

Comparing evidence of community organisation network building to manage complex commons' ecosystem services for poverty alleviation¹

Paul Thompson², Parvin Sultana², Naya Sharma Paudel³ and Hemant Ojha⁴

ABSTRACT

In Bangladesh and Nepal there have been considerable efforts to establish community institutions to manage commons, notably wetlands and floodplains in Bangladesh and forests in Nepal. Traditional common property regimes and/or new institutional arrangements based on local collective action have been increasingly recognised as providing more effective management than state control top-down approaches. Yet, there is still poor understanding of how community rights and institutions affect poverty reduction and sustainability of ecosystem services.

Both countries have vibrant networks of community organisations. In Nepal a federation of 18,000 forest user groups arose from the desire of grassroots institutions to articulate their common interests in influencing national policies. In Bangladesh a network of 270 floodplain community organisations arose from an interest to learn from each other's experience, address complex links between agriculture, water and fisheries, and gain mutual support from peers. These networks emphasise the importance of commons and collective action for the livelihoods of poor people and the ecosystems they depend on.

Evidence is taken from a total of 32 detailed case studies, representing the diversity of environments, tenural arrangements over commons, and levels of involvement in networking. The paper focuses on some key questions. What kinds of networks have emerged around forests and floodplains? How do these networks address the governance challenges of these nested commons? How have the federations supported multi-level governance and minimised conflicts around the management of the commons? How has the distribution of benefits and ecosystem services generated from different types of commons changed with community based management and networking? Comparative analysis shows that networking has increased shared learning and political mobilization, enhanced ecosystem conditions and associated livelihoods, and has strengthened bargaining power with outside forces such as state and market. It is concluded that networking adds value in effective management of complex commons.

¹ Paper submitted to International Association for the Study of Commons 2013 conference, Kitafuji, Japan, June 2013 as part of a Panel on: Does networking enhance ecosystem services & poverty alleviation benefits from complex commons? Evidence from South Asia

² Flood Hazard Research Centre, Middlesex University, Trent Park, Bramley Road, London N14 4YZ

³ ForestAction Nepal, Kathmandu

⁴ South Asia Institute of Advance Studies, Kathmandu

KEYWORDS

Bangladesh, community management, ecosystem services, floodplains, forests, Nepal, poverty,

INTRODUCTION

This paper draws together case studies from two contrasting environments where there is well established community management of commons – forests in Nepal and floodplains in Bangladesh. It attempts to shed light on four questions:

1. What kinds of networks have emerged around forests and floodplains?
2. How do these networks address the governance challenges of these nested commons?
3. How have the federations supported multi-level governance and minimised conflicts around the management of the commons?
4. How has the distribution of benefits and ecosystem services generated from different types of commons changed with community based management and networking?

This introduction sets the context of policies and community based co-management in the two countries. It is followed by a review of the networking initiatives among community organisations in the two countries, then findings from the case studies and consultations with stakeholders around the themes of conflict, ecosystems, and poverty. The discussion highlights the influence of policy, tenure, and networks in influencing outcomes.

Co-management and commons

Since the early 1990s community based natural resource management has been widely promoted (Brosius et al. 1998), and Nepal and Bangladesh have been in the forefront. Traditional common property regimes and/or new institutional arrangements based on local collective action have been increasingly recognised as providing more effective management than state control top-down approaches. Yet, there is still poor understanding of how community rights and institutions affect poverty reduction and sustainability of ecosystem services. On top of changes in institutions and participation at the local level, there is also the potential influence of more recent initiatives among community organisations to network, learn from one another and to collectively affect the wider policy and institutional framework within which they operate. This paper reports comparative analysis of cases from these two countries which share a number of common features although the resource bases managed by communities differ.

Bangladesh context

Floodplains cover over half of Bangladesh. They support intensive agriculture, fishing and use of other aquatic resources by over 800 people per km². Floodplain management is influenced by numerous institutions (national and local) that overlap, reinforce or sometimes contradict one another. “Formal institutions” are embedded in national and sector-specific bodies, such as the Bangladesh Water Development

Board and Department of Fisheries, respectively having remits for enhancing agricultural production through water management and increasing fish production. “Informal institutions” which are not represented as organisations but as less tangible entities such as culture, power relations and norms, also directly and indirectly influence floodplain management.

