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Methods for consensus building for management of common property resources.

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by
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1. Preface

The scope of the research undertaken in this project has meant that in order to capture both the breadth and depth of the work, the report is in seven volumes. It is recognised that this a long report for a 14 month project, but it is considered that the research justifies this set of deliverables. Of the seven volumes, Volume 1 meets the requirements of the formal Final Technical Report (FTR), and includes an extended background section that relates to the key issues in consensual management of common pool resources (CPRs). The project has been conducted by an interdisciplinary, international, multi-institute team of collaborators. The seven volumes and their constituent parts have been authored by different team members and the authorship should be attributed to them. The seven volumes are as follows:

Volume	Description of Output	Pages	Authors
1	**DFID Final Technical Report (FTR)**	138	*JB & PJD*
2	**Best Practice Guideline** - Best practice guideline for the consensus management of common pool resources - Decision Tree for selecting consensus building methods	*24*	*PJD with JB & RL*
3	**Summary and Process Evaluation of PAPD**	*1*	*JB*
3.1	- Summary of PAPD method	*35*	*JB*
3.2	- PAPD process evaluation	*13*	*RL / DM*
3.3	- Mid-term reviews of PAPD process by PJD & CMM	*57*	*PJD, CMM & JB*
3.4	- Modifications to process by facilitators	*4*	*PT*
3.5	- Participants' views on process	*2*	*PT*
Annexes	- Annexes to Volume 3.2 (1 to 4)	*10,26, 141, 25*	*DM / RL*
4	**PAPD reports**		
4.1	- Posna *Beel*	*61*	*MR & AI*
4.2	- Kathuria *Beel*	*33*	*FK, PS, PT*
4.3	- Dikshi *Beel*	*44*	*NI, PS, PT*
4.4	- Charan *Beel* – Badda	*64*	*MR & AI*
5	**Consensus Assessment Survey**		*PT*
Ch. 1	- Context	*3*	*PT & JB*
Ch. 2	- Experimental and Survey Design	*3*	*PT & JB*
Ch. 3	- Kathuria *Beel*	*12*	*PT*
Ch. 4	- Dikshi *Beel*	*13*	*PT*
Ch. 5	- Posna *Beel*	*18*	*AI & MR*
Ch. 6	- Conclusions	*5*	*PT*
Annexes	- Annexes 1 to 6	*56*	*ICLARM & CNRS*
6	**Review of consensus building methods and processes**	*2*	*RL*
6.1	- Literature review and Typology of consensus building methods in NRM	*61*	*RL with PJD & JB*
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6.3	- Process evaluation of Bangladesh co-management projects	*24*	*RL & DM*
Annexes	- Annexes to Volume 6.3 (6.3.1a, 6.3.1b, 6.3.2, 6.3.3)	*17,34, 27,4*	*DM / RL*
7	**Final workshop report**		
7.1	- Summary of presentations, Working Groups feedback, comments from Panel of Guests	*13*	*JB, PT, NI & DM*
7.2	- Powerpoint print-outs of presentations	*24*	*Various*

Key: JB - Julian Barr[1] PJD - Peter Dixon[2] FK - AKM Firoz Khan[3] AI - Anisul Islam[1]
NI - Nurul Islam[3] RL - Roger Lewins[5] DM - Dwijen Mallick[1] MR - Mokhlesur Rahman[1]
PS - Parvin Sultana[1] PT - Paul Thompson[3]

[1] CLUWRR, [2] Durham University, [3] ICLARM, [4] CNRS, [5] CEMARE, [6] BCAS

As stated above, the project has been conducted by an interdisciplinary, international, multi-institute team of collaborators. The design of the project was such that, whilst some partners undertook reviews and/or field work and produced reports on these, two of the NGO partners were only involved in field work. It is therefore worth presenting here the full list of project collaborators. It is worth stressing the substantive inputs to all stages of the project (design, implementation and reporting) from the overseas partners.

Mr Julian J.F. Barr	Lecturer (Project Leader)	Centre for Land Use & Water Resources Research, University of Newcastle
Mr Peter J. Dixon	Research Associate	Department of Anthropology, University of Durham (contracted to Newcastle)
Mr Roger Lewins	Research Fellow	Centre for the Economics and Management of Aquatic Resources,; University of Portsmouth
Dr Paul M. Thompson	Officer in Charge (Co-ordinator of Bangladesh component)	International Center for Living Aquatic Resources Management, Dhaka
Dr. Parvin Sultana	Project Consultant	International Center for Living Aquatic Resources Management, Dhaka
Mr Md. Nurul Islam	Research Associate	International Center for Living Aquatic Resources Management
Mr AKM Firoz Khan	Research Associate	International Center for Living Aquatic Resources Management
Mr Md. Mokhleshur Rahman	Executive Director	Center for Natural Resources Studies, Dhaka
Mr Md. Anisul Islam	Program Officer	Center for Natural Resources Studies, Dhaka
Mr Dwijen Mallick	Research Associate	Bangladesh Centre for Advanced Studies
Mr Anup Kumar Saha	Director Program (2)	Banchte Shekha
Mr Nazmul Alam	Program Officer (Fisheries)	CARITAS

1.1 A note on acronyms

The subject matter to which this report relates is strewn with acronyms, particularly acronyms that are easily confused. The key ones are elaborated here.

1. CB
In the literature this acronym variously means:

- cost-benefit
- community-based
- consensus-building

In this report we have tried to avoid using it for 'consensus-building', and it is thus used in its more common 'community-based' context. The exception is in Volume 5. In Volumes 3.4 and 3.5 CBW is used to mean consensus building workshop, which is synonymous with the participatory action plan development (PAPD) workshop methodology central to this project.

2. CPR
This acronym is often used interchangeably to mean:

- common pool resources
- common property resources

In this report we use CPR to mean 'common pool resources' to distinguish between the resource and the property rights regime under which it may be held (i.e. a pool resource such as water may be held under different property rights regimes or none)[1].

3. …RM
This acronym means 'resource management', and is used in combination with other acronyms to give:

- NRM natural resources management
- CBM community-based management (*not* consensus building methodology)
- CBRM community-based resource management
- CB-NRM community-based natural resources management
- CB-CPRM community-based common pool resources management
- CBRM community-based resource management

We also use:

- CBFM community-based fisheries management, which is both a management approach and the name of a development project in Bangladesh

[1] See Section 3.4.1 of this report for a more detailed discussion of this distinction.

1.2 Glossary of Acronyms

BCAS	Bangladesh Centre for Advanced Studies
CBFM-2	Community-Based Fisheries Management – 2 project
CEMARE	Centre for the Economics and Management of Aquatic Resource; University of Portsmouth
CLUWRR	Centre for Land Use and Water Resources Research; University of Newcastle
CNRS	Center for Natural Resources Studies
DFID-B	DFID-Bangladesh
DoF	Department of Fisheries
FCD	Flood Control and Drainage
FFP	Fourth Fisheries Project
FTR	Final Technical Report
GoB	Government of Bangladesh
ICLARM	International Center for Living Aquatic Resources Management
MACH	Management of Aquatic ecosystems through Community Husbandry (a USAID-funded development project)
MBCA	mutually beneficial collective action
MTR	Mid-Term Report
NR	natural resources
PAPD	participatory action plan development
SL	Sustainable Livelihoods (approach)

2. Executive Summary

The purpose of this project is:

"Methods for community participation in integrated sustainable management of terrestrial and aquatic floodplain resources developed and promoted".

There is a development consensus that improved management of floodplain natural resources will occur if management is devolved to the resource users themselves. Whether there is equitable distribution of benefits from community-based management is uncertain because of the social systems entwined in the use of these resources. Thus there is demand for tools to support community-based management of NRs and CPRs. The stakeholder-based consensus building methodology developed, tested and promoted by this project is one such tool.

The project has undertaken activities across three major fronts:

- Consensus building methodology fieldwork / action research

  The consensus building methodology, called participatory action plan development (PAPD), was tested at four waterbody sites used by the DFID-B funded Community-Based Fisheries Management 2 (CBFM-2) project. Addition fieldwork assessed whether the process was measurably building consensus. This activity drew upon methods for measuring social capital.

- Reviews of other consensus building and CPR management projects

  Three review activities were undertaken: (i) a synthesis of consensus building and its application to natural resource management; (ii) review of three case studies of participatory planning for local management of CPRs in Bangladesh; (iii) a review of *the major themes in community-based management of CPRs.*

- Process evaluation of consensus building methodologies

  To assess how process design affects consensus building, in this and three other CB-NRM projects, interviews were undertaken with project participants and non-participants, facilitators and local officials and analysed according to a set of process evaluation criteria.

A fourth set of activities synthesised findings from these activities and disseminated them to target organisations through an end-of-project workshop and best practice guideline.

The project has delivered both its outputs: (i) development of methods for the management of common property through consensus building among a range of stakeholders, and (ii) improved awareness at a policy-level of the issues in, and methodological approaches to, consensus building.

The consensus building methodology was tested at four sites, improved through internal review, and promoted to other organisations involved in CB-CPRM. It has been placed in its wider context through reviews of the key issues in consensual

management of CPRs, consensus building in natural resource management, and Bangladesh experience with CB-NRM. The methodology was successfully appraised using process evaluation techniques and was shown to build some types of social capital analogous to consensus.

The close relationship with, and uptake of the methodology into, the CBFM-2 project demonstrates improved awareness of consensus building issues demonstrated at the policy-level, since the purpose of CBFM-2 is "*A process for policy formulation for pro-poor sustainable fisheries management agreed and operational".*

The development impact of the project is demonstrated by its achievement of steps A to F on the 'A-H pathway'. The consensus building methodology will be used in the implementation of the CBFM-2 project and other projects in which the partners are involved. The methodology is now central to the work that CNRS undertakes. In addition to CBFM-2, ICLARM are using the methodology in Vietnam in an IFAD-funded community-based fisheries management project. DFID-B have indicated that the project meets their NR sectoral need for well researched models of engagement with local communities for strengthening their capabilities to manage their own resources.

3. Background

This section aims to describe the context of the research in relation to the bio-physical and socio-economic environment of the Bangladesh floodplains. It also outlines the sustainable livelihoods context of the research and explains how the demand for the project was identified.

It then addresses issues in common pool resources (CPRs) generally, and considers the major themes in community-based management of CPRs, particularly regarding the consensual management of CPRs. The 'community' element of community-based management is addressed in detail, and with consideration of the effect of local elites on the outcome of community-based approaches. This section concludes by examining the nature of local organisations and institutions necessary to achieve successful community-based management of CPRs. The CPRs section of the background is presented in detail to address fully the Output 1 OVI of delivering a comprehensive synthesis of the key issues in consensual management of CPRs.

This background section therefore maps out the broader context within which consensus building processes are utilised. A full review of the nature of consensus building processes is presented in FTR Volume 6.1

3.1. Bangladesh context

3.1.1 The physical environment of the floodplain

Bangladesh has a land area of 143,000 km^2, and floodplain agro-ecozones occupy about 80% of this (FAO/UNDP, 1988). Bangladesh is thus largely floodplain, laid down by the three major rivers of the region, the Ganges-Padma, Brahmaputra-Jamuna and the Meghna, and their tributaries and distributaries. The genesis of these floodplains has resulted in an intricate pattern of backswamps and levees, populated with numerous small waterbodies. The waterbodies formed in this gently undulating landscape have a dry season extent of 5,480 ha (*baors*[2]), 2.8 mha (*haors*), and 114,161 ha (*beels*), but spread to cover between 25% to 55% of the country in the monsoon (Brammer, 1990; Rahman, 1993). The undulating relief is characterised by slightly elevated areas (ridges) where settlements are normally located, and depressions some 2-5m lower, where the saucer-like waterbodies occur. The pattern reoccurs across the floodplain with 0.5-2.0km between ridges and depression centres. Aerial views demonstrate that much of the floodplain consists of interlocking depressions, and re-occuring sequences of water—seasonally flooded arable land—homestead area with trees (Barr 1998a). As in earlier NRSP research (R6755 and R6756), perennial, but seasonally expanding, floodplain water bodies (such as *beels*) that represent natural systems dominated by the seasonal land—water dynamic, and are ecologically, hydrologically and socio-economically important in floodplain production, and are the focus of this research.

In relation to this seasonal land—water dynamic, Bangladesh is often thought of as a country that is beset by disastrous annual flooding. Indeed about 1.32 million ha and 5.05 million ha of the net cultivable area (NCA) are severely and moderately flood

[2] These three Bengali terms refer to ox-bow lakes; large floodplain depressions/small internal drainage basins; and perennial or seasonally flooded depressions/back-swamps respectively.

prone respectively. The normal annual flood inundates approximately 26,000 km^2 (18% of the country), and severe flooding extends to more than 52,000 km^2 (Viju Ipe, 1995). Nonetheless, this is a land-centred, largely agricultural, natural capital-endowed perspective. It ignores that for many on the floodplain, usually from poorer households, flooding provides important livelihood options (Haggart, 1994; Chadwick & Alam, 2000). Land and water components of the floodplain ecosystem must therefore be considered together, in an integrated manner (Barr *et al*, 2000a). Furthermore, the land and water users must be considered together in multiple stakeholder approaches.

Floodplain agriculture is based largely upon up to three rice crops, *aus*, *aman*, and *boro*, which are grown during the pre- and early monsoon period, the early and post-monsoon period and the dry season respectively. Traditionally the cropping pattern was based around broadcast-sown, local varieties of *aus* and *aman* rice grown in flooded paddies during the summer monsoon, and dryland crops such as pulses and oilseeds cultivated in the winter dry season. The predominant pattern is now based on transplanted high yielding varieties (HYV) of transplanted *aman* and irrigated HYV *boro* (Ali 1995). While the total rice area declined from 10.34 to 10.12 million ha between 1979-82 and 1991-94, and the broadcast *aman* area fell from 5.08 to 3.53 million ha, the *boro* area expanded from 1.12 to 2.56 million ha (Pagiola 1995). This shift in cropping pattern has been achieved by investment in small scale irrigation. The area under irrigation has expanded rapidly from 1.04 million ha in 1984 to 2.02 million ha in 1987 and 2.48 million ha in 1989, and this was predicted to reach 4.16 million ha by the completion of the Fourth Five Year Plan in 1995 (Wood & Palmer-Jones 1991; Rashid 1991; BBS 1995). This represents 48.05% of the net cultivable area of Bangladesh. The production of rice has thus shifted from rain-fed monsoon season patterns towards irrigated dry season patterns. Irrigation is supplied from shallow and deep tube-wells and dry season water bodies by mechanised or manual low-lift pumps (Brammer 1997). The use of dry season water bodies places farmers into competition or conflict over water when the flood has receded (Barr and Gowing, 1998).

To address both the overriding agricultural policy objective of achieving self-sufficiency in food grains (primarily rice)[3], and limit the economic losses and impacts on human welfare due to flooding, the Government of Bangladesh has a programme of hydraulic engineering projects that provide a means of partially controlling floodplain inundation and preventing extreme flooding. Earthen embankments form poldered areas for flood control, drainage and irrigation (FCDI). Manipulation of water levels within FCDI schemes by means of sluice gates enhances yields from crops such as rice. Flooding inside the schemes is often diminished, delayed and more regular (Craig *et al*¸ *forthcoming*).

It has been estimated that by 1985, flood protection measures had reduced the extent of inundated floodplains from 6,300,723 ha to 5,486,609ha (Khan *et al*. 1994). Furthermore, the area under flood control is projected to increase from 4.35 million ha in 1995 to 5.74 million ha in 2010. Thus, whilst agricultural production is enhanced by FCDIs, it is predicted that this will result in a loss of up to 151,300 tonnes of production from the floodplain fishery (Mirza & Ericksen 1996). Thus it is not surprising that there are reports of conflict between land-based producers, whose goal is an increasing the area of flood-free floodplain, and those whose production systems are based on aquatic resources. Such conflicts over resource management are also reported from areas not affected by FCDs, such as *haors* (Talukder 1993).

[3] 'The recognition of food as an important factor in determining poverty and nutritional status has led the government to attach the highest priority to food production' (Chowdury in Rahman and Hossain 1995).

Bangladesh's inland fisheries cover an area of 4.3 million ha of which 94% are used for open water capture fisheries and only 6% are operated as a closed water fishery (BCAS 1994). The open water capture fisheries is rich and complex, and provide an income for some 1.5 million full time and 11 million part time fishers, and are directly exploited by about 80% of rural households who catch fish for food. Production from inland capture fisheries has increased in recent years to 536,055 t in 1997. Within the open water fisheries, floodplains account for 63% of the total inland production with rivers and estuaries having a higher annual yield than closed systems (BCAS 1994)

Fishing on the floodplains is extremely diverse. FAP 17 (1994) identified more than 70 different gears belonging to the four main gear categories, the use of which vary according to the local hydro-morphological conditions, habitat type and tradition (Alam *et al.* 1997; Chakraborty *et al.* 1995). They differ in labour intensiveness, efficiency and cost. Hoggarth *et al.* (1999b) report that barrier gears are more expensive than for example hooks or fish traps, and therefore often used only by wealthier fishers. Full-time and traditional fishers commonly use gear of a higher value and efficiency, requiring greater operation skills. Subsistence fishers commonly use gears such as traps and push nets, which target small fish and their share of the profit from the fishery is therefore normally low (Craig *et al*, *forthcoming*).

3.1.2 The social environment

The current population of Bangladesh is estimated to be in excess of about 125 million, and its people are amongst the poorest in the world. The population is approximately 80% rural, with more than 50% are classed as 'functionally landless' (owning less than 0.2 ha[4]). With population growth of 1.8% per annum, the population is estimated to reach 170 million by 2020 (World Bank, 1998). As a result of this growth, together with the sub-division of land parcels through a *sharia* inheritance system, landlessness continues to increase. Unable to be self-sufficient in food, poor rural families' livelihoods thus depend increasingly on diverse livelihood options such as share-cropping, agricultural wage labour, fishing, non-agricultural labouring, and paid urban employment.

There is a nexus of landlessness and poverty. From a range of sixteen health, demographic and socio-economic criteria, land-holding has the most significant relationship with wealth ranks allocated by villagers themselves (Adams *et al*, 1997). In addition, households above a certain threshold land holding tend to have a successful accumulative strategy, showing net gains of land or having a stable but relatively high land holding. Conversely, those below the threshold tend to have a declining land base or have stabilised with negligible land holdings (de Lasson, 1993; Ullah, 1996). Thus differences in land holding size in rural Bangladesh are not only indicative of a household's wealth and ability to be self-sufficient in cereals, but do appear to be a useful crude indicator of different livelihood strategies and vulnerability to shocks and trends (Barr and Haylor, *forthcoming*). Nonetheless, floodplain communities do not neatly divide into wealthy farmers and the landless as indicated by Ullah (1996), or even farmers and fishers as popularly believed. There is a diversity of livelihood types with incomes dependent on multiple sources (Barr *et al,* 2000a). In relation to this project, the key relationship is between poverty and use of CPRs in the livelihood strategies of the poor.

[4] This amount of land (originally formulated as ½ an acre) is considered the threshold for subsistence producers to be food grain self-sufficient, however it does not mean that landless households (<½ acre) are non-agricultural. In addition to cropping their small quantity of land, they access further land by through share-cropping arrangements or mortgaging in others' land.

Research by Bangladesh Institute of Development Studies shows that 52% of rural households subsist below the poverty threshold, while another 23% are likely to move into poverty and are classed as 'tomorrow's poor' (Rahman *et al*, 1998). For the 52% already below the poverty threshold, who are the project's target beneficiaries, a large proportion of time is allocated to 'expenditure saving strategies'. These include collection of food (fish, fruit, vegetables), fuel, fodder and house building material from 'ecological reserves'. Ecological reserves include homestead forestry, product (crop) residues and common pool resources (CPRs). Therefore, for the rural poor, CPRs are either an important livelihood safety-net[5], an "employer of last resort"[6], or for professional fishing households who fish for 10-12 months/year, the main-stay of their livelihood portfolio. CPRs are more important to the poor than the non-poor, but the access of the poor to CPRs is becoming increasingly eroded under resource competition (Beck and Nesmith, 2001). Thus "*efforts directed towards the effective management of and distribution of benefits from CPRs will benefit the extremely poor in Bangladesh*"[7].

3.2. Aquatic resources and floodplain livelihoods

Landless and marginal households do not make a living from their small areas of land, and thus are not self-sufficient in food. They must resort to other activities to build a livelihood portfolio in order to maintain their households. Poorer floodplain households undertake many activities to maintain their livelihoods, these may include share-cropping the land of others, agricultural labour for wages, non-agricultural labouring, petty trade, paid urban employment, remittances, seasonal migration, securing loans and crisis sales of assets, as well as fishing. Though they may still consider themselves agricultural households, the extent of non-farm activities including fishing, means that most are only part-time farmers (Ali 1993). The question pertinent to this project is how important are floodplain wetlands, especially CPRs, in the livelihood strategies of these poorer households?

Since many can gain paid employment as agricultural day-labourers only during the cropping season (Sadeque & Islam 1993), they must depend on harvesting common pool resources (CPRs) at other times. For the poor, CPRs serve as 'ecological reserves' which can be tapped for, *inter alia*, food as part of a broader strategy of expenditure saving (Rahman *et al*. 1998). Fishing in CPRs is thus an important livelihood component for many poorer households.

Aquatic resources constitute a reserve of natural capital which can be drawn on in times of need and integrated into overall livelihood strategies as required, with relatively little forward planning or investment. Frequently they constitute a resource 'of last resource' for the rural poor when loss of land or failures in access to other rural activities threaten their livelihoods. As such they constitute an important stabilising element in rural livelihoods for those households most vulnerable to changes in land-based activities. Linkages between landlessness, dependence on seasonal labour and dependence on aquatic resources for some or all of the year – even for households which do not regard themselves as fishers – is a common pattern. Importantly, it is the frequently *de facto* open-access nature of the resources, together with low entry costs,

[5] For example, in India it has been calculated that CPR currently contribute US $ 5 billion to the incomes of the poor , or about 12% of the household income of poor households (Beck and Nesmith, 2001). This is 2.5 times the World Bank lending to India in 1996.
[6] DFID - Bangladesh's Fisheries and Aquatic Resources Sector Strategy (FARSS) 2000-2005
[7] DFID-B FARSS 2000-2005

which makes aquatic resources such an attractive livelihood option for the poor, but may also threaten the sustainability of these resources and consequently the livelihoods of those who have a more exclusive dependence on them – such as full-time professional fishers (Townsley 1998). [8]

At issue here therefore is to whom access to aquatic resources should be restricted – to full-time fishers in order to sustain their niche livelihoods; to full-time fishers and poor part-time non-professional fishers in order to reduce vulnerability; or to all who may wish to fish – essentially an open-access regime. The first two options involve the allocation of specific property rights and involve social and economic costs concerning enforcement. The third option relies upon market forces to manage access and off-take. If the net return from a livelihood strategy based on aquatic resources is higher than alternative strategies it will attract people to it, but given that many land-based strategies can give higher returns to effort, only a proportion of the total population may be attracted. This proportion will vary in relation to the other opportunities that are available to them, and, given climatic regimes, this is frequently seasonal.

However, increased numbers of fishers, fishing effort, and total off-take volume (for example during the flood season in Bangladesh) may not represent the greatest threat to aquatic resource sustainability. Rather intense fishing during the dry season, during the breeding season, with fine-mesh nets which catch small and young fish, with large 'catch-all' nets (hoovering gears) as fish migrate, and with 'fish-out' practices as waterbodies dry out, may all represent a greater threat. At issue here, therefore, is not only to whom access should be restricted, but also what regulations should be observed by those who gain access, and whether they can be enforced. What is decided upon will have both social and economic costs.

Finally, fisheries are but one part of wider economic and biophysical systems. As Townsley (1998) notes, aquatic resources are highly vulnerable to changes and processes in other sectors. Thus significant threats to the fisheries may come from human disturbance of the wider environment (in Bangladesh: Flood Control and Drainage, the intensification of agriculture, and rural infrastructure, all of which interfere with fish migration), while population growth and increasing landlessness may increase pressure on open-access commons. [9]

The intensification of agriculture and the relentless pressure on land from a population growing at about 2% p.a. has placed a premium on the conversion of wetlands to agricultural production. Additionally, and at its simplest, it has inevitably increased friction between those (supported by powerful national organisations) who want 'valuable' agricultural land to be flood-free for a greater period of the year, and who discount the full costs involved, and those (less powerful ethnic and socio-economic minorities) who may want this expenditure-saving CPR to extend for a greater period of the year.[10] With the increasing development of flood mitigation measures, the potential

[8] See Dasgupta and Maler (1997) for a compelling argument – based on environmental and social justice concerns – as to why it is desirable that local commons remain in the hands of the users themselves. As they say the privatisation of local commons, via a number of mechanisms, while hallowed at the altar of efficiency, can have disastrous distributional consequences, disenfranchising whole classes of people from economic citizenship.'

[9] However, the introduction of aquaculture (the stocking of ponds and rice-fish initiatives) and provision of rural finance, education and off-farm opportunities may well reduce this pressure – though where aquaculture makes use of previously open waterbodies these may acquire value with the poor losing rights of access to them.

[10] The 'external' perspective on the 'value' of agricultural production is indicated by consultants to the Tangail CPP, who noted that , unless mitigation measures were implemented 'the predicted annual loss [of fish] will have a serious impact on the nutritional status of about 17,000 of the 29,000 HHs in the project area and on the living standards oof 260 professional fishermen as well' (CPP:1996a) The Dutch consultants nevertheless suggested that the benefits to houses, infrastructure and agricultural would be positive after the implementation of the CPP despiute the negative impact on

periods for most friction occur at the commencement and decline of the flood and focus on the ingress and egress of flood waters from *beels* (see FTR Volumes 4.1 to 4.4).

These sectoral frictions have been exacerbated by sectoral, and thus separated, agricultural and fisheries development initiatives. Management of the fisheries has to take account of the impact of agricultural demands on aquatic resources – or rather on their control. As already indicated, the greater proportion of floodplain dwellers' have livelihoods consisting of a mix of terrestrial, aquatic and 'non-farm' production strategies, with different socio-economic groups having different 'portfolios', and with dependencies (e.g. cross-subsidisation) within portfolios and between livelihoods (.eg. farmers and farm labours) (Barr et al 2000b&c, Dixon 2000). Nevertheless, agriculture makes up a significant proportion of the majority of resource users' income by value (Rahman and Hossain 1995), while for 40 years or more GoB agricultural policy has been to achieve self-sufficiency in food grain production. This has largely been achieved – though not without social and environmental costs - through adoption of 'green revolution' technologies including HYV varieties of rice and wheat, the expansion of dry season irrigation and flood mitigation measures (see Palmer-Jones 1999). However, agricultural productivity is threatened annually by the uncertainties of the monsoon flood regime as well as by other natural disasters – as indicated by the erratic figures for grain production from year to year (see graphs in Palmer-Jones 1999).[11] Fishing in CPRs therefore provides a safety net for many households in the face of such a 'vulnerability context'.

The extent of, and level of dependence on, fishing is elaborated below. There are estimated to be just over 10 million rural households in Bangladesh. Determining who amongst them fishes, and what dependency they have on fishing, is problematic, though the often quoted figure is that 73% of households participate in fishing for at least part of the year (DoF, 1990). It is generally considered that '*most wetland residents participate in openwater capture fishery as a supplement to nutrition and income, or as a secondary occupation*' (Khan *et al*, 1994).

FAP 17 (1994) have devised a schema with three categories of participant in floodplain fishing, professional, seasonal and subsistence, although there is considerable overlap. Professional fishers were traditionally Hindus using larger, costly gears in *beels* and rivers. This group has declined and Muslim agriculturists have increasingly become professional fishers (FAP 17 1994). Professional fishers can rarely afford to pay for the lease of fishing rights in a water body, and so are usually dependent on credit. Often this results in them renting fishing gear or sub-leasing the right to fish a water body from the richer leaseholders or middlemen, who may not be fishers themselves (Hoggarth *et al.* 1999b).

Seasonal fishers or part-time fishers fish on the floodplains in the monsoon period when there is, at least theoretically, open access to the fishery. They supplement their fishing income with agricultural work and other non-fishing activities. Their numbers have recently increased in response to pressures for land and because fishing in the monsoon season fits well with agricultural production, which requires most labour in the

fisheries (CCP: 1996b). For a detailed critique of the CPP from an environmental and social perspective see Soussan and Koudstall (1995).

[11] HYVs of rice have particular requirements for successful cultivation. In particular, as most varieties are short stemmed, they are particularly prone to damage from abnormal flooding. Government has historically sought to address this through large scale flood mitigation measures.Yet the biophysical characteristics of the annual flood – its early or late onset, height, extent, duration, surges and early or late dissipation – are largely unpredictable given that three great rivers (Ganges-Jamuna, Brammaputra, and Meghna) draining a huge catchment area come together on the floodplains and drain into a coastal region of cyclones and tidal surges.

dry season. This group may be landless and marginal farmers or, in the case of more profitable fisheries, small and medium landowners who have accepted the stigma of fishing in order to intensively exploit the seasonal floodplain fishery. For this group, fishing has become an important component of their livelihoods. Subsistence fishers are opportunistic according to floodplain conditions, and catch mainly for home consumption using relatively inexpensive, simple gears. This group includes landless labourers, small farmers and women and children. Although they evidently do fish and some of the catch may be sold, this group do not class themselves as 'fishers' (*jele*).

The traditional, rain-fed agricultural pattern provided little labouring work during September-October and January-March. For many the September - October period, known as *Mara Kartik*, was a period of particular distress and famine. The shift to irrigated *boro* rice production in the dry season has provided an increased demand for labour during December-February (transplanting) and April-June (harvesting and processing) (Rahman *et al.* 1998; FAP 17 1994), both of which complement the main fishing season. For those many poor households whose livelihoods depend on a mix of fishing and labouring, the result is a more stable income. The harvest period for broadcast *aman* is now less important, leading landless labourers to seek fishing opportunities at this time, which is the peak of open-access fisheries, when the flood is receding (FAP 17 1994), thereby resulting in increased pressure on the floodplain fishery (Craig *et al*, *forthcoming*).

The dependence on fishing in livelihoods has been recently been quantified in a number of projects. In the Compartmentalisation Pilot Project, de Graff & Marttin (2000) found 68% of households fished for subsistence, catching about a third of the annual catch, while only 1% of households were fulltime fishers. Soussan *et al* (1998) found that in the Bangladesh Water Development Board's Systems Rehabilitation Project areas, 53.7% of households were involved in fishing (range 38 – 72%), and that 77% of those households fished for subsistence, 6% for sale and 17% for both purposes. Therefore generally between two thirds and three quarters of households fish at some time of the year, and only a small proportion are professional fishers. These fractions equate well with those households who have marginal amounts of land to subsist from agriculture alone. In rural areas, 46.3% of households are landless (owning <0.2 ha) and a further 33.6% are marginal and small (owning between 0.2 and 1.0 ha).

In project R6756, only 3.3% of households at Charan Beel were headed by a fulltime fisherman. Of these 74% were in land-holding group 1 (<0.049 acres land), and 16% in group 2 (0.05 - 0.49 acres land). At Ujankhalsi, there were only 0.65% fulltime fishing households. Furthermore, at these two sites respectively, only 0.3% and 0.1% owned more than 7.5 acres, and 8.6% and 4.2% owned between 5.0 and 7.5 acres. This demonstrates that the popular bipolar model of agriculture versus fishing, which tends to emphasise to differences between the poles - large land owners versus fulltime fishers – is overly simplistic. There is a very large constituency of landless, marginal, small and medium farmers who depend on a mixed portfolio of activities that includes both agriculture and fishing (Craig *et al*, *forthcoming*), and are thus all stakeholders for the management of floodplain waterbodies.

The livelihoods of these various stakeholders are interdependent in a number of ways (Barr *et al*, 2000c). Common interdependencies include patron-client, employer-employee and landlord-sharecropper relationships. However, as shown above, for some of the year they depend on exploitation of the same resource – open water bodies - for food and income generation. This is a common pool resource, for which they may also compete for its multiple uses, for example when the water itself is

required for both irrigation and as a fish habitat. The combination of interdependent livelihoods and exploitation of common pool resources means that to achieve improved resource management and thence improved livelihoods, a holistic approach is required. Such an approach needs to foster communication between stakeholders and build trust between them. This is the aim of this project.

3.3. The researchable constraint

There is considerable evidence that increasing resource competition in the inland open water fisheries of Bangladesh is leading to unsustainable utilisation, declining catches and increasing conflict.

> '*Inland openwater fisheries are a vital resource for the rural people of Bangladesh and for the nation as a whole. They provide employment and income for fishers, a direct source of food for subsistence fishers, animal protein for rural and unban markets, and government revenue. Given the importance of these fisheries, and the stresses of increasing human pressure on the resource (including, for example, fishing effort, loss of wetlands, infrastructural development), there has been a strong emphasis on improving fishery management. The need to collaborate in reversing trends and protecting this resource has been recognised by the Government of Bangladesh, by the NGO sector, and by international organisations*' (DOF, 1999: Foreword by Md. M. Hossain).

Existing institutional arrangements for inland fisheries do not promote sustainable exploitation or equitable access by poor fishers (ICLARM, 2000). Through consensus building methodologies, the project is aimed at supporting more sustainable and equitable management of floodplain natural resources, especially aquatic CPRs, to reduce poverty and improve the livelihoods of the poorer members of rural society, who have fishing dependent livelihoods.

Approaches to help those households who depend heavily on inland open water (CPR) fisheries have traditionally focused on increasing the productivity of the fishery, i.e. raising the stock of natural capital, for example through floodplain stocking as in the Third Fisheries Project. However, research shows that floodplain stocking has is unlikely to benefit poor fishers and other disadvantaged groups and may aggravate their lack of access to the fishery (Kremer, 1994; Minkin *et al*; 1997). Other approaches have focused on improving the natural stock of fish, including declaring refugia, operating closed seasons and gear restrictions, but where directly imposed from above these measures have been difficult to enforce and had low compliance. Targeting fishery leases at fishers failed as fisher co-operatives are often funded by moneylenders and *de facto* leaseholders. By contrast, local conservation measures taken up by fisher communities (Thompson and Grover, 1999) and habitat improvement (CNRS, 1996) have succeeded in improving productivity in a few pilot locations, although in other locations social tensions meant that they have had more limited success. Sustainable Livelihoods analysis has shown that traditional fishers view poor access to the fishery as their key constraint, with trends in declining stocks as the next most important constraint (Barr and Haylor, *forthcoming*). Sustainable improvement in the management of open water CPR fisheries is therefore dependent upon building social capital to create greater cohesiveness, trust and common purpose between stakeholders and thence to bring about change in the local rules and institutions that control access to the CPR. These changes are most likely to occur with facilitated consensual management of the CPR. Methods to build consensus amongst CPR stakeholders are thus required.

Therefore, from a fisheries perspective there is need for consensus building methods to support more sustainable fisheries management. However, the rivers, channels, canals and open-water bodies of the Bangladesh floodplains serve many functions apart from fishing. While the right to extract fish is the only use right that is leased out; other uses, including rights to bathe, wash and water livestock, ret jute, navigate boats, dispose of domestic, agricultural and industrial waste materials and draw irrigation water are held communally (Toufique 1997). The exercise of any or all of these rights, but most notably the disposal of pollutants, may be considered to conflict with the fishery.

Surface water bodies are not of interest only to fishers, and there is competition for water resources between surface water irrigation and fishing. Low-lift water pumping for irrigation reduces the size of dry season water bodies, concentrating fish, making them easier to catch and stimulating increased involvement in fishing by farmers (FAP 17 1994). Although the direct impact on fish stocks of low-lift pumps drawing water from surface water bodies needs to be quantified (FAP 12 1992), it has led to conflict between different user groups with interests that are predominantly agricultural or fisheries oriented. Where the resource is scarce, as in the dry season, competing demands for water can result in conflict, denial of traditional access rights, diversion of water and control of the resource by powerful and influential sectors of the community.

While some of these rights for which the common pool water resources are open access may be exercised by those with a strong dependence on the fishery, other rights will mainly be exercised by other groups. There is thus a range of stakeholders for the multiple uses of common pool water resources. Since some of these uses affect one another, more sustainable use requires methods by which multiple stakeholders can reach agreement over management of the resource.

CBFM and related projects have been working since late 1995 on a pilot basis to develop and test arrangements to enable fishing communities to take primary responsibility for managing the fisheries. The national workshop summarised experience and finding up to 1999, and found that fishers and wider communities can find decision making arrangements and reach common agreements on fisheries management given appropriate support. As Md. M. Hossain said in his Foreword to the national workshop (DOF, 1999):

> '*The results so far are encouraging…but is limited in a number of cases by a lack of formal recognition of fisher rights and by the short duration of the project…Further work is needed to determine the sustainability of existing local community management arrangements and the benefits of community initiatives…There is also a need to continue developing and testing a range of appropriate arrangements in larger fishery-wetlands systems such as rivers and extensive floodplains*' (DOF, 1999 Foreword).

This research on which this FTR reports, has sought to build on this experience, and on the wider theoretical literature both on CBFM, and also CB-CPRM. In particular the project deals with the more complex NR contexts (floodplain *beels* as opposed to semi-closed waterbodies such as *haors,* and *baors*) where issues concerning excludability, and subtraction are more acute and multifaceted.

