosen are all sited on an island in the centre of the floodplain, accessible only by country boat across the Madairpur Beel Route Canal. This part of Bangladesh has a large Christian population, and this was reflected in the villages chosen for the case study: all had a majority Christian population, generally 60% Christian and 40% Hindu, each had one Muslim family living there. As a consequence of the Christian population, there is a significant NGO presence in the area – both secular and missionary – and this appears to have had a sizeable impact on the communities there .

Village transacts and RRA showed that the study area was more wealthy than other sites surveyed: houses were built of tin or wood, many had electricity and televisions and a number were built on two storeys. The Third Fisheries Programme had stocked the area and many fishermen had gained financially during this time. Together with access to favourable loan rates from NGOs, these fishermen here were more likely to own land and were generally wealthier than at other study sites.

The conflicts reported in Chanda Beel also differed somewhat to the other areas. The conflicts are elaborated on below, but consisted of:

- Illegal fishing practices

De-watering, whereby all the water (and with it all the fish) are pumped out of privately owned *kuas* was a particular problem. This not only kills all the fish, but all the fry and fingerlings as well. The result is that as the flood waters rise on the next monsoon, the number of fish entering the flood plain are much reduced.

- Access issues

Fishing is prevented around *kuas* to ensure that sufficient fish congregate in them as the waters recede. As before, violence is often used to enforce exclusion zones (which are not legally binding). In this area, many fishermen owned *kuas* and so had conflicts with those attempting to poach from the *kuas*.

- Dacoity attacks

Local staff recount that NGOs presence is much higher in Christian and Hindu villages than Muslim villages because Christians and Hindus are generally less hostile to outside influences working with the community.

A *kua* is a natural depression on the floodplain. As the flood waters recede towards the dry season, fish congregate in the *kuas* from where they are fished. As the waters rise again with the onset of the monsoon, the fish swim out of the *kuas* and into the (Open Access) floodplain.

Attacks on villages on the outlying areas of the floodplain were on the increase with seemingly no recourse to any law enforcement to prevent them. The rise in such attacks was often not understood or known, although the culture of corruption was held to be partly to blame.

Bil Chanda The village is located on the southern side of an island, surrounded on three sides by Chanda Beel and on the fourth by the Beel Route Canal (BRC). 80% of the villagers are engaged in fishing activities during the wet season and 40% are professional year round fishermen. The village is a predominantly Christian village (80%) with the minority of the villagers being Hindu (20%). There is a high concentration of NGOs within this area, it was estimated that 18 NGOs had a presence in this village. A result of this activity being that floodplain IRRI cultivation has been introduced to the area, during the last 10 years, which has provided the villagers with an alternative source of income.

Between the months of June and December fishing activities are focused on the floodplain, with the fishermen using a variety of gears to target the different floodplain species. Though predominantly open access certain areas controlled by landowners are restricted by charges on fishing activities there.

During months of January and February the fishers concentrate on the canal, baors and *kuas* though some fishermen will migrate to other areas to fish. March and April are the lean months and so many of the fishers seek wage labour or those that own land will concentrate upon that.

The ditches and *kuas* (depressions) are privately owned thus access is restricted in these areas.

Current fisheries legislation was considered by the villagers to be beneficial for the fishery, yet they all felt that enforcement should be stronger. All fishermen interviewed mentioned regulations regarding both fishing gear and minimum catch sizes. Since catches had been declining there has been more pressure on the fishermen to use illegal fishing gear in order to make a living and as a result its use was considered to be widespread. The issue of weak enforcement was compounded by the fact that where police or fisheries officers had confiscated illegal gear the gear had been sold back to the offending fishermen.