There are overlapping and competing formal agencies responsible for aspects of floodplains. The Ministry of Fisheries and Livestock (MOFL) is responsible for all technical aspects of inland fisheries, but the ownership and management of water bodies rests largely with the Ministry of Land. Meanwhile agricultural development in floodplains has largely been driven by water management infrastructure built by the Bangladesh Water Development Board and Local Government Engineering Department, although technical support to farmers is crop based and comes from the Department of Agricultural Extension. Each Ministry and attendant departments has its own mandate and priorities and these are not compatible most of the time. For example, the aim of protection and sustainable use of fisheries sought by the MOFL comes into direct conflict with the aim of increased revenue earning from the inland fisheries by the Ministry of Land.

The most notable feature of fishery and wetland management from the 1950 State Acquisition and Tenancy Act up to the 1990s was the absence of management concern for the sustainability or value of fisheries and wetlands. The government had divided public wetlands into thousands of waterbodies or “jalmohals” (fishery estates) in each of which short-term (three year) fishing rights were leased out by the Ministry of Land to the highest bidder, without involving specialist agencies for fisheries or environment.

Recognition of the failings of this system, and awareness of international initiatives towards community-based natural resource management, led to a number of donor supported projects from the beginning of the 1990s onwards on participation, community based management and co-management of commons. In water management projects community participation directly followed from formalised participation guidelines. In fisheries projects community management was promoted by funding agencies such as the Ford Foundation, NGOs, and the Department of Fisheries which lacked any direct control over waterbodies until it gained a role through projects. This was influenced by international research on how local institutions regulate and manage common pool resources, such as fisheries and water, which gave rise to understanding of complexity and recommendations on the design of more effective bottom-up management systems (Stern et al. 2002).

The Bangladesh cases also highlight the diversity of community initiatives and how it fits within co-management – collaborative management where a range of stakeholders particularly government and local resource users share power, responsibilities and management functions (Borrini-Feyerabend et al. 2000; Berkes et al. 1991).

Nepal context

The nationalisation of forests in 1957 dismantled many local institutions and alienated local communities from their land and resource base. The centralised and

bureaucratic management of resources has dominated subsequent forest management. The introduction of community-based forestry in the 1980s brought a new era in forest governance. Community management was formalized as policy in a large part of the national forest area so that by 2011 community forestry involves almost 40% of the total population (total population 28.5 million as per the 2011 census) who are organised in over 18,000 user groups and manage a quarter of the country's forest (1.3 m hectares). This has empowered the majority of rural communities in managing some local forest lands. However, these changes have not been associated with much shift in the notion of forestry. The policy documents of community forestry show that the notion of forestry based on the narrow conceptualisation of forest as the above ground biomass has continued even within community forestry. The Master Plan for the forest sector (HMG/MoLJ 1989), the Forest Act (HMG/MoLJ 1993) and Community Forestry Guidelines all confirm this conceptualisation.

METHODS

Case studies were compiled for a range of Bangladeshi floodplain CBOs and Nepali forest user groups. This was complemented by information from the grey literature and compiled by the research team from their respective long term involvement in facilitating and collaborating with these community organisations and their federations.

In Bangladesh the case studies covered 18 CBOs managing floodplain natural resources, purposively selected for having data available on their impacts, and for representing a range of environments and tenure arrangements over natural resources, with four selected for being less involved in networking (SWRM). Sites were selected where community management was established for some time, although the date of CBO formation ranged from 1994 to the mid 2000s. The cases represent different floodplain environments: floodplains and open beels (mostly seasonal wetlands), closed beels (lakes), haors (deeply flooded basins), rivers, and coastal areas; and types of CBO (fishery, water or mixed natural resource management). Potential data available from a range of past projects that the authors worked with include poverty/socio-economic data available at household level, fish consumption data, aggregate assessments of institutions, fish catches, biodiversity, cropping pattern and yields.

NETWORKING OF COMMUNITY INITIATIVES

In Nepal community based NR management started in the early 1980s in response to environmental degradation and increasing costs of top down NR protection (Malla 2001). Community forestry is regarded as one of the most successful local collective actions. With the expansion of community forestry user groups (CFUGs) across the country, there appeared a need to share, exchange and learn from each other. These grassroots institutions also wanted to consolidate and articulate their interests in wider national policies. This led to networking of CFUGs and the emergence of Federation of Community Forest Users Nepal (FECOFUN). Now over 18,000 CFUGs are organised under the umbrella of FECOFUN that functions to amplify

nationally CFUG voices; ensure government forest policy decisions do not compromise the interests of forest dependent people; and provide the vehicle to mobilise citizens on environmental issues (Paudel et al. 2012). Nepal's forest sector frequently observed conflict between FECOFUN and the government over control over forest governances, resulting into impasse and consequent adverse impacts on both forest conservation and wellbeing of local communities.