3.3.1 Demand for the research

World Bank analyses show that economic growth in Bangladesh has started to impact on poverty, and there has been a measured reduction since 1992 in the proportion of the population below the poverty line. However between a fifth and a third of this economic growth has been lost due to rising inequality in per capita consumption, and thus there is a need for development tailored to the poorest of the rural poor, including the landless and fishers.

Bangladesh is a hierarchically organised society where informal social relationships are in large measure based on patron-client ties. This is the outcome of processes where economic and human capital is transformed into socio-political capital (institutional arrangements), which in turn are used to secure/restrict access to natural capital (and thereby the other capitals) (Dixon, 2000). Therefore achieving pro-poor development through improving the management of natural resources, especially CPRs, is not straightforward because of the social systems that affect use of these resources. Pro-poor development can only occur where the interests of those well endowed with socio-political capital are considered. The demand is for tools to support improved NRM and CPRM and work with the social-cultural reality of rural Bangladesh, encompassing the full spectrum of resource users on the floodplain.

Development agencies are starting to recognize the need to take a more integrated approach to NRM (Barr *et al*, 2000c)[12]. In taking such an approach, they "*need to begin to explore a range of models that begin [to] move us in the direction of broader resource management*" and tools that support current development trends, such as *"building the confidence of groups and communities to engage in discussions regarding the management of natural assets*" (Robertson, 2000 – see this volume Section 7.4.1).

The DFID-Bangladesh Country Strategy Paper (CSP) has the objective to "*continue to give priority to the livelihoods of the rural poor, enhancing their access to technologies and land and water resources*". It recognises the links between poverty and disenfranchisement, and the need for "..*further development of institutions within civil society to give effective voice to the perspectives of the poor and others who feel marginalised*." This is coherent with the general development trend of subsidiarity – the devolution of greater resource management responsibilities to local people through institutions that are expected to be transparent, accountable and locally sustainable. Such institutions may be spontaneous or entirely endogenous, but most are the result of partnerships between communities, NGOs and local government (and researchers). This testing and establishment of different mechanisms for community participation in resource management and different types of institutional arrangement for the community management and co-management of natural resources is being undertaken by projects such as CBFM-2, MACH and the Fourth Fisheries Project (FFP). As evidenced by the partnership between this project (R7562) and CBFM-2, these projects have a demand for tools that assist in crafting local resource management institutions.

Community-based approaches to fisheries management in Bangladesh have entailed the transfer of property rights to fishers. This is only of economic value to them if they can enforce or protect these rights. Property rights have traditionally been enforced by powerful lessees with strong kin networks, who can make credible threats against those breaching the lease agreement. Though *de jure* property rights (*jalmahal* leases) are only transferred by Government to 'Fishermen's Co-operatives', the enforcement

[12] *Vide* also the recent re-structuring of the aquatic resources, fisheries, and natural resources division of DFID-B to remove the sectoral separation.

costs for true fishers are uneconomic, and the system has been ineffective (Toufique, 1997). Thus leases are taken by those who can enforce the lease - local power-brokers using a fishers co-operative as a front. If community management is to become successful, there is a need to reduce enforcement costs and improve compliance. Consensus building can help to achieve this through building social capital amongst fishers and between stakeholder groups.

NGOs within the earlier Ford Foundation-funded CBFM-1 project have already worked on a pilot basis to build consensus among fishers groups. However, these initiatives neglected other stakeholders for floodplain aquatic CPRs, and consequently faced issues of factionalisation and diversity. Broader-based consensus building methods can be used to overcome these problems.

3.4. The commons

Common pool resources (CPRs) can be separated into global commons and local commons. Global commons are those (such as the air, and the high-seas) that are open to all persons in not having mechanisms for excludability. Local commons are those which are theoretically open to all users but which in practice have varying degrees of exclusion of the majority and attempt to limit exploitation of the resource to a defined group of persons. Henceforth we refer to local commons when discussing CPRs.

Thus, CPRs are socially-defined natural resources[13] in which:

- exclusion of resource users (appropriators/beneficiaries) by physical or institutional means is, while possible, usually prohibitively costly
- exploitation of the resource by one user reduces availability for other users (Ostrom *et al*, 1999).

CPRs thus exhibit two key properties:

- non-excludability
- subtractability

3.4.1 Property rights in CPRs

It is useful to distinguish between common **pool** resources and common **property** resources; terms which are frequently used interchangeably.

Common **pool** resources are natural or man made resource systems used simultaneously or sequentially by members of a community/ communities regardless of the property rights involved. For example a resource, or parts of the same resource (migratory fish, wetland, catchment etc.) may be held under different property right regimes – collective, private, public). Common **property** resources are resources to which particular property rights are attached and are held in common by a defined group on whom the rights are bestowed (Ostrom *et al*¸1999). These rights usually include the rights of use and extraction (usufruct rights) and rights to exclude others from extraction of the resource (or good).

[13] In this context, renewable natural resources; the discourse on global commons also relates to issues such as use of trans-national subterranean oilfields.

In this context, Ostrom *et al* (1999) suggest there are four types of property rights underpinning property regimes: open-access, closed collective access, private access, and state (Table 1).

Table 1. Types of property rights used to regulate CPRs

Type of Property Rights	Characteristics
Open access	Absence of enforced property rights
Group property (i.e. CPR)	Resource rights held by a group of users who can exclude others
Individual property (i.e. private)	Resource rights held by a individuals (or firms) who can exclude others
Government property (i.e public)	Resource rights held by Government that can regulate or subsidise

after Ostrom *et al* (1999)

This classification can be disaggregated a little further in order to capture the interplay between institutional factors, in particular property rights regimes, and economic behaviour:

- *Open-access, commonly owned resources* are those where there are no management institutions, or where those that do exist do not work very well, and where rights of access are not well defined or enforced. If demand for the resource outstrips supply, degradation results, resulting in 'tragedy of the commons'.

- *Limited-access, commonly owned resources* are those where a system has been set up to define and control access to the resource, either through a local institutional arrangement (communal management), management by government (rights are vested in the state in the public interest), or a combination of the two (rights are vested in the state, which devolves use rights to the community or other body). If demand outstrips supply, degradation results. Demand may come from owners, from those the usufruct rights are vested in, and from others whom those responsible for controlling access to the resource fail to exclude.

- *Limited access, privately owned resources* are those where clear and well-defined rights to exclusive access are conferred on individuals or groups, while these rights are transferrable. If demand outstrips supply, degradation results. Demand may come from owners or from others whom the owners fail to exclude.

While these theoretical categories represent the main types of property regime, on the ground they may shade into one another in practice, while different parties (as we indicate elsewhere) may contest the regime under which a resource is gazetted by another party (e.g. a large private or national reserve), and may legitimise their access by reference to different rights.

This distinction between resources and rights relates to Amartya Sen's distinction between endowments and entitlements (Sen, 1981). This approach has been taken forward by Leach *et al* (1997) as environmental endowments and environmental entitlements. 'Endowments', refer to the rights and resources that people have as a function of a person's 'initial ownership', (e.g. land, labour, skills) and which are transformed into 'entitlements' understood as legitimate effective command over

alternative commodity bundles, which in turn becomes an endowment from which a new set of entitlements may be derived. In this 'input-output' model what is of particular interest is how some actors' claims to a resource are likely to prevail over the claims of others – that is how institutional factors intervene in the process to produce different outcomes. These institutional factors include both customary and formal rights of access to, use, and control of a resource. They structure both how environmental goods and services become endowments and how these in turn become entitlements which, if taken up, translate into different actors' condition of vulnerability (or not). [14] Claims to a resource may or may not be contested by different actors and may be legitimised by reference to different institutions (for example legal title vs. customary right vs. force).[15]

It should be noted here that organisations and institutions are not synonymous[16]; organisations are structures that enable groups of people to take decisions and actions, institutions are "*sets of formal and informal rules and norms that shape interactions of humans with others and nature*" (Agrawal & Gibson, 1999), i.e. normative relations that may emerge from the operation of organisations. Thus institutions are the 'rules of the game' while organisations are groups of actors. Groups are bound together by institutions (i.e. relations which determine conduct - rights and responsibilities) and relate to other groups via other institutions (Leach *et al*, 1997).

The term 'common **pool** resources' suggests that while some natural resources may be used under a particular property regime (eg. common or private property regime), other people nevertheless retain some rights over its use (ie. there is a public interest in the resource). For example, the public interest is the public right to seek a responsible use of a resource, so that it does not cause negative externalities for others' well-being and livelihoods, or so that its use does not unduly deplete the resource and thus make it unavailable to future generations[17]. This is to suggest links with a rights-based approach (Hauserman 1998, de Haan 1999, DFID White Paper 1997) and with the definition of sustainability in the SL approach. This approach states that there are no rights without responsibility, and those beyond the property regime under which it is held (private or collective) have a right to insist on its 'wise use' (Ramsar 1999) or sustainable use (Carney 1998), to bring pressure to bear, and perhaps to intervene, when this is not occurring. This has echoes of co-management theory, though this is usually conceptualised as being between local NR users and the state as the holder of public interest. With the development of global institutions, one can take this as lying at the interstate level (e.g. the failure of states to reduce 'greenhouse gases' is a threat to other states.) [18]

[14] Some of the elements of the entitlements approach are captured in the Sustainable Livelihoods framework (see Carney 1998) whereby actors' (individuals, households or communities) Capital Assets are transformed through various Policies, Institutions and Processes – PIPs – into Livelihood Outcomes which, together with actors' Vulnerability Context, determine their Capital Assets.

[15] How actors should act is contested, therefore institutions are contested, but normally institutional regimes assert certain rights and responsibilities over others, or have hierarchies of rights in which lower ranked ones are superceded under certain conditions (such as national need, or a failure to use a resource wisely).This idea lies behind our understanding of common pool ,as opposed to common property, resources.

[16] Although institution is often used to mean organisation.

[17] This right – and the power to exercise it –has underpinned globalised environmental policy-making for over a century. Historically global concerns about resource sustainability have led to policies such as 'Protected Areas' approaches, the exclusion of traditional users from natural resources and has contributed to their vulnerability and poverty. For impacts of such policies on livelihoods see e.g. Parks and People

[18] The term common pool resources rather than common property resources is used by Townsley (in Carney 1998), in his review of aquatic resources and sustainable rural livelihoods, 'as it has no tenure implications. There are considerable variations in the type of tenure regime to which aquatic resources are subject and also between the official tenurial status and the actual access arrangements recognised by resource users.' Steins and Edwards (1998) similarly distinguish Common property resources (characterised by a set of rules governing access to, allocation of and control

The reason for our insistence on the distinction between **pool** and **property** resources here is because aspects of the natural resource problems which CB-NRM seeks to deal with lie on the boundaries of property regimes – that is the rights and responsibilities denoted by different property regimes can be in conflict and contribute as much to a problem as to its solution. The basic idea of rights with responsibilities is encapsulated in the following Table (Table 2).

Table 2. Types of property rights regime with owners, rights and duties

Regime type	Owner	Owner rights	Owner duties
Private property	individual	socially acceptable uses; control of access	avoidance of unacceptable uses
Common property	collective	exclusion of non-owners	maintenance; constrain rates of use
State property	citizens	determine rules	maintain social objectives
Open access (non-property)	none	capture	none

after Hanna *et al* (1995:29)

3.4.2 Property rights in Bangladesh aquatic CPRs

How these property regimes (Tables 1 and 2) relate to Bangladesh floodplain aquatic CPRs is highly complex. In relation to fisheries, the common pool resource is under a comparatively dynamic property regime. The fishery is divided into a number of 'water estates' (*jalmahals*), which are State property (Habib, 1999; Islam, 1999). However these *jalmahals* are leased to groups or individuals to exploit the resource by fishing for certain periods of the year (i.e. the State assigns temporary extraction rights through auctioned leases), otherwise they are open access[19]. But furthermore, there are aspects of open-access commons since non-leaseholders may fish there using simple gear, while lease-holders do not attempt to exclude them either for socio-political reason (fear) or by reason of cost of enforcement. This variety of property rights has also changed over time, with a general trend towards privatisation and resource capture and reduction in the scope of the distribution of benefits flowing from the CPR (Table 3) (Ahmed, 1997).

It is important to note that for uses of the aquatic commons other than fishing (i.e. the water, rather than the fish living in the water), the CPR is open access (no right of exclusion is apportioned). An example is extracting water for irrigation (though some *haors* are privately owned (Tsai and Ali, 1997)). However, through these non-fishing uses, water is subtracted, or the waterbody used as a sink for nutrients, pesticides and other agrochemicals. Therefore open access to water as a common pool resource can affect its other uses (fishing), which are regulated through other types of regime.

over the resource) from common pool resources (CPRs in their terminology) which are resources used by multiple-users/ user groups and for which joint use involves subtractability

[19] For examples of these dynamic property regimes, see FTR Volume 6.2, Table 5.5.

Table 3. Changes in use pattern, rights & benefits of common property floodplains in Bangladesh

	Historical/ Pre-green revolution period	Post-green revolution period	Recent Trends
Use	• Derelict and fallow • Natural fishing • Bathing and drinking • Animal grazing	• Crop cultivation • Natural fishing • Bathing • Animal grazing	• Crop cultivation • Fish culture
Rights	• Equal rights of fishing by community • No restriction on other uses	• Fishing right was open in the monsoon and late monsoon • Owners had absolute right of fishing in the dry months • Other uses restricted	• Private claims established for both crop cultivation and fish farming • Prohibitive access to community
Benefits and Beneficiaries	• Unlimited supply of fish • All households drawing benefits	• Availability of fish declined • On average 150-200 neighbouring households were getting benefits during monsoon from one beel • > 1000 people from neighbouring villages had access once or twice/ yr	• Supply of animal protein and cash flow increased only for the owners • Only the owners-cum-sharers and a few neighbouring families are the beneficiaries

after Ahmed (1997)

Property rights regimes consist of *property rights,* bundles of entitlements defining rights and duties in the use of natural resources, and property *rules*, the rules under which those rights and duties are exercised (Bromley 1991). Berkes and Folkes (1998) point out that in general 'property rights arrangements in a given area may be complex because resource tenure often involves "bundles of rights", including use rights, rights to exclude others, rights to manage, and rights to sell (Schlager and Ostrom 1992).' Thus different resources within a given area may be held under different property rights regimes, while these regimes may be either socially sanctioned and local *de facto* arrangements or formal *de jure* rights underwritten by the legal apparatus of the state.[20] The holders of different property rights may come into conflict, may contest the legitimacy of rights regimes, or may negotiate a *modus vivendi* – essentially creating *de facto* arrangements that take on the character of rights as they become socially accepted.

Property rights regimes in Bangladesh CPRs are highly complex not just because the resources to which they are attached are multifunctional, and not just because they vary in relation to the spatial and temporal biophysical context, but also because they have changed as government has seen fit to change the formal basis under which it allocates rights. This has led to confusions, as some stakeholders legitimate their claims to resources by reference to old *de jure* regimes, some by reference to new, and some in periods of change through violence. For example GoB's making flowing rivers free access in 1995 has led in many cases to a free-for-all with powerful individuals and groups seeking to establish exclusive control over areas of water (see DOF 1999).

[20] This notion underpins the idea of multifunctional resources, to the effect that one resource has different functions in different livelihood strategies (e.g. water for irrigation, and water for fisheries) and are of interest to different stakeholders. These stakeholders may both have rights in the resource, but in trying to exercise those rights they need to negotiate access and subtractability if they are not to come into conflict.

3.5. Exploitation of the commons

Discourse on the commons dates back to Aristotle[21], however most current debate can be traced back to Garrett Hardin's influential *Tragedy of the Commons* thesis (Hardin, 1968) and subsequent work by Elinor Ostrom and colleagues at the Workshop in Political Theory and Policy Analysis at Indiana University (e.g. Ostrom, 1990; Ostrom *et al*, 1999). There are however important works that pre-date Hardin, including Gordon (1954) on fisheries and Olson (1965) on collective action.

Hardin's thesis, implicitly based on Smithian 'free market' rationality and Malthusian population dynamics, assumed that the sum of separate ego-serving decisions would, as population grew, lead to increased demand on a finite but renewable resource and eventually to tragedy. For example, on open-access common grazing, the greediest herdsmen would gain – for a while – but as demand grew in step with population, a point would be reached when the herdsmen, trapped by their own competitive impulses, would be ruined as overgrazing destroyed the commons. Here, competitive individualism would be helpless to prevent disaster.[22]

However, Hardin's thesis dealt with a particular subset of commons – open-access, or unmanaged, ones – which really represent those where no rules of access and use apply and where it is difficult to prevent anyone from exploiting them as they see fit[23]. However, as in fact Hardin suggests – as does Ostrom (1990) – when a resource becomes scarce and people are dependent on it for their well-being, they are likely to try to manage the resource sustainably. That is they are likely to develop institutions, rules of access, rules of use, and sanctions to support these[24]. Important here are information (the level of knowledge and understanding people have of the potential impacts of alternative rules, for instance) and trust (as in the Prisoner's Dilemma[25], where failure of information as to how the other will act, and distrust, leads to one player defaulting from 'the social contract'). Thus, while it is not clear that increased pressure on a resource will lead to its inevitable decline, the opposite may be the case if Boserupian effects of greater input of labour into resource use and management lead to more sustainable use.

The greater point here is that resource scarcity is not necessarily the most important factor in resource degradation or its sustainability. Rather it is whether those using the resource can manage it in a way that provides a return to users while maintaining/

[21] "What is common to the greatest number has the least care bestowed upon it" Aristotle. *Politics*, Book II, ch. 3. (Ostrom, 1990)

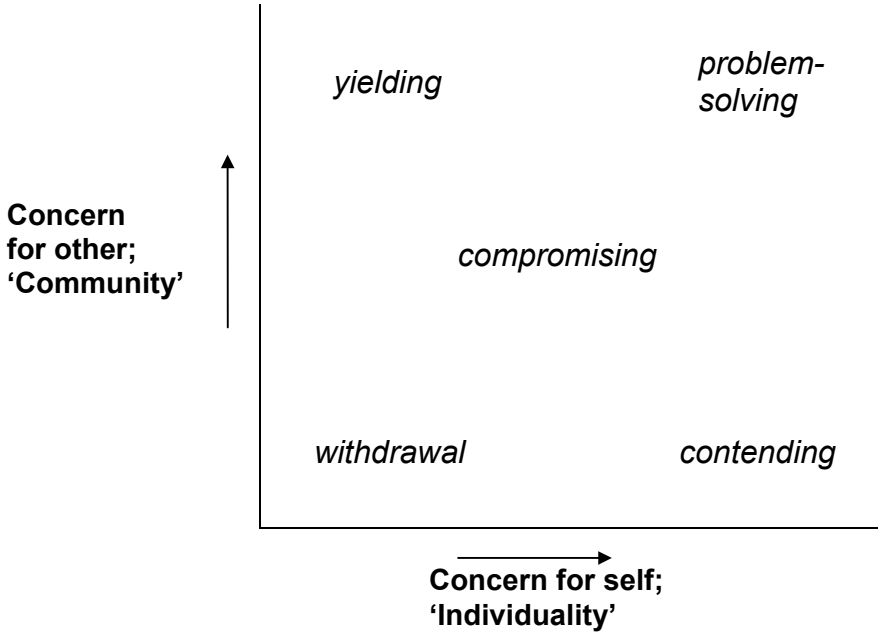
[22] There are many examples through history of aboriginal peoples in all parts of the world who have been environmentally destructive (see Whelan 1999). Examples include the Kayapo Indians of Brazil who, once they had been granted ownership of a 25,000-square mile rainforest, propmptly began logging on a massive scale. Another is Easter island in the Pacific – where the clearance of a once forested island appears haveresulted in the collapse of a culture and population. What is not clear from most examples, however, is the property rights regime under which the resources were managed. [Hardin's thesis also led to the concept of 'Spaceship earth' (popular in Ecological Economics),.while pro-'Tragedy' exponents made liberal use of the powerful metaphor of the Prisoner's dilemma to reinforce the universalist conception of mankind as Smithian individuals – only motivated by maximising benefits for ego.]

[23] Hardin's mistake was to confuse common property with open access regimes. In fact, Berkes (1989) argues that Hardin's example of the medieval English grazing commons was a particularly poor one because it is known that access was regulated.

[24] As Ostrom *et al* (1999) put it, public choice theory assumes selfishness and maximisation and therefore inevitable destruction of CPRs. Yet predictions are not supported by field research when individuals can communicate, sanction behaviour, or make rules. This leads to a mix of people who act in manners ranging from selfish to reciprocal and trusting to altruistic; "*users of a CPR include (i) those who always behave in a narrow, self-interested way and never co-operate in dilemma situations (free-riders); (ii) those who are unwilling to co-operate with others unless assured that they will not be exploited be free-riders; (iii) those who are willing to initiate reciprocal co-operation in the hope that others will return their trust; and (iv) perhaps a few genuine altruists who always try to achieve higher returns for a group*".

[25] For discussion of Prisoner's Dilemma and related economic games, see FTR Volume 6.1.

improving the resource for its potential use by others. This is usually thought of in inter-generational terms (a perspective of sedentarists), but applies over shorter periods as well. Thus it can be annual as with nomads in arid lands whose migration routes criss-cross those of other groups – both nomadic and sedentary – as they exploit particular resources for a short period only before moving on. It can also be seasonal, as in Bangladesh, where the annual flood followed by dry season largely determines when a particular resource base can be exploited. In both cases, there is the potential for externalities which can have negative impacts on the livelihoods of those suffering them – such as a paucity of grazing for an incoming nomadic group's herds in the African Sahel, or too long a wet or dry season due to technical interventions such as flood control and drainage (FCD) measures in Bangladesh[26]. At its simplest the threat to others' livelihoods is likely to provoke a reaction, but what reaction will be dependent on power of the parties sharing the resource base and whether they withdraw from, enter conflict over, accept or adapt to the situation, to reach of a *modus vivendi* where there is restraint by all parties. This is summed up in Figure 1 (for a discussion see FTR Volume 6.1.)



after Pruitt and Rubin (1986)

Figure 1. The dual concern model with the five basic responses to conflict

[26] Ecological economists (e.g. Rees 1990) distinguish between three related forms of the externality problem – one arising from the existence of external benefits, the other two (reciprocal and transfer externalities) involving spillover costs. The unwilling transfer of benefits to outsiders give resource users few incentives to invest (e.g. in migrant fish); reciprocal externalities impose costs on all resource users, but individuals may or may not be able to control the actions of all (i.e. an enforcement issue); while transfer externalities impose costs on other users of the same resource (e.g. the discharge of waste products into the environment – the classic externality of private property regimes. The 'Coase theorem' suggests that, where transfer externalities are created, it should be possible for affected parties, if left to themselves, to negotiate a voluntary agreement on the basis of the 'polluter pays principle'. However, in most cases transfer externality problems require some sort of government intervention (see Rees 1990).

3.6. Key issues in community based management of common property natural resources

The following sub-sections discuss what are considered to be the main issues in achieving consensual management of CPRs. Much of the discussion is drawn from CPRs other than the aquatic floodplains CPRs in Bangladesh, but is debated in relation to the complex nature of these specific commons in which the project has been involved.

3.7.1 Managing the commons: co-operation

Hardin suggests that the way to avoid disaster is through '*mutual coercion, mutually agreed upon*' because under conditions of scarcity, ego-centered impulses naturally impose costs on others – by reducing the availability of the resource for use by others. It thus becomes sensible for others collectively to restrain individual impulses to maximise, through establishing **rules of usage** and supporting these with positive or negative **sanctions** (either rewarding people for responsible behaviour or punishing them when they are irresponsible), or to limit use of the resource to a defined group and thereby **exclude** others. These then are the key design principles in managing CPRs.

This collective behaviour is mirrored in extension to rational choice theory - Prisoner's Dilemma - to the extent that people learn from experience that a better option is cooperation, rather than that it is only rational to defect. This is to stress that there are different sorts of rationalities: substantive, procedural, reflexive (Delorme 1997, Orillard 1997), and that people learn or are socialised into how they should and should not behave in particular contexts – though they may of course choose to act differently. In terms of social choice theory, people also have good reason to cooperate with one another and observe the established institutional framework because the transaction costs (the impact of sanctions) make it too costly (in social and economic terms) for them to defect. Importantly this is also to stress that livelihoods are neither solely driven by abstract universal laws nor by agents behaving identically (e.g. Adam Smith's *homo economicus*), rather livelihoods are the product of multiple determinations since they are socially and culturally embedded – as the SL framework seeks to make clear. [27]

3.7.2 Managing the commons: rules & norms

It follows from this that, when it comes to the management of a renewable resource, the focus is on the role of formal rules, institutions, and informal conventions such as habits, norms and values in mediating actors' behaviour (the Policies, Institutions and Processes of the SL framework). These allocate use rights in particular ways, how 'endowments' do or do not become 'entitlements' (Sen 1981). However, it is important to recognise the role of power here[28] – both with past practice giving rise to present norms and rules, and with these being contested by individuals and groups in the present.[29] It is important to recognise that rights are 'outcomes', 'emergent', the result of 'practice' (Bourdieu 1977). As such they are based ultimately on power or its lack (Nelson and Wright 1995). i.e. previous/present contestations differentially result in equality of access to the resource and distribution of benefits; some result in equality of

[27] On agency and structure see Giddens.. (1991) On the implications of agency and structure for development studies see Long, and van der Ploeg (1994). On the social embeddedness of economic relations see Granovetter(1985) and Mulberg (1995).

[28] Power can be seen as 'political capital' in SL terms. (Baumann, 2000) (see Section 3.7.7.7).

On the contesting of access rights see Scott (1985). For an example in Bangladesh see Dixon (2001) Back to Office Report (FTR Volume 3.3) on a 'fishing festival' at Dikshi *beel* near Pabna, and on the legitimation of fishing rights according to different historical property rights regimes.

access but inequality in distribution of benefits, and others in exclusion from access and to any share in distribution of benefits.

Yet Institutional theorists (e.g. Ostrom), while indicating how common property rights may evolve from open-access rights, are silent on the role of power in this evolution and in the maintenance of current property rights regimes.[30] Indeed analysis is frequently carried out in simple rational-choice terms and assumes all parties are *homo economicus* (see for example Varugese and Ostrom 2001). Here the issue is not whether the 'playing-field' is even or uneven but whether and how the game can or cannot be regulated (i.e. can rules be established for controlling access to and distribution of the benefit). While this may be an appropriate approach from a resource conserving perspective, it says little about distributive issues from a social justice perspective. Hence, given DFID's interest in social justice and in how (by what institutional mechanisms) access to resources and their distribution might be allocated more fairly while sustaining the resource, there is a need for a more politically aware (or political economy) approach to resource allocation. From a social justice perspective, however, social change becomes difficult because of the interdependencies that are built up between actors as, in Bourdieu's terms, 'emergent practice' becomes 'customary'.[31]

The current consensus-building methodology at the heart of this project (R7562), by providing actors with information about the resource, the problems associated with access and distribution rights, and the conflicting interests inherent where property right regimes are entangled (since commons do not exist in an institutional vacuum), seeks to renegotiate 'the social contract' and thereby 'make space' for a more equal distribution of rights to access to resources for the socially excluded. That is, to provide greater opportunity to the poor for converting endowments into entitlements

Hardin (and Ostrom, 1990) have suggested that where there is user pressure on a scarce resource, there should 'naturally' be an evolution from an open-access regime to a managed common. However, this could occur under either a collective or a private management regime and through either market instruments or edict or through a mix of these. As Hardin has said 'Either one may work: either one may fail: "The devil is in the details".' The need then is for locally specific and locally negotiated management systems.

Nor does any property rights regime in itself guarantee that the resource will not be depleted. Workable property rights regimes are necessary but not sufficient prerequisites to sustainability. Privatisation of a resource – which is frequently suggested as a solution to economic externality problems - may improve efficiency of use, but owners of a resource may still deplete a resource if the benefits of current usage outweigh, in their estimation, the costs associated with depletion.[32] The same is

[30] In this regard see Campbell *et a* (2001) who argue that the optimism about CPR management in much of the literature is derived from a focus on formal rule-based systems, whereas the reality is that systems are built on controls derived from traditions, culture and norms and these controls are constantly contested, changeable and individually interpreted.

[31] Different schools of thought have described this phenomenon as 'path dependency due to initial conditions' (complexity theory), acceptance due to the high transaction costs involved in change (social choice theory), 'normal science/ normal professional' as opposed to a' revolutionary science/empowerment' paradigm (Kuhn 1962, Chambers 1993).

[32] Prugh (1995) notes that one reason why the tragedy of the commons has been seized upon as an argument for private ownership of all resources or rigid government control is because westerners, given the cultural stress on individualism and competition , are used to thinking in terms of only two possibilities - private ownership or open access – and have for long ignored the many examples of cooperation and sustainable communal management of resources.

true of common property (see Whelan 1999).[33] Rees (1990:272) puts the dilemma concerning 'Command and control' (the state) versus 'Incentives' (market forces) thus:

> *'While there is little doubt that resources exploited in common tend to be misused and depleted, the notion that these problems can be solved simply by taking the resources into single ownership, private or public, denies the conflicts of interest that underpin the allocation of all goods and services within an economy. Private ownership does nothing to resolve problems of distributional equity over space and time, nor to reduce uncertainty, and it may still result in depletion and scarcity. Public ownership merely "internalises" resource use conflicts, but can do little to resolve them.'*

3.7.3 Managing the commons: management regimes

Hardin (1968) outlines three possible prescriptions to avoid the tragedy of the commons outcome:

- Privatisation
- Centralisation (government control)
- Local control

From early in the 20th century, and particularly where commons appeared to be under threat of depletion, vesting rights in the state was a preferred option. This was frequently associated with exclusionary policies that denied access to the resource by local people and largely ignored the political-ecological contexts and origins of local resource use (e.g. Anderson and Grove 1987, DuPuis and Vandergeest 1996). Since such rights were normally taken as non-divisible (i.e. all rights being vested in the state) this meant that local people were *de jure* excluded from exploiting any resource in designated areas even though the state might have little interest in its conservation and where there was little threat to its sustainability.

The policy driver then was resource conservation, with enforcement and its cost being the major issue (Wells *et al* 1992, Ghimire and Pimbert 1997). The failure of many states in the developing world to successfully enforce exclusion, and the continuing degradation of the resource (e.g. wildlife), led to pressure by world conservation bodies for their experimentation with private sector initiatives (either through the divestment of state assets or of the management function to the private sector). The main issues remained the sustainability of the resource and enforcement of access regimes, with the private sector bringing expertise to bear to drive down transaction costs[34]. Only recently has the dominant resource-led paradigm been challenged with the realisation that the policy of exclusion and non-divisibility of rights undermines local livelihoods, leads to problems of enforcement (Anderson and Grove 1987, Cernea 1991), and may actually lead to resource degradation (Blaikie 1985).

Initially (and still for some) the reason for a shift to various co-management regimes (where the state retained *de jure* rights to resources but devolved usufruct rights) focused on conservation of the resource – rights of access being traded off in return for local people ensuring the sustainability of the resource, and carrying the main burden of the transaction costs (Carew-Reid 1997, Ramsar 1999, World Bank 1996b). Only

[33] This was noted by Ciriacy-Wantrup in 1938 who, when stressing the historic importance of social controls over CPR use, said that 'Common property of natural resources in itself is no more a tragedy in terms of environmental depletion than private property. It all depends on what social institutions…are guiding resource use' (quoted in Clawson 1975).

[34] An interesting example is the recent allocation of management responsibility for the Mara Triangle in the Masai Mara game park in Kenya to the private sector.

very recently with the entrenchment of a 'people-first perspective' (Cernea 1991), rights-based approaches (Sen 1981, Hausermann 1998, de Haan 1999,) and the development of the Sustainable Livelihoods approach (Carney 1998), has there been a shift of interest to the local management of resources in order to improve local livelihoods (particularly of the poor) as well as conserve the resources they depend upon, with the benefits as well as costs being allocated to resource managers.

This shift in interest still leaves open the issue as to whether livelihoods are better improved through the private management of previously *de facto* common property resources (i.e. upholding individual rights), or through community-based management (i.e. upholding collective rights). Other issues that flow from devolving management under either of these regimes are: can private or community-based organisations manage (i.e. achieve the goals of resource sustainability and livelihoods improvement, - particularly for the poor) , at what cost, and what support is required from the state, its agencies and other actors (e.g. civil society) for it to do so?

3.7.4 Community-based resource management

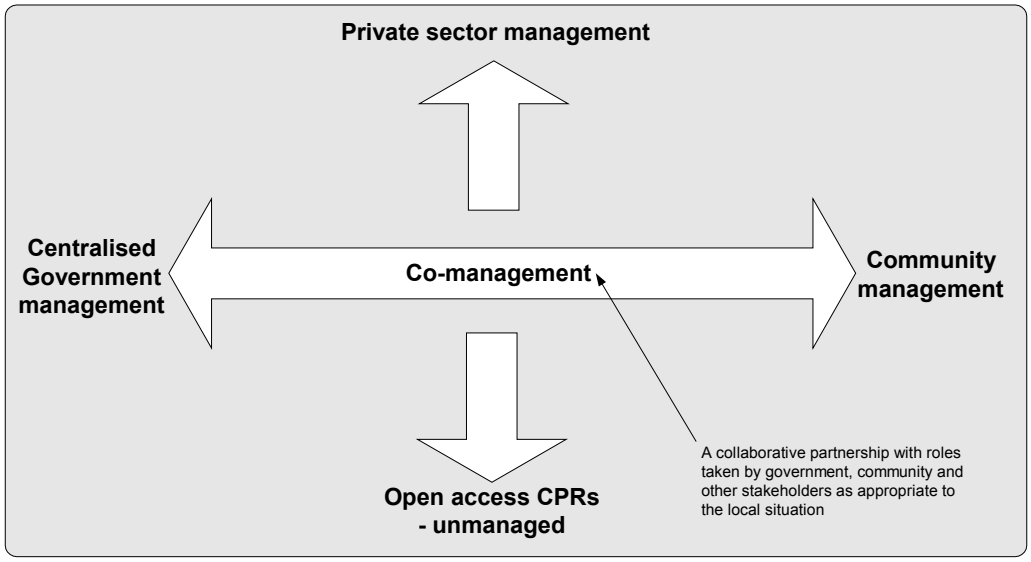
The term community-based resource management (CBRM) includes community-based natural resources management (CB-NRM), community-based CPR management (CB-CPRM[35]) and community-based fisheries management (CBFM). It implies some local level collective action with respect to resource management, but leaves open the question as to the balance of collective as opposed to private action and the instruments to be used to achieve the NRM goals. As defined by Korten (1987), CPRM involves the following elements:

- a group of people with common interests
- mechanisms for conflict management
- community control/management of productive resources
- broadly distributed participation within the community of this control
- local accountability in resource management
- local systems to make use of the resources

There is a very large literature on the management of common property resources (CPRs) (which is not elaborated here), while there is a considerable literature on the devolved management of CPRs. Devolved management can range from community-based management to joint-, co-, or collaborative-management or management by coalition depending on how much control over management is devolved to the community and what other actors (NGOs, GOs) are involved in a collaborative partnership to manage the resource. These management institutions lie between the poles of private and public (state) management of the resources, and all contrast with *res nullius* 'open access commons' where there is little or no management of the resource (Figure 2) [36].

[35] Campbell *et al* (2001) follow Schlager and Ostrom's (1992) definition of CPRM, to 'imply a property regime in which resources are jointly used by a user group, with a set of rules (formal or informal) defining rights and duties to access, withdrawal, management, exclusion and alienation'.

[36] For a discussion of three competing models (cooperative management, comanagement, and rights-based management) in fisheries management see Townsend and Pooley 1995).



after Hoggarth *et al* 1999a

Figure 2. Co-management as a range of partnership arrangements between central government and local communities.

De jure ownership rights of the resource may or may not be devolved from the state to communities. Most commonly *de jure* ownership is retained by the state, with only usufruct rights to, and responsibility for management of, the resource being allocated under license. Essentially, certain sets of management rights (and responsibilities) are devolved more locally but the state ultimately holds the veto on management decisions. While outright privatisation of the resource has historically occurred, it is less common today.[37] The management responsibilities which are devolved can differ as to the extent local management is involved in (a) setting the policy agenda, (b) writing the rules governing resource use, (c) implementing these rules, and (d) sharing the costs and benefits of management. In early experiments with devolution governments sought to retain responsibility for (a) and (b), while devolving responsibility for (c) and devolving a major proportion of the costs, and seeking benefits 'in the public interest.' Later experiments have sought a greater input of local knowledge and expertise into the policy process and the writing of rules for resource use, [38] and a more equitable sharing of benefits, while the major proportions of costs are still born by resource users.

As Hoggarth *et al* (1999) emphasise, co-management of CPRs "*is fundamentally about governance. It is about who does or does not decide what rules will be applied to the exploitation of the resource and how those rules are implemented*." Consensus management of CPRs or of NRs more broadly is thus, as a form of community-based co-management, inevitably a political concept. This is applied not just to the vertical axis (relations between the centre and communities), but also to the horizontal axis

[37] GoB's distribution of *Khas* land to poor people is an example of the creeping privatisation of commons today. Since the evolution of agriculture in Bangladesh (as elsewhere) has been one of households 'winning farm land from the wild', there is an argument for distributing commons owned by the state to those without land, since there is a considerable public sector 'land bank' due to public works compulsory purchase. However, there are some commons (e.g. seasonally-flooded land near the bottom of *beels*) on which GoB might reconsider its distribution policy, since its privatisation may potentially increase conflict between those with land-based and those with water-based livelihoods.

