

CONTESTING WATER IN BANGLADESH: KNOWLEDGE, RIGHTS AND GOVERNANCE

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INTRODUCTION

Management of water pervades the entire society and economy of Bangladesh. Inundation is a regularly recurring fact of life. In rare years, there is excessive flooding which causes serious damage to people, their shelter and their crops (a mainstay of their livelihoods). More often, the rainfall is inadequate creating a drought. Every citizen in Bangladesh has a legitimate and acute interest in water policy.

The Flood Action Plan (FAP) has dominated policy formulation in water resource management in Bangladesh during the last decade, and the management of surface water will continue to dominate the livelihoods of most people in the country, more directly for some than others. The policy process to date has been ridiculed by many critics (e.g. Adnan, 1991; Boyce, 1990) as a donor, capitalist or engineers' conspiracy with knowledge and argument apparently manipulated through power structures and vested interests rather than rational thought reflecting both popular interest and sustainable objectives. At the same time, with such a centrally important natural resource determining so many other features of life in Bangladesh: first, it would be surprising if there was no controversy; and second, it would be irresponsible if there was not an entire library of research, action-research and consultancy reports (see the library held by the World Bank in Dhaka). Nevertheless, the policy process has revealed key weaknesses, reflecting an over-limited approach to stakeholding restricted more to actors with claims to scientific and technocratic expertise. In short, there has to date been a problem of participation, and this is likely to continue from policy into practice and iterations between them (Adnan *et al.*, 1992). Water management is a democratic not a technocratic issue. Such problems of participation are not unique to the water sector in Bangladesh; nor, of course, are they unique to Bangladesh. However, in the context of national level water resources management, these problems reveal deep issues about rights, citizenship, governance and appropriate institutional

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forms for managing commons resources (conceived especially in terms of relations between the state and community/civil society).

This paper is based upon two recent exercises related to the FAP. The first was as a member of the Independent FAP Review Mission (Faaland *et al.*, 1995), and original drafter of the report.¹ The second was as a reviewer of the Ministry of Water Resources 'Guidelines for people's participation in water development projects' (Wood, 1996). Both of these exercises were facilitated by UNDP to open terms of reference.

BACKGROUND

Rural populations in Bengal have always sought to protect life and livelihoods against threats of droughts and floods, limiting as best they could local devastation and exploiting new opportunities that arise at the household and village level. In recent decades, however, there has been a massive effort to restrain the shifts in the flows of rivers, to regulate the normal flooding and inundation, and even to control the major floods that occur from time to time. This process has steadily moved responses to flooding away from localized, community level activity towards large-scale, centralized state activity. For example, there have been the large-scale structural interventions for water control throughout the country with embankments and drainage canals, but most dramatically the major effort to halt the westward shift of the course of the Jamuna by building and forever rebuilding the Brahmaputra Right Embankment (BRE) (GOB, 1992). This was further accentuated with the building of the Jamuna bridge, with its new construction and strengthening of embankments north and south of the bridge and with its dependence on continuously training the river upstream. The original forms of hydraulic society in Bangladesh is thereby being transformed. But does the central state have the capacity to manage this process, which particularly needs to reflect diversity of conditions in the locality?

Of course, the water regime in Bangladesh depends crucially on what happens upstream before the water courses enter the country. A discussion of these highly important technological, economic, political and diplomatic issues would go way beyond the objectives of this paper. Suffice it to say that anyone's views on options and priorities for water management in Bangladesh will be conditioned by realistically available scenarios for co-operation with India and other countries in the regional watershed.

In 1987, a major flood inundated about 40 per cent of the land area (57,000 sq. km), affected about 30 million people and caused an estimated 1800 immediate deaths. Floods in 1988, brought about largely by the rare coincidence of Ganges and Brahmaputra peaking together (the 50–100 year event), inundated up to 60 per cent of the land area, affected 45 million people and caused over 2300 immediate deaths. Damage from both floods combined was estimated at \$US 1700 million. In the 1988 flood, about 7.2 million houses were totally or partially damaged, accounting for 66 per cent of estimated total damages, while infrastructure accounted for 29 per cent, agriculture 2 per cent, industries 2 per cent, and health and sanitation facilities 1 per

¹ I therefore acknowledge the contributions of my colleagues on that mission: Just Faaland (team leader), Rounaq Jahan, Fashiuddin Mahtab, and Patricia Almada-Villela.

cent. However, these statistics mask the human misery and negative impact on the earning capacity of most of the individuals, families and communities affected by the floods. The livelihoods of many were forever transformed.

The immediate public sector response to these flood events was to assume that a new pattern of more frequent excessive flooding was emerging as a result of: systemic changes in the watershed, such as de-forestation in Nepal and Assam; possibly increased snow-melt from the Himalayas as a result of global warming; and sea-level rise from the same cause, impeding drainage from the delta. A new sense of urgency was prompted by the prospect of a new pattern and severity of flooding, and by the evident misery caused by the floods. Those with public sector responsibilities, both nationally and internationally, felt they would have to act. The Flood Action Plan (FAP) was conceived in 1989 in response. It originally consisted of 26 studies and pilot projects supported by 17 donors. The main objective of the FAP was to provide protection from flooding by the construction of significant engineering projects including major embankments, compartments and other related structures.

In 1991, Bangladesh was hit by a very severe cyclone. Winds, rain and a tidal storm surge affected a 150 km coastline around Chittagong. Rising water submerged densely populated offshore islands. An estimated 140,000 people died by drowning. A population of over 12 million was affected, 1.75 million houses were damaged, along with 6700 schools, coastal embankments, roads and ports.

In response to criticisms that the original FAP was heavily biased in favour of structural solutions, and did not include environmental and poverty concerns, the study and action programmes within FAP were extended to 33 (including major sub-components), managed by the Flood Plan Co-ordination Organization (FPCO) and a Panel of Experts (POE). Eleven of these programmes were specifically mandated to consider gender issues.

The work within FAP culminated in October 1994 with a summary document and a portfolio of project proposals (FPCO, 1994). The World Bank, on its part, sent out this October 1994 report for comments from selected reviewers and communicated these to FPCO. A World Bank review mission in January 1995 produced an advisory memorandum to FPCO on the re-presentation of a framework document. UNDP and other agencies also made comments. A draft proposal document with a revised portfolio of projects (the March 1995 Document) was prepared by the FPCO with assistance from selected members of the Panel of Experts. This March 1995 Document and subsequent revisions are the basis of developing 'ownership' within GOB of its contents.

In March 1995, the UNDP (which has been involved in the FAP from the outset, supporting studies and the FPCO), invited 'a second professional opinion' on the process and its outputs by an independent group of individuals who had no prior involvement in the FAP process (Faaland *et al.*, 1995). The timing of this exercise was prompted by a rapid shift within the donor community in basic strategy and priorities for natural resource management via funding of large-scale structural investments. This reflects a changing stance towards the environment and human ecology, which alters the terms of sectoral competition for donor support. It also reflects an increasing concern in Bangladesh that projects with irreversible consequences for the country and its people's livelihood strategies were being finalized without full debate and transparent decision-making. Some supporters as well as critics of FAP were converging on a broader agenda for water resources planning

and management in the context of national priorities, simultaneously with the build up of momentum among the engineers' lobby for implementation of structural projects.

The independent review team, representing the 'second professional opinion' noted above, argued for a focused and structured public debate about water resources management into the twenty-first century. The agenda for all well-intentioned actors in this process is sustainable development with an increasing focus upon poverty, gender and the environment. Water 'events' (excessive floods, droughts and cyclones) along with routine water resource use are a fundamental and pervasive element of people's livelihoods. Livelihood strategies are highly sensitive to the management of such events and the terms of access to water resources.