In Bangladesh community based co-management started in fisheries and local water management in the mid 1990s, by now there are over 500 floodplain CBOs (Sultana and Thompson 2010), and it has spread to forest protected areas (DeCosse et al. 2012). Collective action among fishers offers higher catches from restoring habitat and conserving fish. Research indicates local conflicts between elites and fishers over access are reduced where there are well established CBOs with defined secure use rights (Bennett et al. 2001; Sultana and Thompson 2010). But this is only one of several interlinked sources of conflict that can reappear when those use rights are threatened by policy changes. Since 2007 FHRC has supported networking among CBOs. Structured adaptive learning between CBO peers has brought multiplier benefits compared with isolated CBOs, diversified natural resource management, improved governance, and encouraged CBOs to be more inclusive. Some CBOs have enhanced resilience to climate stresses by focusing on community ecosystem benefits. Federated CBOs have raised the issue of conflicting policies that threaten continued tenure and benefits for their members.

While devolution of NR management to local communities can improve local conflict management, natural resource productivity, livelihoods and social standing; this is dependent on government commitment and enabling policies. CBOs in both countries have raised concerns over policies that conflict with their sustained NR management.

The project team have well established links with large networks of grass roots organisations. FECOFUN in Nepal represents over 18,000 CFUGs that involve almost 40% of the total population and manage a quarter of the country's forest. In Bangladesh Society for Water Resources Management is a federation of over 270 CBOs with a combined total membership of over 50,000 households (69% poor) serving about 400,000 households, and has been facilitated by FHRC since formation in 2008.

CONFLICT OVER COMMONS AND COMMUNITY ORGANISATION NETWORKS

Community based co-management institutions have in part been a response to competing demands and conflicts over natural resources (NR) (Castro and Nielsen 2001). Ostrom (1990) argued that conflicts need to be reduced if individuals are to have the incentives to invest in creating appropriate institutions, but co-management can be a means of reducing and resolving conflict between local resource users and state actors (Pomeroy and Berkes 1997). Ratner et al. (2010) considered research to date has not analysed the positive potential of collective NR management to reduce broader conflict. Yet conflict can be part of a dynamic process of change and transformation in institutions or production systems that brings benefits, as well as costs. Moreover the implications of changes in stresses arising from climate change,

changes in productivity, and of adaptation and mitigation options have added new sources of competition and potential conflict over commons (Barnett and Adger 2007).

With a population density of over 1,000 persons per km² in Bangladesh there is intense pressure on common pool resources notably wetlands-fisheries. In Nepal degradation of forests is a persistent problem with associated loss of ecosystem services. Human pressure on resources has been compounded by national level conflicts and weak governance. Competition for and conflict over natural resources is common, and newspapers regularly report clashes over access to and use of wetlands and forests. Analysis with key stakeholders indicates that the conflicts considered most serious involve government, community organisations and/or other local stakeholders (see Table 1). These cluster around access rights to natural resources, and around threats to the quality and exploitation levels of those resources. In addition all of these areas of conflict were considered likely to be heightened through climatic changes

Table 1 Key areas of natural resource conflict identified by stakeholders

Rank	Bangladesh	Rank	Nepal
1	Com-GO: Waterbody/public land leasing	1	Com-GO: Park – people conflict
2	GO-GO: Intersectoral / interagency conflict	2	Indiv-GO: Between landless and forest authorities
2	Com-Elite: Between elites/politicians and common people over access to NR	3	Com-GO: Between CFUGs and DFO
4	Indiv-GO: Between leaseholders, farmers and local administration over demarcation of public lands and waterbodies	4	Com-Indiv&Priv: Use of forest land for non-forest purposes (infrastructure, agriculture)
5	Indiv-Indiv: Operation of sluice gates	5	Com-Indiv: Limited access of marginalized groups
6	Com-Priv: Pollution (water users v industrialists)	6	Com-Com: Terai forest, North v south (issue of outsider/distant users)
6	GO-Indiv: Government agencies v local people over construction in floodplains	7	Com-Indiv: Community forest groups v grazers and charcoal makers
8	Indiv-Indiv: Use of dry season water between farmers and fishers	8	Com-Indiv: Firewood collectors and cremation rituals
9	Indiv-Indiv: Shrimp farmers v rice farmers	8	Com-Indiv: Conflict on sharing water sources