The conflicts cited by the fishermen included restricted access to open water. This was the main category of conflict cited by the fishermen and arose in 3 forms: the first conflict arose from the implementation of pseudo-property rights placed over the floodplain by the villages adjacent to it. The result being that the fishermen were often restricted to fishing in the waters close to their village, Bil Chanda. Such access restrictions were also experienced by fishermen travelling to fish in areas outside their

The International Rice Research Institute (IRRI) has introduced certain type of HYV rice in this area; this is often referred to as IRRI cultivation.

locality (10-15 km away). The second access-based conflict was that relating to the charging for access to waters on the floodplain. In certain areas the owners of the land beneath the floodwater will charge fishermen for fishing on top of that land and will enforce this with violence. This particularly impacted on those fishermen with no land on the floodplain. Thirdly the issues of the ownership of the floodplain *kuas* raised concern. The *kua* owners would not allow fishermen to fish in the water surrounding the *kuas*, and enforce this either through violence or by stealing the fishing gear and boats of the 'intruding' fishermen. A related conflict was that of the de-watering of the floodplain *kuas*. This occurs through the months of January and February, water is pumped out of the *kua* and the fish are extracted. This is a very thorough method of fishing and is a process that effectively removes the brood stock from the floodplain for the next wet season. As a result the floodplain is solely reliant upon the river for the rejuvenation of its fish stock.

The final source of conflict cited by the fishers was a conflict between different gear operators. Those fishermen who used gill nets objected to the use of seine nets in the same area. The outcomes of such disputes depended largely on the relative muscle power of the different gear operators.

The level of conflict experienced by the villagers had, by common consensus increased over the past 10 –12 years. The major reason cited for this was a depletion of the fish stock and an increasing number of fishermen. One fisherman thought that the level of conflict had in fact decreased because in the past 10 years the Christian fishermen have acquired more land on the floodplain. In the past the land had been owned by Hindus, who excluded the Christian fishermen and at times beat them up whilst they fished.

The depletion of the fish stock was attributed largely to the siltation of the canals linking the main canal, BRC, to the floodplain. This was thought to inhibit the movement of fish onto the floodplain. The blockage of the canal is now so bad that agricultural yield has dropped due to water logging. Another key cause of stock depletion was thought to be the de-watering of the *kuas* in the dry season (as already mentioned) along with the widespread use of illegal fishing gear.

It was widely considered that the current levels of conflict would be reduced were the floodplain fish stock to be rejuvenated. Indeed in all interviews the fishermen considered that the restocking programme of the Third Fisheries Project (1991-1995) had been the government policy which had had the greatest positive impact upon their lives.

The lack of contact with the fisheries authority and a general scepticism of the police force meant that when asked how conflicts were resolved, and how this could be improved the fishermen could only consider how they could be avoided. This was again through the restocking/rejuvenation of the floodplain.

Due to the strong presence of NGOs in the village and surrounding areas low interest credit was accessible to all fishermen interviewed. Credit from money lenders was also accessed in certain cases and the fishermen felt that they had a cordial relationship with

the lender. A third type of credit was that from the Dhaka traders, given to the fishermen on the basis of fish supply agreements.

Kaligram is the central village on the floodplain island and has a population of approximately 4000, 60% of whom are Hindu and 40% are Christian. During the wet season 80% of the village becomes engaged in fishing activities with 60% of the fishers considered to be part time and 40% full time. The fishing effort is focused upon the floodplain during the wet season, though a small number do fish in the main canal or move away from the locality to fish. During the dry season their land on the floodplain is used for cultivation, it was estimated that at least 75% of the villagers owned a plot of land of least 50 decimals in size. Approximately 60% of the villagers owned or leased floodplain *kuas* and ditches, for fishing during the dry season months.

As with Bil Chanda there is a strong presence of NGOs within the village which has brought about an awareness in the community of sustainable fishing activities. As such the fishermen believe that the current government regulations governing fishing gear types and catch size restriction are conducive to a prosperous fishery. The mechanisms for enforcing the fisheries regulations were considered by all to be too weak to be effective. When enforcement officers from either the fisheries office or the police have entered the village to seize illegal gear it is often confiscated and then sold back to the offenders.