WATER RESOURCE PLANNING

Planning for Water and People

The FAP has dominated the policy process regarding water resources in terms of uses, planning and management priorities in recent years, but it represents an over-narrow view of the water problem. Up to now, the activities carried out under FAP have primarily concentrated on the objective of flood protection, with a focus upon temporary over-supply or inadequate drainage. As a result there has been inadequate attention to the broader context of national priorities for water management in which year round availability of water assumes greater importance with concerns about droughts, over-irrigation and jeopardized groundwater sources.

For this reason, policy towards water is too important to be left only to those traditionally in charge of it. The value of other contributions than engineering to framing the objectives for water management and the analysis of water resources in the delta has to be recognized. The debate, however, needs to go wider than just the inclusion of other 'sciences'. The management of scarce resources legitimately raises questions of governance and accountability, which require a broader entry of interest groups to the debate—especially those who 'speak' for the poor, for women and for the voiceless environment.

Coping with Flooding

While inundation is a regular seasonal feature, it is reasonable to expect that as human aspirations develop with the prospect of increasing technological control over nature so people are more concerned to find ways of coping better with both normal inundation and excessive flooding especially with regard to protection of shelter. In this sense, floods are a 'relative' phenomena: the same event appears worse as tolerance of it declines. At the same time, there is a cascade of vulnerability to flooding. First, the poor are more seriously affected since they have more precarious, hand to mouth livelihoods (e.g. vulnerable shelters, less food storage and savings). Their entitlements are more immediately affected by loss of shelter and employment due to flood and cyclones. Secondly, people in the charlands (i.e. new islands appearing

within the immediate river systems) and coastal areas are particularly vulnerable to floods and cyclones. Flood forecasting, disaster management, floodproofing and other protection measures are especially required for these groups of people. Thirdly, as women tend to be more homestead-based in their work (e.g. water and fuel collection, food processing and production of other goods for the market), they are particularly vulnerable to shelter damage (estimated to be 66 per cent of total immediate damage arising from the 1987 and 1988 floods). Thus women and children living in the chars and coastal areas are particularly in danger.

Nevertheless, in the action-research period of the FAP, very little attention has been paid to strengthening people's own traditional coping strategies related to floods and cyclones. Additionally, the low cost, shorter lead time options of non-structural flood-proofing measures, which would have provided protection to the rural poor, have been virtually overlooked. Even flood and cyclone warning and other disaster management strategies have not received adequate priority. On the contrary, the principle of large-scale, structural intervention initiated by the structures of the central state has been preferred over the possibility of decentralised, location specific responses by empowered local people operating through the structures of community and collective action (for a manual of good practice on the latter, see PACT, 1993).

Trends in the Macro-Economy and Society

Up to now, water resources planning and management has not adequately recognized the diversity of use-patterns (e.g. drinking water, sanitation, irrigation, fisheries, navigation, etc.) and users (men and women, rural and urban, rich and poor), partly due to problems of inter-ministerial cooperation. Projecting demand for different uses of water over the next 30 years focusses attention on wider uses for water which will critically include an expansion of urban and industrial uses, but also will increase the pressure to use agricultural land more intensively. The past is not the future, with dramatic changes in the demographic composition of the country forecast, especially the urban-rural balance of the projected population. There are differences of judgement over what will be the growth in population and rates of urbanization in the future. The GOB Planning Commission (1994), using a population growth rate of 2.17 per cent arrives at a projected size of population of 230 million in 2025. The World Bank Country Report (1995), using the lower end of overall population growth rate projections (i.e. $NRR = 1.0$ by 2015) derives a population estimate in 2025 of 180 million. At current urbanization growth rates (6.2 per cent), the urban population in 2025 will then be over 100 million or near to 60 per cent of the country's population. Of course within this process, we can also expect rising incomes with additional implications for demands on water use.

The process of 'rurbanization' will also impact upon land use in rural hinterlands (e.g. towards more crop diversification) and alter the patterns of water use outside the large and secondary towns (Kramsjö and Wood, 1992; Wood, 1994; 1995). Increasingly, water resources planning and management will need to recognize the diversity of use-patterns in the future as the point of departure for its analysis, using the techniques developed in the FAP and elsewhere to predict appropriate sources of supply which fits best with those requirements.

Groundwater—Surface Water Debate

Of course, under these demographic conditions, the importance of water for agriculture will intensify. Alternative strategies—groundwater vs surface water—are being debated. The two strongly argued positions are: expansion of foodgrain output via groundwater irrigated boro (winter rice) versus protection for rainfed T-Aman (transplanted monsoon rice), with supplementary surface water irrigation. The groundwater strategy for expanded agricultural output places a lower emphasis upon Flood Control, Drainage and Irrigation (meaning surface) projects (FCDI). The expansion of output via a protected rainfed T-Aman plus supplementary irrigation strategy requires a stronger emphasis upon FCDI projects, and is more consistent with much of the FAP and arguments advanced in the National Water Plan (NWP) 1991. (Note, however, that the NWP does assume a full realization of groundwater potential in its overall perspective.) There is also controversy regarding further availability of groundwater for irrigation (i.e. above the NWP estimates of about 3 million ha of cultivable land) without affecting the easy availability of drinking water. Already there is information that in many parts of the country (especially in the NW) the availability of drinking water is increasingly difficult due to excessive use of groundwater for irrigation, due to the drawing down of aquifers.

To achieve food security, Bangladesh will have to increase food production on its existing land base by increasing cropping intensity without sacrificing: fish production potential; the overall environmental base; and related prospects for remunerative employment. Up to now, food self-sufficiency through the expansion of foodgrain production has been the guiding principle of the FAP and the broader NWP. There are concerns about such a trend to monoculture in terms of crop diversification and biodiversity in the environment. The challenge for agriculture is to sustain rice farming while expanding into a more flexible, diverse agriculture in which fisheries are also protected. Some of this flexibility might be achieved through encouraging more regional specialization rather than regional or household self-sufficiency. Such a strategy does, however, rely upon more mature markets than at present exist. Another problem with the groundwater/surface water debate is that the contesting parties have different time-frames: 10–15 years for the groundwater strategy; and a 15–30 year perspective for the FCDI assisted surface water strategy.

This debate is crucial to the whole water management strategy for Bangladesh, and yet so far it has been confined to an extended row between 'expert' protagonists with only limited perceptions of the detailed livelihood implications for the wider populace. More details of the debate need to be presented here in order to reveal the imperative for wider participation by stakeholders in the debate itself as well as consequent implementation.

The groundwater position (e.g. Pitman, 1993) argues that the success of agricultural growth over the last 15 years can be attributed to groundwater irrigation, increasingly with shallow tube-wells (STWs), mainly of boro rice using HYVs and chemical fertilizer. It further maintains that output of irri boro can be increased both through a more balanced use of fertilizer and through expanding the dry season irrigated area by 4 million ha (or 3 million ha on a more cautious estimate that takes account of salinity and other constraints). It also claims a further advantage for this strategy. It is private sector and not dependent upon government intervention either for inputs or for infrastructural support through FCDI projects which are: invariably

delayed; deliver only a minor proportion of planned additional cultivable area; and have negative effects upon the environment. It argues that studies of rates of return for FCD projects in terms of food production increases have always demonstrated low returns, compared to the groundwater option. It argues that increase in output up to 2000 could be 19 per cent, and even achievable by improved practices on present irrigated land before considering the impact of the expanded area potential. It argues that such a strategy (which implies the monsoon rice crop continuing at current levels) could not only feed Bangladesh well into the next century, but provide an exportable surplus or at least the scope for crop diversification. The position does not rule out some FCDI projects, particularly those which protect dry season crops against early flash flooding, and those which offer drainage to enable rabi (i.e. winter wheat, pulses and vegetables) and boro rice crops to commence.