(Comm – community; GO – government; Indiv – Individual, Priv – private)

In both countries stakeholders from community organisation federations, government agencies involved in co-management and NGOs and researchers who have facilitated this process highlighted conflicts of interest, policy and practice between government agencies and communities, and within local society either between individuals or between community organisations and individuals. The first ranking arenas for conflict in both countries are between communities and government – in Nepal over designation of new or expanded protected areas (national parks) which exclude NR users, and in Bangladesh where the land administration over the past 1-2 years has unilaterally decided to suspend secure community management by not renewing leases to waterbodies which had been reserved for CBOs for the previous 10 years.

However, there are also distinctions in the patterns of interaction. In Nepal five of the main areas of conflict arise where CFUGs set rules that limit access of individuals to NR, suggesting that community management has to some extent taken over from top down management and may or may not offer a forum for resolving local

competition for NR and that rules and norms are not accepted by many potential users. In Bangladesh three of the conflict areas involve competing individual interests over water use and indicate that co-management has not provided sufficiently effective forums to negotiate sharing of limited dry season water. The issue of inter-agency conflict and lack of cooperation is allied with these competing interests – governance is fragmented by sectors and development projects which have rarely supported a more integrated view of floodplain NR productivity and the diverse stakeholder interests there. Several of the fishery based CBOs are now caught in an uncertain future between the competing paradigms of Ministry of Land (competitive short-term leasing to officially generate government revenue and unofficially generate rent and patronage) and Ministry of Fisheries and Livestock (sustainable or “biological” NR management and longer term rights for its sponsored community groups).

The networks of community organisations have attempted to address these issues. In Nepal as will be seen they have promoted more inclusive local NR management and measures to direct benefits to the poor, and by weight of numbers, resources and influence (FECOFUN has about 18,000 member CFUGs) have organised rallies and debates over government policy proposals that would have limited their powers. In Bangladesh the much smaller SWRM (over 270 member CBOs) has put strong peer pressure on members to improve governance including involvement of women and the poor, and to take a more integrated view of water-crop-fish interactions and productivity. Locally it has addressed poor performance of leadership in individual CBOs and external threats from influentials, but the lack of accessible forums for debate on land policy decisions and limited size and resources of the network has limited its scope to address some key challenges. What SWRM members were able to do was to use the courts to obtain injunctions against the land administration preventing it from competitively leasing out waterbodies that had been managed by CBOs over the past decade, but this is a temporary measure and the Ministry of Land has demonstrated no interest in securing long-term rights for CBOs or in negotiating with other ministries.

ECOSYSTEM SERVICE BENEFITS

In Bangladesh only 12 of the 18 CBOs investigated in the case studies started as fishery management organisations, with the other six formed to manage water for agriculture or a mixture of NR, so it is notable that a high percentage of the CBOs are now active in managing fisheries and water and coordinating agricultural innovation (Table 2). This combination of initiatives is influenced by two factors – the existence of multiple floodplain NR dominated by agriculture and fisheries and a common basis in water which is in ample supply in the wet season but severely limited in the dry season; and by the influence of learning and sharing of experiences and innovations between networked CBOs. One notable area is the way in which 10 of the CBOs have taken up agricultural extension and coordination activities to influence the crops and practices of members and others in the community on private lands not directly managed by the CBOs. This has been dependent on opportunities that show private returns (increased profit) from crops with lower water demand and consequent complementary community benefits by securing more water for fish to survive in the dry season (Sultana and Thompson 2012).

Table 2 Ecosystem products and services managed by CBOs in Bangladesh cases

Ecosystem component	No of CBOs (out of 18)	Management interventions	Evidence/outcome
Fishery	15	Sanctuary, closed season, reintroduce fish sp.	Catches increased outside sanctuaries
Water	12	Limit on pumping, sluice management	Retain water for fish
Agriculture	10	Promote low water demand crops, IPM, pesticide restriction	Changes in cropping
Wildlife	7	Ban on hunting	Waterbirds increased, tourism increased
Duck rearing	5	Enterprise using water	Income
Aquaculture/fish stocking	5	Enterprise, also or release of native sp to wild	Income
Timber/trees	5	Swamp trees planted (for habitat), other timber trees	Ban on cutting
Fuelwood	3	Ban/limit, access for poor	Some minor cutting continues, but trees have restored
Wetland restoration	3	excavation	Fish catches, water retention
Tourism/biodiversity	2	Visitor facilities (external funds)	Increasing visitors, limited income
Fallow land returned to cultivation	1	Irrigation, suitable crops, sharecropping	Crops profitable, incomes for poor
Medicine	1	Common medicinal plant garden	Own use
Fodder and grazing	1	Try to limit	Cattle excluded, cut and carry continues
Aquatic plants (food)	1	Organised harvesting	Income and own use