The fishermen interviewed in this village provided an interesting perspective on conflicts faced, since two thirds of the respondents owned a significant amount of land and also relatively large *kuas*. As a result conflicts related to access rights were actually about them defending their property rights, such as preventing poaching on their *kua*. Aside from such problems the first two respondents faced no other conflict in their fishing operations though it was acknowledged that other fishermen do face problems when they travel away from their locality to fish. It was also mentioned that conflicts between seine net owners and gill net owners occurred on the floodplain. One particular respondents was a part-time fisherman who owned a very small amount of land (less than one acre) but no waterbody. To supplement his income he also traded in fish and during the dry season he focused his activities on his land and also sharecropping. The fishing gear used was a long line to fish on the floodplain. As a result of the relatively non-intrusive and legal method of fishing that he practices, he also faces very few conflicts with his fishing operations. The only conflict faced by him is that of restricted access to the land surrounding the floodplain *kuas* during the dry season.

The wealthier respondents considered that the levels of conflict had increased over the past 10-12 years, principally as a result of the declining stock of fish on the floodplain. As a result of this the way in which the increase in conflicts could be stopped would be through the rejuvenation of the fish stock, either through a restocking programme and/or by the clearance of the canal channels. This sentiment was echoed in the fact that all respondents mentioned the positive impact of the restocking programme of the third fisheries project between 1991-1995. It was mentioned, however, that the problems of over fishing may be resolved by seminars and workshops for the fishermen given by the

NGOs. Again the issue of improving the current methods of conflict resolution was redundant since the few conflicts experienced were not currently resolved by any legitimate, social institution.

Goalgram is the most isolated of the three villages in this study site. During the rainy season it is accessed by crossing the BRC and then taking a country boat for 15 – 20 minutes down the smaller canals that connect with the wider flood plain. The furthest tip of the village is a couple of miles from the main centre; its comparatively isolated position has a number of negative effects, not least of which is its vulnerability to dacoity attacks. As with other villages in the study site, the houses were made of reeds with tin roofs, with one house having two storeys and an upper storey verandah. Boat building was a common economic activity evident in the village.

Villagers in Goalgram felt that fisheries laws and enforcement mechanisms were adequate but that they were applied neither fairly nor forcefully enough. Although they all professed to know what the law stated (that catching small and brood fish was illegal), they all stated that they were 'bound' to catch small fish. Others also knew that monofilament net use was banned, and yet all used it, again because they were 'bound' to. Whether this was due to the declining catches forcing them to land anything they could, or because they faced a classic commons dilemma was not immediately clear. Fisheries officers were reported to have visited the area recently to monitor fishing methods. They have been known to confiscate nets and boats, but the payment of small bribe was reported to be suffice to release confiscated nets from the government. One fisherman reported that the officials leave as soon as they have made enough money from bribes in that area – fishermen consider this to be the sole purpose of their visit, not to enforce the law. On a recent visit by UP officials, it was reported that he was tortured by the villagers before he was allowed to leave (quite how he was tortured was not elaborated upon). It was also widely known that *kua* owners were not to pump water out of their *kuas*, but were to fish them using nets, it was however acknowledged that they do pump out the water, up to three times in a season, thus catching everything, including young fish. Although UP officials had visited the area to encourage the fishermen to abide by the law and had explained that they should not catch small and brood fish, this appeared to have made little difference.

Conflicts faced by fishermen in this village differ little from other villages in the area, except that the incidence of dacoity was said to be higher, due to its isolation. They face problems when they try to fish in distant locations on the floodplain as other villagers do not allow them, although they admitted that they also do not allow villagers from other areas to fish in their part of the floodplain. *Kua* owners will not allow them to fish near their *kuas* during the dry season, in an attempt to protect their right to the fish. The silted up canals were mentioned on a number of occasions as a major hindrance to their fishing activity, as was the rise in dacoity thefts. These are particularly prevalent at night and can involve gear, boats and cattle being stolen. The incidence of conflict was felt to be higher in the dry season when issues over the *kuas* arise, during the wet season, they felt that there were few conflicts, although the lack of fish was discussed widely (see below).