The objection to this strategy offers lower estimates for groundwater expansion (partly because it assumes a constraint upon conjunctive use of groundwater in public sector, surface water projects, and partly because it assumes higher irrecoverable water losses thus reducing the finite area for groundwater irrigation). It places a stronger emphasis upon the dangers of 'mining' of groundwater, arguing that development of the groundwater resource is reaching its natural limits due to inadequate recharge. (There is an interaction between FCD projects and usable recharge rates, if inundation waters are more spatially confined, thus restricting percolation.) This argument is strongly refuted by the groundwater lobbyists who refer to hydrograph data for all thana (i.e. sub-districts) outside the Dhaka area.

However, connected to these criticisms of over-reliance upon groundwater, is the longer time-frame associated with the protected rainfed T-Aman, surface water irrigation position. The groundwater arguments tend to project demand up to 2010 and conduct supply arguments accordingly. The NWP has concluded that groundwater resources alone will not be able to meet the water requirement for dry season irrigation beyond 2005. The 'FCDI' position is looking beyond this cut-off (perhaps partly because of the long gestation of major projects anyway). If the assumption is that population expansion is predicted to level out in 2025, then calculations must be made with demand at that point in mind. On this basis, the arguments are advanced that major protection projects should continue (as in the portfolio of projects proposed in the October 1994 FPCO Document), along with an extension of the compartmentalization strategy (controlled flooding—see below) to other areas. The October 1994 Document also includes the proposals (outlined in the National Water Plan 1991) for consideration of additional major projects such as a Ganges Barrage (to provide surface water to the South West region) and one for the Brahmaputra to supply surface water irrigation to the NE and NW regions. There are even some suggestions that a Brahmaputra barrage might supply water to the Ganges (under conditions of continued reduced flow due to Farraka), and thereby deliver water (in association with a Ganges barrage) to the South West through the Gorai. Such projects would, of course, cost billions of dollars and have wide-ranging environmental implications.

Clearly such a significant debate cannot be confined to a technocratic elite within and outside the country. If proponents of the long range 'FCDI' vision are serious, then this vision needs to enter the public domain and be held up to scrutiny, given: the scale of investments involved; the wide ranging externalities to be considered; and the institutional implications of such a public sector strategy in the context of concerns

about the competence of the state, governance and accountability. These concerns about state competence and the non-participatory instincts and culture of engineering expertise in Bangladesh (repeated in many other societies) would imply that the groundwater position has more immediate comparative advantage (leaving out technical issues such as usable recharge and mining of aquifers).

There are two further points to be made. First, that both positions appear to assume, uncritically, that foodgrain self-sufficiency as a route to food security is an uncontroversial goal well into the next century. This may be correct if little long-range comparative advantage on industrial products can be envisaged. However the fish/foodgrain scenario needs to be considered carefully in that context (see below).

Secondly, the projections about urbanization (and speculation about 'urbanization') entail a particular, classic, objective for agriculture, namely maximizing the net marketable surplus. Many would argue that an FCDI strategy is essentially a continuation of public sector subsidy to the peasant sector (with little prospect for cost recovery) with lower costed inputs to the private farmer and less integration with the market as a result. A high productivity, groundwater basis to the expansion of foodgrain production beyond present levels is more compatible with raising the level of net marketable surplus, since farmers are obliged to exchange product for inputs more intensively.

Access to Fisheries: a Participation Indicator?

A basic objective of FCDI, and one which gives most schemes economic viability, is to increase rice production by converting natural wetlands to controlled paddies thus replacing deep-flooded B-Aman with shallow flooded HYV T-Aman. However, the rural poor especially rely for key elements of their nutrition upon common pool, open access fish resources in the floodplain for up to six months every year. Nutritional studies indicate that fish provide up to 80 per cent of animal protein intake for poor people. Small, wild species (which are especially available to the poor) are key suppliers of crucial nutrients such as calcium, minerals, fatty acids and vitamins. A 1992 USAID study indicated that poor rural households eat fish or shrimp 5-7 days a week, and in a year would consume 50-75 species of fish. The emphasis of FAP on environment and fisheries only gathered momentum after preliminary results emerged from regional and supporting studies (notably FAP3.1, FAP6, FAP 12, FAP16). These showed that substantial losses will occur to floodplain fisheries if the proposed scale of engineering works is to be implemented. In the past losses to fisheries and gains to agriculture of embankment protection have been misrepresented.

Essentially in Bangladesh, there are three institutional types of fisheries: common pool (open access); capture (or open water); and culture fisheries. The importance of floodplain fisheries is that with the floods, fish disperse over an immense area as part of their annual life cycles (breeding and feeding), benefitting fisherfolk of all classes, age and gender. Schemes, such as compartmentalization, will transform the institutional status of fish from a common pool/open access resource into a privatised resource, with adverse poverty and gender implications.

Free movement of fish must be allowed throughout the floodplain to support breeding, feeding and growth of fish, and other key species, and to provide a widespread source of free or low-cost food to the poor. Culture fisheries should only be

regarded as an additional activity to existing open water fisheries and not as a replacement of the latter. Culture fisheries in general may assist in reducing overall losses in fish production but they do not address the issue of displaced fisherfolk or the nutritional loss to the poor. They will never compensate for the loss of habitat and species diversity. Furthermore, interventions requiring use of gates, culverts, fish passes and similar structures should be considered only when all other options for water management in a locality have been considered.

This prompts a basic question. What scenario of water management achieves the best compatibility between rice and fish? One based on a groundwater led strategy for HYV boro rice and other cereals, which can leave the floodplains intact during the monsoon, or an FCDI/ controlled flooding strategy which seeks to enhance both the cultivable area and yield of monsoon rice by significantly managing water levels in the floodplain? At first glance, the FCDI solution appears to be the more 'indigenous' in the sense of relying more upon domestic materials and labour in construction and subsequent management. This has lent a nationalist dimension to the issue, since surface water irrigation (achieved by barrages and canal systems) combined with flood protection embankments for B-Aman represents a more 'indigenous' solution which also maintains Bangladesh's claim against India on the Ganges and Brahmaputra waters. Groundwater strategies for agriculture are, by contrast: high-tech; dependent upon foreign imports; and strongly favoured by donors who allegedly produce false arguments about availability in order to support the vested interests of foreign capital. Furthermore, the groundwater advocates are accused of cynically deploying environmental and fisheries arguments, since they otherwise favour intensive use of chemicals in fertilizer and pesticide.

It is clearly important to rescue these contrasting water management scenarios from such polemics.

A basic presumption of FCDI strategies is protection for the expansion of modern variety T-Aman which is yield responsive to controlled water levels and chemical fertilizer application. A further development towards full HYV Aman, transplanted under more controlled conditions with a shorter growing season is also envisaged. Both FCDI scenarios are regarded by fishery experts as incompatible with the breeding, migration and maturing requirements of wild fish, since their movement will be restricted by further embankments. Moreover water levels for shorter stem varieties of paddy will conflict with preferred habitats for many species of wild fish.