Note: other natural resources such as snails (collected and sold as feed for ducks and shrimp farms) are also important for households in some of the sites but no management actions were taken by the CBOs.

Other ecosystem management initiatives of the CBOs are more specialised – although almost half have banned hunting, in reality wildlife is limited in most of these sites, but two do have related tourism and for one of these sites the CBO manages a large wetland sanctuary which has become well known as a successful wildlife refuge. Several CBOs have added tree planting and fuelwood management, and a sub-set focus on culture based fishery enterprises.

In Nepal the focus of management by the CFUGs has by definition been on forest products – all have taken up a range of activities to plant, restore and exploit timber, which is their main source of income and for which they provided evidence of substantial group enterprise earnings shared among members (Table 3). Limits on grazing are a common measure that is tied up with enabling forest regeneration and with planting to limit soil erosion. Other initiatives are more limited but include medicinal plants as an enterprise, common water management, and in three cases wildlife management which is particularly notable where community forests adjoin protected areas and they have taken up a combination of wildlife protection and eco-tourism enterprises in effectively the buffer zones. Despite this diversification, the links into other aspects of the ecosystem and its services are somewhat limited – some CFUGs have developed irrigation systems, but have not worked on innovations in agriculture and none reported having tried to influence the interactions between private lands and the common forest lands that they manage.

Table 3 Innovations in ecosystem management in community forestry in Nepal cases

Ecosystem component	No. of cases (out of 14)	Management interventions	Evidences
Timber	14	Block based silviculture management; nursery and plantation; fire line improvement; cleaning, thinning, pruning, singling; harvesting of dead, decayed and drying tree.	Cash earning; better off people have used best timber/furniture in their houses, timber for community buildings
Fuelwood/ fodder	14	Bamboo and broom grass plantation; allocation of land for grass farming; grassland management (e.g. weeding, cleaning, and controlled fire); fire line construction	Fuelwood collection for cooking and heating; livestock feeding; construction materials, household uses, cash earning pro-poor enterprise development (e.g. leaf plate from <i>Shorea robusta</i>);
Herbs/ medicine	10	Plantation of seedlings of medicinal plants	Household use of herbal medicines, cash earning through sale.
Soil conservation	10	Bamboo and grass planted on erosion prone areas; ban on harvesting in erosion prone areas	Reduced erosion
Water bodies	6	Construction of irrigation channel and tube wells; construction of water holes	Increased supply of water for irrigation and drinking; improved water holes for wild animals
Wildlife	3	Habitat management; construction of water holes; wildlife observation centres	Revenue from tourism, employment

Note : in 3 cases fisheries were a main livelihood source for specialist occupation groups, but the groups did not take up any resource management actions. Likewise in 3 cases religious or scenic sites are within the group managed area and are a source of income for the group (visitor fees) and create employment but no management interventions were taken.

POVERTY ALLEVIATION BENEFITS

There are three broad ways in which community management of commons and community organisations have addressed poverty: by enhancing natural resource productivity (see above) and directing access to those products preferentially to poor people, by empowering the poor within CBO decision making, and by taking up other activities that specifically benefit the poor.

Bangladesh

In Bangladesh the linked paper by Sultana and Thompson (2013) summarises evidence from a number of surveys in the case study sites considering as indicators of changes in poverty food security, reported incomes, and housing and sanitation. These measures strongly indicate reduction in poverty in the case study sites comparing recent surveys with the start of community management, improvements in housing and food security indicate benefits for those dependent on natural resources. In general these impacts could also be related with change in natural resource productivity, notably fisheries catches and diversity which were the most common measures available across sites. Even in rivers where there was a lack of definitive recovery of fisheries, CBOs appear to have strengthened access or at least capture of benefits for participating fishing communities to those fisheries.