[38] Recent 'good governance' initiatives have sought to get greater input into government policy-making through the use of Deliberative Inclusionary Processes (DIPs) (For a discussion of DIPs see Holmes and Scoones 2000; on building bridges between policy and livelihoods see Shankland 2000).

(relations between stakeholders at the community level). Where governments wish to retain a greater measure of control, CB-NRM may be conceived of as primarily as a instrument for offsetting costs to government while producing greater benefits for the centre (in sustainability of the resource and revenue) Questions of how these benefits are achieved at the local level – that is questions of who has access to and a share in the distribution of the benefits from the resource – are not addressed. Where governments are concerned with poverty reduction through building livelihoods, government need to ensure that local CB-NRM addresses these questions and resolves them to government's satisfaction. However, such matters can be politically challenging and it is one of the purposes of consensus-building for CBNRM to manage this part of the process more effectively[39].

In environmental economics terms it also refers to what economic and regulatory instruments should be applied to bring about the desired goals. There are benefits and costs involved both to government and to primary stakeholders, and the determination and application of appropriate instruments, or a mix of them, can also be challenging.

However, a difficulty with the Hoggarth *et al* (1999) approach is that it is overwhelmingly a public-sector-management and resource-oriented approach. As such it is dominated by an 'institutional' approach to managing natural resources. Thus while the guidelines for the spatial, hierarchical and integrated strategy for adaptive co-management of the resource are laudable (the 'what should be managed' question), and while these guidelines do take into account 'who' should manage and the role of each level of the administrative hierarchy, the guidelines concerning 'how' to manage only cover technical, legislative, regulatory, enforcement and monitoring matters (see for example 1999a: Figure 3.2, pp.19). Within this framework, mechanisms for conflict resolution are seen as an integral part of a regulatory regime. For example, the guidelines say '*Fisheries managers will often need to resolve conflicts. Conflict resolution involves three steps: discussion, adjudication and enforcement*.' (Hoggarth *et al*, 1999a: 21). This displays a limited appreciation of the range of conflict/consensus-building mechanisms that may be applied (see FTR Volume 6.1: consensus building literature review), but more seriously the guidelines do not discuss the role that market forces and other economic instruments may play in achieving the goals of management, while discussion of incentives/ disincentives for stakeholders is dealt with in a couple of paragraphs[40].

In addition, from an economic perspective, there is a more fundamental issue lying behind the issue of governance ('*about who does or does not decide what rules will be applied to the exploitation of the resource and how those rules are implemented*' as Hoggarth *et al* 1999a put it). This is the distributional issue of what package of goods should be produced from the resource and who gets what when? That is, whatever the property regime that holds, there have to be mechanisms to allocate available supplies or usage rights between competing demands (Rees 1990). The basic fact is that changing resource use practices imposes costs on some sections of society. Historically conservation practices which have excluded local people from the resource

[39] Ostrom (1990) outlines an economic rationale for adopting co-management arrangements that does not consider issues of equity or fairness. Resource users are impelled to maximise collective outputs from the resource (by compulsion and coercion, in the case of state-owned resources, or by voluntarily entering a contract with an entrepreneur, in the case of private ownership). Both systems suffer from the problem of "*credible commitment*" whereby the benefit to the individual in defecting from a functioning system outweighs the net gains from compliance. Co-management can be considered an attempt to increase the incentive to comply by deliberately blurring the distinction between managers and the managed.

[40] For approaches to NR management informed by economics see for example Prugh (1995), Rees (1990), Heathcote (1998).

(e.g. a forest reserve), and market distortions (e.g. subsidising agriculture at the expense of fisheries), represent a transfer of wealth from one section of the community to another – that is an 'externalisation of benefit' with welfare implications for traditional resource users and disincentives for them to conserve the resource.[41]

3.7.5 Benefits of community-based management (CBM) approaches

Community-based management of common pool natural resources (CB-CPNRM) may be defined as:

> "*a self-organised resource management system…where actors, who are major appropriators of the resource, are involved over time in making and adapting rules within collective choice arenas regarding the inclusion or exclusion of participants, appropriation strategies, obligations of participants, monitoring and sanctioning, and conflict resolution*" (Varughese and Ostrom, 2001).

Within this definition, the resource management system is very rarely entirely an indigenous enterprise; in most systems the CPRs are governed by their appropriators with rules made at local, regional, national or international levels affecting some key decisions (Varughese and Ostrom, *ibid*.).

Reviewers have identified factors thatare likely to be conducive to CB-CPRM and local self-organisation by resource users. A degree of resource scarcity provides an incentive for collective action and co-operation in resource management (Blair, 1996; Ostrom *et al*, 1999). Other factors include existence of some institutional space for a degree of autonomous locally decided resource use rules, and sufficient levels of trust between actors (see Section 3.7.7.7 on social capital in CB-CPRM).

At a local level, people can have an influence over matters that affect their livelihoods, and they can work together to achieve mutually beneficial outcomes. Such community-based management (CBM) approaches are founded on two premises:

i) that CBM approaches will result in more effective and sustainable resource management (largely because involvement of users in the decision making process improves their compliance with extraction rules)
ii) that they are more socially just and fair.

However, as discussed below, community-based natural resources management (CB-NRM) approaches have often made false assumptions about 'community'. There has been a tendency in much aquatic resources development globally to present fishers and fishing communities as homogenous social entities (Davis and Bailey, 1996). This has been true in Bangladesh also, and although traditionally this may have held true, it by no means holds for those currently involved in the floodplain fisheries.

Further premises for promotion of CBM approaches are that they should improve resource management because with greater levels of local autonomy, they:

iii) draw on local knowledge, and are site specific
iv) are more responsive to environmental change
v) are likely to improve the ability of resource managers to monitor, and if necessary, regulate resource use patterns (Turner, 1999).

[41] Economic analysis can determine the efficient use and allocation of resources, but it cannot finally determine on what grounds resources should be allocated – that is essentially a subjective political, social and moral choice. As such market exchange is only one form of social control over resources, while other social choice processes have an important part to play (Dasgupta 1982).

3.7.5.1 Benefits of community-based fisheries management

The specific benefits of a decentralised and community-based approach management of fisheries, and the constraints encountered in achieving these benefits are covered in the literature on coastal and marine fisheries and inland fisheries (e.g. Pomeroy *et al*, 1996; Pomeroy, 1998; McCay & Jentoft, 1996; Thompson and Grover, 1999). This wealth of literature in the field of fisheries management is not discussed in detail here. In relation to Bangladesh inland community-based fisheries management, readers are referred to Thompson and Grover (1999) and Mittendorp *et al* (2000).

Community-based fisheries management approaches have been classified as lying along a range of types, with 'exocratic' government-managed approaches at one pole and 'endocratic' fisher-managed approaches at the other (McCay and Jentoft, 1996). This classification, whilst a useful framework for a sectoral analysis, fails to consider the multiple use situation. As demonstrated by Brown *et al* (2000), there may be different stakeholders wishing to make a livelihood from coastal and marine resources. In inland fisheries, this diversity of use is often more extreme and aquatic resource management needs to consider more stakeholders than those classically defined as "fishers". Community-based fisheries management lies at the endocratic end of fisheries management, but in the Bangladesh context needs to be broader to recognise that the integrated nature of land and water means that the fishery should be considered as a multiple use aquatic resource, and thence that community-based fisheries management is one element of community-based aquatic resources management. Further, that different forms of aquatic resource use generate biological, physical, social and economic interactions which require a more integrated approach to resource management which is best addressed at the local level. The reduction of the public sector's role in many countries has created the opportunity for this, but has also created the risk of the capture of mechanisms governing resource access by interest groups and thus may increase inequitable access to opportunity at the local level. The lack of an integrated approach, and of equitable supporting institutions, can contribute to the growing potential for conflict between resource users and the undermining of resource sustainability.

This conceptual spectrum from the state to the community (also presented by Berkes (1992)) also fails to recognise that NRM in reality will still incorporate decisions and tasks at several geographic scales or institutional levels i.e. the right and responsibility to perform certain management tasks may be devolved further than for others (Sen and Neilsen, 1996).

McCay and Jentoft (1996) pose a number of highly relevant questions:

- User involvement in fisheries management is a local form of democracy, but "*who ought to be a member of the demos*?", i.e. who should be represented in the process?
- "*At what scale should the participation of user groups take place?*" i.e. should participation be in local or higher level organisations?
- *What should be the scope of the management/governance tasks of undertaken locally?* (rather than centrally)
- "*How can management institutions facilitate a more consensual discourse?*"

In relation to these points, institutions governing resource use have infrequently represented the full range of those with an interest in what are multifunctional resources. Rather as Townsley (1998) notes, 'rights to participate in decision-making

have frequently been granted according to one's level of investment in resource use' and one's power to obtain representation and to bear the costs of participation. This, unfortunately leads to the domination of the process by 'special interest groups' (e.g. wealthy elites) claiming to speak on behalf of the community and having 'community interests' at heart. While there can be altruistic behaviour by elites, they are unlikely to know the differing needs and goals of all NR user groups within their community and do not have an 'all-seeing eye' concerning the opportunities and constraints a dynamic resource base offers.[42]

The gain that is sought through subsidiarity[43] is the shifting of decision-making over resource use closer to resource users with attendant gains in management flexibility and coherence in resource use. However, for this to be achieved, the interests of all user groups need to be represented in the decision-making process, while there has to be mechanisms for improving communication and mediation between different interest groups.

In seeking improved communication in fisheries management, and thus a more consensual discourse, McCay and Jentoft (1996) argue that CBM, or local autonomy

> "*provides a way of mapping feedback signals on to social choice and of promoting processes that lead to more effective communication and socially responsible decision making. Participatory democracy in and of itself will not reduce the problems involved in dealing with complex and unpredictable ecological and social systems. It can even make matters worse, as the imperatives of individual maximisation and interest group politics take hold. What is needed, following Habermas (1984) is "communicative rationality", in settings where decision and actions are based on "intersubjective understanding, the coordination of actions through discussion, and the socialization of members of the community" (Dryzek, 1990).*

It is important to stress again at this point that the current project is NOT specifically about community based fisheries management. It is to some extent a precursor to CBFM. This is true on two counts:

- the PAPD process helps identify entry points for CBFM intervention
- the process focuses on common property more widely, especially water as a common property. While CBFM can focus on single use (fishing) of a common (the fishery), the project has focused on multiple use of the aquatic commons. CB-NRM needs to be in place before fisheries issues can be properly addressed (though in practice they are strongly intertwined). To take a purely sectoral approach to fisheries management is to repeat the mistakes of the past, in failing to address the wider system impacts which are increasing the threat to the fisheries. A community-based approach to fisheries management means taking account of the interdependencies between different livelihood strategies at the local level, and the differential impacts that sectoral policies have on them.

[42] n.b. the concerns concerning representation that were expressed at the Bangladesh Ministry of Water Resources'1998 national conference on participatory water management (GoB 1998)

[43] Subsidiarity is "a normative principle for institutional design proclaiming that decisions affecting people's lives should be made by the lowest capable social organisation" (Schaefer, 1991).

3.7.6 Critiques of CB-NRM and CB-CPRM

Two recent critical reviews of community-based approaches to resource natural management, based on analysis of social forests (Campbell *et al*, 2001) and land used for agro-pastoralism (Turner, 1999) in two areas of dryland Africa, both raise some useful concerns about community-based approaches to managing the commons. Their concerns move beyond Hardin (1968)'s pessimism about free-for-all resource degradation[44], focusing more on difficulties of trying to formalise access to CPRs through rule base approaches. The issues they raise have relevance for managing aquatic commons in South Asia. For example, the agro-pastoralism review focuses on the *Gestion de Terroirs Villageois* (GTV) approach to community based resource management. GTV is characterised by four features:

a) devolution of resource management authority to local communities
b) the use of external facilitation (usually by NGOs), to ensure wide community participation and problem solving
c) clarification of access rules and increasing exclusionary powers of community members to improve resource tenure
d) land-zoning for different use types (on 'zoning' see below)

Features a, b and c all have parallels in Bangladesh aquatic resource management. a) describes the motivation underlying the now defunct New Fisheries Management Policy, and also the more recent approaches to *jalmahal* leasing and subsidiarity in fishing leases. b) is characteristic of the many recent and current NGO-facilitated CB-NRM initiatives, including Oxbow Lakes Project-II (BRAC), MACH (CNRS and BCAS), SEMP (CNRS and BCAS), CBFM-1 (a broad range of NGOs), and the Chanda Beel Advocacy Project (BCAS). c) is the approach that was used in the Oxbow Lakes Project-II. Thus GTV shares with many of the aquatic CB-NRM initiatives in Bangladesh a new direction that encompasses facilitated community participation and consideration of social and institutional factors underlying poor resource management.

In general, the dual goals of most community-resource management initiatives are:

- "*to maintain or improve the productive potential of local natural resources*"
- "*to reduce the level of conflict over these resources*" (Turner, 1999).

The evidence of need for CB-NRM comes from the occurrence of conflict over resource use, degradation of the resource, and poorly defined rules for tenure and use under current local institutional arrangements for resource management. Many CB-NRM initiatives aim to "'clarify' rules of access, and in so doing, replace spheres of political contestation, viewed by outsiders as centres of socially degenerative conflict, with legalistic, formal rules of access to spatially bounded units of land" (Turner, 1999, our emphasis).).

However, in many situations the improvement of "procedural rules for negotiating access" (i.e agreeing a *de facto* flexible rights regime) may be a more effective approach to community-based resource management than strengthening the *de jure* use rights over specific resources. In relation to Bangladesh, this supports the approach of facilitated community-based workshops to develop joint problem-solving and improve resource use planning, as in the PAPD approach, rather than strengthen enforcement and access rules, as in Oxbow Lakes Project II. It is of course the case that particular social and biophysical contexts may favour different institutional

[44] "Ruin is the destination towards which all men rush, each pursuing his own best interest in a society that believes in the freedom of the commons" Hardin (1968: 1244).

frameworks at the local level, but as a 'rule of thumb' it is important not to create legalistic institutions for commons management which may exclude many who have 'traditional' rights of access and whose livelihoods are dependent on a common , and which also generate enforcement problems and conflict.[45]

The orthodox approach to CBM has been to see poor resource management as a result of the failure of resource management institutions, and consequently for solutions to focus on spatial bounding of the resource, closure of community membership, and the specification of formal access or usufruct rights (Turner, 1999). This is a sketch of initiatives such as Oxbow Lakes Project II. By contrast, it is suggested that greater attention needs to be given to how local political systems (existent or potential) and informal networks can play a role in resource management. Thus where multiple resource use issues are being addressed through CB-NRM approaches, it is the identification of critical social (stakeholder) relations and support to local institutions that should be the focus of development intervention. A focus only on formalisation of use rights and use zones is likely to increase social and ecological vulnerabilities (Turner, *ibid*.) because of the complexity of factors that *de facto* influence resource use, and that these simplistic approaches ignore.

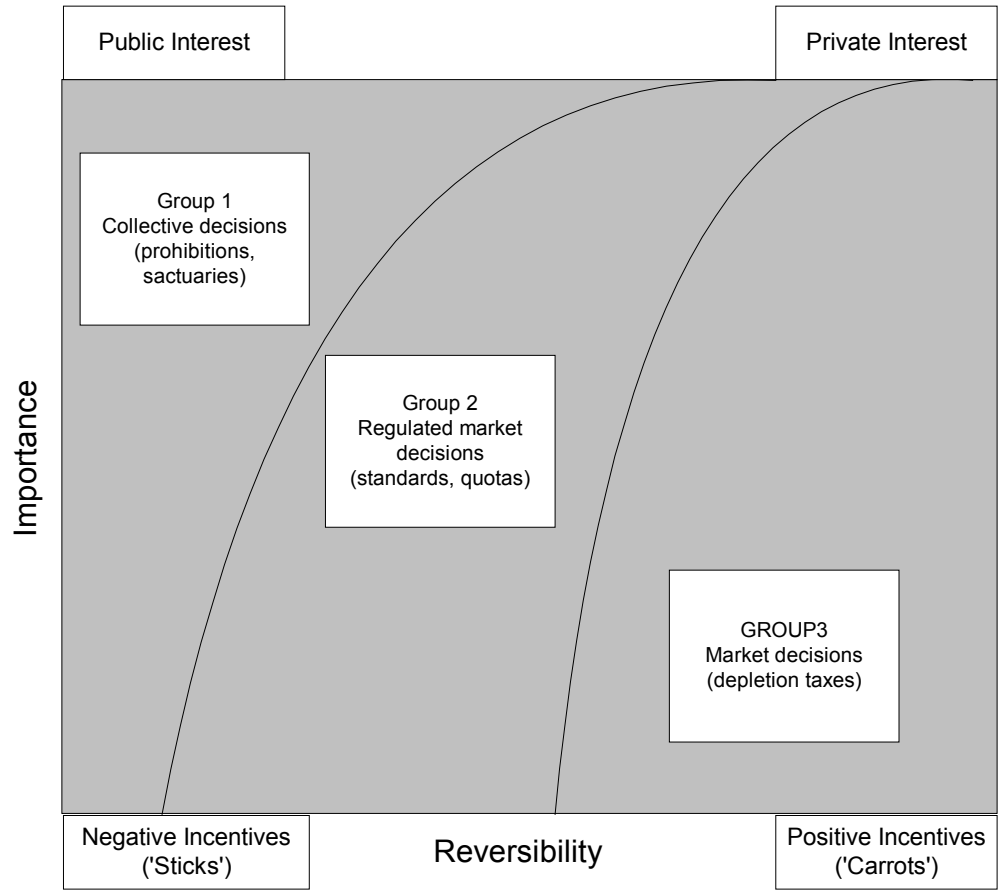
This is not to say that a 'zoning' approach is entirely defunct. Indeed when communities agree on establishing fish refugia in open water-bodies, they are in effect taking a zoning approach. The difference to agreeing this at community level rather than having it established by central edict, is that there can be flexibility in its spatial and temporal application to meet different stakeholder concerns, with likely reduction in enforcement costs. Historically, both proponents of free market and of command and control solutions to ecological problems have tended to take an 'all or nothing' institutional approach to CPRs, with rights normally being framed as *de jure* rights to exclusive use of <u>all</u> resources within specified areas (e.g. an Englishman's home; a African wildlife park). Yet restriction of access in order to protect certain resources can ignore the complexity of traditional resource use and rights on the ground, and raises attendant enforcement problems. There are many societies where different *de jure* private property rights overlap spatially (e.g. one household have rights in a piece of land for horticultural crops, but others having rights to the trees which grow there), others where *de jure* private property rights give way temporally to common property rights (e.g. during the annual flood in Bangladesh), others where if a *de jure* private right is not exercised others may exploit the resource as a *de facto* common (e.g. in Bangladesh where private land left fallow may be used for grazing by others), and others where private rights over a resource are taken to have lapsed and therefore available for others to exploit (e.g. items on rubbish tips).

Traditionally local people have managed *de facto* access to resources despite the complexity of these *de jure* rights regimes. Common sense in enforcement also tends necessarily to take account of *de facto* rights at the local level. For example in Bangladesh rural roads are in the public domain but are used by local people for the drying of grain, straw and so on, yet government officials, who drive over the drying crops are unlikely to enforce the secession of such activities unless they obstruct traffic, while none would think of taking what is private property even though it is on a public road. In essence different rights are exercised at different times, and a *modus vivendi* emerges as the costs and benefits to the different parties are 'negotiated'.

[45] See discussion of Oxbow Lakes Project II in FTR Volume 6.3.

Rather than the 'all or nothing' approaches of neo-Malthusian, neo-classical and command and control economics, ecological economics seeks a middle way which combines elements of all but offers a way beyond the simplicities of these approaches (Prugh 1999: 102-4).[46] As he notes, while conventional economics deals with the direct use value of a resource, and environmental economics expands this valuation to include non-use values, ecological economics castes a still wider net to include the role of the resource as part of a far wider dynamic eco-system. The problem is that to carry out a comprehensive cost-benefit analysis of all the factors involved would clearly be lengthy, extremely detailed and expensive, while there is likely to be a large element of irreducible uncertainty built into the analysis – all characteristics which make it unpalatable to decision-makers who require confidence in measures of costs, risks and benefits in order to evaluate trade-offs.

However, it is possible to use a different approach (essentially 'zoning') which is based on two criteria: the importance of natural capital to the ecospheric function and the human economy, and the reversibility or not of decisions to use or degrade it for economic gain. Here natural capital can be divided into three categories according to importance and reversibility guidelines (Figure 3).



after King (in Prugh, 1995: 105)

Figure 3. Public intervention to protect natural capital

[46] For a histogram of the evolution of ecological economics see Prugh (1999:9).

> Group 1 resources are those that are extremely important and which if their ecological functions are lost, cannot be restored. This group would require the firmest constraints on use (e.g. outright prohibitions, or protected sanctuaries) (i.e. command and control regulation).
>
> Group 3 resources are those of relatively lesser importance and high reversibility. Use of this group could be left to the market provided that all costs, external as well as internal are carefully accounted for (i.e market forces).
>
> Group 2 resources are those elements of natural capital that lie between in terms of importance and reversibility. They would not require the very strict controls of Group 1, but would require more protection than Group 3 (i.e. management using a mix of standards, quotas, open/ closed seasons and the like) (Prugh 1995: 104-5).

Clearly which group a particular resource falls into will be a matter of evaluation (which may include on-going monitoring of its status and dynamic relationship to other resources). Many resources (e.g. some whale species) have moved from being classified under Group 3 to Group 1). Such monitoring and evaluation is likely to include a range of data from a variety of perspectives, and is one argument for combining scientific and indigenous knowledge approaches and the co-management of resources under Group 1 and 2. The consensus management process fits in here as one means of leveraging knowledge rapidly from a wide range of stakeholders at the local level, on managing the interface between public and private property regimes, and on agreeing ways forward (and the regulatory and/or incentive-based instruments by which it is to be achieved) which are just, resource conserving and, where restrictive, capable of achieving compliance. At the policy level, the use of Deliberative Inclusionary Processes (DIPs) (Holmes and Scoones 2000), Multicriteria Analysis (MCA) (Edwards-Jones *et al* 2000: ch.10), and Trade-off Analysis (Brown *et al* 2000) are also important tools.

In their illuminating, and somewhat revisionist, analysis of community-based approaches to CPR management, Campbell *et al* (2001) point out that the wealth of pro CB-NRM and CB-CPRM literature promotes the belief that implementation of CPR management is a 'relatively simple task'. This optimism may be partly founded on false assumptions of community and thence of communitarian ideals operating (Agrawal & Gibson, 1999; Blench, 1998). This relates back to the problems with heterogeneous stakeholders for floodplain resources in floodplain villages, and unsophisticated approaches that make false assumptions that village equates to community, and that both are equally homogenous (Turner, 1999). There is also a need to exercise caution regarding the apparent inherent "goodness" of the concept of community participation in NRM if this emphasis becomes dogmatic (Botchway, 2001)[47].

Campbell *et al* (2001) identify a number of causes for the failure of CB-CPRM in social forests in Zimbabwe, and from these identify a number of areas that deserve further attention. Of these, one of the key directions is the need to better describe and define common property and associated use rights. They point out that 'common property'

[47] Botchway argues that an obsession with participation in management has detracted from the argument for fundamental social and institutional change (see section 3.8.7.6). The institutionalisation of participation within the Northern Region Rural Integrated Program (NORRIP), Ghana, has concentrated on sets of binding obligations with villages in the area. Few of the villages met these preconditions and project resources were wasted attempting to implement a regime that the organisers themselves assumed was appropriate.

may be a theoretical ideal, while real life (*de facto*) situations range between common property-like and open access-like situations, so that the normative *de jure* categories of common property, private property, open access, and state property are too simplistic to form the basis of management regimes. There is a need to understand each landscape unit or resource according to its unique characteristics, such as spatial and temporal ecology, history of use, use type, duration of use, size, transferability, excludability, and operational controls. In combination there is a need to understand the interests and process within communities and between stakeholder for use of the resource, and the local politics and institutional management arrangements and transaction costs associated with the resource (Campbell *et al*, 2001). In brief there is a need to understand the local institutional context within which access to resources takes place. The analysis from CPR management in Zimbabwe is that formal rule based systems may ignore much of this detail specific to locales, and are thus overly optimistic, whilst current systems are built on controls derived from local traditions, culture and norms, but these are individually interpreted, changeable and constantly contested.

3.7.7 Deconstructing CB-NRM

3.7.7.1 Local management in practice

Local CPR management has two principle dimensions: (i) *de jure* control through decentralisation and subsidiarity[48] to local statutory government units, in the case of Bangladesh the *thana* (*upazila*) and the *Union Parisad* (UP), and (ii) local *de facto* control by natural resource users themselves in some form of community-based management of the common property. However, one of the critiques of the decentralisation to local government approach in South Asia, is that almost by definition, elites tend to dominate local government. It can thus in effect be "*a formula for funnelling resources from above into the hands of local elites*" (Blair, 1996), and thereby repeats many of the errors of the *Zamindar* system[49] instituted by the British in colonial Bengal.[50] As a consequence there is a scepticism at many levels about the ability for local officials to manage common resources in a sustainable or equitable manner (Text Box 1).

Text Box 1. Decentralising water management in Bangladesh

An example of concerns voiced in this respect is provided by the experience of the Bangladesh Ministry of Water Resources in its restructuring to facilitate people's participation in water development and management (GoB 1998). Guidelines for people's participation were issued in 1994, a new Water and Flood Management strategy was issued in 1995 and a national conference was held in 1997 to revise the 1994 guidelines. The conference's objective was to reach a common understanding of the socio-economic, institutional and water management implications for the new guidelines, and to clarify participants' future roles in implementing participatory water

[48] Subsidiarity is "a normative principle for institutional design proclaiming that decision affecting people's lives should be made by the lowest capable social organisation" (Schaefer, 1991).

[49] For information on the *Zaminder* system and its operation, particularly in relation to riparian rights and fishing, see Pokrant *et al* (1997).

[50] Of course the *Zamindar* system, modelled on similar systems in Europe at the time it was introduced, had a different purpose to that of devolved government today. It was designed to keep costs to the state to a minimum, while maintaining civil order at the local level and a set revenue stream in the form of taxes to the central bureaucracy. The post-colonial system displayed some of the same features with local government departments being responsible for raising revenue. In both systems concerns about social justice and resource sustainability were of negligible importance. Today, however, as noted earlier in this Report, these are at the forefront of central government concern.

management. Conferencees were agreed that all people regardless of gender, occupation and socio-economic status were legitimate stakeholders, and that effective participation required transparency, accountability and local control over resources. While policy decisions should be taken by Water Management System committees, local organisations should be responsible for water management. It was recognised that organising all stakeholders into one or more organisations was unfeasible, and it was suggested that locally elected bodies (LEBs) have the legitimacy to represent their interests and that new organisations should only be set up where no existing local organisation could effectively undertake the required tasks. In the case of conflict, it was suggested that local informal leaders or the Union Parishad (UP) would play a key role in their resolution. It should be noted that a significant number of conferencees felt that LEBs do not have legitimacy with all stakeholders, were unlikely to serve the interests of the landless and destitute, while those elected to UPs were overwhelmingly wealthy male landowners who might well favour their own (class) interests under the guise of serving 'community interests'. This group of conferencees also felt that Water Management System committees (responsible for policy) should consist of representatives from stakeholder groups, since UP chairmen were again likely to serve their own interests or work for the area from which they get most votes.[51]

This skewedness in local control is not unique to South Asia, for example Ribot at the World Resources Institute has said that the way decentralisation in Africa is currently implemented will not encourage democracy, or the delivery of greater efficiency, equity and environmental protection. He cites examples from many states where only local elites have benefited and not the general populace. 'Unfortunately, in many African countries, decentralisation merely means the transfer of powers to centrally controlled, non-democratic, unaccountable local institutions.' Lissu of the Lawyer's Environmental Action Team (LEAT) in Tanzania has said 'The result has been called decentralised despotism – an even more oppressive and unaccountable local governance structure at local levels' (Sustainable Development International, 2000). Campbell *et al* (2001) on Zimbabwe, and Twyman (2000) on Botswana give further examples of 'failures' in decentralisation projects.

According to Ostrom (1990) viable local management institutions for CPRs require that there be:

- a definable (and immutable) group of resource users
- a spatially defined resource
- a clear system of rules governing resource use

Ostrom (1990) suggests that this is likely to mean a monofunctional resource in a small spatially well-defined area (.eg. a wood-lot or a well-defined irrigation system and a small homogeneous group of users (i.e. a group with a well-defined common interest) in order for there to be a clear and enforceable system of rules governing resource use. Where there are larger areas (e.g. coastal fisheries or fisheries in large lakes), Ostrom suggests that it may be possible to establish viable management institutions by subdividing the area between groups in order to meet the above specified conditions.

Most of the previous work investigating institutions for local management of CPRs has been carried out where Ostrom's conditions have been met (e.g. Varughese and

[51] See also Arghiros' (1997) study of devolution in Thailand for evidence of local elites gaining control over resources as responsibility for them is devolved from central government to local bodies.

Ostrom 2001). While there a tendency to report the successes of CB-NRM rather than examine the failures (e.g. Steiner and Rihoy 1995)[52]; Varughese and Ostrom (2001) is an exception in its comparative approach. However, Bangladesh aquatic CPRs present a very different set of circumstances.

3.7.7.2 Managing aquatic commons in Bangladesh

The open-water fisheries of Bangladesh tend not to make a straightforward match with any of Ostrom's requirements[53], since:

- the constituency of resource users is highly mutable with season and occurrence of other livelihood opportunities
- the resource is spatially and temporarily variable in extent, quality and thus value
- both formal, legal *de jure* rules and local *de facto* norms for resource use are at worst commonly disregarded, or at best highly flexible

For example, the definition of full-time professional fishers as the sectoral focus of much of the openwater activity of Department of Fisheries and some NGOs is a weakness of the usual approach in Bangladesh, since there are many other categories of person who would not define themselves, nor be defined by full-time professional fishers or external agencies in this way, but who nevertheless exercise *de facto* rights of access to the resource on a seasonal or distress-driven basis. These part-time fishers can include wealthier people who are fishing professionally but seasonally and have other important and usually agriculturally-based livelihood strategies, and poorer people (and not-so-poor people) are who are fishing for subsistence reasons when other livelihood strategies are at a premium (Barr *et al*, 2000a). To limit access rights to the user group of full-time professional fishers would effectively be to disenfranchise a large portion of the rural population (since up to 70% fish and have some kind of fishing gear), endanger the food security of the poorest during a season when alternative livelihood strategies are in short supply, in all possibility increase social conflict, and probably be unenforceable anyway given that full-time professional fishers are a minority (and usually a Hindu minority) in what are largely Muslim agriculturally-dominated communities.[54]

Rather, what may be needed is more innovative *de jure* use-right licensing and *de facto* local arrangements to give different stakeholders incentives to manage fisheries sustainably, while enabling access to them by those who are seasonally most dependent on them. The main issue here may well be the management and siting of fishing gears, since the type of gear that part-time fishers possess correlates fairly well with HH socio-economic status[55] (Thompson and Hossain, 1998). For example, in discussions, full-time professional fishers say that they do not regard subsistence and casual fishers as a threat to the fisheries since their gears are simple and have little impact on the fisheries. As such lessees would not need to attempt the near impossible (the exclusion of subsistence fishers from the fisheries.) By contrast full-time professional fishers see large lift nets and *kuas* as significant threats, while these gears can only be afforded by wealthier people (most frequently non-fishers) (Barr *et al*, 2000b; Thompson and Hossain, 1998) [56].

[52] Steiner and Rihoy (1995).

[53] For examples of how Bangladesh CB-CPRM initiatives map on to Ostrom's rules for CPRM institutions, see FTR Volume 6.2, Table 5.8.

[54] There are exceptions to this in some regions of Bangladesh where communities can be largely Hindu.

[55] Investment in physical capital is a good indicator of socio-economic status, and with respect to fisheries, the quantity and type of gears used provide a good proxy indicator of wealth (FAO, 1999).

[56] Again the 'freerider' problem, which many theorists see as significant, may only be so in certain contexts. A free rider is one who consider he will get a high return through defection from the co-operative choice. In Bangladesh full-time

From the above, it can be seen that while Bangladesh's open-water fisheries do not neatly map on to Ostrom's conditions for a manageable CPR[57], they do still however meet the definition of a CPR as an integral part of a wider multifunctional biophysical 'system'. i.e. the actors in the use and management of the commons system are interdependent, and each individual's action affect all in some way – that is there can be significant externalities for user groups exploiting other resources in the system (Singh *et al*, 1996). Therefore the floodplain aquatic CPRs are a key component of the combined socio-economic and bio-physical 'floodplain production system' wherein better management must recognise that these are complex adaptive systems which emerge from the organisation of many individual but coupled production strategies (Barr, 1998, Dixon et al 2000).[58] The corollary of this being that the total net benefit of individuals acting independently in the system will be lower than if they act together through collective action (Singh *et al*, *ibid.*)

Yet there has not been significant external recognition of systems interdependencies, least of all in managing CPRs. Floodplain research and development (R&D) has not supported integrated management of floodplain natural resources, while sectoral strategies supporting the strategies of identified user groups have negatively impacted on the livelihoods of others. Commodity-oriented and vertically integrated R&D in Bangladesh separate agriculture and fisheries at the macro-level (Karim, 1994), while farming systems research (FSR) has historically approached floodplain livelihoods diversity by aggregating similar production units into homogenous 'recommendation domains' (RDs) for technical interventions (Norman *et al*, 1995). However, while FSR can model the benefits-costs to farmers in an RD of a change in resource use practice, it cannot indicate impacts on other groups beyond the RD (e.g. the impact on *beel* fisheries through use of surface and ground water for crop irrigation, and water quality through fertiliser contamination). Yet it is a commonplace that many natural resource management problems are interdependent and transcend farm boundaries. In contrast to FSR, a systems approach focuses on these inter-relationships and their impact on interdependent livelihoods (Barr 1998 a&b).

If we accept that the floodplain production system is a complex adaptive system, we should also recognise that its emergent order is not a neutral outcome, nor does self-organising behaviour produce a homeostatic system. [59] Actors respond to changing biophysical, local politico-economic and wider policy environments – the 'policies, institutions and processes' (PIP) of the Sustainable Livelihoods approach. Neither formal science nor classical economics is good at modelling the politics underlying the shifting allocation of resources at the micro-level and needs to be complemented by qualitative investigation into actors' decision-making generating the outcomes which science maps. But, as we have seen, there are many different decision-making groups with their own goals and perspectives, while the sum total of their decisions may send

professional fishers who do not support collective rules and bear the costs may be regarded as freeriders and attract social sanctions, while part-time seasonal fishers may not be defined as freeriders at all, but rather be defined as having some use right in a resource which is not institutionally well bounded.

[57] There is a slight suspicion that Ostrom's conditions represent a transposition of the 'myth of community' into an idealised institutional framework, ignoring the reality on the ground. The environmental mediation movement in USA stressed the importance of negotiation in leading to accommodation and reconciliation, and collaborative analysis of problems to generate a creative range of solutions from which consensus and legitimate decisions could emerge (see Literature Review; also Rees 1990). However, even the most fervent proponents of mediation suggested that such ideal outcomes would emerge in only a limited range of situations – when the dispute issues are relatively well-defined, occur over fairly discrete spatial areas and involve only a limited number of different interest groups.

[58] On understanding interdependencies see also Ravnborg and Westermann (1999). On complex adaptive systems see Ison *et al* (1997).

[59] On self-organising systems see Waldrop (1992); also Chambers (1996).

the system on a new trajectory. Analysis of the decision-making involved suggests an imperfect market, one where there are winners and losers, and where cultural factors ('transforming structures' or institutions) leads to material accumulation by some at the expense of others, while there has been a skewing of the system in favour of land- versus water-based livelihoods. Thus the development of the present human activity system has been towards land and its individual ownership and away from water and aquatic CPRs. Macro-economic policy has favoured NR users with particular livelihood strategies. Historically in Bangladesh there has been a tendency to design and evaluate development interventions on the basis of net returns, many of which have accrued to wealthier sections of the community. From a poverty-reduction perspective this may be viewed as a zero-sum game (the wealthy win, but the poor lose). A 'tragedy of the commons' here is primarily due to the erosion of CPRs by their transfer to private ownership (driven by perverse government incentive policies), accumulation of land resources by the wealthy, and the increasing marginalisation of the poor who, denied access to land, have to increasingly rely on CPRs (such as floodplain fisheries) as a significant part of their livelihood portfolios.[60]

Moving towards more balanced increases in productivity (i.e. 'win-win' outcomes), requires two things:

Firstly a conceptual model of the floodplain is needed, that centres on relationships between NR users' diverse livelihood strategies and is derived from peoples' own perspectives on NR use. The process for arriving at this model should involve participative 'social learning and innovation' by all stakeholders so that a consensus for future interactions between floodplain stakeholders can emerge from a more integrated understanding of the floodplain system. Why do we need to understand it from the perspective of the various groups? If we accept a post-positivist, constructivist understanding of what constitutes 'knowledge', there is no privileged position from which to observe or represent the system. The system may be ontologically real but is seen differently by different NR user groups (and scientists). In particular this has implications for the identification of what the 'problem' is. There are many diverse and potentially conflicting perceptions and interests which shape individual resource users' management strategies. Historically the perceptions and interests of scientists and government bureaucracies have taken precedence over those of local resource users. However, as Ison *et al* (1996) put it:

> "*There is a growing awareness that clients' real problems are not being solved. The wrong problems are being addressed that are determined by outside institutions. They are 'systems determined problems' rather than 'problem-determined systems' (problems formulated by those experiencing them)*."[61]

Many participatory approaches have stressed the need to focus on 'problems' as determined by resource users as opposed to those determined by external actors, but have in consequence paid insufficient attention to the divergent perceptions and interests of <u>different</u> resource users at the local level (see section on heterogeneity below).