It was widely reported that conflicts had risen dramatically in the past 10 or 15 years. The rise in conflicts was explained by the rise in the number of fishermen that was linked to and mentioned alongside the decrease in fish catches. Some fishermen stated that the rise in fishermen was due to the fact that fish catches were falling and thus the price was rising. So, for successful fishermen, a good living could be made if the price stayed high. One fisherman thought the drop in catches was due to a rising incidence of fish disease; all mentioned the problem of silting up canals causing a decline in fish catches. One fisherman reported that when the canals were leased out there were no conflicts: the leaseholder never fought with the fisherman, but now that they are open access, they face frequent conflicts with other users.

During discussions on the way conflicts could be resolved, a surprising departure from the usual replies came with one fishermen who reported that he had successfully negotiated with other villages to solve the conflict over who was allowed to fish where on the floodplain. Another fisherman commented that when they face problems they do not go to the police, but rather to the UP Chairman who has been able to solve many problems, including the issue of who is able to fish where on the floodplain. Another fisherman disagreed however, regarding all forms of officialdom as useless in solving conflicts – particularly for the poor fishermen who never complain when they face problems. A major issue that came up time and again was that a rise in fish population was the only sure way of reducing the incidence of conflict. Various methods of increasing fish population were mentioned: the government should re-excavate the canal (because such a task was beyond the capacity of the fishermen alone) which would then improve the movement of fish during their breeding cycle, de-watering of *kuas* should also be prevented to stop brood fish and fingerlings being killed.

With regards the current system of conflict resolution, it was felt that it could be improved. However, because the 'system' for conflict resolution is, in fact, largely non-existent, many of the answers were aimed more at how the overall situation could be improved which, in turn, they felt would help decrease the incidence of conflict. One of the first suggestions was that government should be stronger and take more initiatives at all costs to improve fish production and fisheries management. This reflected an overall feeling that the government should do more – not just to improve fish production, but also to improve management through cracking down on bribery and corruption and improving detection rates of illegal gears and practices. It was suggested that by improving crime detection rates for dacoity attacks, things would improve – largely because faith would be restored in the police as a conflict resolution institution. At the moment the police are not approached because they are seen as seeking only bribes. Although previously some fishermen had reported that they use the UP Chairman as a first place to lodge a complaint, this was not a widely held view. Others felt that the UP Chairman was of no use in resolving conflicts. No-one had any suggestions about how such a fundamental change in government was going to occur. In terms of improving production, many felt that the government should re-start the stocking initiatives carried out under the 3rd Fisheries Project, others that the canal should be re-excavated in order to improve the breeding cycle of fish. The fishermen who earlier had said that he had used negotiation to gain access to distant parts of the floodplain, here stated that he would like

to organise all fishermen in the surrounding area in a meeting so that they can organise to all fish in all areas of the beel through co-operation. This sort of initiative would, however, require some degree of external support to get it up and running.

The most frequent problems dealt with on the beel were theft by dacoits and miscreants which happens several times a year. The fishermen considered that the hardest problem to solve was that posed by the mastans or muscle men who are considered responsible for carrying out the dacoity attacks. Access to money was also held to be the hardest problem to solve. The fishermen considered that with little collateral, they found it hard to raise more money from lenders, this was felt to be a particular problem when it came to replacing boats and gear stolen after dacoity attacks.

Land ownership in this area is considerably higher than in other case study areas. All fishermen interviewed owned some land and/or waterbody. The largest land owner interviewed held 250 decimal of crop land and 2 *kuas* totalling 325 decimals, the smallest land owner had 70 decimal of land on the floodplain and a *kua* of 26 decimal. One fishermen owned no *kua*, yet held 100 decimal of land – 50% lay fallow, 50% was used for crops.

Access to credit in the village was relatively easy, and the presence of NGOs lending at low interest rates had made borrowing money cheaper. However, NGOs had lending criteria that not all the fishermen meet (some are considered too wealthy) and they only tend to lend small amounts of money. Those fishermen that do not meet the criteria or want to borrow larger sums of money use moneylenders, or their own savings to finance their fishing/farming operations. One fisherman reported that he has mortgaged his farm land in the past to raise money.