There was also evidence that membership of most CBOs included a majority of poorer people based on landholding size. Although in most CBOs the poor are less

well represented in executive committees, there is evidence that peer pressure through networking and exchange visits has encouraged some CBOs to be more responsive to poor members and to enhance consultation with the poor, and also with women who tend to be under represented in CBOs. These changes are also reflected in the other pro-poor measures and innovations taken by CBOs. The most common are savings schemes for members (10 out of 18) and revolving funds (9 out of 18) whereby poor people (usually but not necessarily CBO members) can take small loans from the consolidated fund of the CBO.

In one CBO – Chapandaha this became a specific innovation through the initiative of the CBO without outside facilitation. This 39.6 ha lake is leased by a 49 member community organisation which was formed in 2002 and supported by a project during 2002-6. Their focus was on fishery management based on annual stocking of carps in their lake. All the members are involved in fishing but for their system to succeed they have to observe a three month closed season (when the fish grow but the members had no income from fishing). The only work they could do was labouring or pulling cycle rickshaw or van. They decided to start a savings-credit programme with Tk. 24,000 capital to cope with this financial crisis. The CBO initially purchased 12 rickshaw-vans and gave these to members following a hire-purchase type system. Each van was valued at Tk.2,000 and Tk. 800 total interest was added to this, which they had to pay back in 48 instalments. After paying Tk. 2,800 the person became the owner of the van. This system was expanded and they managed to provide 42 vans to the members. This would have stopped at that point (all of the interested members had vans) but in 2007 there were tremendous pressures from non-members who wanted to buy vans through this system. The CBO extended the system meeting local demand from poor people and generating a return on member savings – for example in 2008 they sold on the same basis 78 vans for Tk 5,000 each to poor non-members.

Other pro-poor initiatives of the CBOs include arranging access to land on share-cropping basis for the poor (one site), campaigning for an end to domestic violence against women (one site), and operating social funds (four CBO) that are used to help the needy within their communities for example providing support for medical costs, warm clothes, funerals, marriage, and education, etc. Although it is not so well documented the CBOs also often permit poor non-members to collect natural resources for home use (fish for food in some months, small fish and shrimps, snails or fuelwood) even when the waterbody is more intensively managed with stocking; and some of the CBOs managing stocked waterbodies also sell part of their catch to local people at a preferential price.

Nepal

Similar innovations were found in the linked paper by Paudel and Ohja (2013) in Nepal where revolving funds/small loans were provided by many of the forest user groups, some provided help to the needy such as relief to disaster or wildlife victims, and all provided free access to the poor for fodder and grasses. There are also differences. The Bangladesh CBOs usually combine members from several villages and do not involve all residents of a village, the Nepal CFUGs have by their legal definition membership of all households living next to a defined area of forest. Some Bangladesh fisheries CBOs manage a resource to generate income for their

members, but many have limited income and act to coordinate and set rules and norms for use of natural resources, whereas Nepal CFUGs aim to generate income in whatever ways they can from the forest lands that they manage. This combination of factors leads CFUGs to invest significantly in community infrastructure. However, this and equal sharing of income among all members do not explicitly target the poor, so several of the CFUGs studied have allocated patches of the forest lands that they control to poor members, and similar arrangements have also been tried by government in leasing out patches of degraded land to poor people for bamboo, grasses and fodder.

Forests and the Nepal context offer other opportunities to direct benefits to the poor, for example some CFUGs operate sites with significant tourism and have developed community based enterprises to take advantage of this – this was significant in three of the case study sites. Forestry operations run by the CFUGs also generate employment, and as there are more forest products under community management this is a gain for poorer people able to take up these jobs. Part of the forest products are marketed, particularly timber, but CFUGs have established differential pricing so that timber and other products are cheaper for people within the group who are recognised through wealth ranking as being poor. While some CBOs in Bangladesh have charged small membership fees, in general the contribution of members is tie and labour; but in CFUGs in Nepal although membership is based on village residency, the CFUGs also charge quite high fees which has excluded the poor. External pressure from other CFUGs and from donor projects has pushed some CFUGs (for example, three of the case study ones) to allow free membership for poor households.

DISCUSSION

Influence of tenure

Secure use rights to common resources are a necessary pre-condition for community management in the cases. Studies in Nepal have clearly established the positive link between secure tenure and regeneration of once denuded hill forest (Gautam et. al. 2004; DoF 2005). Similarly in Bangladesh restoration of waterbodies and fish catches is associated with community management based on longer leases, and in the case study sites where this security was removed the CBOs had no incentive to invest further in stocking and there has been an immediate increase in fishing pressure.