[60] Hardin (1968) was correct in drawing attention to the fact that in mature systems population pressure can lead to a 'tragedy of the commons' where there are open-access CPRs. Later writers have similarly focused on the internal dynamics of resource management rather than considering the wider regulatory and 'opportunity' environment in which CPRs are set. Yet resource users base their decisions on whether to co-operate or defect not only on the benefits and costs of the CPR but also on those generated by external incentives. However, he considered CPRs in a property rights vacuum rather than in relation to other property regimes within which they might in reality be embedded.

[61] The identification of livelihood problems by separate stakeholder groups is the first step in the consensus-building methodology. Barr et al 2000 reports on the development of the problem census methodology under project R.

Secondly, development of structures (policies, local institutions and supporting methodologies) that can draw on the conceptual model is needed to implement more systemic improvement in floodplain production[62]. Increasingly development practitioners recognise that an important resource management issue is balancing the interests of different user groups involved in exploiting resources within what are multifunctional commons. As Steins and Edwards (1998) note:

> *'This implies, inter alia that collective action among the user groups is required to agree rights about access to, allocation of and control over the resource, since resource uses by the separate user groups are interdependent.'*

The main problem facing user groups - due to a variety of constraints - is, however, organising for collective action. Steins and Edwards (1998), after Röling (1994, 1996), suggest these constraints can be overcome, and collective action to address perceived problems undertaken, through platforms for resource use negotiation.[63] However, in multiple-use CPRs, collective action becomes increasingly complex, as different uses tend to be regulated under different management regimes – both public, private, common property and even open access. The challenge then is to build consensus among large groups of resource users with different livelihoods strategies, involving spatially extensive and multifunctional natural resources which are not clearly bounded, in order to improve livelihoods through better and flexible management of those resources. The task is made more complex by the need to reduce the vulnerability of the poorest through improving access to the opportunities associated with natural resources. This project's consensus-building methodology supports this aim at the local level in Bangladesh.

3.7.7.3 The 'C' in CB-NRM: 'community'

Communities have been defined as:

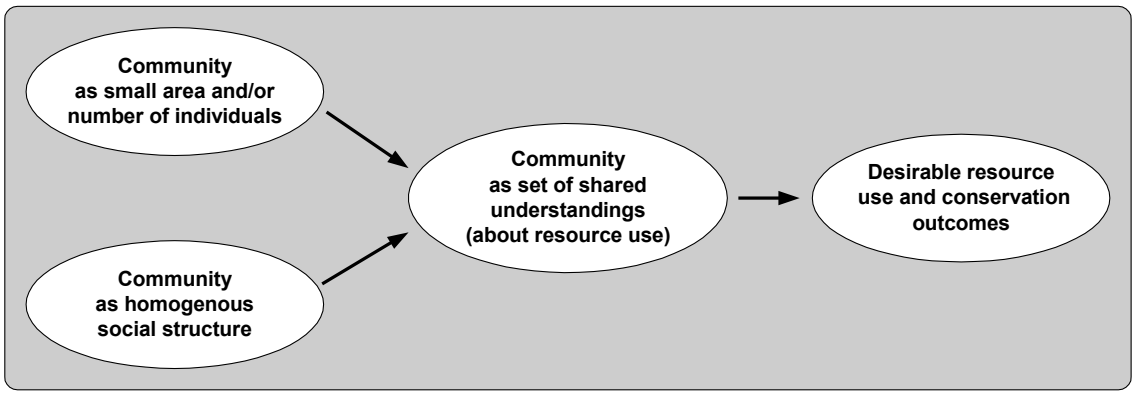
> "*fundamentally important to the human experience, representing the personally meaningful physical, social and psychological-emotional territories within which people are born, enculturated, marry and establish families and perform the roles of producers and consumers and finally elders and ancestors*" (Davis and Bailey, 1996).

Communities thus have dimensions of area (territory), culture, kin and social network. They are seen as spatial units, social units and units with a shared set of norms. For the purpose of discussion concerning CB-NRM, the term community is used here to refer to a geographical unit which may or may not consist of one or more distinct collocations of residential units and to the residents of which have an interest in the natural resources under discussion. In this sense it denotes a 'community of interest'[64]. In the Bangladesh context, community is certainly not taken to be coterminous with the entity denoted by the English term 'village' which tends to imply a certain residential boundedness. Bertocci (1996) for one has noted that, while research in Bangladesh has conventionally adopted the village as its focus,

> '*the weakness of the Bangladesh village as a solidary entity of social organisation and the elusiveness of its unity as a residential system' is problematic. Indeed the 'enduring boundaries of the village-as community in both space and human action have proved exceedingly difficult to fix*'.

[62] Such structures can be considered "*platforms for resource use negotiation*" Röling (1994). See FTR Volume 6.1.
[63] A special issue of *Agriculture and Human Values* (Vol.16 (3),1999) deals with multiple-use commons, collective action and platforms for resource use negotiation.
[64] Where the term is used to refer to a population cohort across geographical units (as in 'a community of sufferers') or at a broader 'communitarian' scale (as in 'the world community'), that will be made clear.

The idea of 'community' has many different meanings and is a 'contested' domain (Kymlicka 1990, Turner 1990, Lister 1991, Meekosha 1993). The concept has been used ideologically (Plant 1974, Williams 1983, Etzioni 1995, 1998), while its 'utopian' features have been used to support both collective action (Figure 2) and liberal individualism (Smith 1996, Kymlicka 1993, 1995). However, the orthodox view on the conditions needed for achieving desirable conservation outcomes is that 'communities' should consist of a small number of individuals or represent a small geographic area and be socially homogeneous in order to reach a set of shared understandings about resource use (see Figure 4).



after Agrawal & Gibson (1999)

Figure 4. The conventional view of the relationship between community and conservation.

As Agrawal and Gibson (1999) say, the *" vision of small, integrated communities using locally-evolved norms and rules to manage resources sustainably and equitably is powerful*". So powerful in fact that from having been the *bete noire* of the conservation movement, communities have become the locus of conservation thinking as the sustainable livelihoods approach has developed.[65]

However, many now question this view of community as an entity that can take collective action to manage CPRs.[66] There is a view that the concept of the solidary community has been driven by Western researchers and development practitioners in search of the lost idyll of rural community in our own cultures (Holdcroft 1984; Leach *et al*, 1997). Indeed, it is suggested that the myth of community can be distinctly unhelpful in seeking to ground any realistic local management of natural resources – simplistic notions of community hiding complex differences in wealth, gender, age, origin and so on, and the structures and processes which contribute to poverty - and thus contributes to difficulties in identifying different parties' needs, interests and incentives to participate in CB-NRM (Guijt *et al*, 1998).

As the recent FAO Fisheries Technical Paper on managing Asian floodplain river fisheries (Hoggarth *et al*, 1999) puts it:

> '*fisheries management literature …occasionally lapses into discussions of managing fish or managing communities. Fish are affected by management only in as much as the actions of individual fishers is modified by the governance of the fisheries. The concept of community only becomes relevant after one*

[65] For some representative texts see Argrawal and Gibson (1999:631).
[66] See Mosse (1994), Leach *et al* (1997, 1999), Agrawal and Gibson (1999).

recognises that this consists of individuals, who may or may not share a common sense of purpose and attitude towards the resource.'

Cernea (1989) lists a number of reasons why communities cannot and should not be treated as ready-made units for natural resource management programmes (in his example, for social forestry), including:

- Communities are geographical residential units, not corporate organisations. Physical proximity is not a sufficient reason to engender sustainable collective action. Thus, Agrawal and Gibson (1999) point out that while members of small groups sharing the same space are likely to interact more often, and can thus reduce the cost of collective decision making, there are many examples of small territorially contained groups which do not manage their common resource well and also of mobile less geographically grounded groups who manage them well. In the case of Bangladesh floodplain water bodies, CPRs can be the focus of several communities in the sense of discrete geographical residential units.
- Geographically discrete communities are composed of heterogeneous population clusters and the interests of these subgroups often differ to an extent that collective action may not be readily possible. [*see below – heterogeneity does not necessarily preclude collective action*]
- Community land (the commons) is often limited, and poorer households will be disadvantaged if access is limited by a project. [*less likely in the current pro-poor development climate*]
- Authority systems have uneven power over community subgroups. [*see below on local elites*]

As Leach *et al* (1997) note, while the critique of communities as bounded, homogenous entities has been commonplace in the social science literature for some considerable time (e.g. Holdcroft 1984) 'serious attention to social difference and its implications has been remarkably absent from the recent wave of "community" concern in environmental policy debates.' Yet empirical evidence finds substantial social differences (in wealth, gender, age, religious affiliation, education, health status and so on) within geographically defined communities, with asymmetries of human and social capital, interest and power (Martin, 1995). Communities should not therefore be considered *prima faci* as solidary entities but as collections of individuals and groups with different socio-economic characteristics that coalesce in particular combinations under certain circumstances. Thus "*recognising and working with the multiplicity of actors and interests is crucial for those advocating community-based programmes*" (Agrawal & Gibson, 1999). The need, therefore, to understand the heterogeneity of communities, and the reasons for the involvement or non-involvement of actors in interventions cannot be stressed too strongly if sustainable natural resource and CB-CPR management institutions are to be built (Williams, 1998).

3.7.7.4 Heterogeneity and individualism in communities

The conventional view of community and resource conservation (Figure 4) represents a transposition of the 'myth of community' into an idealised institutional framework, ignoring the reality on the ground (Campbell *et al* 2001). It also implicitly rules out communities which are large and heterogeneous from reaching a shared understanding about resource use, and thus achieving desirable resource use and conservation.

Approaches to co-operative action to manage CPRs have historically assumed that participating communities are socially homogenous with their members having

common interests and norms. There is now wide recognition of the falsity of this assumption, and also of the assumption that, while conflict may prevail outside the local community, harmony reigns within it (Agrawal & Gibson, 1999). As Leach *et al*, (1997) note, '*attention to power as a pervasive feature of social relations, and to the way institutions, which might appear to be acting for the collective good, actually serve to shape and reproduce relations of unequal power and authority…*' has also been absent from much of recent development debate.[67] Sharpe (1998) for example, has shown in the context of conservation projects in the tropical rainforests of Cameroon that there are important divisions within communities, there is competition over meanings and values relating to the forest, and that communities encompass different political, social and ethnic conflicts over the future of the forest. These divisions have to be taken into account, while social capital cannot be assumed in the way that community-based projects have historically tended to do.

There is a quite substantial body of literature in a number of fields (including anthropology, historical ecology, and ecological economics) which supports the contention that communities can manage NRs at the local level (e.g. Agrawal and Gibson 1999: 631-632). It is suggested, for example, that 'communities down the millennia have developed elaborate rituals and practices to limit off-take levels, restrict access to critical resources and distribute harvests' (Western and Wright 1994).[68] However, it is wrong to assume that traditional community-based rules are necessarily well-designed solutions to the same problems of over-harvesting (or in the case of fisheries, effort control) that industrialised societies must face. For instance, *Rettig et al* (1989) argue that payment arrangements to utilise the commons, or the threat of physical confrontation, do not equate with a desire to conserve the resource[69]. It is simplistic to infer community objectives from observable practice.

In addition, Agrawal and Gibson (1999) consider the representation of communities as (a) small, territorially contained groups with (b) a homogeneous social structure, and as (c) having common interests and shared norms, is too simplistic since it 'ignores the critical interests and processes within communities and between communities and other social actors,' and in particular power, authority and institutional arrangements. Furthemore, Agrawal and Gibson (*ibid.*) note that there are many small, territorially contained groups who do not protect or manage NR well, while there are examples of highly differentiated communities who do, which suggests no easy correspondence between spatial location and social homogeneity and sustainable resource use.

The focus on competitive/conflictual intra-communal relations has led to Hardinesque doubts about communitarian ideals operating in the management of CPRs. Blench (1998) and Campbell *et al* (2001), for example, are generally pessimistic about the potential for CB-NRM to succeed, because of the assumptions the approach makes about 'community'. The anthropological literature also tends to be pessimistic about the likelihood of community-based interventions succeeding in the Bangladesh context. Maloney (1988) for example suggests that Bengalis are 'pragmatic individualists' and as a consequence of this character trait 'Bangladeshi will probably never be able to organise themselves as the East Asian societies do.'[70] Maloney suggests that 'Bengali pragmatic individualism goes along with the unreliability of any complex or stable social

[67] For earlier statements of this position in development studies see (Kabeer 1989, Young 1990, Welbourn 1991, Cornwall *et al.* 1993, Frazer and Lacey 1993, Nelson and Wright 1995).
[68] See also for example Berkes, F. (1989), and Berkes and Folke, Bromley (1992), McCay and Acheson (1989), Wade (1987).
[69] See Klee (1980) for a discussion of "intentional" versus "inadvertent" practice in traditional NRM.
[70] See also Bertocci (1996).

entity within the society' as is evidenced by the poor performance of most cooperative societies in the country. Yet Maloney also notes that while opportunistic individualism makes group formation an unsuitable method for rural development, the experience of some cooperatives suggests that 'Bangladeshi are indeed able to work in groups for mutual help.' The cooperatives that he considers are, however, primarily saving and loans groups which have sprung up all over the country (Maloney and Sharfuddin Ahmed 1986). Factors in their success he suggests are that their membership is small (less than 40 members per group), they are homogeneous in class and have a common interest. 'Most groups are made up of neighbours who already know and trust each other. A main idea is that group pressure induces borrowers to repay loans…'

The factors that Maloney believes contribute to the success of some cooperatives are those which Ostrom (1990) has drawn attention to with regard to CPRs, and with the implication (though Maloney does not offer evidence) that the poor performance of other cooperative efforts in Bangladesh is due to the absence of these factors. FAO's experience since the mid-1970s with promoting small farmer self-help group approaches similarly suggests that, in contradistinction to formal large group approaches (such as state-led cooperatives) which have not succeeded in raising the living conditions and food security of the poor, small informal group approaches are the way forward (Text Box 2).[71] Experience has also shown that these approaches can lead to major cost savings for governments and NGOs, and FAO has suggested that, in an era of dwindling government and donor budgets, there is an argument for applying similar techniques to organise farmers at higher levels.

Text Box 2. FAO's experience with Small Farmer Group Associations

Small Farmer Group Associations (SFGAs), each serving between 25 – 150 individuals, should in theory further increase the economies of scale and negotiating and marketing power of the rural poor. To review experience on the topic, FAO organised a global email conference in September-October 1998 which indicated that forming sustainable SFGAs was likely to be more difficult than first thought.[72] Not only were there likely to be resource and managerial constraints and external threats from traditional institutions and powerful elites, but the larger groups became the more remote and less sensitive to members needs and interests they were likely to be. [73]

While there is as yet very little knowledge on how to effectively build sustainable small farmer group cooperation structures, the experience of FAO's email conferencees indicated that the issues are the same whatever the size of the group. The first is the need for incentives for being a member of the group/ association – perceived and real benefits (both economic and social) - have to outweigh the perceived and real costs. The second is the need for group solidarity in order to get through the economic downturns and threat from traditional institutions and elites that the group will inevitably face. The third is the need for external support to develop groups' economic, managerial and technical skills.

Conferencees suggested that the larger the group, the less solidarity there is likely to be as the social homogeneity of the group and its members' collective interests become attenuated, and the less likely individuals will be to act collectively[74].

[71] FAO defines a small farmer group as an informal, voluntary self-help group composed of 5-15 small farmers from the same village or community intent on undertaking mutually beneficial activities related to their economic and social well-being. (http://www.fao.org/sd/ppdirect/ppfo0002.htm).
[72] See http://www.fao.org/sd/ppdirect/ppfo0002.htm
[73] On issues of scaling up small learning projects see Farrington (1997). *Agricultural Systems* Vol.55 (2), pp.217-237.
[74] Several authors have identified the reduced potential for collective action with increasing group size (see for example Hardin, 1982; Sandler, 1992; Baland and Platteau, 1996).

Such tentative conclusions, and previous experience with the poor performance of cooperatives, clearly has implications for CB-NRM – particularly in Bangladesh where 'pragmatic individualism' and 'an ability to mobilise other persons in the achievement of one's ends, as well as to establish social ties to the powerful who can be influential in reaching one's goals is regarded as pragmatically essential to the realisation of *tadbir* (individual accomplishment) (Bertocci 1996). However, the impact of heterogeneity on the likelihood that 'community actors' will initiate and sustain collective action to manage common resource is **highly contested** (Varughese and Ostrom, 2001).[75]

Just as the concept of community founders on a number of counts, so heterogeneity can be stratified along axes of ethnicity, culture, social class (in India, caste), interest (vis-à-vis the CPR), and asymmetries in wealth, power and natural resource endowment. Varughese and Ostrom (*ibid.*) state that the presumption that groups from diverse socio-cultural backgrounds find it difficult to attain self-organised governance of CPRs due to presumed problems of distrust and lack of mutual understanding does not necessarily hold true (emphasis added). Two factors emerge in relation to the current project in Bangladesh:

i) are floodplain groups socio-culturally diverse? In the South Asian context Bangladesh is remarkably uniform, with 'being Bengali' and conforming to concepts of normative Bengali culture being socio-cultural objectives (Herbon 1994). Thus floodplain villages may be said to partially conform to the definition of community as 'shared interest and norms' (Agrawal and Gibson, 1999), and thus communal norms (relating to resource conservation) and shared identities and experiences may promote co-operative decision making. However, there is evidence that under increasing pressure for natural resources and associated increases in landlessness, that some aspects of Muslim-Bengali culture are breaking down. This is most notable in the increased participation of muslim farmers in the floodplain fishery – an occupation traditionally reserved for Hindu fisher castes (Pokrant and Rashid, 1997). Floodplain villages will usually encompass a number of groups that, while considering themselves Bengali, view themselves as distinct from other groups, e.g. Hindu fishers, wealthy landowners or patrilineal groups (*gusti*). These groups often occupy different areas (*paras*) of the village (Rozario (n.d.). There is thus some degree of socio-cultural heterogeneity in floodplain villages, and Varughese and Ostrom (*ibid*) found in Nepal that socio-cultural heterogeneity (an index of membership of different castes and ethnic groups in a village) had a negligible positive relationship with the occurrence of social forestry.

ii) the assumption that multiple groups will hold divergent views on resource use and that they lack mutual understanding probably holds even in Bangladesh, however this situation does not need to be persistent. One of the objectives of

[75] However, Baland and Platteau (1999) have attempted to model the processes whereby inequality can influence the likelihood of collective action evolving to prevent overexploitation of NRs. The starting assumptions in their analysis are that; 1) some users have better access and rights than others (reflecting endowments of financial, physical, natural, human and social capital); 2) costs of controlling utilisation are incurred now but benefits are realised in the future; and that 3) wealth influences how the individual perceives these time horizons ("..the level of wealth of poorer users may be so low that their participation in collective action violates their survival constraint."). Baland and Platteau adopt non-cooperative game theory and present several potential outcomes according to starting conditions. In a voluntary context, although wealthier individuals are likely to contribute most, the affect of inequality is unclear and strongly relates to the technology involved (the number of co-operating individuals needed to make the intervention meaningful). In a regulated context, however, the opportunity for collective action is reduced by inequality as individuals are less likely to contribute resources.

this project's consensus building methodology is to build mutual understanding (Figure 5).

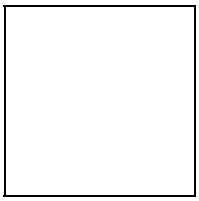


Figure 5. Consensus building modification of the conventional view of the relationship between community and conservation.

Aside from socio-cultural dimension, highly heterogeneous communities tend to be found on Bangladesh floodplains, particularly in relation to wealth, power and resource endowments. There is a very specific need to understand 'community' as it relates to the fisheries in these circumstances, as these asymmetries of wealth and power may not be associated with differences in interest regarding the CPR, since so many types of household fish. Nonetheless, differences in wealth often relate to different gear types[76], and different *de jure* or *de facto* rights of use in the CPR (Hoggarth and McGregor, 1998). Within the fishery there are groups defined by the use of different gear types, by when they fish, by the fish they aim to capture, by the contribution of fishing to their livelihood, and by their ethnicity. There is a need to explore the heterogeneity of livelihood types, so that diverse stakeholders (fishers and others) and interest groups can be identified and their respective levels of interest and influence in the management of the resources assessed.

The recognition in Bangladesh floodplain communities of heterogeneity with asymmetries of wealth and power leads to the conclusion that social justice objectives are unlikely to be addressed through simplistic approaches to CBM of natural resources. The evidence from the floodplain fishery is that it is primarily local elites who have the resources to obtain and enforce property rights to leased waterbodies, and further that they will capture other resources if their value is increased (Toufique, 1997).

Blair (1996) discusses 'user-managed CPRs' rather than community managed CPRs, and correctly sees 'users' as of smaller constituency than groups defined by geography or population. Nonetheless, he believes that user groups are more homogenous than communities defined by *Union Parisad* type administrative boundaries, making them '*more easily manageable in terms of consensus building and norm enforcement*'. This represents a naïve view of CPR users, especially in relation to floodplain aquatic commons. This focus on homogeneity is seen elsewhere; Baker (1998)'s work on social forestry in upland Bihar states that '*social homogeneity is a requisite for collective action for community forestry management*'. Such homogeneity may exist in groups using simpler types of resource than the floodplain aquatic open water commons. Homogenous user groups *can* be identified for the floodplain fishery, for example full-time professional fishers, but this is only a very small proportion of those who actually exploit the resource (FAP17, 1994; Barr *et al*, 2000; Craig *et al*,

[76] Heady *et al* (1995) found that the gears that are most expensive to purchase and operate earn much greater returns than the gears that the majority of households use. The return to labour of the wealthiest quartile is twice that of the lowest quartile.

forthcoming), and ignores other fishers and other users of the water resource of the open water fishery.

3.7.7.5 Local elites, leadership and power

People generally consider that they have limited ability to influence many of the externalities in their lives due to differences in power between parties and the costs involved. In livelihood terms this partly concerns the manner in which vulnerability factors affect livelihoods, and for the poor in particular, their inability to develop resilient strategies. However, in considering social mechanisms, such as consensus building for NR management, to improve livelihoods, policies, institutions and processes are of greater concern. For the poor, who tend to have low levels of political capital, these externalities are particularly difficult to influence.

The *realpolitik* of Bengali village life is illustrated by Rozario (n.d.) and Toufique (1997). Leadership within the village studied by Rozario (n.d.) related to the power and influence obtained from wealth, a large and reputable patrilineage (*gushti*) and the capacity for personal violence. Under increased demographic pressure on CPRs, there are increasing attempts to capture the resources and break up traditionally held property rights. In these circumstances, "*the social power of agents becomes crucial in determining their abilities to maintain property rights over resource systems on which their livelihood is crucially dependent. Such conditions open up the possibility of these rights being passed over to more powerful users of the resource or to those agents who are socially powerful but not the direct users of the resource.*" (Toufique, 1997).

The term *realpolitik* is used advisedly, since, as shown by Baumann (2000), stocks of endogenous political capital[77] are a critical livelihood asset that individuals draw upon to build their livelihoods. Baumann argues for political capital to be incorporated as an additional asset in the Sustainable Livelihoods framework, so that it is easier to quantify and interrelate to the other asset types in a way that is not possible if power relations are consigned to the 'policies, institutions and processes' compartment of the framework. By incorporating political capital as an asset, power relations between different individuals and groups in given communities can be deconstructed. Such an analysis is necessary if it is accepted that community level livelihood improvements may not equate to livelihood improvements for the poorer sectors of that community (Scoones, 1998). It is particularly important in regard to community management of CPRs, which is "*unavoidably a political concept*" (Hoggart and McGregor, 1998).

That the social system in Bangladesh floodplain villages is vertically polarised, with an hierarchy of wealth, power and influence, is indisputable. The extent to which such a system militates against collective action is, however, unclear. Varughese and Ostrom's (2001) analysis of 18 Nepalese communities practising social forestry found that wealth disparity had a modest negative correlation with collective action. Looking at a range of measures of heterogeneity, they concluded that "*heterogeneity is certainly not a strong predictor of successful collective action*".

One view is that local elites can and do prevent any local level initiative that they cannot capture or from which they are not at least significant, if not the primary, beneficiaries (Cernea, 1989). Local elites are likely to support change in use rules for CPRs where they will benefit from the change (Varughese and Ostrom, 2001). Where some resource users have greater levels of private assets they may expect to capture excessive benefits from the CPR (Toufique, 1997). The process of decentralisation of

[77] Defined as "politics and power relations" (Baumann, 2000).

government to the local level (*thana* or *Union parisad*) may be seen as legitimising this process (Blair, 1996).

Local elites are political actors, at the interface between the modern state and traditional society (Mitra, 1991), thus the contrary view is that these local elites, particularly where they are charged with a role in local government, can and do commit there superior personal resources into creating and maintaining successful local management institutions (Blair, 1996). In heterogeneous groups some powerful or wealthier members may expect to obtain a disproportionate benefit from the CPR, (perhaps from the CPR but perhaps in non-material ways – such as elevating their status) and may thus be willing to bear a disproportionate share of 'start-up' costs (Olson, 1965) or play key roles in initiating and maintaining the necessary local organisation.

Work amongst heterogeneous Fulani agropastoral communities in Mali found that co-operation between actors could be improved where there was an heterogeneous social structure, as long as this heterogeneity did not equate to strong differences in economic interests and political power. Differences in wealth did not prevent there being common interests between diverse stakeholders or the formation of agreements for collective action. In these circumstances, the 'political elite' could provide leadership and authority for enforcement of CPR use rules (Vedeld, 1997). However, where there was a strong divergence in economic interests in the use of the CPR (agriculture versus pastoralism), co-operative agreement was not achieved, and conflict occurred. In the Bangladesh context, this might be seen to be problematic since the floodplain can be characterised as an agriculture versus fishing situation. However this is a simplistic interpretation, since only 5% or less of households exist at each of the 'farming only' and 'fishing only' poles of production types, while most exist somewhere along the spectrum of intermediate types of farming and fishing or agricultural labouring and fishing (Barr *et al*, 2000).). Thus most households do have some interests in common, even though their overall livelihood portfolios may be heterogeneous.

The *realpolitik* of Bengali rural society is such that a communistic Marxist-Leninist egalitarian approach to managing common resources is unrealistic. It might be possible to address a poverty agenda through community-based approaches to CPRM, though this unlikely to be an effective route for redistribution of wealth. Local elites can and do have a key role in CB-CPRM. Thus to ensure effective and pro-poor CB-CPRM occurs, a win-win approach must be taken, wherein both the poor are benefited and those who might prevent such an initiative are not disadvantaged.

It is suggested that a modest level of heterogeneity can thus enhance the chance of local co-operation as slightly wealthier or better resource-endowed households have a differentiated incentive to take on a role in resource management institutions and a greater proportion of the costs. Although the incentive to participate may be unequal, Keohane and Ostrom (1990) consider this variation to provide an important catalyst for the exchange of ideas, skills and knowledge in productive groups (see FTR Volume 6.1). Poorer households, especially those dependent on day-labouring, are less able to bear the transaction costs involved with being a functionary in such an institution, and would look to defray this cost to representatives, while retaining their right to be represented. It is therefore important that CB-NRM organisations are established democratically, representing the interests of all stakeholders, and consulting them regularly. Collective action for management of CPRs already does occur where there is

substantial heterogeneity in the community[78], in such circumstances users have designed use rules that specifically take into account this heterogeneity (Varughese and Ostrom, 2001): "*successful groups overcome stressful heterogeneities by crafting innovative institutional arrangements well-matched to their local circumstances*", where the state gets out of the way and allows them to do so. The function of this project has been to evolve a method that helps to craft such institutions.

3.7.7.6 Local resource management organisations and institutions

The existence (or pre-existence) of local organisations appears to be an important factor in the success of CB-NRM and CB-CPRM. These do not necessarily need to be CPR management organisations. Chambers *et al* (1989) identify the existence of a local/village organisation, that is not dominated by local elites[79], as assisting community organisation and thus improving the chance of successful collective action. Analysis of success of social forestry in Bihar demonstrates that presence of a pre-existing local organisation, such as a farmer' group or youth group, was the most important determinant in the success of social forestry. It ranked above social homogeneity as a factor in successful management of community forests. Villages which can successfully achieve successful management of community forests were found to have both pre-existing village institutions and slightly unequal wealth distribution (Baker, 1998).

Though local organisations do exist in Bangladesh, for example irrigation societies, the existence of such pre-existing organisations which also have exclusive *de jure* or *de facto* rights over CPR management, is rare. Many waterbodies are fished by fisher co-operatives (*samity*), which may be *bona fide* co-operatives, or fronts set-up in order for non-fishers to win the lease of *jalmahals*. The question then is whether local organisations should be established in order assist project-based CB-NRM/ CB-CPRM initiatives.

Mosse (1996) cites the general failure of *mandal* development societies set up by NGOs in India in the 1980s as a caution to establishing project-oriented local organisations to deliver development resources. However if the crafting of local institutions to manage common resources is the *purpose* of the project, not a means to an end, some of these weaknesses can be addressed, and more sustainable institutions built. While existing institutions and structures can be strengthened, new ones can be created through collective action projects (Cernea, 1989). The experience of the KRIBP project undertaking collective action for improved farming systems in western India was that whole village 'Village Institutions' were ineffective and suffered from similar problems to the *Gram Panchayat* tier of local government, such as domination by local elites (Mosse, 1996). The project therefore evolved smaller, more focused, organisations at the level of the hamlet. Nonetheless, it was recognised by the project that the development of CPRs and integrated planning of village resources requires organisations of wider constituency, such as water management committees.

The evidence is that many contemporary CN-NRM initiatives in Bangladesh are taking a similar approach, for example Resource Management Committees, Beel Management Committees, Haor Management Committees, Wetland Management Committees through projects including MACH (USAID), SEMP (UNDP), CBWM (Ford Foundation), CBFM/CBFM-2 (Ford Foundation / DFID). The crafting of these organisations has occurred with third-party facilitation, in most cases by an NGO with a

[78] An example of co-operation between heterogeneous stakeholders, including elites, is the excavation of a *khal* at Elasin Beel (CNRS, 1996).
[79] See the section on local elites for more recent understanding of the role of elites and their ability to bear higher transaction costs.

long-term commitment to the area. The NGOs are also assisting these local organisations in obtaining registration and thus legal recognition.

Deriving from the establishment of these organisations is the need to formulate management institutions[80]. Institutions constrain some activities and facilitate others, without them, social interaction would be impossible. Institutions are particularly important where the actors involved are unequally powerful or do not share the same goals for resource conservation because not only do they structure interactions between actors, once the institutions are formed, institutions are independent of the forces that constituted them (Agrawal & Gibson, 1999).

The key issue then is to devise social processes and resultant institutions that enable heterogenous stakeholders to interact in a peer-like exchange of views, with outcomes that promote social justice and sustainable management. Such processes and institutions should avoid capture by local elites. As such, such processes and crafting of institutions are likely to need the brokerage of a third party or honest broker.

In addressing the sustainability of groups or organisations promoted by projects, Mosse (1996) recognises that some will endure, such as those focused on management of critical resources like forests and water, while others will disappear as there rationale for existing does. His concern is, however, less with the continued existence of such structures, than whether group members have the ability to organise such groups when need arises. He suggests, in brief, that there is a needs to develop organisational skills at community level.

From a theoretical perspective, however, it is not well understood what constitute the essential preconditions for the development of successful and sustainable organisations and institutions. The approach of New Institutional Economics (NIE) has been to concentrate on the economic efficiency of the institution (North, 1990). It is argued that processes or organisations are only properly transformed when transaction costs are minimised and their functioning becomes more efficient. This purely economic perspective, though, overlooks the power relations and political capital that operate within institutions and that also work to maintain stability or the *status quo* i.e. the vested interests that operate to prevent change. NIE does, however, acknowledge that institutions are difficult to modify or establish because transaction costs are so often hidden and difficult to quantify.

From an ecological perspective, Ostrom (1990) has proposed seven fundamental design principles that seem to be illustrated by long-enduring CPR institutions; 1) clearly defined boundaries, 2) site-specific rules of appropriation, 3) active participation, 4) self-monitoring, 5) graduated sanctions, 6) efficient conflict resolution, 7) a degree of autonomy and, within larger systems, 8) nested organisation.

The principle of nested organisation is particularly relevant in the context of co-management institutions because efficient and supportive management nodes may be

[80] As stated earlier, organisations and institutions are not synonymous; organisations are structures that enable groups of people to take decisions and actions, institutions are "*sets of formal and informal rules and norms that shape interactions of humans with others and nature*" (Agrawal & Gibson, 1999), i.e. normative relations that may emerge from the operation of organisations. Thus institutions are the 'rules of the game' while organisations are groups of actors. Groups are bound together by institutions (ie. relations which determine conduct - rights and responsibilities) and relate to other groups via other institutions (Leach *et al*, 1997).

required to fill the political space between the state and the community at the "meso-level"[81].

3.7.7.7 Social capital in CBM approaches

Classical theoretical approaches to managing CPRs – as in Hardin's 'tragedy of the commons' – are underpinned by the Prisoner's Dilemma (PD) game (Dawes, 1973). However this is a non-cooperation game in which there is no communication between players. PD games are not successful at predicting outcomes where resource users can communicate to create and sustain agreements to avoid over-exploitation of the CPR (Varughese and Ostrom, 2001) and can learn from their previous experience[82]. Clearly successful CB-CPRM requires interaction between actors to build trust that will lead to reciprocity and co-operation (Pretty and Ward, 2001).

Simulation experiments and review of the empirical evidence demonstrates that institutions for managing CPRs which employ face-to-face communication achieve better collective action, particularly where the actors in the CPR exploitation are heterogeneous. This situation is improved where there are effective mechanisms for sanctioning nonconforming behaviour in use of the CPR and rewarding compliance through benefit sharing. It is the face-to-face communication which is considered important in developing and sustaining sufficient social capital for enduring commitments to CPR management institutions by heterogeneous actors (Hackett *et al*, 1994).

Cernea (1989) states that "*collective actions have the highest chance to occur and be effective when people belong to organized groups, when they are informed and consciously perceive that it is their best interests to act purposively in a co-ordinated manner, and when the group has developed leadership structures and internal norms and procedures capable to organise and manage its members and to overcome conflicts and deviant behaviour*" and goes on to state that "*In order to act as a group, they need to be a social group, not a simple set of unlinked individuals. Intra-group connections are forms of mutual conditioning, mutual helps and mutual control.*"

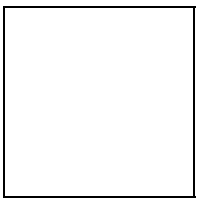
As seen above where groups do not pre-exist, it is possible to craft them. However they have a much higher chance of success if they are a social group, bound together by some measure of mutuality (as opposed to being just members from the same 'community'), while such mutuality appears to be most effective when it goes beyond pure economic interest to greater social solidarity (as for example in Bangladeshi *ghosti* and *samaj*) (see Maloney 1988). The chances of success for collective action can thus be improved by building social capital amongst group members while Cernea (*ibid*.) for one considers that NRM projects that fail to recognise social dimensions are destined for failure. Recent research by Pretty and Ward (2001) elaborates a framework of three stages, differentiated according to 15 criteria in five themes (worldview of members, internal norms and trust, external linkages and networks,

[81] In the Philippines, for instance, top-down social planning has been successfully combined with local action and community feedback within the Fishery Sector Program (Hancock, 1993). The system is nested in that NGOs and Provincial Fisheries Management Units form a bridge between the Department of Agriculture and the activities at barangay level and the whole structure of the programme resembles a pyramid.

[82] In the theoretical game the reward structure is such that the rational choice for each player is non-co-operation, even though the players realise co-operation may provide a greater total pay-off. In real contexts the dilemma is choosing whether to accept immediate gains or to gamble and expend time trying to increase total benefits through dialogue (Lax and Sebenius 1986). However, the social trap of this dilemma depends on the game being played only once. Axelrod (1984) has demonstrated how players can learn co-operative behaviour through repetition and that a combination of "nice" and "nasty" responses will eventually evolve into a co-operative strategy (see Lewins et al Lit Review. FTR Reports Vol 6.1).

technologies and improvements, group lifespan), through which groups undertaking collective action pass[83]. These they have termed reactive-dependence, relaization-dependence, and awareness-dependence. As groups progress through the three stages their mutual learning and levels of social capital increase, and the likelihood of successful collective action and improved NRM increase.

The corollary of this is the benefit of social capital in the resolution of conflicts over resource management. Owen *et al* (2000) have shown how improving communication and inter-group relationships can result in socially optimal solutions to conflicts over farming practices. Where there are strong inter-group links, then the cost of resolving conflict is reduced (Figure 6) as less formalised, rule-driven approaches can be adopted, approaches such as 'interactive resolution approaches', which are informal, low-cost, low-risk unofficial processes.



after Owen et al (2000)

Figure 6. Social capital and cost of conflict resolution.