It has been observed that many of the embankments in Bangladesh (mainly, of course, outside FAP so far) do not fulfill their objectives of protecting cultivable land for T-Aman due to poor design, construction and maintenance. This is fortunate, since successful embankments would have already visited untold damage on wild fish stocks. It is thus 'fortunate' that villagers are ignoring management expectations and opening sluice gates as well as cutting dykes. It is also 'fortunate' that so many embankments are in disrepair. With this sceptical comment goes a preference among the floodplain fisheries lobby for B-Aman in preference to T-Aman.

Thus the current scenarios which attempt to address this rice/fish compatibility seem to be:

- dry season groundwater expansion, with uncontrolled monsoon inundation, though well-drained with canals, which is therefore consistent with B-Aman on lowland and which disperses indigenous fish over a wide, common pool area

(incidentally contributing to an increase in survival rates), supported by capture fisheries at the end of the monsoon season and also fish culture to supply urban markets with poor as well as rich people's fish; T-Aman could be marginally expanded on higher land as at present, but without large-scale structural protection, and might be accompanied by rice/culture fish options on well-managed plots;

- the 'compartmentalization' option with round year water availability provided by FCDI projects to support an expansion of modern variety rainfed rice production (T-Aman) on lower presently inundated, low investment/high risk B-Aman land, but at controlled levels supposedly compatible with indigenous fish sustainability (but certainly with accompanying dangers of moving wild fish in the monsoon season from a common pool resource into either a common property or private resource), with a presumption that groundwater use will soon reach its natural limits); as above, T-Aman would be expanded on higher land as at present but without large-scale structural protection, and might be accompanied by rice/culture fish options on well-managed plots.

No doubt variants of these two principal scenarios could be elaborated to capture the diversity of situations in different regions. It is clear that the floodplain fisheries lobby have a strong preference for the former scenario. Thus there is a convergence between the *groundwater expansion* position on agriculture and the *floodplain fisheries* lobby. The advantages of the former groundwater/HYV boro based scenario are: greater area of monsoon habitats; avoidance of higher and potentially damaging levels of fishing effort with a much larger flooded area; and a greater groundwater recharge, thus protecting water levels in dry season beels (permanent low lying water areas) as well as aquifers for both irrigation and drinking water. The disadvantages of the 'compartmentalization' scenario are mainly the obverse of these.

There appears, therefore, to be paradox of argument regarding access to fisheries on a nationalist/poverty axis, perhaps represented by the following oversimplified matrix:

	Nationalist and indigenous	Poverty oriented
Groundwater, expansion of HYV boro	No	Yes
FCDI 'compartmentalization'	Yes	No

While recognizing that this represents a caricature of the two water management options, it does lead on to some further statements concerning the relationship between participation and expertise, the domination of high tech rice production in the discourse and the rights of poor people in water management options.

POVERTY AND WATER MANAGEMENT

It is clear that while the March 1995 FPCO document includes 'social acceptability with no significant adverse environmental impacts' within its criteria of project selection, its project portfolio demonstrated a strong bias in favour of the protection of

urban assets as against the protection of the lives and livelihoods of the rural poor. The projected benefits to the poor from structural interventions remain far from evident. The rural poor are concentrated in the most marginal locations and with fragile homesteads. They have a hand-to-mouth reliance upon small farms, land-based employment and open-access gathering of floodplain resources. Within such families, women perform duties which entail basic uses of water (cooking, washing, and so on). Floods and cyclones may involve re-location (temporary or permanent), especially of the poor, thus undermining the carefully constructed and precarious survival networks consisting of patrons, employers and kin. They are also vulnerable to predation by strangers (including officials) in their new surroundings. Women can be especially vulnerable under such conditions, particularly in female-managed households.

Rural flood control measures have tended to favour agricultural land and intensive rice production over the direct protection of poor people's livelihoods, despite estimates that 66 per cent of local damage from the 1988 flood was in housing and only 2 per cent agriculture. Despite expressed concerns about the poor and women (which would be mainly realized through non-structural interventions such as flood proof-shelters, cyclone shelters, water for drinking and sanitation) only 1 per cent of FAP (and sequel planning) has so far been devoted to these activities; whereas controlled flooding to protect rainfed Aman has been 20 per cent of total cost. Thus, while the water management scenarios, outlined above, differ in terms of their implications for poor people's access to fisheries, both of them focus upon the expansion of high tech rice production and neither of them really address the complex portfolio of poor people's livelihood strategies in which coping rather than control is the more realistic objective.

One further observation needs to be made. Despite fashionable criticism of large-scale structural intervention, such critics should not just dismiss the advocates of major structures as self-serving (the 'venal' political economy position). This trivializes the issue, and can make criticism look ridiculous and easily disregarded. Advocates of large-scale structures also have a long range 'livelihoods' vision for the inhabitants of the delta, even if their more immediate professional or economic interests happen to coincide with them. However, since the long-term arguments appear to go in diverging directions (in brief: sustainable use of the natural environment versus purposive management of water and land to deliver food security into the middle of the next century when the population is projected to level out), a more open and transparent debate is required, which is well informed, and which respects that opponents are disputing in good faith. With these comments in mind, let us then consider the various water management options and their implications for the poor.

Structural and Non-Structural Interventions

In the five year period of the FAP, little attention was paid to the cheaper, shorter lead time options of non-structural flood-proofing measures (with the exception of the contributors to PACT (1993)). There seems to have been a *collective failure* to identify short-term projects and to distinguish between the controversial and the non-controversial, and therefore a failure also to get on with initiating projects for which there is a broader consensus. A debate among stakeholders needs to determine this. By focusing on coping strategies, attention should be directed to 'minimum, least harmful

and optimum options' rather than 'maximizing control' as the guiding principle of public sector policy in flood mitigation and the protection of land and other property. The implementation of non-structural flood-proofing measures as a priority would directly and immediately contribute to the protection of lives and livelihoods for the poor. At the same time, when assessing the advantages and disadvantages of large-scale structural interventions, it is also necessary to include the impact of the numerous non-FAP structures upon the water systems across the country (i.e. roads, rail and other historic embankments), and the degree of co-ordination between different agencies in relation to the objectives of overall water resource management.

Although there have been 'politically and environmentally correct' forms of criticism against large-scale structural interventions, some are less controversial than others. For example, strengthening of the Brahmaputra Right Embankment (BRE) and river training should clearly continue. The BRE extends over some 220 km along the Jamuna and the Teesta rivers. It was largely built in the 1960s as a continuous flood barrier and has been moved, strengthened, rebuilt and rehabilitated repeatedly at various points. As part of the legacy of FAP for the coming years, further strengthening is planned, particularly at Sirajganj (north of the new bridge) and also where a major breakthrough to the Bangali river further west is threatening. Moreover, hard-points and other river training structures are planned along the BRE to avoid or delay further erosion by imposing a shift in the directional flow of the water. Thus embankments related to the Jamuna bridge, protection works for Sirajganj, the threatened breakthrough to the Bangali river, and river training upstream are all seen as contributing to restraining the westward shift of the river. But even here, there are concerns about the retirement of embankments, the technical quality of such work which has prompted renewed capital investment, and the rights of labour involved in such work. A particular problem has been large areas of ponding as flood waters have become trapped behind breached embankments, but with drainage back into the river blocked. It must also be acknowledged that these structures are also intended more controversially to allow experimentation and eventual routine operation of controlled flooding through compartmentalization.