However, there are exceptions where formal group tenure rights are not necessary for successful community management initiatives. In the open floodplain sites in Bangladesh the lands are private but form a seasonal commons for aquatic resources when flooded. In these cases CBOs do not generate exclusive benefits for members but they have been able to establish some conservation rules and set aside small sanctuaries based on consensus within the wider community and all members benefiting from diverse products taken mostly domestic use (Sultana and Thompson 2008).

Influence of networks

All of the cases studied had the opportunity to join the respective networks, and did, but a few of the CBOs/CFUGs then were less active or dropped out of that network. In the Bangladesh cases this correlated with some of the main influences of the network – those CBO leaders were unwilling to adopt good practices such as operating CBO bank accounts and transparent decision making and accounting, or the CBO became less active due to unclear tenure/use rights.

Network influence in both countries has been through peer pressure to adopt good practices, such as allocating preferential access or waiving fees for the poor in community forests in Nepal. In addition to governance, in both countries it has encouraged CBOs/CFUGs to more directly address poverty within their scope and working areas – through access arrangements, differential pricing, consultations and participation in decision making, and social development and welfare funds. In Bangladesh it has also been explicitly part of a learning process that has emphasised how CBOs that started with different NR objectives could take a wider system-view of floodplain ecosystems and their productivity. This encouraged learning and innovation beyond fisheries or water management, for example to consider cropping choices and water demand, agro-chemicals and water quality, and even changes in pollination services resulting in testing of bee keeping and integrated pest management.

In Nepal in particular the scale of the federation (number of member CFUGs) has strengthened its collective scope to participate in national policy issues. The ability to mobilise a large part of the population around a common interest, experience and set of rights that are now well established over forests has meant that FECOFUN could resist some policy initiatives that would have eroded or challenged community management.

Role of policies

The national policy, regulatory and institutional frameworks that the community initiatives in both countries operate under are largely unsupportive of innovations to support management or restoration of ecosystem services. In Nepal recent policy decisions have focused on timber or establishing protected areas, and the targets set relate to trees rather than other biophysical measures of achievement such as biodiversity or overall ecosystem products and services. In Bangladesh the National Water Policy of 1998 in principle has multiple objectives, but is now outdated and in practice local water management CBOs remain mostly biased towards agriculture needs

The issue of narrow departmental mandates and objectives, overlapping jurisdictions, and multiple ministries and departments having responsibilities that all affect a given area and associated communities is a common challenge to both Bangladesh and Nepal. Consequently the respective Departments of Fisheries and Forests, water management agencies and land administrations each perceive natural resources through narrow lenses that do not match with more holistic views of local use of commons or of ecosystem services. This has constrained the scope to build on interests and innovations of individual CBOs/CFUGs and groups and networks of CBOs/CFUGs. These communities and their networks are unable from their own capacity, resources and status to influence higher governance levels to coordinate

policies and practices in the ways that communities have shown is possible within local commons. While policies lag behind local practice due to inertia in the bureaucracy and technical specialisations, there remains scope and hope that the cross-community learning will influence government actors at lower levels through experience and direct contact. And that this will feed up to influence practice in the government system.

CONCLUSIONS

Comparative analysis shows that networking has increased shared learning, mobilized communities over policy challenges, helped CBOs enhance ecosystem conditions and associated livelihoods over their performance earlier as individual CBOs/CFUGs, and has to some extent strengthened their bargaining power with outside forces such as state and market. Thus networking adds value in effective management of complex commons.

Innovations and priorities of community organisations involved in natural resource management are typically broader than the government objectives that were behind supporting their establishment and the rights that they have. This study and our experience of networking and policy processes indicate that enabling transformation in policies and institutions to take a more integrated ecosystem view of commons is a priority to support similar local level interests of communities.

In addition the case studies revealed gaps in existing data on impacts of community management, which in most cases covered some indicators in some years and usually ended when externally funded projects ended. CBOs do collect some data but lack more systematic data collection systems. In practice CBOs have taken on responsibility for providing local services and management functions that in top-down systems were thought to be the preserve of the public sector, but the CBOs do not have a role in generating or using national data. There is scope to pilot practical monitoring and data use through the networks. This is one of the several dimensions of the challenge of moving from projects to larger national programmes of community based co-management.