Lastly, and despite what he has said about 'pragmatic individualism, Maloney (1988) for example, notes that 'individualistic Bengali behaviour will probably turn out to be an increasingly important positive trait for economic development'. Thus, while Bangladeshis frequently cite lack of trust of one another as a reason for lack of development, '*traditional economic relations operated almost entirely on trust…and almost entirely by verbal agreement*' (e.g. sharecropping, land leasing, the long distance rice, handloom cloth, and many other commodity trades). Again, while the agents (*dalal)* who manage the long distance trade networks may get some profit on the side, this is probably discounted by business owners, while at the local level there are a range of sanctions to underpin what are personal relationships. Maloney makes the point that the performance of registered cooperatives functioning according to bureaucratic rules compares poorly with that of spontaneous savings and loan groups which function entirely on trust - 'here trust works better than rules.

It may therefore be seen that there are two contrasting schools of thought about CB-NRM, the scepto-realists (Blench, 1998; Turner, 1999; Campbell *et al*, 2001) and the theorists and optimists (Ostrom, 1990, 1999; Pretty and Ward, 2001). Recent scepticism comes from from dryland African experiences and the discourse on the nature of community. However it would be wrong to classify all the optimists as coming from theoretical positions, much of this work is pragmatic in its orientation (eg. Campbell *et al*, 2001). The basis for the more optimistic view is supported by the breadth of experience in CB fisheries and wetland management ((Pomeroy, 1994; Claridge, 1997; Gujja and Pimbert, 1996) and the burgeoning discourse on social capital as a key factor in co-management of natural resources through collective action, particularly as demonstrated in irrigation and watershed management initiatives in South Asia (Krishna and Uphoff, 1999; Dasgupta and Serageldin, 2000; Uphoff and Wijayaratna, 2000; Pretty and Ward, 2001).

[83] This research was only published late in the life of R7562, and it has not been possible to examine our consensus-building process in the light of the Pretty and Ward framework. This would be a useful future exercise.

The work by Norman Uphoff and his collaborators in both India (watershed conservation, Rajasthan) and Sri Lanka (the Gal Oya irrigation scheme) has tried to demonstrate that by building a measurable increase in an asset – social capital, resultant increases in streams of benefit are derived. The benefit most commonly derived from building social capital is mutually beneficial collective action (MBCA) (Uphoff and Wijayaratna, 2000). Thus, while the benefits of increasing the stock of most forms of capital accrue to the individual or household, increasing the stock of social capital delivers benefits at an higher level of social aggregation – 'community' or 'society'. [84]

The Gal Oya experience used a system of external catalysts, working with farmer representatives who were organised into area councils and canal committees. It also drew on, and re-invigorated, traditional Hindu and Buddhist practices of gifting labour to community projects. The technical improvement in the management of irrigation water, and consequent more efficient use of water, was due to better operations and maintenance (canal de-silting, rotational allocation, and upstream surpluses donated to downstream users). However these technical achievements were only possible through social change – establishing a "*'new moral climate'… in which farmers were more willing to make efforts for the common good*". The project thus led to a normative reorientation of social behaviour in which co-operation and generous conduct were values as they led to positive sum outcomes. Uphoff and Wijayaratna (*ibid*) have characterised this as pareto-optimal behaviour wherein "total welfare is considered to be increased unambiguously if some or many persons can gain while nobody is made worse off than before". This is attributed partially to Asian cultures, which naturally adopt positions that can support dual outcomes: "both / and" scenarios, whilst Western cultures tend to take more singular positions: "either / or" scenarios (Uphoff, 1996).

Current debate on social capital identifies two types of micro-level social capital (Krishna & Uphoff, 1999):

- *Structural* social capital. This includes the composition and practices of formal and informal local institutions that serve as instruments of community development.

- *Cognitive* social capital. This refers to values, beliefs, attitudes, and social norms. 'Values' includes co-operation and "the trust, solidarity and reciprocity that are shared amongst members of a community and that can create conditions under which communities can work together for a common good".

Thus structural social capital is the 'hardware' that facilitates people/communities to take collective actions through established roles and social networks, supplemented by rules, procedures and precidents. While cognitive social capital is the 'software' that predisposes people/communities towards collective action on the basis of shared norms, values, attitudes and beliefs. "Cognitive SC is essentially subjective, being a matter of how people feel and think" (Krishna and Uphoff, 1999)

Uphoff and Wijayaratna (*ibid*) demonstrate that better irrigation management was achieved through promoting farming-participation in the management of the Gal Oya

[84] Uphoff's experience was with dealing with a nested system of small groups with a specific interest ' (water for irrigation), which is allowed for under Ostrom's principles (Ostrom 1990) and there must be questions as to whether the same outcome can be achieved with larger, heterogeneous, groups with a diversity of interests.

scheme. Structures, such as canal committees, were established to facilitate this participation. However what emerges most clearly from this work is the extent to which cognitive social capital needs to be built to complement these structural forms of social capital (Anderson 1983; Putnam 1993). The corollary of this being that cognitive social capital can only be capitalised on where suitable forms of structural social capital exists.

Blair (1996) justifies user-management of CPRs on, *inter alia*, the basis that in smaller and more cohesive groups, it is more likely that the benefits from the 'cultural norms of a moral economy' can be realised through collective action since the social costs of non-compliance are frequently higher than the economic costs . This may be considered as a stream of benefit from social capital. However, it is likely that for the full benefits of social capital to be realised above the small homogeneous group level, there will, as previously discussed, be a need for leadership.

3.7.8 Taking collective NRM action in a socially heterogeneous environment

The above sections indicate some of the difficulties that the development of participatory NRM structures must face – particularly in the Bangladesh context.

Firstly bio-physical environments are complex and natural systems (e.g. catchments, or water bodies such as *beels*) tend to cross-cut administrative boundaries. This raises issues concerning the administrative levels for management.

Secondly socio-economic environments are complex; there are many different stakeholder groups with different and seasonally-shifting livelihood needs.

Thirdly in many developing countries there is little tradition of accountable government organisations. In Bangladesh, their mandate is poorly understood by the rural population and civil institutions are not particularly strong. Here the political process has not historically been based on occupational or class interest, but rather on patron-client ties where those with power and wealth seek representation on locally elected bodies, and act as 'gatekeepers' in accessing natural resources.

Given these factors, and the competition over scarce resources, trust is not a strong behavioural characteristic for many Bangladeshi, while popular challenges to traditional rent-seeking strategies of the wealthy may be met by violence.[85] The above debates on community, social heterogeneity, political capital and local elites, show that there are a range of experiences and perspectives on whether collective action to manage natural resources, especially CPRs, is feasible. As indicated above, this issue is particularly pertinent to Bangladesh floodplains due to the complexity of both the social and bio-physical environments and thence NRM at their interface. In this regard, the following questions can be asked:

1. *Does social heterogeneity and a diversity of interests among stakeholders mean that collective action by them is not possible?*

Orthodox institutional approaches suggest that collective NRM is only likely to be successful where the group exploiting the resource is small in number, homogeneous in its social composition and has a clear system of rules governing resource use. While this may be the theoretically ideal condition for success, it ignores the empirical reality

[85] See Maloney (1991), Bertocci (1996), Rozario .

that such conditions are unlikely to be met very frequently. Where it is found, (e.g. irrigation systems), the 'monofunctional resource' reason for group formation (e.g. irrigation management) is *ipso facto* likely to prove of little interest to those whose livelihoods do not contain an irrigation interest, and they are unlikely to be group members.[86] However, focusing on such well-bounded groups, does not deal with the fact that the group's management strategy may cause negative externalities for non-group stakeholders. As such it is a typically sectoral approach to NRM – even when it is scaled up. For example the FAO wishes to scale up its Small Farmer Group approach to a Small Farmer Group Associations strategy, but does not consider how these will interact with other resource users. Yet potential negative externalities demand that they do so. To apply this reasoning at a greater scale (e.g. a *beel* or whole catchment management) inevitably means there will be a need for management of multifunctional resources of interest to <u>different</u> groups.[87] That social heterogeneity and diversity of interest negate the possibility for collective action at the local level remains unproven, but there are strong suggestions in the literature that – while it may be challenging - large heterogeneous communities can develop institutions for dealing with NRM issues given 'platforms for learning', the participation of stakeholder representatives, and appropriate state support.

2. *Does this mean that collective action by them is <u>likely</u> to fail?*

Not necessarily. If different stakeholder groups' livelihoods are affected by externalities originating in other groups' use of natural resources, they may well welcome the opportunity for an input into management of the resources (i.e. at a 'policy' level) in order to reduce these externalities and also increase their livelihood opportunities.(The evidence of PAPD workshops are encouraging in this regard.).

3. *Does this mean that all stakeholders have to act collectively?*

No. While small farmer groups may act collectively, at a greater scale (communities around a *beel*) the costs of active participation will differ for individuals with different socio-economic characteristics. This has implications for the extent of participation that should be expected from different stakeholders (Varughese and Ostrom 2001). For example, full-time fishers may bear the major costs of fisheries management more than part-time fishers, while all may trade-off some benefit from the fisheries to elites in return for the latter's administrative inputs. Importantly, this may well be accepted as reason for a differential distribution of benefits. That is, individuals may be more concerned about improving access to opportunity than ensuring equality of outcome.

Additionally (and as argued previously) individuals are not the simplistic private-interest automatons characterised by public choice theory, but are actors who may or may not behave selfishly or selflessly in different contexts and whose behaviour is subject to influence by others. The rural elite and 'middlemen' (such as *mahajans*) are frequently held up as the *bete noire* of the Bangladeshi peasant, patron-clientage, the principle of 'pragmatic individualism', means but these actors are critical in the

[86] Much of the original work on the analysis of management regimes for common property resources focused on resources that were subject to one single extractive resource use (Bromley *et al* 1992; McCay and Acheson 1990; Ostrom 1990; Singh 1994)(see Steins and Edwards 1998)

[87] As Steins and Edwards (1998) note 'platforms' for resource use negotiation exist in relatively simple, monofunctional commons where resource users realise they can only overcome problems associated with open access through co-operation. Similarly, *'negotiating bodies comprising different stakeholders who perceive the same resource management problem, realise their interdependence in solving it, and come together to agree on action strategies for solving the pro*blem'(Roling 1994) are likely to emerge where there are multifunctional resource issues, and where the costs of mobilising can be overcome.

livelihoods of the poor[88]. As (1988) notes, while many elite misappropriate resources intended for the poor, 'probably on the whole the rural elite contribute as much to society as they take from it', while development projects fail for many reasons and not just because of the rural elite. Similarly Foell *et al* (1999) suggest that while inefficient management of coastal zone NRM in Sri Lanka is often due to political patrons undermining formal interventions to protect their own short-term economic interests, nevertheless patrons are not necessarily a constraint to development and need to be acknowledged as primary stakeholders who can have a valuable contribution to make to CBFM (Text Box 3).

Text Box 3. Participation of the wealthy in co-operative activities

Hulme and Montgomery (1995) give the example of SANASA (a Thrift and Credit Cooperative Movement in Sri Lanka). SANASA has had a significant degree of success over some 15 years and contradicts the dominant development view that when cooperatives are locally managed they will inevitably be controlled by rural elites who will capture the bulk of the benefits. While wealthier SANASA members do have preferential access to larger loans, the evidence is that the vast majority of members have access to loans, while the decision-making process is open and transparent. Indeed Hulme and Montgomery argue that many of the administrative costs of cooperatives are borne by elite groups. Hulme and Montgomery suggest a number of reasons why SANASA has not been captured as public choice theory suggests it should be (see Lele 1981) – for example collective action having strong historical precedents in Sri Lanka, SANASA's transparent and participative *modus operandi* making it unattractive to vested interests, a focus on benefits offering limited opportunity for selfish action, and strong and visionary leadership. In particular Hulme and Montgomery, following Uphoff (1992), suggest that the coalescence of all these factors strengthened the propensities of individuals to commit themselves to generous group-based action, while offering little to the more rapacious local elements but being attractive to the educated rural elite.

One final point can be made here to the effect that SANASA did not have an exclusive focus on the poor; wealthier people also had access to loans, and as such were perhaps not alienated from and resistant to the cooperative movement.

CBFM, like SANASA, is similarly not targeted on the poor, though from DFID's perspective its intention is to benefit poor people. The majority of rural people have some interest in the fisheries. We should therefore expect most people to support sustainable management as long as they have access to some of the benefits, but for the majority (i.e. non-poor part-time fishers) not to be so concerned as to devote much of their time and resources, nor in consequence to seek equal benefits to those who devote more. Thus the fact that in Bangladesh wealthier fishing households who invest in the most expensive fishing gears are usually able to control access to the fishery so as to gain the greatest benefit, while poorer households with cheaper less effective gears gain less, may not be the fundamental challenge that Hoggarth *et al* (1999) suggest it might be.

In fact the issue of exclusion from a fishery may be the greatest challenge that faces management. It may be possible to exclude some part-time fishers by making the entry costs too high for them to consider it worthwhile, or by limiting the benefit they can gain

[88] This is demonstrated in the livelihood diagrams produced by participants in the PAPD workshops (FTR Volumes 4.1 to 4.4).

from the resource – for example by gear restrictions – and encouraging those who are included to invest in the fishery by granting long leases to their management body. The Second Oxbow Lakes Project (OLP II) in south west Bangladesh takes this approach. However, these waterbodies (*baor*) are small and enclosed and their management – including enforcement – is simpler than in larger waterbodies which are less well bounded (see Hoggarth *et al* 1999b). As Hoggarth *et al* (1999b) note '*Participatory management techniques which require significant investments are therefore mainly employed in enclosed waters.*' In the case of OLP II, though, it is the high rates of production (through biological and technical input) that are achievable at this scale that justify (and necessitate) an exclusive management regime on economic grounds – not because the water bodies and their institutions meet Ostrom's seven design principles.

A second issue, however, is should benefits only be limited to 'poor fishing households'? Total exclusion of 'non-poor fishing households' may increase the benefit to the lease-holders, but at the risk of alienating those who are excluded, - including many rich and poor 'fishers' who may fish 'casually' - and 'influentials' who may cause social difficulties, while increasing the vulnerability of poor 'non-fishers' who are excluded. The economic and social costs of enforcement may be too high, while there is the potential for initiatives to collapse once the presence of the powerful NGO (BRAC) supporting the project is removed.[89] Certainly application of the OLP II model to areas where there are larger less well-bounded waterbodies is likely to be challenging.

4. *What is required then to achieve CB-NRM?*

Institutional theory suggests that where there is a definable group of resource users, and a spatially defined resource on which users are dependent, a clear system of rules governing resource use is likely to evolve (in complexity theory for order to *emerge* from chaos). They also theorise that where these conditions are absent, systems of rules governing resource use are unlikely to emerge. This orthodoxy has since been repeated by many theorists and by development specialists working in the field. We agree that, *all other conditions being equal,* this is probably correct. However, in the real world all other conditions are rarely equal and real-life systems of rules rarely emerge from such *sui generis* situations. Rather they develop in the historical context of previous systems – that is in the context of a host of variables.[90]

We argue that the probability that rules governing resource use will emerge under certain conditions is derived from a narrow focus on formal rule-based systems (such as Game Theory) which operate with a limited number of variables. For example critics of game theory have suggested that one significant variable missing from such analysis is the ability of actors to learn from previous experience (Axelrod 1984) Others, including ourselves, point out that institutional theorists are silent on the role of power in the evolution of rules - Campbell et al (2001) for example noting that systems are built on controls derived from traditions, culture and norms and these controls are constantly contested, changeable and individually interpreted. Evidence on the ground (e.g. the *Zamindar* system in colonial Bengal, see Pokrant *et al* 1997) attest to the role of power/authority in organising management of commons which do not meet Ostrom's conditions.

[89] Concerns about the sustainability of CBNRM projects which are heavily expert led have been voiced by others in different contexts. See for example Twyman (2000).

[90] On historical events leading to fragmented systems of rules governing commons see Moorhead (19xx), Pokrant *et al* (1997), Steins and Edwards (1998).

If we are to avoiding repeating the mistakes of Transfer of Technology and T&V approaches to development (which were also based on naïve rational-choice models) we need to move beyond the theoretical orthodoxies of Institutional Economics to real-life contexts. Institutional Economics suggests, correctly, that costs of management rise with the size and complexity of the commons (see Hoggarth *et al* 1999b:111). However, since their models have limited variables, these costs are allocated to all resource users equally. If other variables (such as power, influence, authority) are included in the model – that is if we accept heterogeneity in the social formation – then we can accept that costs and benefits can be allocated differentially between resource users.[91] After all, as many political theorists have suggested, these are the conditions for the origin of the state, of mercantilism and of class relations! [92]Again we refer to Hulme and Montgomery's (1995) estimation that the comparative success of the SANASA cooperative in Sri Lanka lies in collective action having strong historical precedents, transparent and participative *modus operandi* making it unattractive to vested interests, a focus on benefits offering limited opportunity for selfish action, and strong and visionary leadership. SANASA achieves this in spite of benefits not being allocated equally, and does so because a large proportion of the costs involved in organising are borne by the leadership.[93]

In their review of empirical work on CPR management, Steins and Edwards (1998) identify four key variables that influence the effectiveness of 'platforms' to promote collective solutions to NRM problems – scale, process, representation and heterogeneity (see FTR Reports Vol.6.1. 'Literature Review'). We have suggested that constraints of scale and heterogeneity, which they see as central to the design of any institution, and which are complicated by the pattern of overlapping informal and formal institutional structures, can be overcome. Hulme and Montgomery (1995) suggest that leadership is an important variable here. Johnson (1997) similarly notes that CPR theory understates the costs of moving to new CPR arrangements. CPR theory suggests there is only change when all resource users share an understanding that a failure to do so will affect all equally and negatively. Owing to the 'free-rider' defection syndrome, this type of interdependence is highly elusive. By contrast, Johnson (1997) notes that enduring CPRs '*appear to depend on powerful moral allies who are willing to assume these costs'*. Finally in this regard, Steins and Edwards (1998) stress the role of third party facilitators (e.g. NGOs) not only in helping to establish 'platforms for learning', and absorbing the transaction costs of forming and operating the platform, but also *in helping to crystalise stakeholder groups* (i.e. make them aware that they have particular interests in a common pool resource which may conflict with the interests of other stakeholder groups).[94]

What then is required to achieve CB-NRM?

- CPR contexts where heterogeneous communities (i.e. different resource user groups) are aware that others use of the CPR are negatively affecting them. (A complex problem is recognised)
- the support of a third party which can mediate between groups and bear a significant portion of the transaction costs involved in addressing the problem (e.g. NGOs, altruistic elites, government agencies)

[91] Varughese and Ostrom (2001) raise the 'puzzle' of heterogeneity – particularly heterogeneity in economic status between resource users- which is a challenge to Ostrom's (1990) design principles, but do not satisfactorily resolve it.
[92] If this is accepted, then the argument becomes more about what proportion of benefits and costs should be allocated to whom, rather than an ideological (or theoretical) insistence on equality in all things.
[93] See also for example Grameen Bank in Bangladesh.
[94] In this respect see also Carroll (1992).

- the development by third parties with stakeholders of 'platforms for negotiating resource use' (e.g. the PAPD methodology) and including the building of 'problem' awareness and problem- solving and management skills amongst resource users. The 'platform' needs to be representative of stakeholders, transparent and participative. (This builds *cognitive capital*)
- old or new organisational structures which can implement agreed ways forward in CPR management, can influence local decision-making, and influence organisational and legislative institutional frameworks, need to emerge from these learning platforms. These structures need to be representative of stakeholders, transparent and participative. (This builds *structural capital*)
- a supportive policy and institutional environment which is conducive to creating vertical linkages between levels of political and administrative responsibility needs to be put in place

5. *The role of government*?

With regards the last bullet point Townsley (1998) suggests that enhancing aquatic resource contributions to sustainable livelihoods requires two things:

1. action to ensure aquatic resource sustainability, and
2. action to enhance aquatic resource contributions,

and, as a third leg of a strategy, the need to improve the policy environment - in particular:

> *'To be fully effective, both strands of the intervention identified above require a policy and institutional environment which is conducive to creating horizontal linkages (between sectors, institutions, administrations and communities) and vertical linkages between levels of political and administrative responsibility). Support to good governance and democratisation can enhance this process, but tools are also required to ensure that policy becomes more responsive to issues at the ground level.'*

The current project was not commissioned to deal with matters concerning this critical area for an intervention strategy. As intimated throughout this paper, property regimes do not exist in an institutional and policy vacuum. All livelihoods are sensitive to external threats and opportunities. For the poor opportunity occurs primarily at the local level, but their vulnerability, while partly a function of lack of 'reserves of capital assets', is also affected by long term trends in access/or not to the opportunities that NRs offer (for example access to CPRs), and here the impact of government policy on these trends can be significant. For elites, opportunity is presented by government policy and also by change in that policy. Thus, as we have argued, while devolution of management of aquatic resources to communities is supported as an action to ensure their sustainability, it can also be an opportunity for elites to profit at the expense of the poor unless the process is managed carefully. This suggests the need to look very closely at the organisations which are involved in managing and supporting CB-NRM – and this includes both local community bodies, NGOs and GOs to ensure they do support principles of good governance.

The research aims of the project did not include consideration of these vertical relationships. However there are worries about whether it is possible to transcend sectors in the way the livelihoods approach proposes (see Carney 1998), since both the governments of partner countries and donor organisations tend to be organised

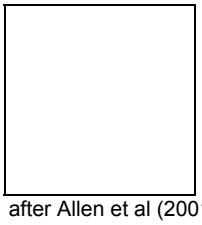
along sectoral lines and budgets are allocated in this way. Nevertheless, institutional gaps and conflicts in policy, due to fragmentation of management responsibilities which militate against integrated approaches, are an issue. There is a danger that pro-poor growth policies will lack the consistency and coherence which the UK government seeks between government departments (see White Paper 1997).

6. *Thus, what are the first steps to collective NRM action?*

Progress towards collective NRM requires three steps. The first step requires primary stakeholders to recognise the interdependencies that exist between livelihoods, and that in certain areas of resource use there are greater benefits than costs to acting collectively to address common problems - this requires a 'learning platform'(see Röling 1994, 1996) which is what the current project's PAPD methodology provides (FTR Volume 3.1). The second step is to identify a way forward, and build consensus for the strategy throughout the community. This step requires an active 'publicity and marketing exercise' and a period during which the views of the wider community need to be sought and listened to. As this proceeds there is the need to adapt an existing community organisation or create a new one which can undertake the main task of implementing the action plan with assistance from a range of external organisations (both NGOs and GOs).[95] The third step, which this project has not dealt with, is to develop a detailed action plan and, after obtaining feed-back from the wider community and external experts on its suitability and feasibility, implement it.

These three steps of an action research process can be represented as a pre-workshop 'scoping' phase, the Problem Census and Planning Workshop phase, and a post-workshop phase. The PAPD methodology builds on the prior site knowledge of facilitating NGOs for the first phase and manages the second phase.

A diagram from Allen et al (2001) indicates the three phases (Figure 7). CNRS and ICLARM have input into the first, the project has studied the middle phase, but work needs to be done on practical aspects of the third phase.



after Allen et al (2001)

Figure 7. A participatory research framework to facilitate the identification and introduction of more sustainable resource management practices

[95] On arguments for against using existing community organisations see Steins and Edwards (1998).

4. Project Purpose

The Purpose of this project is:

"*Methods for community participation in integrated sustainable management of terrestrial and aquatic floodplain resources developed and promoted*".

There is a development consensus amongst GoB (DoF), donors and NGOs that more sustainable and efficient management of natural resources is likely to occur if this management is devolved to the resource users themselves. However whether the benefits of community-based management are also distributed equitably and thus whether the approach can be classed as pro-poor is uncertain because of the social systems that affect use of these resources[96]. Thus, as indicated in Section 3.3.1, there is demand for tools to support improved community-based NRM and CPRM that work with the social-cultural reality of rural Bangladesh, encompassing the full spectrum of resource users on the floodplain. The stakeholder-based consensus building methodology developed, tested and promoted by this project is one such tool. Its promotion to projects such as FFP and promotion and use by CBFM-2 demonstrate how the purpose addresses the development need, and how it will contribute to achievement of the project goal: "*Improved resource-use strategies in floodplain production systems developed and promoted*".

5. Research Activities

The project has undertaken activities in three areas or streams:

- Consensus building methodology field work / action research
- Reviews of other consensus building and CPR management projects
- Process evaluation of consensus building methodologies

A fourth set of activities relates to synthesis of findings from these streams and disseminating them to target organisations. The relationship between these areas of activity is presented in Figure 8. The following sections describe the research activities undertaken in each stream.

[96] In SL terms, the Policies Institutions and Processes that mediate access to assets.

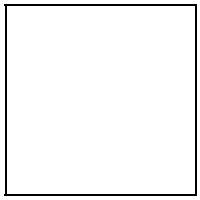


Figure 8. Schematic of project activities

5.1 Consensus building methodology field work / action research

5.1.1 Implementing the PAPD methodology

The core activity undertaken in this stream was the full implementation of the PAPD process. This was replicated in four different sites by three different teams (Table 4).

Table 4. Project field sites and facilitating organisations.

Location	Faciliating Organisation(s)	Dates
Posna *Beel*	CNRS	25/8/00 – 3/8/00
Kathuria *Beel*	ICLARM and Banchte Shekha	10 – 18/10/00
Dikshi *Beel*	ICLARM and Caritas	25/10/00 – 1/11/00
Badda village at Charan *Beel*	CNRS	18 – 27/3/01

Prior to running the workshops, CNRS who had previous experience of using PAPD, were thus charged with running a training course for the other organisations. A draft training and resource pack was produced (Islam & Barr, 2000) for use in this training, and CNRS trained ICLARM and other NGO staff at Posna *Beel* in September 2000.

The PAPD workshop was implemented at the four sites over the period August 2000 to March 2001 (Table 4). Each of the four sites had slightly different bio-physical characteristics, stakeholder constituency and institutional environment, thus at each site the PAPD methodology was slightly different. However the core set of procedures was followed at each. FTR Volume 3.1 describes the basic PAPD process, and FTR Volumes 4.1 to 4.4 describe the detailed implementation at the four sites respectively, together with the findings at those sites.

In outline, the process involves 7 main stages in 3 phases. The Activities are:

1. Situation analysis (*including local knowledge on organisations and institutions*)
2. Reconnaissance social survey and Stakeholder analysis
3. Problem census
4. Cluster problems (is this step needed if the intervention is already agreed?)
5. Planning workshop
6. Development of institutions to implement action plan
7. Implement action plan

The phases are:

- Scoping phase *Activities 1 and 2*
- Participatory planning phase *Activities 3 to 5*
- Implementation phase/management phase *Activities 6 and 7*

These activities in three phases are depicted in Figure 9. It should be noted that Activity 5 includes a number of sub-components.

Activity 1 is a Situation Analysis, which enables the facilitating organisation to find out about the communities in the location, obtain an appreciation of the natural resource systems and sub-systems, and understand the level of interaction between communities and resource systems. This activity entails what would be considered good practice in any scoping or rural appraisal exercise: speaking to a number of local functionaries and key informants and triangulating, together with use of PRA tools such

as participatory resource mapping. The facilitating organisations had previously worked at all four of their respective sites, thus little was required to complete Activity 1.

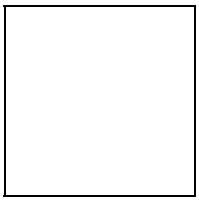


Figure 9. The seven stages and three phases of the PAPD process.

Activity 2 is a Stakeholder Analysis. Stakeholder analysis underpins the PAPD methodology (see Barr *et al* 2000). Initially, discussion with key informants identifies the principle locally relevant stakeholders groups. In rural Bangladesh these tend to relate to the main resource use activities. However, socio-economic status and gender are also taken into account to ensure coverage of the livelihood problems of the most disadvantaged groups on the floodplains. A rapid micro-census, which includes questions on locally relevant indicators of socio-economic status as well as land ownership and principal occupation, is administered to all households and used to categorise them into one of several stakeholder groups (Figure 10). The key assumption is that this process clusters households with broadly similar livelihood strategies.

For example, at Dikshi Beel (FTR Volume 4.3), the stakeholder analysis identified 5 groups, but men and women from landless households were taken as separate stakeholders, giving 6 stakeholder categories: landless male, landless female, small farmer, large farmer, shallow tube-well owner and fishers. At Posna Beel, 6 stakeholder groups were also identified: fishers, landless, sharecroppers, *pagar*[97] owners, women, farmers.

Having identified stakeholder groups, a number of representatives are selected from each group and invited to attend the second phase of the PAPD process – the workshops. 15 – 20 households are invited from each group, and there is an active approach to the recruitment of participants - particularly from marginalized groups - to ensure full representation of all stakeholder groups throughout the process of resource use negotiation (FTR Volume 3.3a). The selected participants were invited two weeks before the workshops and reminded again the day before (FTR Volume 4.2).

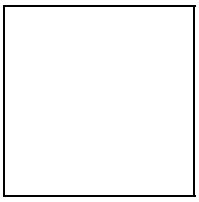


Figure 10. Schematic of PAPD phase 1, with 4 stakeholder example.

Activity 3 is the start of the second phase – the participatory planning phase. It is in this phase in which the consensus is built, through a series of workshops. It is also this phase on which the project has focused. Activity 3 is a Problem Census, which involves

start

97 Sumps in the beel owned by wealthy villagers, where fish aggregate and are trapped and easily caught after the recession of the flood water.

identification of different stakeholder groups' main production and livelihood constraints. A Problem Census is undertaken with each stakeholder group separately to produce a set of prioritised problems for each group (Figure 11), and following a discussion of cause-and-effect a list of possible solutions (interventions) to the problems. An example of the output from Activity 3 is given in Table 5.

Table 5. Five of the ten problems identified by the Landless male group with cause, effect and solutions (Katuria Beel).

Rank	Problem	Cause	Effect	Solution	Affected Group
1	• **Brood fish catching in breeding period**	• Decreased beel water. • Scarcity of fish • Financial problem	• Fish production decreased • Income reduced	• Re-excavate khal and kua in the beel • Provide interest free credit • Arrange training for the local people	• Fisher • Local people
2	• **Communication problem**	• Lack of govt. Initiative	• Petty traders have to pay more carrying cost • General people have to pay higher price of essential product	• Involve road development organisation (LGED, R& HD or any NGO)	• Petty trader • General people
3	• **Incomplete sluice gate**	• Fish affected by saline water intrusion through incomplete sluice gate. Engineering department have not completed it.	• Saline water affects standing crops in the beel	• Form a sluice gate committee • Complete sluice gate adjacent to road	• Farmer • Fisher
4	• **Lack of unity**	• Lack of awareness and education • Influence of self seeking people	• Poor people had been deprived of their legal rights • Fishing by force by outsiders	• Should have mutual understanding among all the people • Form an organization	• Poor people
5	• **Financial problem**	• Scarcity of employment • Scarcity of land	• Lack of education • Scarcity of nutritious food	• It is essential to provide credit and training • Provide job for unemployed.	• Poor people

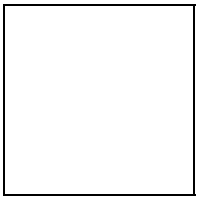


Figure 11. Schematic of parallel Problem Censuses (Activity 3).

In common with most groups, problems associated with unsustainable fishing practices and control of water in the beel are highly ranked natural resources problems. At each site, each stakeholder group has produced a similar table (FTR Volumes 4.1 to 4.4). At any one site, there is no exchange of Problem Census results between stakeholder groups. Thus this activity might be said to be 'business as usual' (Kaner, 1996) since there is no mutual learning between stakeholders; it follows a 'recommendation domain' approach'.

Activity 4 – Clustering Problems – does not involve local participants, only the facilitators. The objective of this activity is to reduce the 60 to 90 or more problems to to a workable number of key problems for further discussion. CNRS clustered the problems into 'problem areas' using expert judgement at Posna and Charan beels (FTR Volumes 4.1 and 4.4), while at Kathuria and Dikshi beels (FTR Volumes 4.2 and 4.3), ICLARM assigned scores to the ten top priority problems from each group, with 100 points assigned to the most important problem, and 10 to the least (for fuller description of this modification see FTR Volume 3.4). These scores were then collated into a summary matrix and the total score for each problem calculated (Table 6). Having checked that the problems of the poor and disadvantaged stakeholder groups

were represented in the problems with the highest overall score, this list was then taken forward as the starting point for Activity 5.

Table 6. Natural or common property resource problems and their ranking by six stakeholder groups.

Sl no	Problems	Landless Men	Landless Women	Fishers	Kua Owners	Small Farmers	Medium and Large Farmers	Total	Rank	Poor	Rich
1	Inefficient operation of sluice gate	80		30	100	100	100	410	1	110	300
2	Catching brood fish during breeding season	100	90	80	90			360	2	270	90
3	Siltation of khal in Kathuria beel	50		70	60	80	70	330	3	120	210
4	Fish disease		50	100	20	50	20	240	4	150	90
5	Decreased fish population (natural)	20		40		60	90	210	5	60	150
6	Lack of unity	70	40		40			150	6	110	40
7	Lack of organised fishers' cooperative			90				90	7	90	0
8	Multiple cropping in low lying areas				80			80	8	0	80
9	Shortage of fishing boat and net			50				50	9	50	0
10	Catching fish forcibly by outsiders			20		10		30	10	20	10
11	Siltation of kuas in the beel				30			30	10	0	30
12	Lack of fish fry	30						30	10	30	0
13	Shortage of cattle					30		30	10	0	30
14	Use of current jal				10			10	11	0	10
15	Lack of fish sanctuary in Kathuria beel	10						10	12	10	0

Activity 5 – Planning Workshop – involves a series of three workshops sessions, undertaken first in plenary with all stakeholder groups, then reverting to separate stakeholder groups for the second session, then re-assembling in plenary for the final session. It is commonly found that while frank exchange of views occurs in small, homogeneous groups of people, disadvantaged groups usually have little chance to air their real concerns in large public meetings. However public meetings are necessary to get widespread representation of 'the public'. Thus PAPD Activity 5 involves a series of linked stakeholder and plenary activities to achieve a balance of frank exchange and representation.

The first workshop session (Activity 5.1) is for the plenary group to rank the clustered problems, so that 2 or 3 of the highest common priority can be considered in depth. Participants are mixed up and each mixed groups considers the problems according to a set of criteria including sustainability and poverty reduction, legal issues and community benefits. These groups' ranks are then summed to be able to identify the 'working problems'. For example at Dikshi beel, siltation of the beel and khal, drainage congestion due to the narrow sluice gate, and decline of natural fish production were the three highest ranked common problems, with 'lack of unity' ranking fourth (Table 7).

Table 7. Ranking of the five highest priority problems. Activity 5.1, Dikshi beel

Problems	**Sub-groups**						
	1	2	3	4	5	6	Total
Siltation of Dikshi Beel and khal	23	33	28	29	35	28	176
Drainage congestion due to narrow sluice gate	25	28	29	32	34	15	163
Decline of natural fish production	26	29	28	20	21	23	147
Lack of unity	26	17	22	22	31	13	131
Problem of allocation of khas land to the landless	20	13	13	19	14	11	90

Activity 5.2 is undertaken with each stakeholder group separately, who:

- appraise the key actors in their livelihood system
- analyse the feasibility of different solutions to the top 2 or 3 problems

The group firstly brainstorms those types of people who influence the way in which they make a living. A force-field analysis technique is then used to indicate the significance of each stakeholder in the group's livelihoods (Figure 12). This exercise starts to draw out the idea of inter-dependencies between floodplain dwellers.