Controlled Flooding (Compartmentalization): the Test Case

Compartmentalization is seen by engineers as the basis for a widespread strategy: to deliver water in a managed way to the floodplain (or rather selected parts of it) in order to manipulate the environment for productivity purposes as well as relieving pressure on threatened embankments. Interventions of this type represent a fundamental change in the lives of people within the compartments as well as significantly those immediately outside them. Their whole ecosystem and history of adaptation to it will be disturbed with many unknown consequences for people's livelihood strategies and the environment. The redistributive effects are unknown and have implications for social order, survival networks, collective action, labour and credit market transactions. It represents a gross experiment in social engineering, with large pilot projects barely operational before replication was being considered: e.g. proposals for phase 2 of FAP 20 in Sirajganj and the 'refinement' feasibility study in Jamalpur (the FAP 3.1 Jamalpur Priority Project), thus implying an agenda well set. Indeed some FAP 'insiders' are prepared to admit that the expansion to

Sirajganj was planned from the start in order to test the approach in different agro-ecologies.

Compartmentalization and controlled flooding clearly remain highly controversial as a strategy for water management, with many locally affected people opposed to it. Even before its construction phase has been completed (let alone implementation) there have been numerous problems related to decision-making, structural design, water flows and drainage, crop and fishery interaction and trade-offs, impact on production volumes and patterns, and on conditions of life in and outside the area. Participation in such decisions has been restricted at best to consultation on FAP proposals. For FAP20 (Tangail), having come so far, the completion of the implementation plan appears justified (including sorting out its current water supply problems) in order to allow for (over several years) a thorough review and evaluation of the process and its full social and environmental cost-benefits. But strong attention must be given to compensation and proper rehabilitation of the livelihoods for those adversely affected, as well as suitable fisheries mitigation measures as a precondition for continuation.

The issue of compensation has to be approached as an embedded part of any water planning and implementation, just in the way that almost any urban planning under democratic conditions involves compensation for loss of property. The difference here is to acknowledge the rights of those *without property* to compensation for loss of livelihood options, or transformation of them, entailing new labour or artisanal market conditions requiring different skill responses and networking. The need for compensation applies especially to the displaced, within the wider category of those negatively affected. The displaced include both people who lose assets (e.g. land, homes etc.) as well as the assetless (e.g. landless, fisherfolk etc.) who lose sources of livelihood. Both need to be compensated fairly, which would encompass fair prices for lost property and provision for formal appeal procedures and legal aid, if there is dispute over the rights to or quality of compensation. Fair compensation would also include measures for the rehabilitation of the assetless through priority access to new employment opportunities. Furthermore the loss in common pool-open access fisheries needs to be mitigated and alternative viable sources of income need to be provided for displaced fisherfolk.

Barrages: the Ultimate 'Expert' Solution?

The arguments for barrages within the borders of Bangladesh represent a further set of highly controversial water management ideas which remain on the agenda of diehard engineers brought up on a diet of surface water management and nationalism in relation to India's control of the Ganges waters. The problems of the Farakka barrage are well known in the region and have been partially resolved between the present Indian and Bangladeshi governments. Less well known are some of the internal responses, which remain relevant despite the recent agreement on water sharing. A major consequence of the Farakka barrage is a reduction in the water flow of the Ganges downstream and loss of flow into the Gorai, a distributory river, running south into the Sunderbans. As a result, the South-West region is acknowledged to have acute water availability problems during winter months aiding saline intrusion in the coastal area. Given the history of unsuccessful negotiations with India

(which even now can easily be reversed), this has prompted proposals for a Ganges barrage just below the mouth to the Gorai to direct winter flow into the Gorai and other rivers. There exists the related idea of a barrage across the Brahmaputra/Jamuna just inside the northern border to service an artificial link across Pabna and Rajshahi to supplement the Ganges flow, and to offer the prospect of an extended surface water, irrigation system for North-West and North Central regions. These ideas represent major human interventions in the river systems of the country, playing with rivers on a grand scale, requiring more regional solutions and global financing. On the other hand, the acknowledged problems of the SW might be solved more 'appropriately' by removing present embankments and recovering a tidal shift ecology in the coastal region, with tidal flush removing and transferring siltation (new chars). Such an alternative raises the basic issue of environmental philosophy: symbiosis or control?

These more fanciful ideas are outlined here to demonstrate the technical imagination of expert engineers and the organizational culture which frames their approach to water management. These proposals represent the ultimate expert preference for large-scale infrastructural solutions, located within a prevailing 'blueprint' project mentality. They also represent an unambiguous commitment to a 'control' philosophy, consistent with the preference observed earlier for structural over non-structural interventions as a response to flood mitigation. The 'poverty' justification for such a 'control' stance could only be from the provision of surface water irrigation in the North, and the prevention of drought and salinity in the South West. In principle, both objectives would enhance the productivity of small farmers' land, and could generate employment within a mono-culture perspective of HYV rice production. The engineering lobby would further defend such a strategy by referring to the Teesta barrage and related canal systems in the North West, though the jury is still out on the amount of land actually brought under command, and the effectiveness of water delivery. However, the prognosis on success with large-scale, surface water irrigation systems is poor due both to technical problems (siltation etc) and inefficient management (corruption, ineffective cost recovery, poor maintenance, untimely supply). It is also not clear how any proposed system of interlinked canals and rivers would react to the flood season, and whether therefore it could actually deliver water into the Gorai system. The opportunity cost of the scale of funding required would need to be considered very carefully in the context of such doubts.

Chars and Coasts: Vulnerable People

There are further 'poverty' problems of such schemes, especially when linked together with others to produce a system of embankments on rivers where there are significant chars. Charlands are mid-channel islands that periodically emerge from the river bed as a result of accretion in the Brahmaputra-Jamuna, also in the Ganges, Padma and Meghna rivers. These chars offer cultivable land to those who have been marginalized in the political economy and displaced from more secure areas. About 4 million people currently live in the active floodplain of the main rivers, with 2-3 million spread along the Jamuna corridor. Alongside offering some prospect for cultivation, these chars are also the most vulnerable to flooding, erosion and (lower down) tidal bores. If we link together the Brahmaputra right bank, the embankments arising from

the construction of the Jamuna bridge, other embankments arising from compartmentalization, including the Jamalpur Priority Project, and the prospect of further embankments on the Jamuna delivering link roads to the Jamuna bridge, then even without any barrage proposal (which would involve further embankments) the Jamuna left and right banks could be entirely embanked. With such a system of embankments (arising from incremental rather than holistic policy) there is a major resulting issue of raising river levels and either directly flooding or increasing the vulnerability of these chars, some of which have been stable for a long time. Furthermore, raising river levels through embankments in other countries, such as China or the Southern states of America, increases the likelihood over time of rivers becoming normally higher than surrounding floodplains, thus compounding the flooding problems especially in the most adjacent land to the river course.

There is, therefore, an irony in developing a response to flooding which especially makes the conditions of those most dramatically affected by floods even worse. The pro-embankment lobby might reasonably argue that trade-offs have to be considered between different sets of interests and that the advantages of protection for millions of others further out in the floodplain should outweigh the 'minority' interests of char dwellers, who should be relocated or themselves have protection embankments around their islands. *But neither position is convincing.* Char protection embankments are unlikely to be stable and successful, since by definition chars exist within fast streams surrounding them and consist of shifting sands. The prospect of collapsing embankments, under these conditions, are horrendous. The re-settlement option begs the questions of why some people are char dwellers in the first place. If people move to the most vulnerable parts of the country as a result of marginalization from their previous settlements, then how can we realistically expect the state in general and the water resources sector in particular to manage a programme of relocation and livelihood support. They are char dwellers precisely because no part of the state can look after them against other forces in the political economy.