When asked about the best change that had occurred in the village the overwhelming reply was IRRI cultivation. It had improved access to food, many fishermen reported that previously there had been hunger problems in the village, but that this was rarely the case nowadays. The increased presence of schools was also cited – most children now attend primary school and can read and write in Bengali, many young children met were also able to speak a little English. The worst change was considered to be the depletion in fish stocks – put down to the siltation in the canals disrupting breeding cycles. The siltation of the canals was also cited as a cause of the increasing waterlogging of crop lands because water is not draining from the floodplain as it used to.

Fish stocking under the 3rd Fisheries Programme was unanimously considered to be the government policy that had had the biggest impact upon the lives of the villagers. Many could point to well-constructed, large houses that they had been able to build as a result of the money they had many during the stocking period. One fishermen did however acknowledge that were all fishermen to abide by the fishery regulations then there was a chance that they would once again experience catches like those found during the stocking period of 1991-1995.

1 decimal = 1/30th acre.

4 Conflict resolution and management: the three study sites compared

Although it was widely reported that conflict was endemic in Bangladesh, there are few studies that specifically analyse what those conflicts are and how they are solved. One exception to this is recent work by Thompson, Sultana and Islam (2000) of ICLARM who have been researching conflict in community based fisheries in Bangladesh (see section x.x for the background to CBFM). Reviewing all the sites involved in CBFM they found that:

- Local cooperation was ineffective without the ability to influence land administration to pass over control to the fishermen
- Local cooperation was ineffective when mastans had sufficient power and control to prevent local initiatives taking place
- Although rivers were declared open access, powerful landowners have managed to: erect katadams to trap more valuable species of fish in deeper sections of the river; have taken control of previous river jalmohals (state owned water bodies) having them declared closed water bodies (and thus leaseable); conflicts occur in rivers at the boundaries of the old jalmohals between rival villages.

While these conclusions are not extraordinary, they certainly highlight the important role of ‘intermediaries’ in fisheries management in Bangladesh: conflict management is largely reliant upon communication and cooperation between all stakeholders (which of course has to include the mastans).

A number of institutions can be identified that ‘police’ conflict, although it would inaccurate to describe their role as ‘managing’ conflict.

- Thana Fisheries Officer

This is the first point of call for fishermen with a conflict that they are unable to resolve through dialogue with the other party. The TFO can advise on a point of law, if this is the cause of the conflict, or might try and negotiate settlement between the two. In theory, any conflict that warrants the intervention of TFO superiors can then be communicated upwards, although no evidence of this was encountered.

- The police force

Where criminal activity has been the cause of the conflict, the police have the power to intervene, but respondents commented that police often demand payment for looking into an issue and are believed to be in the ‘pay’ of the mastans or dacoitys who have committed the crime in the first place. The police also have the power to confiscate illegal gear, but it was reported that with payment of the correct amount of money, the gear is often returned.

These two institutions also include the use of regulatory instruments as a means of reducing the cause of conflict:

◆ Licences

Although now abolished in most areas, fishermen did report on a number of occasions that there had been less conflict when all fishermen were licensed – a scheme that effectively removed neo-fishermen from the arena. How reliable the licensing scheme was, and how free of corruption was not possible to say. Although many fishermen would like to see a return to licensing, the issue of the neo-fishermen raises a number of ethical and social dilemmas about excluding the most needy from the resource.

◆ Enforcement

Enforcement was seen as universally weak: firstly because there were simply not enough TFOs with sufficient equipment to police the flood plain during the peak flood and secondly because the will to enforce was missing. Political capital is important in determining how much authority an individual is able to command, and many fishermen felt that TFOs did not command enough authority with the influentials and mastans to be able to effectively enforce the law. Were the laws on the statute book enforced adequately, there would be considerably less conflict in the inland fisheries surveyed.