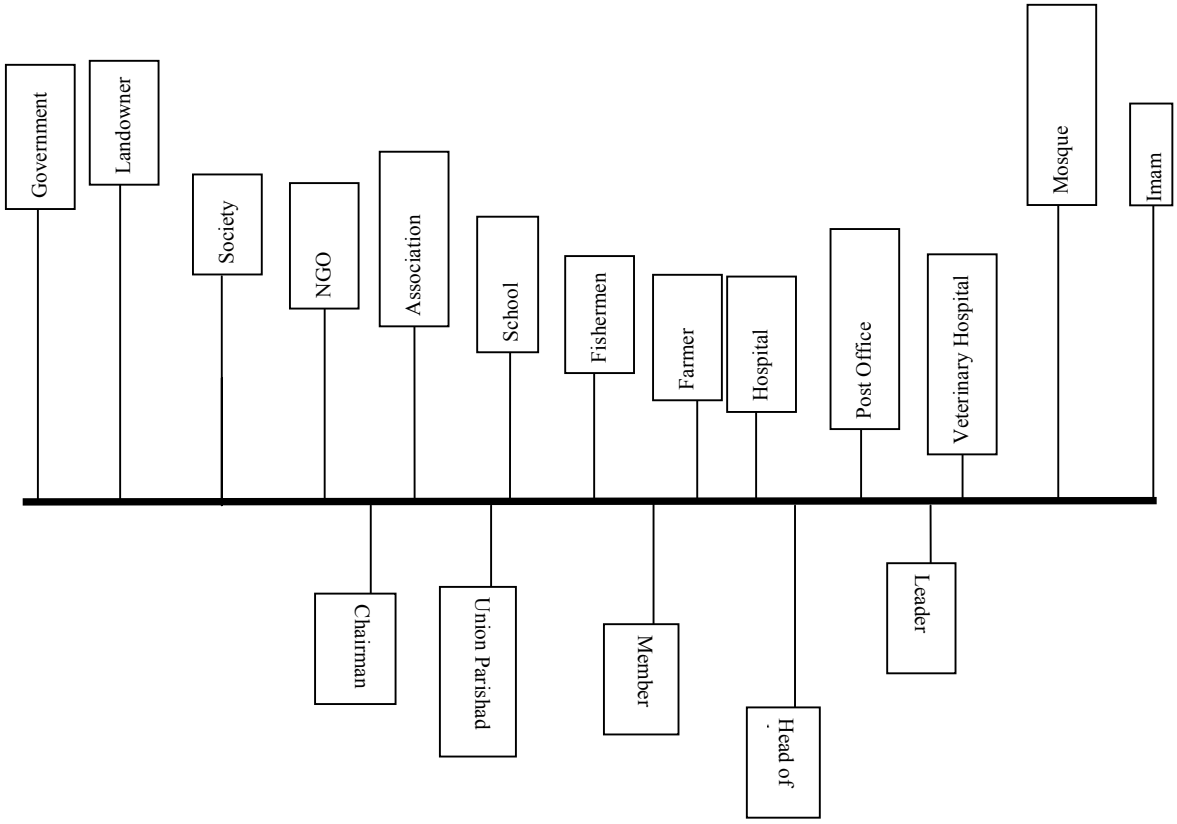


Figure 12. Force-field analysis of stakeholders in the livelihoods of the landless at Posna beel

To analyse the feasibility of different solutions to the top 2 or 3 problems, participants a complete a number of simple matrices that together provide a reasonably sophisticated and very detailed analysis, from each stakeholder group's perspective, of whether particular interventions are likely to succeed or fail, and why. These matrices are:

- a Purpose and Alternatives matrix
- a STEPS[98] analysis
- a Social Impact matrix

The respective functions of these matrices are to:

- partly to clarify the participants' rationale for undertaking particular interventions, and partly to explore if there were any better interventions that have been overlooked (Table 8)

- assess the political/institutional and technical or economic (cost) problems and environmental and sustainability issues affecting the feasibility and practicability of the proposed solutions (Table 9)
- for all interventions, assess how they will affect the different stakeholders listed in the stakeholder analysis (Table 10)

Table 8. Sample of a Purpose and Alternatives matrix from Charan beel – Badda.

Problem	Solutions	Objectives	Possible Alternatives
Silted up canals and *beel*: - *Beel*s become dried up	▪ Re-excavation of Khoyajani, Kuturia and Suryamoni Canals	▪ To have water in the *beel* round the year ▪ To remove water logging ▪ To increase water flow ▪ To increase fish production ▪ To increase the production of *shapla, shaluk, snail & mollusk* ▪ To facilitate irrigation ▪ To restore aquatic habitat ▪ To accelerate fish growth ▪ To increase fish diversity ▪ To protect brood fish	▪ Re-excavate *beel*s
	▪ Widen the sluice gate or construct bridge replacing sluice gate	▪ To recede water in time ▪ To control water flow	▪ Repair the existing sluice gate ▪ Re-excavate Suryamoni canal and Nangolia River
	▪ Re-excavate *beel*	▪ To have water in the *beel* round the year ▪ To ensure cultivation in the *beel* floodplain lands ▪ To restore aquatic habitats ▪ To facilitate irrigation ▪ To increase the production of *shapla, shaluk, snail & mollusk* ▪ To preserve the fish stock ▪ To increase fish production ▪ To facilitate duck rearing	▪ Build sluice gate to control water flowing

Table 9. Sample from a STEPS matrix from Charan Beel - Badda

Solution	Political/Social	Technical/Financial	Environmental	Sustainability
▪ **Re-excavation of Khoiyajani, Kuturia and Suryamoni Canals**	Require assistance from ▪ adjacent land owners ▪ NGOs ▪ *Matbar* and UP Chairman and Members	▪ Khoiyajani Canal: Shapai River to the Charan *Beel* (length- 1 mile, width- 20 ft and depth- 7 ft) ▪ The condition of the soil from Shapai River to Sluice gate is sandy and sluice gate to *beel* is clayey ▪ Kuturia Canal: Nangalia to Charan *beel* (length- 0.25 mile, width- 30 ft and depth- 5 ft) ▪ Suryamoni Canal: Nangolia to sluice gate (length- 0.5 mile, 50 ft width and depth- 6 ft) ▪ Available earth cutting labourers	▪ increased crop production ▪ Increased fish production ▪ Perennial water bodies	▪ 10 years ▪ The siltation could be protected if the sluice gate remain closed during the months of Ashar to Bhadra ▪ Subject to plantation on the bank of the canal it will sustain up to 10 years ▪ Plantation on the bank of the Kuturia Canal will enhance the sustainability up to 15-20 years

Solution	Political/Social	Technical/Financial	Environmental	Sustainability
▪ **Widen the sluice gate or construct bridge replacing the slice gate**	Require assistance from ▪ adjacent land owners ▪ NGOs ▪ *Matbar* and UP Chairman and Members	▪ Sluice gate should have to be 3-4 doors with 5 ft width	▪ Less siltation ▪ Increased crop production ▪ Perennial *beel* ▪ Increased fish production ▪ The crop would be damaged if the bridge constructed	▪ Require sluice gate operator for the proper maintenance ▪ 10-15 years sustainable
▪ **Re-excavation of *beel***	▪ The *Khas* land cultivators may create obstructions ▪ Require cooperation from land office ▪ Require assistance from adjacent land owners, NGOs, *Matbar* and UP Chairman and Members	▪ Area- 70 to 80 acres, depth- 5-6 ft ▪ Re-excavated earth could be kept the adjacent cultivable land but *boro* cultivators may impede ▪ Re-excavation is suitable during the months from *Falgoon* to *Chaitra* ▪ Available labourers in the locality ▪ The condition of soil is Clayey	▪ Production of crop will be increased ▪ Plantation could be done on the banks of the *beel* ▪ Increased production of fish and other aquatic flora and fauna ▪ Increased beauty of the *beel*	▪ Plantation on the banks of the *beel* will linger the period of further re-excavation

Table 10. Social impact matrix from Charan Beel, conducted by Farmer group

Problem	Silted up Canal & *Beel*					Decline fish Production				
Activity/Solution → / Stakeholder ↓	Re-excavate Khaiazani, Kutira and Surjya moni canal Surjya moni canal	Re-excavate the *beel*	Build bridge replacing the sluice gate or widen the door of sluice gate	Plant trees along the bank of *beel*	Stop irrigation from *beel*	Re-excavate the canal and *beel*	Close draining of residues of dyeing chemicals to *beel*	Stop catching of fingerling/fish fries	Establish fish sanctuary	Stop fishing from the month of Jaistha to Shraba
Farmer	+	+	+	+	+	+	+	+	+	+
Day Laborers	+	+	+	+	+	+	+	+	+	+
Teachers	+	+	+	+	=	+	+	+	+	+
Imam/Mosque	+	=	+	+	=	+	+	+	+	+
Fishermen	+	+	+	+	+	+	+	-(+)	+	-(+)
Hat/Bazaar	+	+	+	+	+	+	+	+	+	+
Bank/NGO	+	+	+	+	=	=	+	+	+	+
UP	+	+	+	+	=	+	+	+	+	+
Weaver	=	=	=	+	=	+	+	+	+	+
Agriculture Office	=	+	=	+	+	=	+	+	+	+
Fishery Office	+	+	+	+	+	+	+	+	+	+
Barber	=	=	=	+	=	+	+	+	+	+

\+ Profitable - Loss -(+) Could be profitable
+(-) Could be loss = No impact

Over a period of days, all the stakeholder groups completed these matrices. The facilitators must then collate the individual matrices into three very large summary matrices; this is Activity 5.3 (FTR Volume 3.1). Then in Activity 5.4, the plenary grouping is reconstituted. After explaining the purpose of this third and final workshop session, the participants are split into 3 groups. The 3 summary posters are displayed in 3 separate locations. Each poster is on a wall, with plenty of space in front of it. The 3 groups then rotate around the 3 poster stations. At each poster station, one or two facilitators are present to explain how the

poster was created, to bring out the key points – differences and similarities between groups' findings, to answer questions, and to stimulate discussion. After reviewing one poster, the groups rotate to the next one, until they have all reviewed all three posters.

Through the poster observation, all groups become acquainted with the perspectives of other groups, and can compare the solutions and recommendations from other groups with their own. This exercise is fundamental to reaching a shared understanding of the problems. After regrouping, there is a moderated discussion with an open floor. resolving any remaining misunderstandings, points for clarification and minor areas of dispute. However its major objective is to focus on the commonalities and areas of agreement between the groups and reach consensus over the general type of intervention that should be implemented to address the highest priority problem of greatest common concern. This is the end point of Activity 5 – reaching consensus on an outline action plan (Figure 13). This was also the point that was reached in the four processes during the lifetime of the project. At both CNRS sites (Posna and Charan beels), proposals were made to establish resource management committees (RMCs) to take forward the responsibility for agreeing a detailed action plan for managing the beel, and then implementing the plan. Details of the proposed membership of the RMC are given in FTR Volume 4.4 (p. xxxvii).

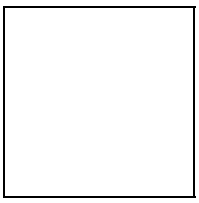


Figure 13. Schematic of the steps in PAPD Activities 4 and 5

After completion of Activity 5, as indicated above, Phase 3 has two activities: development of organisations and institutions to implement the action plan, and then implement of that action plan (Figure 14). Through the linkage to the CBFM-2 project, Phase 3 will occur at a point after the end of the project. As discussed in FTR Volume 3.1, rushing these final activities to meet with the timetable of projects is a recipe for failure. Consensus and thence consensual action needs time to fully develop.

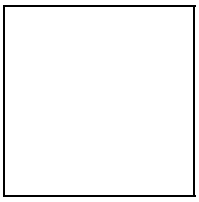


Figure 14. Schematic of PAPD phase 3 – the implementation phase

Inputs not achieved

It was planned when the project was formulated that the Problem Census day of the PAPD process would be modified to include a 'Sustainable Livelihoods' (SL) activity. In this activity, once a stakeholder group had identified its ten highest priority constraints, they would divide into three sub-groups. These groups would undertake the following activities:

- Sub-group 1: drawing seasonal diagram including labour pattern, lean seasons, food security, crop productions, fishing activity, etc.

- Sub-group 2: resource mapping, identifying NR base, problem areas, and physical solutions (e.g. khal excavation).
- Sub-group 3: categorise the 10 most important problems according to the DFID Sustainable Livelihoods framework categories.

The earlier LWI project had done an external and post-hoc SL analysis of problem census problems of different stakeholder groups according to SL categories (Barr & Haylor, *forthcoming*). However, it was intended to improve this analysis in this project, by getting the participants themselves to do the categorisation. The seasonal diagrams and resource mapping activities occurred in all four of the PAPD processes, but the SL categorisation was only attempted at the Posna *Beel* and Badda workshops. Here, the CNRS facilitators undertook an SL categorisation of the problems in the manner of the Barr & Haylor (*ibid.*) analysis (FTR Volumes 4.1 and 4.4). This participatory SL analysis was the only planned input in the project that was not fully achieved as planned. It was agreed with the facilitators that the SL framework is highly complicated to explain and thus difficult for the uninitiated to understand. It was decided that to explain the intricacies of the SL framework, e.g. explaining the difference between social capital (an asset) and local institutions (in the PIP), would take much longer than the 1 – 1.5 hours available for the whole exercise. Furthermore, it was agreed that the output from this SL categorisation would only be of use to the facilitating organisation, and that the participants would see very little value in it.

5.1.2 Assessment of levels of consensus

In addition to undertaking the PAPD process at four sites, field work was carried out to try to assess whether the process was measurably building consensus. This activity is reported in FTR Volume 5. Most assessments of consensual processes do not try to assess the level of consensus directly, but assess the outcomes of consensus, such as the formation of resource management groups. In reviewing approaches to assessing consensus, it was recognised that current concepts of social capital, particularly cognitive social capital, and definitions of consensus have many similarities. Cognitive social capital refers to values, beliefs, attitudes, social norms, and 'values' includes co-operation and "the trust, solidarity and reciprocity that are shared amongst members of a community and that can create conditions under which communities can work together for a common good" (Krishna & Shrader, 1999).

Having made this link between cognitive social capital and consensus, the project reviewed and drew upon methods being developed for measuring social capital as part of the World Bank's social capital initiative (SCI), e.g. Krishna &Uphoff (1999). A survey form was designed that would, using an anchored Likert-type scale, obtain respondents' views to on different measures of consensus, such as trust, reciprocity, co-operation, solidarity and collective action, in response to questions posing a number of different scenarios. The survey form was piloted, tested and refined a number of times. An early version of this Consensus Assessment Survey (CAS) was used at CNRS' two field sites. The sixth refinement was employed at the ICLARM's two sites.

The survey was designed following a blocked experiment approach, with different types of respondent as 'treatments'. This biometrical issues in this survey were written up as a case study of good practice by Reading University Statistical Services Centre (Abeyasekera and Stern, 2001). The details of the CAS are presented below:

Sample size: 120 households (HH)

Two treatments: HH participating in the PAPD process
HH not participating (control)

4 sub-treatments: 4 stakeholder groups (Table 11):

- male heads of households from medium/large agricultural HH (m-Farm)
- male heads of households from landless HH (m-LL)
- female heads of households from landless HH (f-LL)
- male heads of households from fishing HH (m-Fish)

Two assessment periods:

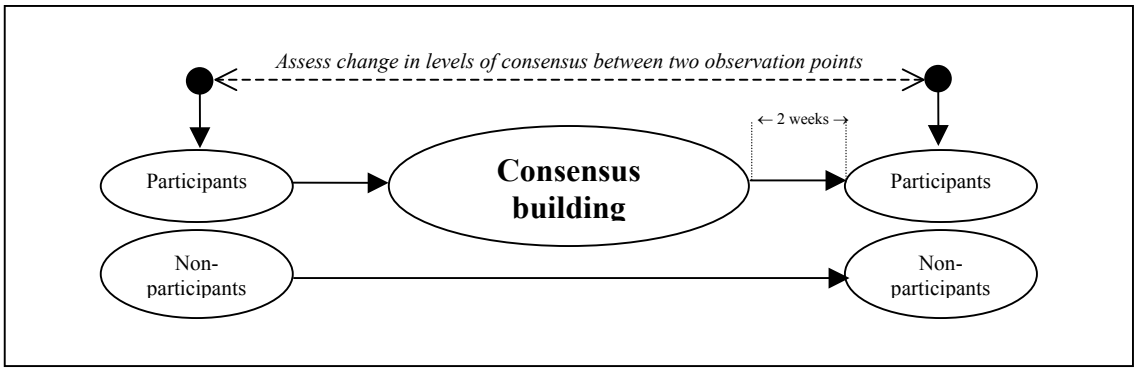
- level of consensus assessed before PAPD process using CAS survey form (Figure 14).
- level of consensus after PAPD process (repeat observation 2 weeks after end of workshop), using same survey questions

- the same people will be re-surveyed after the workshops, thus the data that will be statistically analysed are the difference, if any, in the scaled responses to the same questions.
- the use of a control group is to demonstrate that any significant change in consensus amongst participants is due participation in the PAPD process

Table 11. CAS experimental design and number of HH surveyed.

	Survey point	
Stakeholder group	**Before workshop**	**After workshop**
Stakeholders involved in consensus building workshop		
m-Farm	15 people	the same 15
m-LL	15 people	the same 15
f-LL	15 people	the same 15
m-Fish	15 people	the same 15
Stakeholders **not** involved in consensus building workshop (*Control group*)		
m-Farm	15 people	the same 15
m-LL	15 people	the same 15
f-LL	15 people	the same 15
m-Fish	15 people	the same 15

Figure 14. Schematic of the experimental design



5.2 Reviews of other consensus building and CPR management projects

Three review tasks were undertaken by the project (Table 12.)

Table 12. Review activities.

	Review topic	Volume	Undertaken by
a.	Literature review on consensus building methods in natural resources management	6.1	CEMARE with CLUWRR and Durham
b.	Review of development project experience with consensus building in Bangladesh	6.2	ICLARM
c.	Review of key issues in consensual management of CPRs	1; Ch.3	CLUWRR and Durham with CEMARE

a. provides a synthesis of the evolution, theory and practice of consensus building and its application to natural resource management. The review presents a wide range of academic approaches to and case study accounts of consensus building. It commences by providing an outline of the terms and definitions commonly applied to situations of “conflict” and “consensus”. It reviews consensus building approaches from the developed world, such as alternative dispute resolution, specific methods, such as Future Search which relate to PAPD, and indigenous approaches. These approaches are illustrates with case studies, and drawn together in a typology of consensus building methods.

b. reviews three very different examples of participatory planning for local management of natural common property resources in Bangladesh. The case studies represent widening scales in terms of area covered, issues covered (fisheries, water management, environment), and facilitating agencies (NGO, government agency, range of agencies). They present different lessons for approaches to reaching consensus over natural resource management in Bangladesh.

c. aims to place the consensus building in general and PAPD in particular into the broader context of common property and community-based (CB) approaches to managing natural resources. The nature of common pool and common property resources are discussed, and the strengths and weaknesses of CB approaches are reviewed. The problems of undertaking CB activities in heterogeneous ‘communities’, and communities strongly influenced by local elites are assessed.

5.3 Process evaluation of consensus building methodologies

Two process evaluation tasks were undertaken by the project (Table 13.)

Table 13. Process evaluation activities.

	Review Topic	Volume	Undertaken by
a.	Process evaluation of consensus building in on-going co-management projects in Bangladesh	6.3	CEMARE and BCAS
b.	Process evaluation of the PAPD methodology at R7562 field sites	3.2	CEMARE and BCAS

Both these field-based process evaluations used a range of interview approaches to assess how the design of CB-NRM projects affects consensus building. In order to obtain a multi-dimensional perspective, interviews were undertaken with project participants and non-participants, project staff/facilitators and local officials (Table 14).

Table 14. ***The survey methodologies adopted and the target stakeholder groups***

Survey tool	Target groups	Information	Social capital
Semi-Structured Interview	Project staff, committee members	Intra-project linkage, activities, relations and attitudes	Structural & cognitive
Focus Group Discussion	Project target groups, equivalent non-participating groups and mixed groups (5-8 individuals).	Qualitative & contextual feedback on stakeholder perceptions of *"consensus"* and changes over time.*	Cognitive
Questionnaire	Participant stakeholder groups and equivalent non-participants	Attitudes to project (activities, staff, structure) and other stakeholder groups.	Cognitive & structural

from FTR Volume 6.3

a. recognises that project agencies may actively seek to build consensus through specially designed institutions or "platforms" that operate to include the range of stakeholder interests and help legitimise project activities within the wider community. However, the degree of consensus within the participating and non-participating community will also reflect the character of activities and project institutions designed for other purposes. Thus this survey attempts to review how project structure may both purposefully and unintentionally affect local cohesion and consensus. It does this through analysis of the institutional geometry of three on-going CB-NRM in Bangladesh, and exploration of the different stakeholder groups'

views of the functioning of the projects[99]. The evaluation shows that nature of interaction between stakeholders is a product of the institutional design and structure of projects and the character of projects (their aims, activities and the expertise of personnel). To varying degrees, the three projects rely on an interface placed centrally between project staff and local stakeholders, represented by some form of management committee. These committees have the dual function of creating value through joint-participation and legitimising management decisions to the wider community. However, the review demonstrates these interface committees have a varying capacity to influence project management, to gain wide respect and to fully represent the diversity of stakeholder interests.

b. utilises criteria for the evaluation of consensus building processes draw from Innes (2000), Burgess & Burgess (1996) and Kaner (1996) (Text Box 4.) to assess the procedural aspects of consensus building in PAPD and the manner in which activities are perceived by the participants themselves.

Text Box 4. Criteria for the evaluation of consensus building processes.

1. **Shared and common purpose** - although goals may be different participants must share a common understanding of why they are involved in the process.
2. **Full participation** - the process should not be controlled by the most vocal or politically powerful.
3. **Perceived as fair** - participants should view the process as transparent and balanced.
4. **Creates a mutual understanding of goals** - participants grow to respect the problems of others and the interconnectedness of local activities (or livelihoods).
5. **Informs, engages and interests participants** - the process should be enlightening and should build awareness.
6. **Provides inclusive solutions** - ideas and suggestions accommodate as wide a range of stakeholders as possible.
7. **Encourages challenges to the status quo** - ideas and suggestions are novel and creative.
8. **Self-organising** - the agenda for discussion are internally driven and evolve with time rather than being fixed and imposed by external actors.

As in the first process evaluation, various types of interview approach were used with project participants and non-participants and project staff (facilitators) to assess their views on the consensus building process. This was carried out at three sites, during the PAPD process: Posna *Beel*, Kathuria *Beel* and Dikshi *Beel*.

The evaluation found that the facilitators reported a generally high level of enthusiasm for the workshops. With respect to indicators of prospects for longer term change, the facilitators spoke positively of the experience gained by primary stakeholder working together with Union members and other influential groups for the first time. The majority of participants felt that the process had been relevant to them and/or to the community as a whole. They generally believed new relations and understanding had been fostered, but that further NGO facilitation was necessary if this type of process was to be repeated. Assessment with non-participants showed that their level of knowledge of the workshops (their purpose, activities and participating groups) was high and that most expressed an interest in participating themselves.

[99] For detailed information on the questions used in this survey, see Annexes 6.3.1a, 6.3.1b, 6.3.2 and 6.3.3

5.4. Synthesis and dissemination activities

The project has undertaken three principal activities that synthesise the findings from the various streams of the project. Both these are designed to provide managers with materials to support their understanding of and choices in consensus building methods. These two activities have resulted in production of:

- A typology of consensus building methods in NRM, classifying and illustrating the core range of consensus building methods and their functions (FTR Volume 6.1; Section 6)
- A best practice guideline to summarise the major issues in consensus management of common pool resources and the PAPD methodology
- A decision support matrix to help managers choose between different type of consensus building method for management of CPRs (FTR Volume 2)

The typology acknowledges culturally specific and informal approaches to building consensus in NRM (Type D), but its focus is on those processes where efforts are in some way initiated, managed or supported by an external third party. These facilitated consensus building approaches are classed into three types, Type A – Type C (Figure 15). These types represent a gradient from directed trouble-shooting - where the goal of consensus building may be pre-defined and the character and outcomes of process may largely be dictated by a third party - to facilitated and participatory processes where problem-identification may play as central a role as problem-solving. The methodology evolved in this project, PAPD, is typified as a Type C methodology, as it is characterised by mutual learning and inclusive planning. It is also characterised by being a problem identification and structuring methodology. Type A and Type B methods are more project-purpose driven, in that they aim to achieve sectoral objectives or solve specific problems, either by obtaining the agreement of participants about the project objective(s) (Type A), or bringing together different parties to solve a given problem (Type B). Neither Type A nor B are concerned with more sustainable building of consensus for collective action through more fundamental activities that build social capital.

The best practice guideline is a user-friendly summary of the key points in the background section of the volume of the FTR. It synthesises the key issues in the consensual management of CPRs.

The decision support matrix is in the form of a decision tree, that builds on the typology and guides managers through a number of steps to help them identify a consensus building method that best suits the purpose of their project. This demonstrates that a Type C methodology, such as PAPD, is not the best approach for all project situations, and thus it is not assumed that PAPD can necessarily provide a panacea in all CB-CPRM scenarios. The aim of the decision tree is to compel managers to consider why they are trying to achieve consensus, and what is the nature of the social environment in which they are try to do this. The tree is designed to take out at a high level those trying to undertake deliberative and inclusive policy-making and those interested in 'functional' participation (Type A)[100]. The decision tree then asks manager to consider whether there are effective traditional process that could be supported. Finally managers will find that the majority of projects of this type will be being implemented in

[100] Many of these latter type project occur in the conservation arena e.g. getting 'communities' to agree to the project's objective of changing their behaviour to conserve particular natural resources or valuable animal or plant species. ICDM (integrated conservation and development projects) often fall into this type.

a situation where there are not equitable local institutions to regulate access to CPRs. Thus the consensus building methodology will need to act to strengthen local institutional processes. This can be achieved through a Type B approach, to achieve the project's NRM goals, or a Type C approach, to foster mutual learning, develop new stakeholder relationships and build social capital (Figure 16)[101].

The project's outputs, including these syntheses have been, and will continue to be, disseminated through a number of activities, including:

- Distribution of project reports, particularly within Bangladesh
- Production of formal publications and conference papers
- The project web site
- The end-of-project workshop

These activities are discussed in more detail in Section 7.

[101] The whole tree, as presented in Volume 2 is quite complicated. At the end-of-project workshop, participants commented that a simpler version would be more usable. Thus Volume 2 presents the whole tree to show the overall flow of the process, but it is also broken into 3 more basic units (as in Figure 6) for ease of use.

Figure 15. The basic NRM consensus building "types" - with respect to purpose, character & effect.

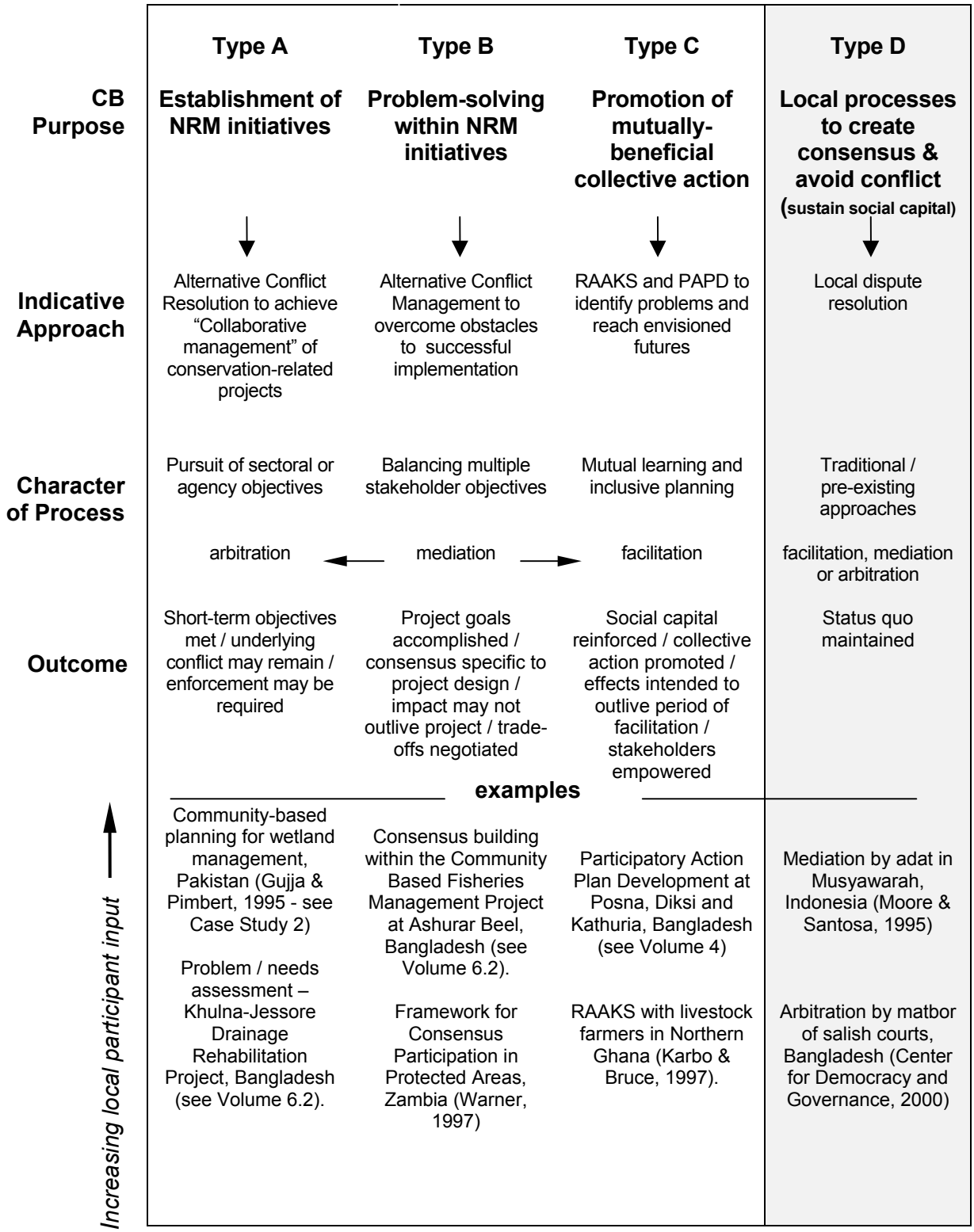
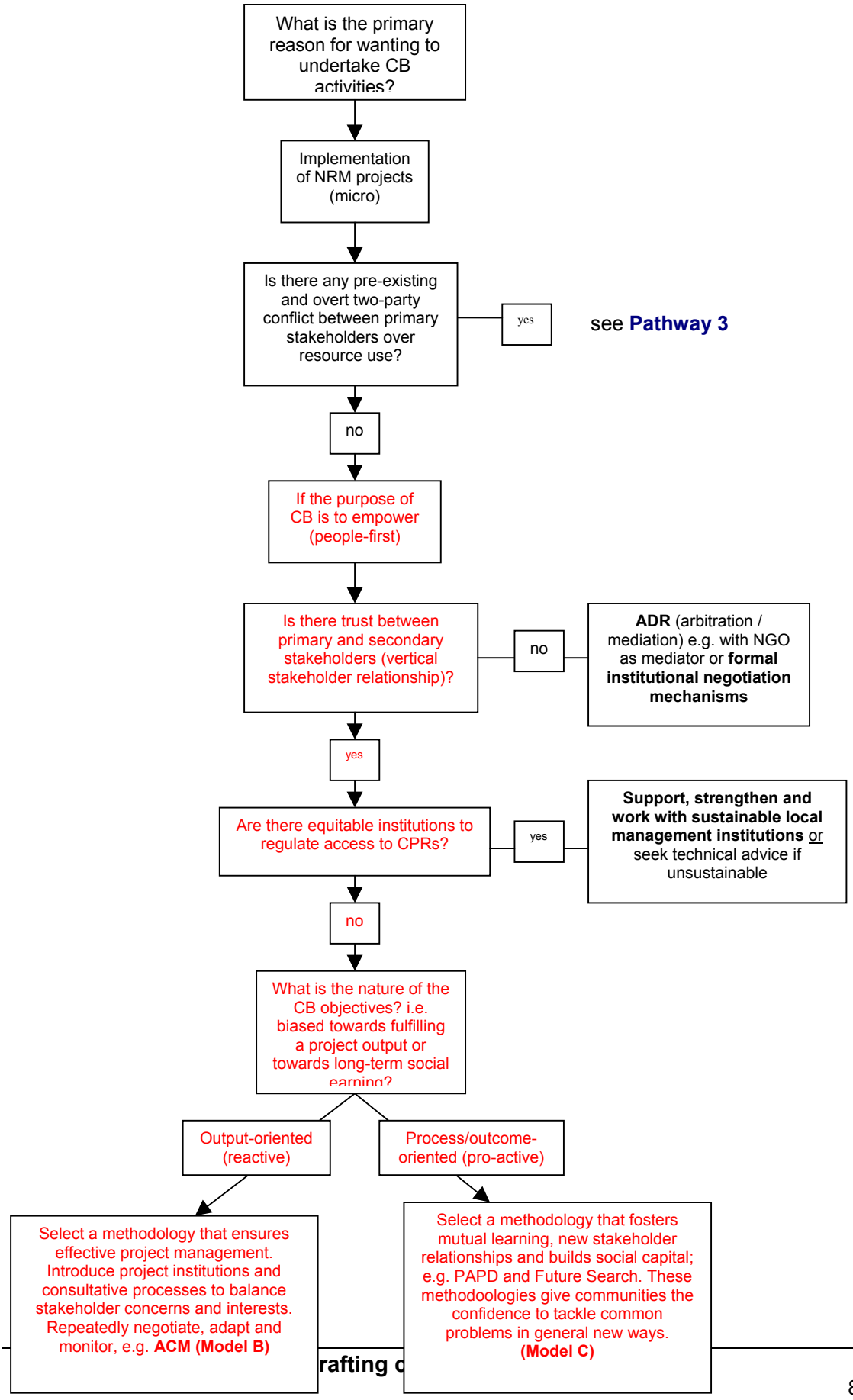


Figure 16. Decision tree pathway 2 – empowering and institutional strengthening methods.



6. Outputs

The project aimed to achieve the following outputs:

Output 1.	In defined pilot areas, methods for the management of common property developed through consensus building among a range of stakeholders
Output 2.	Improved awareness at a policy-level of the issues in, and methodological approaches to, consensus building.

The verifiable indicators of achievement for these outputs were:

Output 1. OVI

- By mid-project, internal report demonstrates methodological development with two or more NGOs.
- By project completion a comprehensive synthesis of the key issues in consensual management of CPRs, based on Bangladesh experience and the wider literature, delivered.
- By project completion a field-based process evaluation of consensus building methods completed.
- By project completion a method for consensus building in CPR management tested, improved and promoted

Output 2. OVI

- By project completion, evidence of improved awareness of consensus building issues demonstrated by uptake in one policy-oriented NGO.

6.1. Output 1.

This output has been achieved in full. This will be demonstrated by reference to the Output 1 OVIs. This section is presented succinctly since the methodology of the research is covered in Section 5 of this volume of the FTR and in more detail in FTR Volume 3.1, and the research results are presented in detail in Volumes 3, 4, 5 and 6 of the FTR.

It should be noted that the fieldwork performed in achieving this Output, we have termed 'action research' because of the project's relationship to the CBFM-2 DFID-funded bilateral project. In the course of a research project lasting slightly more than one year, it is not possible to undertake four consensus building workshop processes and then undertake any development intervention on the strength of the findings from these workshop processes. Indeed, it is questionable whether research projects should attempt to implement interventions in this way. However, there is the paradox that research cannot work in the abstract, and research projects do need to test their products in real situations. This inevitably raises local expectations, which often can be disappointed if benefits to ultimate beneficiaries do not flow immediately and clearly from the research. Thus, the innovative partnership between R7562 and CBFM-2 creates a synergy that delivers benefits to both the research and the development project:

- R7562 benefits from having a 'development test-bench' – its products can be tested in a full-scale development scenario (CBFM-2)
- R7562 benefits from having an instant uptake pathway into CBFM-2
- CBFM-2 benefits from the inputs of R7562's development of methods and tools it can use
- CBFM-2 benefits, early in its life, from R7562's participatory identification of stakeholder concerns and entry points for intervention.

6.1.1 OVI 1.1

Peter Dixon visited Bangladesh between 10th October and 3rd November 2000 to attend the PAPD workshops at Kathuria *Beel* (facilitated by ICLARM with Banchte Shekha) and Dikshi *Beel* (and facilitated by ICLARM with Caritas). The PAPD methodology was reviewed with in-country partners and other parties[102] during this period and the report on the visit [FTR Volume 3.3a] develops the methodology by making a comprehensive analysis of the methodology and areas where it might be improved.

The mid-term developmental review of PAPD takes as its starting point three sets of material:

- The report on the initial formulation of a systems-based workshop approach, as used in R6756 with CNRS (Barr *et al*, 2000 b)
- The draft training and resource material on PAPD produced by CNRS and CLUWRR (Islam and Barr, 2000)
- Training by CNRS for the other organisations in R7562

Combining these with observation of the methodology being implemented at two *beel* locations resulted in a number of comments on and recommendations to modify the process. It was however noted that the methodology is not sacrosanct, it is intended to be flexible, so that facilitating organisations can use their own best judgement as to what works and what does not in any particular context. The source materials are thus guidelines rather than a manual.

Key recommendations for developing the process emerging from the review included:

- Examination of the formation of stakeholder groups. These groups are based upon socio-economic stratification, occupation, gender and key interest groups. However facilitating organisations should consider whether some groups are only stakeholders in respect of a particular intervention that the organisation is planning (e.g. *kua* owners and CBFM projects), rather than being constituted by similar individuals.
- To promote inter-group solidarity., it may be worth holding a plenary briefing prior to undertaking the stakeholder-based Problem Censuses.
- Voting techniques in the Problem Census uses sticky dots stuck on to problem cards in an open balloting process. This may be biased by participants adding their dots where they see others have predominantly placed theirs. A closed balloting modification should be explored.
- At the first plenary of the planning workshops, there needs to be a clearer explanation that the process is moving from a broad 'livelihood constraints' focus to a narrower NR focus, in order to identify development entry points that are within the capabilities of the facilitating organisations.

[102] At Kathuria, including Dr Mees, who was carrying out the project MTR at this time, and Tim Robertson, Fisheries and Aquatic Resources Adviser DFID-B, and Neil McPherson, Senior Fisheries Adviser, DFID, who were reviewing DFID-B fisheries projects, including CBFM-2, in the field.

- Since the first plenary session tend to finish quite early in the afternoon, it would be possible to introduce an additional exercise that involved direct sharing of the stakeholders' Problem Census outputs, as an initial step in developing shared understandings of resource management.
- The Force-field analysis of the key people (stakeholders) in the stakeholders' livelihoods generates a long list. When this is then used in the Social Impact Matrix (SIM) to assess the impacts of different possible interventions, it is too time-consuming to complete. Following the lead of ICLARM at Dikshi *Beel*, the force-field analysis stakeholders can be separated into primary and secondary stakeholders, with only the former group being used for the SIM.
- The final discussion session of the last plenary day needs to be very carefully facilitated in order that it is not derailed by vocal influentials and government officials making 'state of the nation' speeches. It was considered that the workshops reached convergence rather than closure, and thus that they needed a clearer space for identifying next steps for taking action. This 'implementation phase' [see FTR Volume 3.1] activity, such as formation of a resource management committee needs separate study as it risks elite bias.