ACKNOWLEDGEMENTS

We are grateful to the Ecosystem Services for Poverty Alleviation (ESPA) research programme of UK DFID, NERC and ESRC for supporting this study through a grant entitled Impacts of Community Management of Forests and Floodplains. We thank our colleagues in ForestAction Nepal and Flood Hazard Research Centre for their inputs to the research designs and fieldwork; and particularly thank the community organisations for participating in the research and sharing lessons and experiences.

REFERENCES

Barnett, J., and W. Adger. 2007. Climate change, human security and violent conflict. *Political Geography* 26 (6): 639-655.

- Bennett, E., A. Neiland, E. Anang, P. Banerman, A.A. Rahman, S. Huq, S. Bhuiya, M. Day, M. Fulford-Gardiner, and W. Clerveaux. 2001. Towards a better understanding of conflict management in tropical fishers: evidence from Ghana, Bangladesh and the Caribbean. *Marine Policy* 25: 365-376.
- Berkes, F., George, P., and Preston, R. (1991). Co-management: the evolution of the theory and practice of joint administration of living resources. *Alternatives* 18 (2), 12–18.
- Borrini-Feyerabend, G., M. Taghi Farvar, J.C. Nguingiri and V. Ndangang (2000) *Co-management of Natural Resources: Organizing, Negotiating and Learning-by-doing*. GTZ and IUCN, Kasperek Verlag, Heidelberg, Germany.
- Castro, A.P and E. Nielsen. 2001. Indigenous people and co-management: implications for conflict management. *Environmental Science and Policy* 4: 229–239.
- DeCosse, P.J., P. M. Thompson, I. U. Ahmad, R. A. Sharma, A. H. Mazumder (eds.). 2012. Protected area co-management where people and poverty intersect: Lessons from Nishorgo in Bangladesh. Dhaka: Integrated Protected Area Co-Management (IPAC) Project, International Resources Group.
- Department of Forests 2005. Forest Cover Change Analysis of the Terai Districts (1990/91-2000/01). Kathmandu: DOF.
- Gautam, A. P., E. L. Webb, G. P. Shivakoti, and M. A. Zoebisch. 2003. Land use dynamics and landscape change pattern in a mountain watershed in Nepal. *Agriculture, Ecosystems and Environment* 99 (1–3): 83.
- HMG/MoLJ. 1989. Master Plan for the Forestry Sector, Nepal, *Main Report*. Kathmandu: His Majesty Government of Nepal/Ministry of Law and Justice /FINIDA/ADB.
- HMG/MoLJ 1993. *Forest Act, 1993*. Kathmandu: His Majesty Government of Nepal/Ministry of Law and Justice.
- Ostrom, E. 1990. *Governing the commons*. New York: Cambridge University Press.
- Paudel, N. S., Monterroso, I and Cronkleton, P. 2012. Secondary level organisations and the democratisation of forest governance: Case studies from Nepal and Guatemala. *Conservation and Society* 10(2): 124-135.
- Pomeroy, R.S. and F. Berkes. 1997. Two to tango: The role of government in fisheries co-management. *Marine Policy* 21: 465–480.
- Ratner, B.D. R. Meinzen-Dick, C. May and E. Haglund. 2010. Resource Conflict, Collective Action, and Resilience: An Analytical Framework. CAPRI Working

Paper No. 100. CGIAR Systemwide Program on Collective Action and Property Rights (CAPRI), International Food Policy Research Institute: Washington, DC.

Stern, P.C., Dietz, T., Dolsak, N., Ostrom, E. and Stonich, S. (2002) Knowledge and questions after 15 years of research. pp 445-486. *In* Ostrom, E., Dietz, T., Dolsak, N., Stern, S. and Weber, E.U. (eds.) *The drama of the commons*. National Academy Press, Washington DC.

Sultana, P., and Thompson, P.M. 2008. Gender and Local Floodplain Management Institutions -- A Case Study from Bangladesh. *Journal of International Development* 20: 53-68.

Sultana, P and Thompson, P.M. 2010. Local institutions for floodplain management in Bangladesh and the influence of the Flood Action Plan. *Environmental Hazards* 9(1): 26-42.

Sultana, P. and Thompson, P. (2012) Learning through networking: Enabling an adaptive learning network of local communities for integrated floodplain management in Bangladesh. in H. Ojha, A. Hall and R. Sulaiman, (eds.) *Adaptive Collaborative Approaches in Natural Resource Governance: Rethinking Participation, Learning and Innovation*. London: Earthscan. pp 138-176.