Concomitant with the formal state level institutions for ‘managing’ conflict, there are a number of examples of local level institutions which are more successful.

• Sluice Gate management committee

The Sluice Gate Management Committee (SGMC) operates in the area covered by the Tangail case study (although there are no doubt other committees in other areas covered by the FAP structures). The basis for the SGMC is sound: it includes all major local stakeholders: fishermen, farmers, landowners, irrigation users etc. However, many fishermen complain that they have little voice on the committee and their views are not respected. How much of this is true and how much is simply due to the fishermen not being able to influence decisions in their favour is not known. However, physical evidence shows that movement by fishermen along traditional water ways has now been severely restricted and it is not difficult to imagine that decisions on the opening and shutting of the sluice gate greatly affects subsequent catch rates. That said, the SGMC is a locally based institution that functions (albeit not to everyone’s satisfaction) and provides a platform for fishermen to air their grievances.

• River Management committee

RMCs operate at a number of locations along the Titas River in Brahmanbaria. The RMC operating in the section covered by the survey had had mixed results.

Since the abolition of the river-block licence system, Shahbazpur fishermen (see section 4.2) had been in conflict with their neighbours over fishing rights in a number of sections of the river. In order to settle the dispute, they took the matter to the district court (a costly, lengthy and bureaucratic process at the best of times). By the time this section of the river fell under CBFM, a River Management Committee (RMC) was set up in a bid to bring agreement and reconciliation to the two sides. The chairman of Shahbazpur Union Parishad helped organise the RMC and called a meeting between himself, the DFO, Thana Nirbihi Officer (chief administrative officer in a sub-district), the TFOs and a representative from Proshika (Bangladeshi NGO active in the area). The meeting was successful and it was agreed, among other things that:

- Both sides would fish in the river but avoid each other – as there was no clear boundaries to demarcate previous jalmohals there was no point fighting over where those boundaries should/might be. And
- Both sides agreed to withdraw the court case.

The action of the UP Chairman was considered critical to this outcome because he has influence over the local community but is also an elected official (and therefore holds the post with authority.)

Since this reported successful outcome, fishermen in Shahbazpur reported that the RMC was now largely non-functioning due to lack of funds and general apathy among the participants. Fishermen in Sitnagar which is included under the RMC were aware of its existence but knew nothing else about it. It became obvious that while the concept of a management committee to manage an open access resource was well intentioned, the practicalities of managing so many fishermen in such an environment was not so easy.

- Local Community

There is no doubt that many conflicts that occur in the day to day working of a fishery are solved by direct negotiation at the local level: individual's daily grievances can be worked out relatively easily with fellow fishermen in the same community. However, once the attempt at managing or resolving conflict attempts to move beyond this level it meets a dead-end. Fishermen in Chanda Beel (see section 4.3) noted that they had on a number of occasions negotiated successfully with fishermen from other areas for reciprocal fishing rights, but it was acknowledged that the more fundamental and deep-rooted conflicts were less easy to resolve – particularly when they required intervention and involvement from those outside the village and higher up in authority. Despite recent literature which points to the benefits that cultural and linguistic homogeneity can bring to advancing social capital and reducing conflict the benefits that Bangladesh possess in a relatively homogenous society that speaks the same language does not appear to have made a great deal of difference on this score.

A full report on this is report by Thompson, Parvin and Islam (see footnote 4 for details)

William Easterley (2001) 'Can institutions resolve ethnic conflict?', *Economic Development and Cultural Change*, forthcoming.

So, in comparing the three sites and how conflicts emerge and are managed, the following can be said.

Tangail demonstrates the types of conflicts that emerge when structural changes are made to highly complex natural systems. Tangail is also a good example of how conflicts escalate as livelihood options decrease – either by government measures that exclude fishermen from their traditional fishing grounds or by more powerful individuals illegally appropriating resources.