In addition to Peter Dixon's review of the PAPD methodology, which was undertaken with the objective of addressing the need for methodological development, further methodological development resulted from the MTR by Dr Mees (see FTR Volume 3.3b) and from ICLARM making some modifications to the process between learning it from CNRS at the training workshop and implementing it themselves at Kathuria and Dikshi beels (FTR Volume 3.4).

6.1.2 OVI 1.2

The key issues in consensual management are synthesised in the Background section of this FTR (Volume 1), and summarised in the best practice guideline (FTR Volume 2). Furthermore a detailed review of consensus building methods in NRM is delivered in FTR Volume 6.1. The synthesis covers the major issues in community-based approaches to management of natural resources, and specifically CPRs. The review of consensus building methods focuses in on the methodological material of particular relevance to this project. These two pieces of work cover different subject matter, and together span the theory and practice of achieving consensual, community-based management of common property resources, with particular reference to Bangladesh's aquatic CPRs.

6.1.3 OVI 1.3

The methodology (the PAPD consensus building processes) was undertaken in four field sites during the life of the project (see below). These processes were evaluated in three ways:

i) a formal process evaluation, based on interviews of facilitators, participants and non-participants, using a set of eight criteria relating to procedural aspects of the consensus building process (not outcome) and the manner in which activities are perceived by the participants themselves (see Section 5.3b in this report and FTR Volume 3.2)

ii) a quantitative assessment of whether the processes have built social capital (as a proxy for consensus) amongst participants (see Section 5.1 in this report and FTR Volume 5).

iii) feedback comments by the participants (FTR Volume 3.5)

6.1.3.1 Process evaluation

In relation to process evaluation, outcomes of consensus building processes may be product-oriented or process-oriented. For technical resource managers, such as government organisations charged with the duties for productive (and sustainable) use of natural resources, the focus tends to be on product-oriented outcomes from public participation in natural resource management decision making processes. Such products may be management plans. However, for other participants in the process, such outputs may have little value. In natural resources management situations, it is likely to be the process-oriented outcomes that are more widely valued. These outcomes have dimensions of learning, representation of interests, responsibility (ownership) and relationship building (McCool and Guthrie, 2001). These dimensions may be elaborated as:

- learning
  an interactive process of mutual learning,
  however, learning has a number of dimensions, all of which are relevant to the consensual building in participatory environmental planning. These include: "*an enhanced understanding of ecosystem function and process, comprehension of required legal and policy processes, and more personal dimensions dealing with the values, beliefs and interests of all participants*" (McCool and Guthrie, 2001).

- responsibility
  having participants' concerns reflected in product-oriented outcomes (i.e. that they have had a role in shaping the output),
  and participants feeling that their concerns were considered in the process, and thus given validation

- relationship building
  building new relationships between participants and understanding each other's perspectives

- representation of interests
  broad representation of stakeholders, especially those are traditionally comparatively powerless in planning processes,
  and beyond representation, ensuring access to the planning process for these stakeholders

It is these type of process-oriented outcomes that were assessed by the process evaluation. The process evaluations found that both facilitators and participants reported that they found the stakeholder and community-based approach of the process novel and informative. Participants particularly valued the experience together with Union members and other influential groups for the first time (Table 15). The majority of participants believed that new relations and understanding had been fostered, but that further NGO facilitation was necessary if this type of process was to be repeated.

Table 15. Respondent perceptions of the value of workshops (Answering: "What was the best thing about the workshops?")

	Posna	Kathuria	Diksi
Reaching agreement and unity	8	1	4
Discussing issues together	3	6	8
Talking to (in front of) foreigners, rich, elite	-	2	2
Discussing NRM issues	1	-	-
Meals	-	-	1

The workshop process scored well at all sites in its ability to engage and inform participants, with all respondents agreeing that it had been informative and that no stages had been boring. The majority of respondents (38 of the 48) agreed that they had learnt from others in their stakeholder group and all but three of the respondents felt they had learnt about other groups (a fisher and farmer at Diksi, and a landless participant at Kathuria).

Most respondents (40 of the 48) also believed that the workshops will change the way in which decisions or actions are taken in the future and all but 2 respondents believed that relations between participants and groups had changed (Table 16).

Table 16. Perceived changes to future action and relations as a consequence of the workshops

	Posna			Kathuria			Diksi		
	yes	no	unsure	yes	no	unsure	yes	no	unsure
Will the workshop lead to new ways of doing things in the future?	11	3	2	13	-	3	16	-	-
Has the workshop changed relationships between groups?	15	-	1	15	-	1	16	-	-
Will there be meetings like this in the future?	11	1	4*	6	1	8*	2	2	12*

* These respondents believed similar discussions may be held in the future but only with outside assistance.

6.1.3.2 Consensus assessment survey

As described in Section 5.1.3 of this report and FTR Volume 5, a survey tool, drawing on the Social Capital Assessment Tool (SCAT) (Krishna and Shrader, 1999) was

designed to assess whether there was any detectable change in various indicators of consensus as a result of the PAPD workshops at Posna, Kathuria and Dikshi beels.

Eight types of stakeholder completed a survey form prior to the workshops and again about two weeks afterwards. These eight types were (i) male and (ii) female members of landless households and (iii) male members of medium-large agricultural households and (iv) fishing households. From each of these groups there were two samples – those households that attended the workshops and those that did not (a 'control' sample).

Overall, there was alack of any major changes in consensus/social capital. However this is as might be expected due to the very short amount of time between the two assessments. Participants found it more difficult to answer abstract questions about trust, than for examples questions illustrated with real examples, for example of co-operation in fisheries management in CPRs (Figure 17).

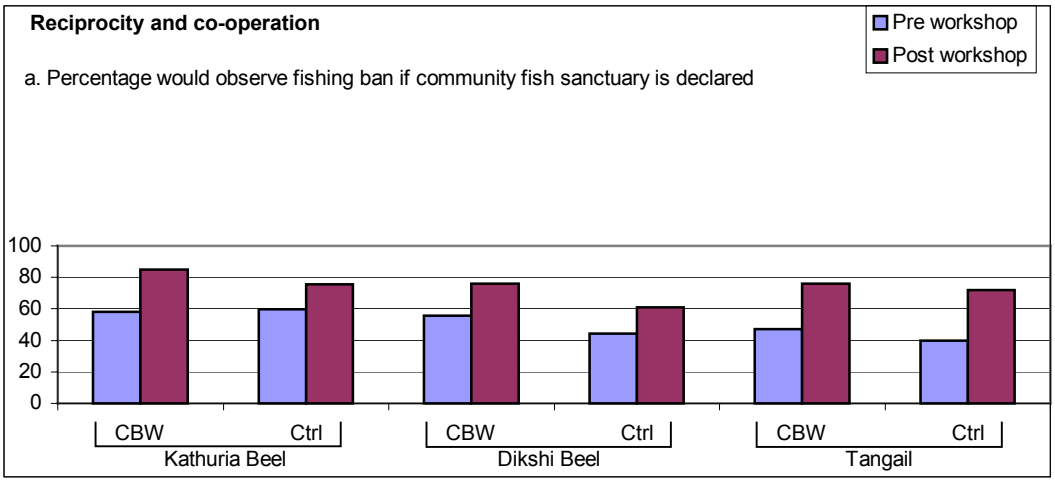


Figure 17. Changes in views on reciprocity and co-operation before and after the workshops

It should be noted that the 'control' respondents' views also changed over this time. This was greatest at Tangail (Posna), which is the smallest community, and thus the impact of the workshop should promulgate amongst non-participants most rapidly.

Like social capital, consensus is an abstract concect that is difficult to measure directly. Thus the survey used a number of proxies, for example trust, harmony and co-opertion. Respondents were asked which they thought best related to consensus. Trust and unity were the most important in their understanding of consensus, followed by co-operation and working for the common good (FTR Volume 5, chapter 6).

The overall conclusions from the consensus assessment survey was that the PAPD method does change opinions on key aspects of consensus, but it does not show that in the immediate term change in how people in communities relate to each other. This may take longer to occur, or reinforcing workshops – current social norms have developed over many years, and altering the status quo is a gradual process.

6.1.3.3 Participant feedback

In addition to the quantitative results of the consenus assement survey (above) about the process, participants made other comments made about the workshops (FTR Volume 3.5). A relatively high proportion of all participants said that they:

- now understood development problems in their area,
- had learned about natural resource management,
- had learned to cooperate and mix with others,
- had increased their willingness to work together,
- had sat in one place and discussed their problems,
- were confident that things would be better,
- knew more about natural fish conservation,
- that the workshop was better for development of the area,
- that they were prepared to work together,

The respondents also suggested some improvements to the process:

- to invite more people,
- to hold more village based meetings to discuss the outcomes more widely,
- to have regular meetings, and
- to pay participants more.

6.1.4 OVI 1.4

The consensus building methodology has been tested at four different floodplain sites by four different organisations:

Posna *Beel*	CNRS
Kathuria *Beel*	ICLARM and Banchte Shekha
Dikshi *Beel*	ICLARM and Caritas
Badda village at Charan *Beel*	CNRS

It has been modified and improved in the course of these processes as a consequence of both external review (FTR Volume 3.3) and internal modification by facilitators, particularly facilitators from organisations new to the process (FTR Volume 3.4). The methodology has been promoted directly to uptake organisations through the innovative and productive relationship with ICLARM and the NGOs CNRS, Caritas and Banchte Shekha who are implementing the CBFM-2 project. Furthermore, the methodology has been promoted to a wider constituency of implementation (practitioner) and policy organisations through an end-of-project workshop in Dhaka in March 2001 (FTR Volume 7).

6.2. Output 2.

Output 2, “Improved awareness at a policy-level of the issues in, and methodological approaches to, consensus building” has been achieved. This can be demonstrated in three ways.

Firstly, through the end-of-project workshop held at Bangladesh Institute of Administration and Management (BIAM), Dhaka on 29th March 2001 (FTR Volume 7), and then a subsequent presentation to DFID staff and staff in DFID-funded bilateral projects at the DFID-FMS office.

The end-of-project workshop was structured in two parts, a morning session for development practitioners only and an afternoon session for Practitioners and policy makers, opinion formers and donors. The workshop sessions were chaired by important players in the making of Bangladesh's fisheries policy: Mr. Md. Nasiruddin Ahmed, Director General, Department of Fisheries [Chief Guest]; Mr. S. N. Chowdhury, Director, Department of Fisheries; Mr. A. K. Ataur Rahman, Director, UniConsult [ex-Director General, Department of Fisheries]. The closing session of the workshop was a panel discussion, again involving some of the key players in floodplain and wetland environmental management: Dr. Aminul Islam – Sustainable Development Advisor, UNDP; Dr. Ansarul Karim – Senior Ecologist, EGIS; Mr Mohammed Shah Alam - Joint Secretary, MOFL; Mr Md. Habibur Rahman – Joint Chief, MOFL; Dr Ain-un Nishat – Country Representative, IUCN; Dirk Reyntjens – 4th Fisheries Project; and Dr. Atiq Rahman – Director, BCAS.

ICLARM have distributed the workshop report to the 61 participants at the workshop.

The second and third ways the project has achieved Output 2 addresses the OVI "by project completion, evidence of improved awareness of consensus building issues demonstrated by uptake in one policy-oriented NGO".

One of the key policy-oriented NGOs in Bangladesh continues to be BCAS. Their particular strength lies in environmental advocacy. The project has been particularly strongly received by BCAS (Dr. Atiq Rahman, Executive Director, BCAS, *pers. comm.*). One article on the project and the methodology it is developing has been already been run in the Bangladesh Environmental Newsletter (BEN) (Annex 3 – this volume), with plans to run another one based on the final project reports. About 2000 copies of BEN are distributed in Bangladesh and overseas, mainly to research and policy institutes, academics, NGOs, Government departments, foreign missions and donors in Bangladesh.

At the end of project workshop in Dhaka, Dr Rahman proposed that in order to promote the current approaches to managing floodplain wetlands (i.e. aquatic CPRs), BCAS should co-ordinate the publication of a book on this topic. This will draw on, *inter alia*, outputs from this project. Evidence is that other similar volumes by BCAS, published in Bangladesh, have been influential. Nonetheless, this route to achieving Output 2 has not proved as fruitful during the lifetime of the project as was first envisaged. It is hoped that publication with and by BCAS will extend the policy-level impact of the project, but it is not possible to demonstrate "improved awareness of consensus building issues by uptake" by BCAS at this stage. This may be partly ascribed to their current shortage of funding for field-based activities, rather than them not valuing the methodology.

Thus the third, and probably most effective route by which the project has been able to create improved awareness of consensus-building issues at a policy-level is through its close links to the DFID-funded Community-Based Fisheries Management (CBFM-2) project, being led by ICLARM Bangladesh. When the current project (R7562) was conceived, CBFM-2 had a focus on 'strategies' for improving co-management of open water fisheries in Bangladesh. The project Purpose as drafted in January 1999 was: "*Strategies to promote sustainable and equitable aquatic resources co-management in the inland open water fisheries of Bangladesh developed*" (ICLARM 1999). However, in further developing the project concept, it was recognised that to produce sustainable and macro-scale improvements in fisheries co-management, the project needed to influence fisheries policy. Since the commencement of R7562, CBFM-2 has therefore

evolved to have a very strong policy orientation; its final Purpose statement reads: "*A process for policy formulation for pro-poor sustainable fisheries management agreed and operational*" (ICLARM 2000).

This strong policy-orientation in CBFM-2 is demonstrated in the CBFM-2 Project Memorandum (ICLARM 2000) signed with DFID and the GoB Department of Fisheries. It states that:

"*Through a process of action research, this project will develop and promote policies and institutions which ensure sustainable exploitation and management of inland fisheries in Bangladesh securing livelihoods and access to fish for floodplain inhabitants, particularly professional fishers and poor people who catch fish for food*".

Thus "*The project will research the policy processes affecting the fisheries sector and advocacy work within that process. Using this it will target awareness raising within communities, local government, Department of Fisheries (DoF), senior levels of government concerned with fisheries and land administration, and other policy stakeholders of the approaches to and benefits of improved management. By promoting networks and dialogue, the project will facilitate participatory policy formulation based on documented evidence and encourage the adoption of improved pro-poor fisheries management as a central principle of GoB policy. Such policy improvements are expected to enhance the livelihood outcomes of poor people in fishery-dependent communities on a large scale, and provide general improvements in the sustainability of inland fisheries*".

The CBFM-2 Project Memorandum goes on to state that the project differentiates itself from other inland fisheries management projects by, *inter alia*, "*providing an opportunity to inform future fisheries policy in evidence-based ways which allow for more objective selection of policy objectives, and policy implementation strategies and instruments at national and local levels.*"

In relation to this novel approach to inland fisheries management projects, "*At the heart of CBFM-2 is the need to link pilot work to locally enhance the livelihood assets of wetland communities (targeting poorer people dependent on fishing) with coordinated strategic efforts to inform, influence and change transforming processes and policy making so that effective approaches can be scaled up for national benefits*."

Therefore, CBFM-2 has a specific output addressing issues of policy advocacy*:* "*To inform and influence all fisheries policy stakeholders of improved management approaches*" (see FTR Annex 1. CBFM-2 logframe).

Hence, "*The project purpose is to develop a policy formulation process. The management structure to achieve this is a partnership of different experienced organisations undertaking studies, pilot activities, and linking these to further action and policy influence through a range of media and networking designed to inform and influence a range of policy stakeholders. The project will use ICLARM's experience in coordinating partnerships, action research, and developing synergies and linkages between projects, for example to link with Fourth Fisheries Project*".

Therefore, the project is structured to work with a range of stakeholders in pilot areas and to use these experience to influence a range of "policy stakeholders". The project has made an initial assessment of the diversity of policy stakeholder interests, and this will be expanded and update during the project, "*so that a strategy based on a set of*

outputs and media targeted at the various stakeholders can be developed and evolve through the project life". The range of policy stakeholders, and their roles in the policy formulation process have been captured in an innovative policy stakeholder matrix (CBFM-2 PM annex 3 [FTR Annex 2]). This matrix will be used as a baseline to measure changes in policy stakeholders and their behaviour as a project indicator.

Finally, "*The project will target directly a range of higher stakeholders: ministries, DoF, project staff, academia, and elected representatives. The direct engagement in the project of ICLARM, NGOs, DoF and universities is part of the strategy to influence policy change for sustainable management of inland aquatic resources by ensuring ownership of evidence and experience by the partners. This will be supported by assessments of the potential to scale up; and identification of transforming structures and instruments needed to achieve this*".

Therefore it is clearly demonstrated that CBFM-2 is a very focused and well-connected policy-level target institution for uptake of project outputs. It will probably be much more influential in altering open water fisheries policy that any single NGOs working in isolation, and is thus the best target for Output 2. Since CBFM-2 have already used PAPD, and have agreed to adopt the process for use in the project, then this up take should result in dissemination and promotion of the methodology at a policy level.

7. Contribution of Outputs

The contribution of the project Outputs towards DFID's development goals can be considered in terms of the 'A-H pathway' (Text Box 5).

Step A was initiated during the development of the Project Memorandum, and achieved during the inception phase of the project. Step B was achieved during the final stages of the project, and relevant research results were disseminated to target organisations at the end-of-project workshop (FTR Volume 7.1). However, as noted in the project Mid-Term Review (MTR) [FTR Volume 3.3], since the consensus building method is being tested directly by target organisations within the umbrella of the CBFM-2 bilateral project, Step D was achieved during the 14 month lifetime of the project.

Text Box 5. The A-H Pathway.

The DFID A-H uptake pathway for assessing progress of research towards developmental impact:

A - Formal agreement with target institutions (TIs)
B - Generation of relevant research results (R project outputs delivered)
C - Development of appropriate research-based products through adaptation/ packaging
D - Promotion of products to TIs
E - Adoption of products by TIs
F - Application and replication of results in TIs
G - Promotion of technology or behavioural change among end-users by TIs
H - Adoption of technology by end-users and generation of economic benefits - developmental impact (R project purpose delivered)

There is an implicit assumption in the A-H pathway, as it is currently conceived, that the pathway for research to achieve development impact is both linear and step-wise. This

project demonstrates that this is not necessarily so. The promotion of the consensus building methodology to the CBFM-2 organisations occurred early in the life of the project, before results had been formally written-up. Thus Step D was achieved before Step B.

The organisations involved in the CBFM-2 project have adopted the consensus building methodology and have, are, or will use it both within the CBFM-2 project and in the implementation of other projects. The findings from the four PAPD processes undertaken in this project (R7562) as action research will be utilised in CBFM-2, which will undertake the implementation phase[103] activities. CNRS has adopted the PAPD process, and it is now central to the majority of the work that they undertake (Text Box 6). ICLARM are using the PAPD method in Vietnam for initiating a community-based fisheries management project in 1 – 2 sites in the Plain of Reeds area of the Mekong Delta. This project, which is being co-ordinated by Dr. Parvin Sultana, who is based in ICLARM Bangladesh and worked on this project, is being undertaken under ICLARM's regional CBFM initiative. The project is working in partnership with Oxfam and is funded by IFAD. These activities demonstrate achievement of Step E within the short lifetime of the project.

Text Box 6. Projects in which CNRS have used the PAPD process.

- Haor and floodplain components of the USAID-funded Management of Aquatic resources and Community Husbandry (MACH) project
- Haor component of the UNDP-funded Sustainable Environmental Management Project (SEMP) project
- Dutch-funded Coastal Biodiversity Conservation Project (CBAP)
- Ford Foundation-funded Community-Based Wetland Management (CBWM) project
- DFID-funded CBFM-2 project. CNRS is implementing a community-based wetland management and rehabilitation component of CBFM-2 in a system of large connected seasonal wetlands, of which Charan and Posna Beels (FTR Volumes 4.1 and 4.4) are part
- A shortened version of PAPD was used in the Chittagong Hill Tracts in the IUCN-HIMAL project
- Training in PAPD has been delivered to the National Conservation Strategy (NCS) - a project of the Ministry of Environment and Forests (MOEF)

Step F is "*Application and replication of results in Target Institutions*". The definition of this achievement step does not sit easily with the outcomes from this project. The results or 'findings'[104] from the PAPD process are, like the findings from PRA, unique to the time and place in which they are generated. As described above, these findings will be applied in CBFM-2. However the process is about much more than just its 'findings', which are the demonstrable products of the process. The process builds consensus and shared understanding (we have tried to demonstrate that this is a measurable output in FTR Volume 5). Nonetheless, neither the findings nor the built consensus are replicable.

[103] See Table 4, and FTR Volume 3.1.
[104] The term 'findings' has been used in the PAPD context to mean the outputs from the Problem Census and action-planning workshops.

Alternatively, if the application and replication of the PAPD process in the target institutions is what is meant in Step F, then the examples in Text Box 5, and the use of the process by ICLARM in Vietnam demonstrate achievement of Step F.

The nature of consensus building is as a process for effecting 'behavioural change among end-users' (Step G). As discussed in FTR Volume 5, assessing whether behavioural change, in the form of improved consensus, has occurred is a difficult task. Behavioural change can be assessed directly, as in this project's Consensus Assessment Survey (CAS) [FTR Volume 5], by use of survey's to gauge respondents' attitudes, in this case to the likelihood that they would trust, co-operate or reciprocate with other resource users. This is an assessment of process. Behavioural change can also be assessed by assessing the products of changed behaviour, such as the formation of resource users' groups or fisher's groups. This is assessment of outcomes. The timeframe of R7562 is too short to use outcome assessment to demonstrate behavioural change amongst end-users. The CAS [FTR Volume 5] demonstrates some positive change in some measures of consensus (social capital). Whether this is sufficient to claim achievement is clearly arguable[105]. However, if it has not been achieved during the lifetime of the project, then it is highly likely that it will be achieved within the next 1 – 3 years through the activities of CBFM-2. The success of community-based fisheries management is dependent on a change of behaviour of key stakeholders.

The project MTR states that "*In respect of generation of economic benefits, if management actions arise as a result of consensus building are successful (e.g. through the activities of CBFM-2, or ultimately by local institutions), then this project will have contributed in a process to achieving step H*." The achievement of Step H, at some date in the lifetime of CBFM-2, is thus now largely dependent on the success of CBFM-2. NRSP-LWI programme management will need to maintain a dialogue with CBFM-2 (ICLARM) in order to monitor the achievement of this final step.

7.1. List of dissemination outputs – R7562

- Barr, J.J.F. (2000). *Livelihood strategies and resource use in the Bangladesh floodplain – opportunities for benefiting the poor where competing uses of resources occur.* Invited Presentation at NRSP workshop: *"Improving the poverty focus of NRSP's research on management of natural resources"*. Held at International Centre for Agricultural Research – Rothamsted; 29-30 November 2000. (Powerpoint presentation included on the CD containing project documents in electronic form). [See Annex 6 for print-out]
- Paper and poster submitted to the Asian Wetlands Symposium 2001: "*Bringing Partnerships into Good Wetland Practice*"; Technical Session III: "*Capacity Building and Empowering Local Communities Including Indigenous People and Stakeholders in Wetland Management*".
  Paper: Barr, J.J.F., Rahman, M.M., Thompson, P.M., Lewins, R., Islam, A., Islam, N., Sultana, P., Mallick, D. and Dixon, P-J. (*submitted*). *Building Consensus Between Stakeholders for Management of Floodplain Wetlands in Bangladesh.* [See Annex 4 for abstract]
  Poster: Islam, A., Barr, J.J.F., Rahman, M.M., Dixon, P-J, and Thompson,

[105] It is clearly easier to demonstrate achievement of Step G, "Promotion of technology or behavioural change among end-users by TIs", for projects that are producing a technology, rather than a process.

P.T. (*submitted*). *A Methodology for Building Consensus Between Stakeholders of Multifunctional Wetlands.* [See Annex 5 for abstract]

- A project web site has been constructed. The domain name "www.consensus-building-methodology.org.uk" was purchased for the project[106]. This directs all internet traffic to the project web site on Newcastle University's web server. It is considered that the name improves the chance of the research reaching a wide target audience, but a hit-counter has yet to be implemented to quantify this.
- Project final workshop held at Bangladesh Institute of Administration and Management (BIAM), Dhaka, on 29th March 2001. See FTR Volume 7.1 for report on the workshop and FTR Volume 7.2 for summary presentations. The workshop was attended by 61 development practitioner, policy makers, senior government officials, and representatives from NGOs and multilateral organisations.

  Powerpoint presentations from the workshop included on the CD containing project documents in electronic form.
- We were invited by the DFID Fisheries and Aquatic Resources Field Manager (D. King) to make a presentation to DFID staff and staff on DFID-funded bilateral projects including CARE INTERFISH and the Fourth Fisheries Project. Summaries of the final workshop presentations were given by J. Barr, R. Lewins, P. Thompson and J. Barr on behalf of M. Rahman.
- An article on the project was published in the widely distributed Bangladesh Environmental Newsletter, which is edited and distributed by BCAS both in hard copy and on the internet (www.bcas.net/ben/ben032001.htm). The article, by Roger Lewins outlines the main activities of the project and explains the methods used in the process evaluation.

  Citation: Lewins, R. (2001). Consensus Building for Management of Common Property Resources. *Bangladesh Environmental Newsletter*, 12 (1) [March 2001], 10-12.
- We are currently producing a further article in the Bangladesh Environmental Newsletter, will report the key findings of the project.
- At the end of project workshop, Dr. Atiq Rahman proposed a book on wetland management, to include chapters from this project. This initiative will also be pursued after the FTR is complete.
- Roger Lewins will be presenting a joint seminar with Elizabeth Bennett (CEMARE) at MRAG on July 3rd. Ms Bennett is researching on Conflict in Tropical Fisheries (R7334) under the Fisheries Management Science Programme. The joint presentation will aim to highlight significant complementarity between conflict management and consensus building in tropical fisheries.
- Roger Lewins is in the process of converting the literature review (FTR Volume 6.1) into a paper for submission to the Development Policy Review.
- Contact has been established with WRENmedia in order to produce a short article on the project and its outputs in the New Agriculturist web journal (http://www.new-agri.co.uk).

7.2. List of Internal Reports

Back to Office reports:

J. Barr: April 2000, June 2000

[106] At a cost of £9.50 for two years' licence, which is considered good value promotion and dissemination.

P-J Dixon: November 2000 – Methodological review (FTR Volume 3.3)

Interim reports:
R. Lewins:
Field Report 1 – "Establishment of the review – project and site selection, questionnaire development and piloting." (3/7/00)
Field Report 2 – Consensus building workshop process evaluation." (12/9/01)

Administrative reports:
Project Inception Report
Quarterly reports: Feb- Jun 2000, July – Sept 2000, Oct - Dec 2000, Jan – Mar 2001
Annual reports: 1999-2000, 2000-2001
Response to MTR

Other reports:
Draft training and resource pack on the PAPD methodology (Islam and Barr, 2000).

7.3. Dissemination Pathways

The dissemination pathways for the project outputs are fairly self-evident from the list of dissemination outputs (above) and Sections 6.1 and 6.2 of this report. The key dissemination pathways to date are:

- The linkage to the CBFM-2 organisations, which provides a direct pathway into the most appropriate uptake organisations
- The end-of-project workshop, which disseminated the project products to a carefully selcted audience from organisations involved in management of, funding of, and policy making for floodplain commons.
- A summary of the end-of-project proceedings has been distributed to all participants, and put on project web site.
- A presentation was given to DFID staff and staff on DFID-funded bilateral projects, at the DFID-FMS office.
- The project web site will be used for international dissemination
- Dissemination will continue to occur through traditional printed media and conference presentations.

7.4. Other contributions to development goals

A number of other contributions by R7562 to development goals can be identified:

7.4.1 DFID-Bangladesh NR programme

In the latter part of 2000, DFID-Bangladesh reviewed its environmental programmes. In formulating the terms of reference for this review, Tim Robertson, Fisheries & Aquatic Resources Adviser at DFID-B recommended to the Natural Resources Field Manager (Ms. Leigh Stubblefield) that R7562 offered useful lessons for the bilateral NR programme: *"our combined programmes [NR & fisheries] should be moving more closely towards supporting interventions/policies/etc that encourage communities and appropriate institutions to engage in development and implementation of sustainable management strategies of natural resources. The key will be to identify models that operate in the context of Bangladesh. …*

I sense that we need to begin to explore a range of models that begin [to] move us in the direction of broader resource management. Julian Barr has begun to explore models around consensus building. His work is useful in that it combines the recognition that access to resources is a critical issue and he is bringing pretty well defined models that we can understand and explore. Furthermore, Julian's work builds on the many current trends within our programmes eg. building the confidence of groups and communities to engage in discussions regarding the management of natural assets. I would like to see this [environmental review] consultancy outline similar alternatives/models/options for environmental management which may be appropriate for the new emphasis for DFID-B" (Tim Robertson, e-mail Aug, 2000).

Thus as a broad NR scale, the project is contributing the DFID-Bangladesh bilateral programme by providing well researched models of engagement for strengthening the capabilities of local communities to manage their own resources.

7.4.2 Other fisheries projects

As indicated above, ICLARM are using the PAPD method in Vietnam for initiating a community-based fisheries management project in 1 – 2 sites in the Plain of Reeds area of the Mekong Delta. This project, which is being co-ordinated by Dr. Parvin Sultana, who is based in ICLARM Bangladesh and worked on this project, is being undertaken under ICLARM's regional CBFM initiative. The project is working in partnership with Oxfam and is funded by IFAD.

The World Bank and DFID funded Fourth Fisheries Project (FFP) seeks to increase the production from floodplain fisheries by establishing community participation in its management to ensure an equitable distribution of benefits. Senior FFP staff attended the R75672 end-of-project workshop in Dhaka and subsequent presentation at the field management office for DFID-funded projects. Dirk Reyntjens (FFP Project Manager) indicated that they would like to utilise some of the consensus building methodology in FFP.

7.4.3 Other contributions

- The project has commenced a dialogue with ITDG in UK, particularly in relation to their project on managing pastoral conflicts in Kenya. The video "*mache, bhate, bangali – Understanding rural livelihoods on Bangladesh floodplains*" (Barr *et al*, 2000c), which includes an explanation of the consensus building methodology, has been used by ITDG in for awareness raising and discussion in project meetings in Kenya (S. Coupe, *pers. comm.*).

- The design of the consensus assessment survey (CAS) [FTR Volume 5, chapter 2] was used by the Statistical Service Centre at Reading University as a case study of good biometrical practice, specifically good practice in the preparation of research protocols (Abeyasekera and Stern, 2001).

7.5. Further stages needed to develop the Outputs

The principal stage required to develop the outputs is the production of some form of manual and resource pack for the PAPD process. The project has produced a guideline and decision tree for choosing and using consensus building methods in general [FTR Volume 2]. There is also a draft training and resource pack for PAPD

(Islam and Barr, 2000). However, production of a user-friendly manual is a skilled task. Many manuals describing processes and methodologies do so in a rigid fashion, thereby reducing their utility and usability to anyone other than their author (Pat Norrish, *pers. comm.*). A PAPD manual should be compiled with inputs from CNRS and other organisations that have used the method working with a communications specialist.

As discussed in Section 6.1.1, a mid-term developmental review of the PAPD process was undertaken by Peter Dixon. This reported is presented in FTR Volume 3.3a. However, since this review occurred during the second and third implementations of the methodology out of the four undertaken in the project, there was not the opportunity to make a comprehensive analysis of the recommended modifications of the process, nor to fully incorporate them into the process. The production of a manual should be the opportunity to revisit these modifications and incorporate them appropriately.

As discussed above, the project has studied the extent to which the PAPD has impacted on non-workshop participants in the communities where the processes have occurred. The evidence is that understanding of the purpose and outcomes of the process diffuses quite well. However there is a need to try to build in feedback loops so that dissemination into, and feedback, from the wider community helps the building support for and ownership of the implementation phase.

8. Future Work

Four areas for future work can be identified:

8.1 Monitoring impact

R7562 has been a short project, and product- (rather than process-) oriented outcomes are unlikely to have been achieved at the four action research sites during its lifetime. This is the premise for undertaking process evaluation [FTR Volume 3.2]. As indicated in the MTR [FTR Volume 3.3b], the project does not include any elements of resource monitoring. There are thus three types of follow-up monitoring that it is recommended are undertaken (these could and should be undertaken in chronological order as presented):

- Monitoring of consensus. Two factors are important here. (i) The Consensus Assessment Survey (CAS) found measurable increases in some indicators of consensus, but there were no major changes [FTR Volume 5, chapter 6]. It was suggested that one reason for this is that change was measured over only a two week period. Various members of the communities (workshop participants and non-participants) had little time to interact after the workshop, to discuss what they had experienced, and to allow attitudes to gradually change. A further assessment, up to 6 months after the workshop would improve our understanding of the levels of consensus built in the process. (ii) It is uncertain at present how durable the consensus built in the PAPD workshops is. For example, it is unclear whether in 6, 12 or 24 months, further activities will be required to maintain the consensus that has been built. Accepting that building consensus correlates with building cognitive social capital, the Consensus Assessment Survey (CAS) tool

(FTR Volume 5, chapter 2) could be slightly modified[107] and used to re-assess consensus at point or points in the future.

- Monitoring of product-oriented outcomes. Increased levels of cognitive social capital should result in higher levels of structural social capital (e.g. increased membership of farmers or fishers associations) or the formation of new structures (e.g. establishment of water resource management committees). These could be monitored at the CBFM-2 sites, where there are baseline data on such parameters.

- Monitoring of more sustainable resource use. The project goal relates to more sustainable resource use. There is a need to monitor whether the additive steps of:

  improved consensus over resource management
  → improved institutions for resource management
  → improved resource use

  do prove to hold true. There is thus a need to monitor productivity trends for aquatic CPRs. As above, this could occur in concert with CBFM-2, which will be undertaking some production monitoring.

8.2 Institutions for resource management

FTR Volume 3.1 outlines three phases for the full PAPD process to achieve improved collective action over management of CPRs. Pomeroy (1998) has outlined three similar phases in achieving community-based NR co-management (Table 17).

Table 17. The three phases of CB-NRM projects

	PAPD (FTR Volume 3.1)	**Community-based co-management** (Pomeroy, 1998)
1.	Scoping phase	Pre-implementation
2.	Participatory planning phase	Implementation
3.	Implementation / management phase	Phase-out / post-implementation

This project has focused squarely on the second phase – the participatory planning phase (Pomeroy's 'Implementation' [of CB co-management projects] phase). Indeed, in the 14 month working lifetime of R7562, it was not possible to make in-depth investigation of processes occurring in the third phase – the 'management' phase. There remains much future work in understanding how institutions for successful collective management of aquatic CPRs can be established, and how they will continue to operate.

As indicated above, it is important here to distinguish between organisations and institutions. Both are required in the 'management phase'. Many contemporary CN-NRM initiatives in Bangladesh are have been involved in facilitating the formation of local organisations for resource management: Resource Management Committees, Beel Management Committees, Haor Management Committees, Wetland Management

[107] As seen in FTR Volume 5, not all elements of the CAS were sensitive to changes in levels of consensus.

Committees in projects including, SEMP (UNDP), CBWM (Ford Foundation), CBFM/CBFM-2 (Ford Foundation / DFID). At both CNRS sites (Posna and Charan beels) in this project (R7562), proposals were made to establish resource management committees (RMCs) to take forward the responsibility for agreeing a detailed action plan for managing the beel, and then implementing the plan. Details of the proposed membership of the RMC are given in FTR Volume 4.4 (p. xxxvii).

The crafting of these organisations has occurred with third-party facilitation, in most cases by an NGO with a long-term commitment to the area. The NGOs are also assisting these local organisations in obtaining registration and thus legal recognition. However there is a need to study how the stakeholder-based ethos of the PAPD workshops is taken forward into the formation of these organisations, and to analyse how well the *demos* is represented in these committees, where the control lies, how it has been vested in the committees, how it is exercised, and how these committees relate to formal locally elected bodies. For those committees which have been in existence for some time, there is a need to assess their success in functioning as "*platforms for resource use negotiation*" (Steins and Edwards, 1999).

In addition to the need for further work to better understand the formation and functioning of resource management committees, there is the associated requirement to study and understand the institutional dimension of this approach – assessment of the crafting, monitoring and enforcement of local rules and norms for resource use.

8.3 A process manual

As described in Section 7.5 of this report, there is a need to produce of a manual for the PAPD process. This requires input from the facilitating organisations in R7562 (CNRS and ICLARM) working with a communications specialist. The manual should be clear, concise and useable. It should avoid promoting the methodology in a rigid pedagogic fashion. The manual should ensure that modifications to the process identified in the course of R7562 are incorporated [FTR Volumes 3.3a and 3.4].

8.4 Property rights

A number of authors (e.g. Rahman *et al*, 1998; Beck and Nesmith, 2001) show that CPRs are disproportionately more important in the livelihoods of the poor than wealthier groups. However floodplain CPRs in Bangladesh are under threat. Pressures from increasing population, poverty and inequality have increased the incidence of resource capture, to the extent that CPRs are '***increasingly becoming extinct***' (Toufique, 2000). There is an urgent need to prevent this decline, which is occurring due to the erosion of both *de jure* and *de facto* property rights.