As indicated in the opening summary of damage due to 'excessive water events', in addition to flooding, the coastal belt in the South is periodically subjected to cyclones, tides and wave action. In recent years, these have caused far more deaths than flooding inland. The ecology is also at risk from human intervention. For example, the Sundarbans represent the world's largest mangrove forest, but its habitats are threatened by the clearing of mangrove forest for shrimp cultivation, as well as embankments designed to protect agricultural land (as noted above in the Gorai discussion). Poor people's livelihood strategies are also at risk as the agricultural quality of their land is destroyed in enforced deals with shrimp entrepreneurs (who have often been the landlords of the area working in association with new entrepreneurial intruders). In addition to established agricultural land (on the 'mainland'), new chars are continuously developing in the lower reaches of the delta. Poor people, marginalized from other relatively more stable and secure land, have moved onto these chars and established communities and agriculture. But, as a result, there is much insecure, yet precious tenancy of this cultivable land where 'ownership' has been aggressively claimed by coastal landlord classes, extending their domains onto these new land formations. Even with information about impending cyclones and tidal bores, marginal peasants are reluctant to leave this land through fear of long-term loss of their precarious rights (i.e. via the re-allocation of tenancy, or squatting).

Although the physical causes vary, the social processes in the political economy by which inland and coastal chars are inhabited have similarities. Water resource planning in Bangladesh has largely been able to ignore both sets of people because of the weakness of their voice, reflecting precisely the circumstances which compelled them to settle in such marginal and vulnerable areas in the first place. Their physical vulnerability matches and is derived from their social vulnerability. To a considerable extent, their physical vulnerability can be addressed in non-structural ways through flood and cyclone warning and other mitigation measures, such as provisions for adequate (temporary or permanent) re-location, accompanied by appropriate support for health and education, and alternative sources of income (e.g. short-term consumption credit). Such non-structural response options reveal a crucial policy implication: namely, that water resources planning has to be integrated with other forms of intervention outside the water sector. In other words, the solutions to problems created by water levels do not necessarily lie in the management of water itself. Sometimes it makes more sense to deal with the social processes which are responsible for vulnerability when they interact with extreme water events rather than attempt the large-scale and costly structural response to the physical events via a physical prevention strategy associated with embankments and polders (see again PACT (1993)).

Urban Interests

When considering the relation between poverty and water management, there is also the issue of competing urban and rural interests. Allocation of strategic investment in water management and flood protection needs to 'follow' the population, which will mean increasing attention towards urban protection and the concentrations of the urban poor in the urbanisation process. However in the FAP process to date, there has been a methodological problem about the use of Economic Internal Rate of Return (EIRR) calculations to attribute value to property (and therefore potential damage) as the basis for allocating flood protection investment. The use of EIRR favours urban and industrial property over rural. The market values of urban property reflect both the quality of materials and competition for scarce and therefore highly valued space within the urban context. By contrast, market values attributed by this methodology to rural assets are lower, reflecting more flimsy, local materials used in housing, cattle sheds, stores and community centres. But such 'lower' market values bear little relation to their high significance for rural livelihoods. It is useful to distinguish between stocks and flows in this context. Fixed rural assets or stocks, such as housing, offer a range of 'shelter' contributions to family livelihoods through supporting: health, sanitation, storage of food, space to process food, maintenance of clean drinking water, space for study, protection from heat and rain, hospitality to maintain networks and so on. Herein lies the value of these stocks to maintaining healthy, educated, well networked families through which flows of income are achieved. Thus if the society was having to bear the full costs of disturbed rural livelihoods arising from a failure to protect rural homesteads (ill-health, enforced migration, loss of employment and loss of networks to obtain it), then the EIRR might be different. Without that more subtle calculation, the rural poor are always likely to be victims of urban bias.

However, it is also necessary to unpack the familiar idea of urban bias. Given the long-range projections of the rise of the urban population in the context of a persistent high incidence of overall poverty and the likely concentrations of the poor on the more marginal land, a particular kind of urban flood protection is required as part of an overall water resources strategy. The EIRR points made above will increasingly apply to the protection and maintenance of shelter and other amenities in urban slums, where conventional methods of calculating value may only be valid when considering the opportunity cost of the sites on which urban slums are located. There is little doubt that some urban slums will always occupy areas into which formal middle class housing will be steadily inserted, with slum dwellers displaced into yet more marginal locations as cities expand. In other respects, the same issues about valuing poor people's shelter and common amenities apply. Indeed, the point might be summarized as an increasing problem of peri-urban vulnerability not only in Dhaka (where the existing outer embankment has a rapidly growing number of peri-urban settlements outside it already) but also in other growing cities which are expanding from inner upland sites. There is a further methodological issue about valuation which is common to both rural and urban situations. This concerns the effects of flooding upon work patterns. The common analysis tends to be gender blind, since by focussing upon the loss of paid employment due to damaged crops, construction projects or market and trading activity, the EIRR approach to valuation fails to capture the lost value of women's unremunerated productive work which tends to be mainly home-centred.

There are further related issues about other water uses, in which women are prominent, such as drinking water, washing (bodies, clothes, utensils), sanitation. The value of these, even if not included formally within EIRR analysis, can be underestimated as part of a general gender blindness in which women are structurally constrained in contributing to the assertion of value via 'voice'. This underestimation of value will be particularly acute among the poor, and especially among the urban poor where the demand for such uses is much more concentrated, and where rights to water are much more precarious both within competing elements of these communities, but also in relation to the municipalities.

Operation and Maintenance: Scope for Poverty Alleviation

The link between poverty and water management occurs not just in overall strategy and design, but in the crucial area of operation and maintenance (O & M). It has been observed of both FAP and non-FAP structures that O & M represents a continuing problem of under-performance. With the continual pressure from the engineering lobby and their donor and international commercial supporters (consultants and contractors) for new capital projects, the imperative to generate revenue to sustain the recurrent costs of O & M is relaxed. This constitutes a central problem of sustainability: both with the structures themselves, and the services they are supposed to deliver; and financially with little attention to cost recovery. Revenue for recurrent costs is in effect being transferred to new capital projects, together with a strategy of switching that revenue from domestic sources to overseas, donor sources. This in effect represents a certain kind of collusion between engineering interests both nationally and internationally on the one hand, and those in the state seeking to avoid

difficult, domestic revenue raising decisions. There are alternative strategies which offer the prospect of linking both poverty alleviation and cost recovery together, thereby addressing longer-term sustainability in both physical and financial terms, while at the same time providing more opportunity for participation in water resources planning and management.

The key principle of this alternative is that as far as possible structures need to be built as a result of local demand rather than government imposition. To the extent that this principle can be realized, then a link can be established between this local demand and a sense of obligation and self-interest to pay for the maintenance of such structures. If an embankment is demonstrably providing the service of flood protection to a community of farmers, then they may have a higher propensity to pay for its immediate maintenance costs. There are two institutional options through which this can be achieved: via the public sector and taxation; or via local arrangements involving long term maintenance contracts or franchises, in which the franchise holders are in effect collecting rents to cover their costs from the protected community (based on land and other asset values). Given the problems of distrust and even corruption with the public sector option (though the change of government, a stronger civil society and 'communities with voice' mobilized by NGOs might change some of these negative institutional parameters), the 'private', localised franchise holder option might be more realistic and it deploys some of the same institutional capacity among the locally mobilized.