Fishermen in Brahmanbaria face different constraints. They are largely reliant upon the river which is open access so they face few situations of restricted access. However, increased interference with water flow and fish migration patterns in the river through the use of brush piles and kathadams is impacting upon their livelihoods. The very nature of the open access river is also encouraging new fishermen into the area, increasing competition for an increasingly scarce resource.

Chanda Beel fishermen would appear to be the most prosperous and the least troubled by conflicts of the 3 sites visited. They face few access conflicts because they are surrounded by large areas of open access water, giving them a wide range of fishing options. The presence of NGOs in the area has increased their ability to access cheap loans and previous government initiatives in the area – particularly related to stocking – have given many of them a firm financial basis upon which to build their fishing activity. However, they face problems with increased dacoity attacks which is having a significant impact on their ability to provide a safe and secure income for their household.

In common to all the study sites was the issue of rising numbers of fishermen using the resource, the decline in catches and the rise in theft. Although these factors are all difficult to prove objectively, the perception is that this is the situation is affecting the prospects of the fishery in each area.

Also common to the three sites was the issue of the transparency and the fairness of government. Without significant change in a culture of bribery and favours, there is little chance that change at the grassroots level is going to have any impact upon the long term survival strategies of fishermen in Tangail, Brahmanbaria or Chanda Beel.

The most common type of conflict observed was that related to legal or administrative matters, particularly the weak enforcement structures.

Conflict resolution procedures are, largely, non-existent. Rather fishermen opt for avoidance strategies where ever possible, or simply accept that conflict is a part of fishing. Because resolution procedures – that work and are actively used - are few and far between, assessing the capacity of such institutions is extremely difficult.

5 Transaction costs and conflict

Although further analysis is needed, rapidly rising transaction costs and change appears to have adversely affected the ability of fisheries management institutions to cope with the changing scenarios and thus to deal with conflicts as they arise. This situation is complicated by the institution of corruption that operates within the fisheries sector: para-legal structures prevent any real change or initiatives to deal with conflict, thus compounding the problem and leading to a rise in transaction costs associated with conflict management.

Complicating the matter is the question of whether any non-official institutional form for managing fisheries has ever existed in Bangladesh. Land tenure rights and fisheries access rights have long been subject to questions of wealth and access to political favour. Those unable to culture or tap into the authority structure were denied access to resources. It thus seems unlikely that there was any room for such an institution to emerge.

The rising number of fishermen on the floodplain has certainly had an impact on the level of conflict: as fish become less abundant, so the price rises, creating an incentive to protect fishing grounds, albeit illegally. While there is no evidence to suggest that dacoity attacks are linked to the rising price of fish, or the depleting resource, all fishermen reported more dacoity attacks than before. Rising dacoity attacks have raised not only the level of conflict but also the cost of resolving conflicts. Payment to the dacoits for protection rises, as do payments to law enforcement officers to 'improve' the chances of arrests.

Fisheries management institutions at the formal level are also affected by change: the leviathan bureaucratic structure does not appear able to react fast enough to deal with the increasing incidence of attacks or use of illegal fishing gears. One reason for this may well be that the MoFL has traditionally focused on increasing production and improving production methods and has never really paid much heed to the institutional or community aspects of fishing. Although the CBFM has made in-road into this, there is still considerable distance to be travelled before there is state-led institutional change and a refocussing of effort on the improvement of the management of fishermen, rather than the fishery. The CBFM study shows that with improved institutional capacity and empowerment, a sense of well-being can be raised and improvements can be identified, however, how far such improvements permeate up through the many levels of government and decision makers is not altogether clear. If, by raising empowerment and organising fishermen into groups helps reduce transaction costs in managing the fishery, then conflicts may reduce and cooperation will increase. But again, the incredible burden of transaction costs imposed by the mastans and influentials will, in too many circumstances, cancel out any local level gains attained. At the informal level, any institutions that exist are more affected by weak structures above them which provide no back-up or support, rather than by change or rising transaction costs in themselves.

.References:

ICLARM (1998) *Summary of Case Studies in Community Based Fisheries Management*,
Dhaka