As shown in Section 3.4.2, property right regimes that relate to Bangladesh floodplain aquatic Common Pool Resources are highly complex. Compounding this, the waterbody licencing system in Bangladesh is "*now in an advanced state of confusion*" Hoggarth and McGregor (1998); for example, flowing rivers have been free access since 1995, but in some places fisher are still being charged a sub-lease to fish. Therefore there is a need for research to characterise the the property right regimes in different types of aquatic CPRs in order to relate them to different types of institution for their sustainable and equitable management, and thence to inform policy so that their further erosion can be prevented.

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10. Annex 1. CBFM-2 LOGICAL FRAMEWORK

Hierarchy of Objectives	Objectively Verifiable Indicators	Means of Verification	Assumptions
SUPERGOAL To sustainably improve the livelihoods of poor people dependant on aquatic resources	Improved food security, nutrition, and diversity of diet. Greater access to and control over the use of aquatic resources by poor people. Use of more sustainable and accessible credit for more productive activities. Increases in people's assets, incomes and savings.	Within project: baseline, impact monitoring and assessment reports, post project evaluation report. Wider: long term monitoring and secondary source data on livelihoods of floodplain people in general.	
GOAL Improved inland fisheries management policy and policy process adopted by the GoB and NGOs resulting in more sustainable, equitable and participatory management of resources.	Policy document reflecting the findings of the research approved by government and operational by the end of the project. Revised policy instruments for the implementation of the new policy in place within a year of project end. All new projects concerned with inland fisheries resource management approved after the project end reflect the findings of the research. More community wetland and fishery management organisations, and NGOs adopting findings of the project and active in supporting such organisations. GoB and NGOs collaborate in other projects adopting improved strategies and institutional arrangements.	GoB policy documents Laws and rules (local and national) GoB strategic plans and project documents Media reports and studies of CBFM initiated by local communities. NGO plans and projects (annual reports). Project documents	CBFM models shown to bring meaningful and sustainable benefits. GOB and NGOs accept and make commitment to successful models. Management improvements are implemented by other communities.
PURPOSE A process for policy formulation for pro-poor sustainable fisheries management agreed and operational.	Agreement on a more transparent policy formulation process. Significant changes in the policy stakeholder matrix to be more participatory and pro-poor. Before the project end wide sharing of evidence, strong links and policy dialogue among and between: • DOF projects, particularly with FFP • Other agencies, departments, ministries and donors and their projects • NGOs • Community based organisations (especially those focused on fisheries and wetlands)	Policy/strategy documents and their preparation (extent of participation and coordination) Reassessment of PSM against baseline PSM Activities of various networks initiated by the project, reports of other projects Extent of informed NGO and CBO lobbying	Other projects and organisations, notably FFP, cooperate with CBFM-2 and collectively demonstrate improvements in fishery and wetland management
OUTPUTS 1. Community based fisheries management approaches developed and tested, and their impacts, sustainability and potential for expansion assessed.	1.1 At least five approaches to CBFM developed for use in 3 different types of water-bodies by project month 12. 1.2 Fisher groups representing about 30,000 households in over 65 waterbodies established by project month 18. 1.3 Appropriate management bodies under these approaches established in 50% of project sites by project month 12 and 100% by project month 24. 1.4 Fishers and their management bodies introduce improved fishery and wetland management practices in 50% of project sites by project month 24 and 80% by project month 36. 1.5 .Changes in social, economic and fishery indicators for all stakeholders including poor and women in all project and control areas assessed by project	1.1 Progress report on approaches/models developed. 1.2 Progress reports and process documentation on management bodies. 1.3 Progress reports and process documentation on management bodies. 1.4 Waterbody specific management plans and participant monitoring. 1.5 Consolidated impact monitoring and assessment reports.	No change in government fisheries policies affecting pilot areas during project.

Hierarchy of Objectives	Objectively Verifiable Indicators	Means of Verification	Assumptions
	months 24 and 54.		
	1.6 Institutional sustainability of approaches assessed by project month 54, with follow up post project assessment 2 years after end of project.	1.6 Process documentation and case studies. Report on institutional sustainability analysis of CBFM against a set of agreed indicators.	
2. Co-ordination and administration mechanisms for linking local community management arrangements within larger fishery and wetland systems identified, tested and assessed, and constraints to this identified.	2.1 Potential link mechanisms designed based on discussions with participants, local government and NGOs by project month 12.	2.1 Planning report.	
	2.2 Management institutions established to cover at least 6 wider eco-systems (both fishery focus, and whole wetland/floodplain focus) by project month 24.	2.2 Institutional monitoring reports and case studies	Communities agree to share information and cooperate/negotiate compromises
	2.3 Mechanisms to improve co-ordination and conflict resolution between organisations and among fishery stakeholders developed and tested by project month 36.	2.3 Minutes of co-management body meetings and their management plans.	
	2.4 MOL and local administration (union to district) support to enable and legitimise co-management demonstrated by project month 24.	2.4 Institutional case studies including legal and administration (quicker decisions, fewer cases).	MOL supportive and ensures active local administration involvement in project
	2.5 Appropriate changes in fishery administration and legal framework recommended based on pilot experience and supporting studies by project month 54.	2.5 Study reports; annual policy briefings and workshop recommendations.	
	2.6 Potential to scale up improved management approaches to nation assessed and reported on by project month 50.	2.6 Report on scope to expand including cost implications and number of appropriate waterbodies for different approaches.	
3. To inform and influence all fisheries policy stakeholders of improved management approaches.	3.1 Policy formulation study completed by project month 12 and policy stakeholder matrix revised to form baseline.	3.1 Study report.	
	3.2 Changes in attitudes and behaviour of participant fishers and rural communities towards fish conservation by project month 36.	3.2 Attitude surveys in CBFM sites, audience feedback monitoring.	Media reach target audiences. Attitudes change
	3.3 Changes in attitudes and behaviour of other fishers and rural communities towards fish conservation by project month 60.	3.3 Attitude surveys and audience feedback monitoring in nearby areas.	Evidence of significant impacts of CBFM.
	3.4 Greater awareness of project findings evident within local and senior DoF, Land Administration, and relevant ministries by project month 48.	3.4 Feedback in annual policy maker briefings.	Information reaches policy makers who listen.
	3.5 Greater awareness of NGOs including non-project NGOs of project findings and improved fishery management issues by project month 48.	3.5 Meetings of NGO network, demand for reports and media products.	Interministerial coordination and the existing committee for this continue to function.

11. Annex 2. CBFM-2 Policy Stakeholder Matrix

CBFM-2 Project Memorandum Annex 3
Policy Stakeholder Matrix

Introduction
This policy stakeholder matrix (PSM) is an analytical tool for policy influence activities that will be refined and evolve during the project. The PSM will be revised by the end of the first year of the project through a study of policy formulation and the influence and interests of each policy stakeholder. It will then be re-assessed at the end of the project to review changes in the roles, aims, attitudes, behaviour and interactions of the policy stakeholders to determine what significant changes may be linked with the project. Comparison between the baseline PSM and end of project PSM will be used as an indicator of change at the purpose level.

This PSM relates to the different stakeholders who may be involved in changing fisheries resource management policy based on the evidence generated by the CBFM-2 Project. The PSM identifies the type of behavioural change that would be required from each stakeholder to achieve the desired changes in the policy process, and what the project has to do to achieve those changes. The PSM assumes that the project will generate results of relevance to changes in policy on sustainable resource use which can contribute to the achievement of national development objectives (particularly poverty alleviation) but does not attempt to predict what those results will be (i.e. it does not assume that support for community based resource management will be the project outcome).

The PSM is an evolving tool which should develop and change through the project life reflecting, inter alia, changes in the knowledge generated by the research, the perceived policy changes required, and the responses of the different stakeholders involved.

The PSM was drawn-up following discussion on policy processes with a range of CBFM project stakeholders including village men and women involved in the fisheries sector, NGO staff, DoF staff, and MoFL staff. Informants were not necessarily aware that they were contributing to the PSM as this may have influenced their responses. Finally the PSM was reviewed and further developed by a group of NGO and ICLARM partners from CBFM-1.

Explanation of the Matrix
The PSM is made up of seven columns. These are explained below.

Column 1 Stakeholders to be influenced
This column records the key stakeholders who might influence the policy process. As the type of proposed changes in policy become more apparent during the research so the number and type of stakeholders may change. Additional ones may have to be added and some may have to be removed.

Column 2 Role of the stakeholder in the policy process
Different stakeholders will have different roles in the policy process. These roles may change over time and they may complement and conflict with the roles of other stakeholders. It is important to understand the roles in order to identify how the project can influence it.

Column 3 Required response, action or behaviour change of stakeholder
If stakeholders are to influence the policy process using the results of the research they will need to respond in some way which affects the policy process. It is important to define what that

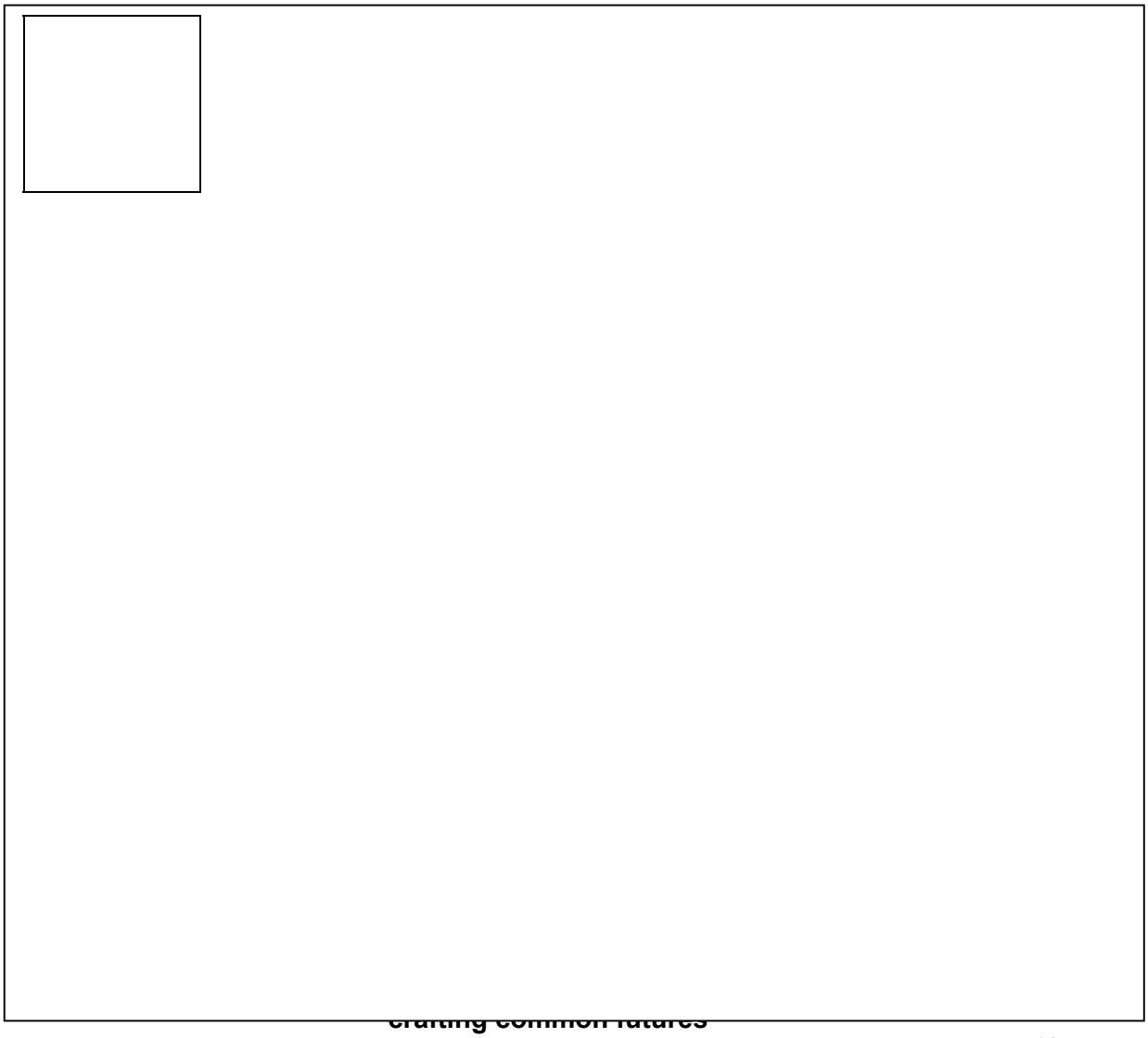
response should be so that the project can be begin to define what it needs to do to bring that response about.

Column 4 Stage in the policy cycle

The policy process can be viewed, for the purpose of analysis, as a circular process consisting of a series of stages. One representation of that process is shown in Figure 18. In reality the process is extremely complex with these theoretical stages being merged into an overlapping web of decisions and actions that are not easily separated. These will change with the policy being considered and some stages may be missing with others being added. An important part of the PSM is understanding what these stages are, what sequence they tend to follow and who is most involved in influencing them.

Broadly speaking the process involves the a) identification of a key problem, b) generation of knowledge concerning that problem, c) getting the problem recognised and on the government agenda for discussion, d) identification of options for its resolution, e) prioritisation of those options, f) formulation of policies to implement the selected option (s), g) legitimisation of the policy through the government process, h) planning how the policy will be implemented, i) selection of policy instruments (e.g. legislation, project support, NGO involvement), j) policy implementation, k) review and evaluation of implementation, l) modification of implementation, and finally back to identifying the next set of problems.

Figure 18. Simplification of the policy process into stages



Column 5 Stakeholder benefit from the change
If stakeholders are going to contribute to the policy process they must see some benefit to them from doing so. It will be important for the project to identify what potential benefits there are and to ensure that the concerned stakeholder sees the policy change in those terms.

Column 6 Required output from the project
If the project is to get the different stakeholders to contribute to policy change then the project will have to deliver a series of products or outputs (these are not to be confused with the logframe outputs of the project). In some cases the outputs will actually be delivered by other projects or activities of other agencies. In such cases it will not be necessary for the project to repeat these outputs but merely to monitor them and to link into them.

Column 7 Required activities of the project
Each output mentioned in column 6 will require activities from the project (unless they are being implemented by other projects) to generate those outputs. A further column can be added which would assess the milestones for the project. This involves taking the key outputs from column 6 and the project defining in a little more qualitative detail what will be achieved and when. This will allow progress to be monitored to ensure that the process is moving smoothly ahead.

An important part of monitoring project progress will be assessing the extent that milestones are achieved and how effective they are in generating the required changes in stakeholders.

1. STAKEHOLDER TO BE INFLUENCED	2. ROLE OF STAKEHOLDER IN THE POLICY PROCESS	3. REQUIRED RESPONSE, ACTION OR BEHAVIOUR CHANGE OF STAKEHOLDER	4. STAGE OF THE POLICY CYCLE	5. STAKEHOLDER BENEFITS FROM THE CHANGE	6. REQUIRED OUTPUT FROM THE PROJECT (IF NOT COVERED BY OTHER PROJECTS)	7. REQUIRED ACTIVITIES OF THE PROJECT (IF NOT COVERED BY OTHER PROJECTS)
FISHERS WHO HAVE PARTICIPATED IN THE PROJECT	• Informing and influencing local-level decision makers	• To understand and promote the benefits of resource management changes to local decision-makers	• Project monitoring and evaluation to inform policy • Policy implementation	• Potential social and economic benefits from the change in management arrangements	• Clear evidence that resource management can produce sustainable social, institutional and economic benefits for low income fishers • Periodic evaluations of the perceived benefits of the changes as defined by the fishers themselves • Forums to allow, encourage and support the wider distribution of the views of the fishers • Institutionalisation of the forums	• Demonstrate the sustainability, contribution to poverty alleviation and efficiency of benefits to fishers resulting from local changes to the management arrangements • Establish a participatory monitoring and evaluation system of the actual benefits from different strategies • Assist fishers to prepare case studies (e.g. written, video, audio) of their own experiences which can reach a wide audience • Work with local communities and elites to establish processes for recognising the forums
SPOUSES OF FISHERS WHO PARTICIPATED IN THE PROJECT	• Influencing fishers and other members of the community regarding decisions to be made	• To understand and promote the benefits of resource management changes and diversified livelihood strategies to local decision-makers	• Project monitoring and evaluation to inform policy • Policy implementation	• Potential social and economic benefits from the change in management arrangements and diversified livelihood strategies	• Clear evidence that resource management and diversified strategies for women can produce sustainable social, institutional and economic benefits for low income women • Periodic evaluations of the perceived benefits of the changes as defined by the women themselves • Forums to allow, encourage and support the wider distribution of the views of the women • Institutionalisation of the forums	• Demonstrate the sustainability, contribution to poverty alleviation and efficiency of the benefits of the management arrangements and diversified livelihood strategies • Implement participatory monitoring and evaluation of the actual benefits from different strategies • Assist women to prepare case studies (e.g. written, video, audio) of their own experiences which can reach a wide audience
YOUNG PEOPLE WHO ARE POTENTIAL RECRUITS TO THE FISHERY	• Influencing the policy process because of possible lost opportunities within the fisheries sector • Influencing wider community views in relation to sustainable resource use • Articulating their needs for alternative income generating opportunities for those excluded from the fishery by new management arrangements	• To become supportive of and to promote: a) the benefits of diversified livelihood strategies to local decision-makers and b) the benefits of resource management changes	• Project monitoring and evaluation to inform policy • Policy implementation	• Potential future employment linked to diversified livelihood strategies outside of the fishery • Improved food security at the community level	• Clear evidence of the social, institutional and economic benefits of possible alternative income generating opportunities which will attract the young away from fisheries	• Demonstrate diminishing scope for livelihood opportunities for more people from the fishery • Demonstrate, and raise awareness amongst the youth of, the potential benefits of diversified livelihood strategies • Implement participatory monitoring and evaluation of the actual benefits from different strategies • Assist youth to prepare case studies (e.g. written, video, audio) of their own experiences which can reach a wide audience
PART-TIME /SUBSISTENCE	• Influencing local decision-making in the	• To support and promote the changed management	• Project monitoring and evaluation to	• More stable catches from well managed	• Evidence to demonstrate benefits produced	• Implement comparative time series assessment of catches and fish

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FISHERS	community and Union Parishad • Influencing the success or failure of policy implementation		inform policy • Policy implementation	fishery	• Media to promote understanding of benefits	consumption by water body type, management regime, and stakeholder group • Develop appropriate media for promotion • Demonstrate and promote to subsistence fishers the potential benefits of improved management
LOCAL ELITES	• Influencing local decision-making in the community and Union Parishad • Influencing the success or failure of policy implementation	• To support and promote the changed management	• Project monitoring and evaluation to inform policy • Policy implementation	• Stable and where possible enhanced catches from well managed fishery • Improved food supply and incomes from well managed fishery	• Evidence to demonstrate benefits generated • Media to promote understanding of benefits produced • Elites contributing to project implementation	• Present evidence in ways which reflect requirements of elites • Develop media to promote the message • Support and encourage elites to join PIC
REST OF COMMUNITY IN PROJECT AREA	• Influencing local decision-making in the community and Union Parishad • Influencing the success or failure of policy implementation	• To understand and support the changes towards improved fishery management which are identified	• Project monitoring and evaluation to inform policy • Policy implementation	• Improved amenity from better managed aquatic environment, access for subsistence fishing, improved fish supplied for consumption	• Evidence to demonstrate benefits of improved resource management generated • Media to promote understanding of benefits produced and widely used • Wider community contributing to project implementation	• Present evidence in ways which reflect requirements of wider community (e.g. drama) • Develop media to raise awareness and to promote the message • Support and encourage community representatives to join PIC
FISHERS AND THEIR FAMILIES OUTSIDE OF THE PROJECT AREA	• Influencing the future implementation of policy changes	• To understand and support the changes towards improved fishery management which are identified	• Project monitoring and evaluation to inform policy • Policy implementation	• Potential social and economic benefits from the change in management arrangements	• Evidence to demonstrate that benefits are transferable to a wide diversity of water bodies generated • Media to promote understanding of benefits produced and widely used	• Compare project sites with controls • Characterise water bodies throughout the country and generate evidence of generalisability of approach • Develop media to raise awareness and to promote the message
NGOs WHO HAVE PARTICIPATED IN THE PROJECT	• Informing the evaluation of project activities • Influencing the change in policy within local decision-making bodies, DoF and the Ministries • Implementing the policies as partners with DoF	• To understand the benefits which management changes can bring to decision-makers and to promote awareness of these benefits to the decision-makers and their advisers • Willingness to promote the benefits of management change to the wider community • Willingness to work with DoF in project implementation	• Project monitoring and evaluation, policy agenda setting, policy formulation, policy prioritisation, and policy implementation as partners with government.	• Potential involvement in an expansion of the work to a much larger number of water bodies and thus more members • Enhanced capacity in natural resource management and policy issues	• Awareness in NGOs of the wider policy implications of their work raised • Evidence to demonstrate that benefits are transferable to a wide diversity of water bodies produced and widely used	• Identify information needs and develop appropriate media • Promote a wider and more detailed knowledge in NGO staff of the policy implications of the project • Establish stronger linkages between NGOs
OTHER NGOS	• Promotion of new resource management methods to communities	• Adopt resource management approaches that generate benefits for the communities they work that	• Policy agenda setting • Policy	• Potential involvement in an expansion of the work	• Awareness in NGOs of the wider policy implications of their work raised	• Identify information needs and develop appropriate media • Promote a wider and more

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	and to decision-makers	promote sustainable resource use • Promote management changes through their working relationships with DoF and other projects	implementation	to a much larger number of water bodies and thus more members • Improved services to people they are currently working with	• Evidence to demonstrate that benefits are transferable to a wide diversity of water bodies produced and widely used	detailed knowledge in NGO staff of the policy implications of the project • Establish stronger linkages between NGOs
LOCAL LEVEL FISHERIES STAFF	• Informing the evaluation of project activities • Influencing the change in policy within local decision-making bodies and with DoF headquarters • Implementing the policies as partners with NGOs	• To promote the benefits of management change to the wider community • To promote the benefits of policy change to their superiors within DoF	• Project monitoring and evaluation, policy agenda setting in DoF, and policy implementation through DoF projects.	• Stable or increasing production • Ease of revenue collection from community • Reduced work load in conflict resolution	• An understanding of the wider policy implications of the project work generated • Clear evidence that resource management can produce sustainable social, institutional and economic benefits for low income fishers generated • Media to promote understanding of benefits developed and widely used	• Directly involve DoF staff in project implementation • Present evidence from the research in a format which addresses their interests and needs • Hold seminars, develop and use media, and work closely with local staff to ensure their understanding and commitment
LOCAL GOVERNMENT OFFICIALS	• Informing the evaluation of project activities • Influencing the change in policy within local decision-making bodies and with MoL • Implementing the policies as partners with NGOs/DoF/CBOs	• To support policy change and to offset criticism at the local level • To feed back positive advice to the MoL	• Project monitoring and evaluation, policy agenda setting, and policy implementation.	• Low conflict in local area • Improved living conditions of local people	• Clear evidence that resource management can produce sustainable social, institutional and economic benefits for low income fishers • Media to promote understanding of benefits	• Present evidence from the research in a format which addresses their interests and needs • Hold seminars, develop and use media, and work closely with local staff to ensure their understanding and commitment • Directly involve local government staff where appropriate in project implementation
UNION PARISHADS	• Informing the evaluation of project activities • Influencing the views of wider society in the locality • Implementing the policies as partners with NGOs/ DoF/ CBOs	• To support policy change and to offset criticism at the local level • To feed back positive advice to the MoL	• Project monitoring and evaluation, policy agenda setting, and policy implementation through local works in support of water body development.	• Low level of community conflict • Support from the local community	• Clear evidence that resource management can produce sustainable social, institutional and economic benefits for low income fishers • Media to promote understanding of benefits	• Present evidence from the research in a format which addresses their interests and needs • Hold seminars, develop and use media, and work closely with local staff to ensure their understanding and commitment • Directly involve UP in advising and assisting in management
4TH FISHERIES PROJECT STAFF	• Informing the agenda setting process • Informing the selection of policy options • Advising on policy formulation • Advising on future policy implementation	• To take up and use the results of the CBFM 2 in the FFP • To share experiences with other projects • To provide advice and guidance on policy change to the DoF, MoFL and MoL • To inform donors on the benefits	• Project monitoring and evaluation of FFP activities, and policy agenda setting and advising on policy formulation in MoFL and MoL	• Timely, replicable, evidence-based guidance on the strategies to adopt in FFP implementation	• Close working relationship established • Clear evidence that resource management can produce efficient, equitable and sustainable social, institutional and economic benefits for low income fishers and other stakeholders in a diversity of water	• Establish formal mechanisms for the exchange of information and coordination of activities • Hold regular meetings with FFP staff to exchange information and experience, coordinate activities and work towards providing coordinated support for policy change in

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		of changed management options and so that these might be reflected in the funding of future projects			bodies generated • Workable and tested models for implementing improved management approaches in sustainable ways made available • Media to promote understanding of benefits	government • Hold annual workshops with all projects to share information experiences and to coordinate future activities
STAFF OF OTHER RESOURCE MANAGEMENT PROJECTS IN THE FISHERIES AND WETLAND SECTOR	• Informing the agenda setting process • Informing the selection of policy options • Advising on policy formulation • Advising on future policy implementation	• To take up and use the results of the CBFM 2 in the their projects • To share experiences with other projects • To provide advice and guidance on policy change to the DoF, MoFL and MoL	• Policy agenda setting and advising on policy formulation in MoFL and MoL, and policy implementation through advising on project design and funding, and through project implementation	• Clearer direction of the way forward	• Clear evidence that resource management can produce efficient (including cost effectiveness), equitable and sustainable social, institutional and economic benefits for low income fishers and other stakeholders in a diversity of water bodies produced • Media to promote understanding of benefits developed and widely used	• Establish formal mechanisms for the exchange of information and coordination of activities • Hold regular meetings with project staff to exchange information and experience, coordinate activities and work towards providing coordinated support for policy change in government • Hold annual workshops with all projects to share information experiences and to coordinate future activities • Involve them in the development of appropriate media
NATIONAL UNIVERSITIES AND RESEARCH ORGANISATIONS	• Advising in policy formulation	• Support for policy changes ain improved management • Validation of research results	• Policy formulation	• Improved knowledge and research skills	• Their involvement in national workshops and joint publications	• Collaborate with the research institutes during project implementation
INTERNATIONAL FISHERIES SCIENCE AND DEVELOPMENT COMMUNITY	• Reviewing and evaluating the methods and results of the work of the project	• Acceptance and approval of results of the project as a viable way to address social, economic, environmental and governance issues	• Policy agenda setting	• Increased knowledge in the international research community • Global development policies and practices informed	• Papers published in international quality peer reviewed journals on the evidence supporting the social, economic, environmental and governance impacts and sustainability to be derived from proposed management changes • Papers presented at international workshops	• Project to prepare a diversity of papers covering the evidence to support the view that the research findings on changes to management measures can generate positive contribution to national development objectives in sustainable, equitable and efficient ways.
LOCAL CONSULTATIVE GROUP	• Influencing collaboration and coordination of donor funded projects in generating and sharing the knowledge to inform the policy process • Influencing the production of consistent messages to inform and influence policy	• Agreement amongst members on the importance and relevance of the proposed policy changes • Expressed support for the proposed policy changes to other stakeholders • Changes in design and content of projects to reflect and support proposed policy changes	• Policy prioritisation, formulation and implementation	• Improved achievement of donor development objectives • Improved harmonisation and coordination of donor support to the sector • Higher returns/ unit cost from development support	• Clear evidence that resource management can produce efficient (including cost effectiveness in terms of project delivery), equitable and sustainable social, institutional and economic benefits for low income fishers and other stakeholders in a diversity of water bodies throughout Bangladesh produced • Media to promote understanding	• Regularly inform LCG of progress and likely policy implication fo work and advise on ways from greater coordination and cooperation between projects • Include LCG members in annual workshops to share information experiences and to coordinate future activities • Involve LCG in the development of appropriate media

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	• Influencing the ability of government to implement policy through donor funding				of benefits developed and widely used	
NATIONAL FISHERMEN'S ASSOCIATION	• Influencing attitudes to policy change in DoF, MoFL and amongst fishers	• Support for the proposed policy changes expressed to government • Acceptance of a greater role for ordinary fishers in resource management	• Agenda setting, policy formulation	• Increased benefits for fishermen throughout Bangladesh • Stronger grassroots support	• Clear evidence that resource management changes can produce sustainable social, institutional and economic benefits for a wide diversity of fishers • Media to promote understanding of benefits	• Present evidence from the research in a format which addresses their interests and needs • Invite NFA representatives to seminars, develop and use media to ensure their understanding and commitment
DOF	• Influencing policy agenda setting and policy formulation in MoFL • Influencing the selection and design of policy instruments such as legislation, relationships with NGOs and design of projects • Planning policy implementation • Implementing policy • Monitoring and evaluating projects • Provide policy relevant information to other ministries	• Co-ordinate the lessons learnt from various projects concerning management changes • Present these to MoFL and MoL in ways which can inform and influence policy and in particular how sectoral policy changes can assist in the achievement of national development objectives • Provide guidance to MoFL and MoL on appropriate policy instruments (finance, legislation, institutional reform, responsibility sharing, information flows etc.) required • Guide donors on future project funding to ensure incorporation of lessons learnt • Changing revenue and development budgets to reflect new management arrangements • Changing the roles of field staff to reflect policy changes	• Policy agenda setting and policy formulation in MoFL. • Policy implementation •	• Greater donor commitment to development in the sector • Increased achievement of objectives/targets for the sector • Higher profiles for the Department	• Clear understanding of the policy processes in the fisheries sector • Clear evidence that resource management can produce efficient, equitable and sustainable social, institutional and economic benefits in line with national development priorities for low income fishers and other stakeholders in a diversity of water bodies throughout Bangladesh produced • Assessment of costs and benefits of different policy instruments completed • Assistance in drafting policy instruments provided • Media to promote understanding of benefits	• Carry out policy studies of the fisheries sector • Generate clear and timely evidence on a) the sustainability, b) contribution to national development objectives, e) equity, and d) efficiency of options for changes to the management policies and arrangements • Demonstrate the cost-effective replicability of such options to a wide number of water-bodies throughout Bangaldesh • Develop media to promote this information • Assist DoF to identify and evaluate different policy instruments
THE MINISTRY OF FISHERIES AND LIVESTOCK	• Identification of policy options • Prioritising options • Formulating policy • Approving and supporting the selection of policy instruments • Authorising policy implementation	• Working with other ministries to develop more appropriate policies for access to and use of water and fishing resources based on the evidence of benefits to national development identified by field research • In association with other ministries, reviewing and, where appropriate, changing water and fishing resource management arrangements • In association with other	• Policy prioritisation and policy formulation in fisheries • Policy agenda setting and advice on policy change in MoL • Advice of changes in legislation as a policy instrument	• Greater donor commitment to development in the sector • Achievement of policy objectives in a cost effective manner • Change in power	• Clear evidence that resource management can produce efficient, equitable and sustainable social, institutional and economic benefits in line with national development priorities for low income fishers and other stakeholders in a diversity of water bodies • Media to promote understanding of benefits produced and widely used	• Assist, through DoF of formulation of policy changes • Provide information on livelihoods improvement, resource management, increased fish production for policy formulation and effective dialogue with others • Produce appropriate media

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		ministries reviewing the revenue generating policies and practices associated with water bodies • In association with other ministries prepare appropriate policy instruments to achieve those changes				
MINISTRY OF LANDS	• Identification of policy options in relation to water-body use • Prioritising options • Formulating policy • Approving and supporting the selection of policy instruments • Authorising policy implementation	• Working with other ministries to develop more appropriate water-use policies based on the evidence of benefits to national development identified by field research • In association with other ministries, reviewing and, where appropriate, changing water resource management arrangements • In association with other ministries, reviewing and, where appropriate, changing the revenue generating policies and practices associated with water bodies • Ensuring that those staff under the MoL administration and guidance, concerned with the administration of water bodies, are aware of and in compliance with such changes • In association with other ministries prepare appropriate policy instruments to achieve those changes	• Policy prioritisation and policy formulation in relation to land • Policy agenda setting and advice on policy change in MoFL • Advice of changes in legislation as a policy instrument	• Change in power • Change in responsibility for revenue collection • Possible change in control of methods for achieving policy objectives	• Clear evidence that resource management changes can produce benefits which enhance the contribution of the MoL to the achievement of national development objectives • Media to promote understanding of benefits	• Comparative assessment of proposed management arrangements with traditional leasing and open access systems
PARLIAMENT	• Approving and legitimising policy	• Support for policy change • Support for legislative reform	• Policy legitimisation	• Change in achievement of benefit delivery	• Clear evidence that policy and policy instrument changes can produce benefits which enhance the achievement of national development objectives • Media to promote understanding of benefits	• Generate appropriate documentation on the advice of DoF and MOFL.h

12. Annex 3. Bangladesh Environmental Newsletter article

13. Annex 4. Asian Wetlands Symposium 2001 - Paper

Asian Wetlands Symposium 2001
Bringing Partnerships into Good Wetland Practice

Technical Session III: Capacity Building and Empowering Local Communities Including Indigenous People and Stakeholders in Wetland Management.

BUILDING CONSENSUS BETWEEN STAKEHOLDERS FOR MANAGEMENT OF FLOODPLAIN WETLANDS IN BANGLADESH

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Bangladesh's very extensive floodplain wetlands represent a key resource for the many millions of rural people who depend on them for at least part of their livelihood. Poor households are particularly reliant on the resources of the wetlands as part of their expenditure saving strategies. However these wetland areas are multi-functional and have multiple stakeholders who make competing, conflicting and complementary use of them. Typical uses include professional fishing in teams and with boats, seasonal and subsistence fishing with smaller gear, drawing water for agricultural irrigation, disposal of waste and drainage water, boat transport, human and livestock washing, and cottage industrial uses. In addition they provide critical environmental services, such as fish spawning grounds and foci of biodiversity, which are often at odds with the prevailing uses. If these wetlands are to be used in a sustainable manner, there is a need to balance the various stakeholder interests; if they are to be managed in an equitable manner there is a need to ensure disadvantaged groups have a say in their management – there is thus a need to reach consensus over their management.

This paper reports a methodology developed and tested in Bangladesh floodplain wetlands to build consensus between stakeholders in the management of aquatic common resources. The methodology involves a series of stakeholder and village-based workshops that constitute an inclusive and participatory planning process for community-based natural resources management. The stakeholder-based elements of the workshop encourage participants to express their views without the process being dominated by the locally powerful and vocal people. The village-based elements promote the building of a shared framework of understand about resource management between stakeholder. This acts as the basis for a platform for agreeing an action plan for wetland management and a local structure to implement it.

The results from three case studies in floodplain wetlands where the consensus building methodology has been used are presented. Evaluations of the methodology demonstrated that it built social capital in the communities around the wetlands, empowered them by improving their confidence to engage local government in dialogue, and that participants found it built consensus through an improvement in mutual understanding and understanding of intra-community linkages.

14. Annex 5. Asian Wetlands Symposium 2001 - Poster

Asian Wetlands Symposium 2001
Bringing Partnerships into Good Wetland Practice

Poster Session

A METHODOLOGY FOR BUILDING CONSENSUS
BETWEEN STAKEHOLDERS OF MULTIFUNCTIONAL WETLANDS

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In multifunctional wetlands, different primary interest groups or stakeholders represent many divergent aims, desires, requirements and positions in relation to the resources the wetland offer. Traditionally the perspectives and interests of local powerbrokers and influentials are the ones that come to dominate. These result in management systems that are often unsustainable and rarely equitable. This poster presents in detail a process, based on a series of stakeholder workshops, that aims to build mutual understanding of the issues facing diverse stakeholders in wetland management, thereby creating a platform for consensual management.

The process has its roots in a number of approaches to addressing multi-actor situations, and particularly draws on methods for understanding complex problems involving people and their divergent perspectives (Soft Systems Methodology: Checkland & Scholes, 1990); participatory planning and community envisioning (Future Search: Weisbord & Janoff, 1995); and appraisal of communication flows in rural communities (RAAKS: Saloman & Engel, 1997).

The methodology has been developed and tested in Bangladesh floodplain wetlands through action research in development projects aiming to achieve community-based wetland management, community-based fisheries management or community husbandry of aquatic resources. The methodology involves a series of separate and multiple stakeholder meetings to achieve the optimum balance between giving a voice to the traditionally voiceless and yet achieving inclusive outcomes ratified in an open forum. The key steps (which are presented schematically in the poster) are:

- familiarisation with bio-physical and socio-economic character of the wetland
- stakeholder analysis of primary and secondary stakeholders for managing the wetland
- 'Problem Census' to identify separate stakeholder groups' key livelihood constraints and identification of possible solutions/interventions
- a plenary workshop with all stakeholders to cluster resource management problems of common concern and identify the best potential solutions
- workshops with separate stakeholder groups to appraise these solutions from their perspective (in a forum not dominated by traditional power-brokers)
- a final plenary workshop with all stakeholders to share the outputs from individual sessions and build a shared framework of understanding as the platform for agreeing an action plan for wetland management and a local organisation to implement it
- implementation of the resource management action plan.

15. Annex 6. Presentation at NRSP poverty workshop, November 2000