It is important to develop the locally mobilized from a 'client' or recipient stance towards functioning common property management, which is of course consistent with the second, 'franchise', option, noted above. In this way, different stakeholders can be identified, all with interests in sustaining functioning local arrangements for coping with floods but with different contributions and gains to be made, according to 'class' position. Farmers have land values enhanced via secure and multiple cropping prospects; labourers thereby gain agricultural labouring opportunities but also possibilities of becoming maintenance franchise holders on embankments, roads and canals. Therefore participation and equity objectives can be achieved under such common property management arrangements by farmers paying rents directly to Labour Contracting Societies for the O & M of relevant structures, thus achieving a redistributive transfer income on a permanent, sustained basis without participation by the state (Wood, 1994, part 3, ch. 10, p. 282). Poor women frequently have employment opportunities in such schemes, thus constituting a move towards equity in both a class and gender sense.

CONCLUSION: DEMOCRATIZING WATER RESOURCES MANAGEMENT

It is clear that one of the major problems about water management in Bangladesh has been the assumption that scientific and technical expertise must prevail over other forms of knowledge in the water policy process. As a result, there has been a problem of policy legitimation and lack of consensus about the basic policy process for water resources planning and management. Water engineers and their supporters both within the Government of Bangladesh as well as among key donors (like parts of the World Bank) have been allowed to pursue a very narrow conception of water policy, without understanding that such a key resource in the country entails a large number

of stakeholders (by definition — because it is such a key resource) with both legitimate rights as well as significant knowledge. The policy process in such a context can only be one of negotiating the extent of one set of interests against those of others. Such a 'contest' is properly political rather than technical; and therefore has to be moved from the technocratic to the democratic domain at all levels from the national down to the sub-village.

A distinction has to be recognized between interests and knowledge, which are both key elements of any policy and democratization process. Politics is all about different sets of stakeholders promoting their specific interests as having a wider, more universal claim thus recruiting others to their position. Where a group fails to make further progress in extending its specific case into a wider one, so it has discovered both the limits of its own position and the realization that compromise is necessary. Thus conflicts about water (as with any other key resource) should be expected. The mode of their resolution becomes a defining feature of what we might mean by the term 'civil society'. A consensus, at any particular level, about the rules for resolving such disputes becomes an index of the maturity of that civil society. In addition to interests, particular groups may also have knowledge about water which is historical, experiential, observational. They may have knowledge about topography, flows, levels, quality, fish movements, interaction with cropping cycles, reactions to structural interventions, drainage patterns in the context of soil types, and so on. This knowledge may be highly localized and anecdotal. There may be disagreements over its nuances. There may be imperfect memories. Such knowledge may be over-localized. It may be bounded by interests (e.g. understating negative downstream effects of upstream interventions). But such knowledge, in all its various forms, should be regarded as part of the policy process.

However, the realities of power cannot be ignored, so that some knowledge is regarded as more authoritative than that of others. The analysis and opinions of village women in the communities affected by compartmentalization in FAP 20 were discounted as invalid by male, educated, 'expert' engineers (witnessed by me during the independent review exercise). The FAP15 proposals on compensation were ignored in the final set of infrastructural proposals (reported to me by a leading FAP consultant). The knowledge of anthropologists in some FAP studies, especially in the N-E, was discounted by project leaders eager to tell a less critical story about the value of infrastructural intervention (reported to me by the anthropologist concerned). The critical findings were filtered out in final reports, which were nevertheless legitimated by the presence of anthropological forms of knowledge in the project studies. In order to overcome the systematic downgrading of certain forms of knowledge, we may observe coalitions emerging across the expert-indigenous boundary reflecting official attempts to build up loyal constituencies around immediate interests (e.g. engineers and farmers over the protection of land for T-Aman) which is countered by potential losers (e.g. in the compartmentalization projects of FAP 20) among the poor, who are attached to different 'scientific' arguments (e.g. the necessity for the free movement of fish in the floodplain) (see Biggs (1990 and 1998), for an example of this process in other contexts). These latter interests may then find themselves allied to a groundwater lobby which rejects 'mining' and 'finite constraints' arguments.

Even the existence of a debate about the merits and weaknesses of large-scale intervention in the water sector constitutes evidence of a democratization process. It now seems accepted, as a result of lobbying and advocacy, that 'reacting to floods'

should not be the main determinant of water resources policy; and that the policy process has to be recaptured by a broader conception of national water planning. In other words, the debates and challenges to the FAP approach have changed perceptions of the water problem; and this has been accompanied by a shift in the balance of 'expert' disciplines which are accepted as speaking authoritatively. There is now a stronger interdisciplinary treatment of the issues, which has enabled a more holistic framing of the problems, in which, for example, the problem of drought can feature as strongly as the problem of flooding (see Clay and Schaffer, 1984 for a discussion of creating 'room for manoeuvre' in the policy process). This shift of discourse within the country has been mirrored internationally, with a mounting critique of large-scale, infrastructural interventions. In the sub-continent, Narmada in west India has been a *cause célèbre*, which structured the debate around Arun 3 in Nepal and led to its abandonment. The World Bank has revealed its schizophrenia in Bangladesh by having deeply opposed positions. But again, at least the existence of conflict within the Bank reveals that the discourse has shifted towards a more critical stance based on primary concerns about the environment, equity and poverty. The Bangladesh 'case' of water resources planning is more significant than most large-scale interventions because it applies to the whole country, and spreads across so many dimensions of people's livelihoods: i.e. the issues are neither regionally or sectorally specific.

This evidence of debate, which has been partly about breaking the issues out of the engineers' bunker, essentially refers to a question of 'ownership' which then translates into participation. The problem with the FAP process, especially, has been a lack of national ownership in two senses: it was strongly donor driven; but it was also pursued at the outset by Bangladeshi counterparts in an undemocratic regime with no accountability to the broader civil society. Clearly the development of democracy more widely in the country since 1991, despite the dislocations of the recent transition and change of government, has offered a more facilitating political context for debates and advocacy to occur, and for a stronger sense of ownership to emerge. At the same time, it would be unwise to over-estimate the populist potential in the water resources policy process. The participation of many is likely to be restricted to more localized, immediate concerns rather than the broader strategic dilemmas. It is here that one has to accept a 'professionalization of advocacy' in which the voices of the poor are brokered through NGOs and other lobby groups, and political parties operating locally. In such a continuously and properly political process, one cannot expect the resolution of all contentious issues, but at least the basis for trade-off decisions should become clearer: between different sets of objectives and likely outcomes (for poverty, gender and the environment); between different kinds of related investment; between taxation alternatives to deliver appropriate revenues (especially in the context of some of the large-scale barrage proposals); between national and local interests; between public and private action; and between the priorities of donors.

In this objective of democratizing the water sector, a particular problem has been the absence of an adequate institutional framework at the national level for water resources management in the country. There has been a lack of inter-sectoral co-ordination within the Ministry of Water Resources as well as co-ordination with other relevant ministries, e.g. Environment, Fisheries, Local Government, and Relief and Rehabilitation. With the new government in position after the June 1996 elections, there is now an opportunity to place water resources planning high on the agenda in the formal political arena. An integrated water resources policy should be

drafted, based upon the key principles of: a water user perspective in both policy and implementation; environmental sustainability, consistent with the interests of the poor; more technical support for local initiatives; and more emphasis upon low cost, community-based measures. This 'White Paper' needs to be issued for consultation, and then presented to the Parliament for debate and revision.

Democratization can take place at many different levels, reflecting the principle that 'policy is what it does' (Harriss, 1986). Thus democratization is also about participation in management and implementation as well as in the more obvious planning and policy process. The Ministry of Water Resources, GOB, is formally committed to operate by its 'Guidelines for People's Participation in Water Development Projects' (issued 22 August 1994, see Wood (1996)), which sets out a series of institutional procedures for consultation on projects between people's representatives and government agencies. However these Guidelines reflect several critical issues, which will need further debate within the country.

Bangladesh does not enjoy long established democratic conditions, and strong civil institutions, which themselves have to be reliant upon widespread literacy and access to information. As a result, the state is distrusted, especially when intervening in the allocation of rights to natural resources. It is harder, therefore, to rely upon existing institutions to protect or secure the rights of affected people, and especially the poor who almost by definition have less voice. Unfortunately, GOB/BWDB has seen 'participation' more as a persuasion and consultation exercise, naturally operating within a wider organisational culture of deference to officialdom and educated expertise. Its style is to seek reaction only to one set of water management solutions, namely, FCDI projects, and how to make them more acceptable. BWDB has not been successful in breaking out of a 'civil engineering' mentality. As a consequence, it is not defining participation as about agenda-setting. Such a stance therefore weakens the legitimacy of government to adopt utilitarian forms of argument, involving potential sacrifice and compensation outside people's immediate experience or empathetic space. Without a strong sense of nationhood, stimulated by a trusted government with a strong track record on equity and compensation, utilitarian arguments about water management options collapse.

If participation, in the sense of agenda-setting, is therefore to be achieved as a principle of environmental management systems (EMS) or social impact assessment (SIA), then a more localized focus upon water management institutions as an arena of negotiation between stakeholders is necessary. This, after all, is where the real practice of water resources management occurs. At the same time, participation, no matter how virtuous a principle, is not a cost-free process when the following issues are considered: opportunity costs of participants; problem of real representation; aggravation of conflict; raising unfulfilled expectations; and domination by power-holders in the communities of the poor. In such a context, the institutional objective is to reach Ostrom's 'self-financed, contract enforcement game' (1990), in which parties to the negotiations recognize the costs of endless negotiation and are prepared collectively to settle for sub-maximizing outcomes as the socially optimal ones. This principle of 'rough equity' has been practised for some time by farmers in the command areas of landless irrigation providers in the Proshika water-sellers programme (Wood and Palmer-Jones, 1990 & 1991).

However, it is important to recognize that these negotiations do have to occur not just between local stakeholders with their respective interests and knowledge strongly

situated within micro-environments and ecologically determined production systems, but also between such stakeholders and government officials, with their respective sets of 'experts'. It is important in such contexts to recognize the value of different forms of knowledge, rather than just follow the populist line about the superiority of the indigenous. Local knowledge is probably superior as a description of the unaltered present, but such sources of knowledge are less able to model the future, which is the essence of water resources planning regardless of whether the policy outcome is large-scale infrastructural or not. The problem is that technical 'experts' do not trust local knowledge, and locals do not trust expert's knowledge, and their predictions of different infrastructural outcomes. Participation is a two-way street, but crucially based on trust and mutual respect. At this juncture, the onus is upon the government agencies to take the initiative on building such trust if national level solutions are sought to some water problems.

At present, with the larger scale, proposed infrastructural interventions, the government is attempting to avoid or bypass the problems of resolving conflicts between communities by restricting the 'nested hierarchy' of water users associations to implementation rather than planning. But such a strategy could only work if the government was itself perceived as a trusted, neutral arbiter. However it has proved itself otherwise by allowing itself to be captured by one set of 'engineering' arguments about water resources planning and investment. Thus, as a revealed interested party, it is now honour-bound to allow other sets of interests to appear at the planning level rather than confining them to the implementation level.

However, there is a further set of problems regarding the appropriate institutions through which people can express and secure their rights and interests in the water sector. Given the centrality of water management to livelihoods in Bangladesh then we are bound to ask about the relationship between the specialist, sectorally specific water users' institutions and other local government institutions in representing (or manipulating) people's interests. Since water is such a dominant resource, do water users institutions complement, duplicate or will they eventually replace other local government institutions? Moreover, this prospect has to be set against the problem of 'fit' or overlap between 'natural' social and physical arenas. Do hydrological units (assuming an uncontroversial definition of them) coincide with other levels of social organization in the local society within which successful participation might reasonably occur? There is a greater likelihood of this coincidence at a more local, micro level. But such coincidence is less likely as the territorial scale of the hydrological unit increases. Under wider territorial conditions, people are then being asked to cooperate or at least negotiate with strangers who are outside their own 'moral communities'. These outsiders will also include significant power-holders with different relations to the state in terms of mutual interests and access. Trust in both making and keeping agreements is highly problematical in such circumstances, although Wade (1987) was more optimistic about such possibilities when he studied village communities negotiating about water in Tamil Nadu. Finally, the proposed water users associations appear to be mainly geared to irrigation and drainage management, with a membership confined to farmers, with very casual institutional provision made for the landless (who nevertheless have a strong stake in coping strategies with excessive floods—shelter, employment, access to fishing).

The foregoing analysis seems to leave us with a series of questions about the prospects for democratizing water resources planning and management in

Bangladesh in ways which secure a stronger sets of rights for the poor and which are more consistent with national objectives of poverty alleviation and long-term support for poor people's livelihoods. The following concluding issues therefore arise:

- the implications of defining water users as farmers, and restricting other rural stakeholders to a less organized system of representation;
- the capacity of water user groups (WUGs), water user committees (WUCs) and water users associations (WUAs) to make plans for and manage different levels of common-property resources;
- the extent to which local management units require external regulation, or can construct their own compliance practices, especially with respect to the degree of overlap or congruence between hydrological and social space;
- to what extent are local people prepared to trade optimal, personal outcomes for a reduction in transactions and negotiation costs;
- the significance of focusing participatory provision on *project* identification rather than *problem* identification in terms of subsequent ownership (critically important for sustainability and cost-recovery objectives);
- the extent to which non-FCDI proposals in support of a 'coping with floods' strategy remain interesting to the Ministry and BWDB;
- the practices of Project Councils in reflecting and addressing a range of water user and water affected interests beyond those of the richer, more powerful actors in the community;
- how is the boundary between externally defined public goods and locally determined interests policed;
- what participatory factors contribute best to compensation for those disadvantaged by public goods arguments, and for which sets of stakeholders (e.g. directly affected farmers, or including indirectly affected landless labourers);
- what are the participatory contributions of other representative bodies and intermediary agencies (like NGOs) to water resources planning and management;
- what is the exchange of information between knowledge systems, with what effects upon learning and behaviour about water.

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POLICY ARENA

THE NEW PUBLIC MANAGEMENT IN DEVELOPING COUNTRIES

edited by

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INTRODUCTION

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This Policy Arena is devoted to the findings of a research programme funded by the British Government's Department for International Development. The programme's title was 'the changing role of government in adjusting economies'. It focused on the question whether models of public service reform generated in rich countries with established state systems are appropriate in the context of poorer countries which may have less solid state structures. Research was undertaken in Africa, Asia and South America across a range of service sectors chosen as exemplary 'windows' on the range of public services. This first note summarizes the research approach and indicates the policy implications of our overall findings; the second paper summarizes some of the policy relevant research findings emanating from the research; the papers which follow refer to the specific sectors studied — curative health, urban drinking water, agricultural marketing and business promotion.

THE PURPOSE OF THE RESEARCH

Over the last two decades there has been emphasis, particularly in the Anglo-American advanced countries, on reducing the role of government and on reforming public management by adopting aspects of private sector practice. The research was premised on the view that similar practices were being introduced in developing countries, often in association with the structural re-adjustment of their economies.

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