

---

# Local Initiatives: People's Water Management Practices in Rural Bangladesh

Jennifer E. Duyne\*

---

For over two decades participatory approaches have been advocated in academic and development circles as a means of increasing the equity and productivity of public irrigation systems (see Uphoff, 1986; Cernea, 1988; Ostrom, 1992; Parlin and Lusk, 1991; Coward, 1980). Related theories and concepts, all emphasising the importance of local-level organisations, have had a strong influence on the approaches followed by governmental as well as non-governmental organisations in Bangladesh. In fact, there is hardly any development project that does not include as one of its components the formation of some sort of group or committee. But these organisations have externally defined functions and organisational structures, which are generally defined without consulting people at the local level on whether they conform with their own organisational practices.

There is an increasing awareness that in practice these groups are not necessarily linked to any participatory development process. All too often they remain 'still-born organizations that lose their last semblance of viability as soon as external support is withdrawn from them' (Ambler, 1993:2). Critical views about the current 'faith' in participation (Hall 1988) and about the 'manipulated or teleguided forms' of institutionalised participatory approaches (Rahnema, 1992) are increasingly brought forward. Valid issues are also raised by Rao and Hashemi (1995) in the context of a study focusing on groups formed by two radical NGOs in Bangladesh. Rao and Hashemi question the 'folklore' about village-level organisations being able to continue as corporate units post-NGO withdrawal. Their study indicates that group sustainability is 'contingent upon the political brokerage and support of the NGO'. Nevertheless, 'people at all levels of the development/aid hierarchy — from grassroots organisers all the way up to the highest officials of donor agencies — however sceptical, continue hopefully to experiment' (Hanchett, 1997: 277).

---

\* Social anthropologist, Arcadis-Euroconsult, Arnhem, The Netherlands. The author conducted research in rural Bangladesh in 1983–4, 1987 and 1989. From 1992 to the beginning of 1998 she worked as a social scientist for the Netherlands Technical Assistance Programme in the BWDB Systems Rehabilitation Project, funding for which by the Netherlands Government is gratefully acknowledged.

In the water sector, experiences with the formation of groups as a strategy to enhance participatory management of Flood Control, Drainage and Irrigation (FCD/I) systems have been rather discouraging. A number of studies revealed that most organisations formed in the attempt to enhance participatory management of the Bangladesh Water Development Board's (BWDB) Flood Control and Drainage (FCD) systems basically exist only on paper (Duyne, 1994, 1997a, 1997b and 1997c). However, they also showed that the same people who did not find an opportunity to 'participate' in water management through formal groups organised by external agencies, organise themselves independently to pursue their own water management requirements.

This article presents a summary of the findings of research on local initiatives in water management in rural Bangladesh. It argues that one of the reasons why attempts to enhance participation in the water sector in Bangladesh failed, is because exogenous organisational models were mechanically applied to different contexts. Hardly any attempt has been made so far to understand and build upon indigenous water management and organisational practices.

For the purpose of this study a team led by the author, with the assistance of the socio-economic team of the Systems Rehabilitation Project, conducted intensive fieldwork over a period of eight months in 1997 in the area protected by four distinct Flood Control and Drainage (FCD) systems, located in Chapai-Nawabganj, Chaptir Haor (Sunamganj), Banshkali (Chittagong) and Galachipa (Pathuakali). The study served two distinct objectives. First, it provided an input to the on-going process of revising the Ministry of Water Resources' *Guidelines for People's Participation* (GOB/MOWR, 1994). Secondly, it contributed to the Final Evaluation Study of the BWDB Systems Rehabilitation Project, a water management project funded by the World Bank, the European Union and the Government of the Netherlands. The final evaluation consisted of an independent study carried out under the auspices of the Centre for the Environment, University of Leeds, UK.

### **Governmental approaches to water management**

Bangladesh occupies one of the largest deltas in the world. The country is criss-crossed by creeks, canals and rivers, including the Ganges and the Brahmaputra, two of the biggest rivers in the world (Hughes et al., 1994). Water is abundant and often excessive during the monsoon and scarce during the dry season. Not surprisingly, water control is considered by many as one of the most critical determinants of the country's development.

National water planning started in the 1950s under the Government of East Pakistan. In 1956, on the recommendation of a foreign mission, the East Pakistan Water and Power Development Authority (EPWAPDA) was created and given the responsibility for water resource development. From the beginning

this agency adopted a centralised, top-down and civil engineering approach. Although there is evidence that people in Bangladesh have adapted their livelihood system to their floodplain environment through the development of indigenous technologies since ancient times (GOEP, 1970; GOB, 1975), these are poorly researched and have never received the attention of water sector policy-makers. Priority was given to the construction of large-scale FCD/I systems, which were considered fundamental to boost the country's cereal production. In 1972, after independence, EPWAPDA's mandate was handed over to the Bangladesh Water Development Board (BWDB), which has long been one of the most powerful semi-statal agencies. It is a huge bureaucratic organisation spending around US\$150 million a year and employing more than 18,000 people, primarily consisting of about 2,000 civil engineers and their support staff. The BWDB relies extensively on international development assistance, of which more than 75% is provided by the World Bank and the Asian Development Bank. Around 70% of the World Food Programme's Food for Work wheat is allotted to the BWDB for the execution of rehabilitation and periodic maintenance of its hydraulic infrastructure. The almost 500 projects completed by the BWDB consist, for example, of about 6,500 km of dykes, over 7,000 sluices and regulators, irrigation and drainage canals, barrages and large-scale crossdams (UNDP, 1989).

During the last ten years the BWDB's approach to water resource management has increasingly been questioned. Barenstein (1994a: 89) defines the BWDB as an 'unbalanced organisation, genetically geared to centralised decision-making for the construction of infrastructure. Divisions, sub-divisions and "circles" are imposed on the human and political geography of Bangladesh from an inherited — but carefully nurtured — top-down vision of "delivering the goods" whether the subjects like it or not.' There appear to be good reasons to question the viability of the BWDB. Its infrastructure is all too often dysfunctional, because of weak project concepts, faulty designs, or poor operation and maintenance (Gisselquist, 1992).

Already at the beginning of the 1990s, lack of popular participation was pointed out by the government and by donors as a major cause of the poor operations and maintenance of the BWDB's FCD system. The Fourth Five Year Plan (1990–95) identified 'inadequate attention to the institutional framework required for O&M of schemes on a self-sustaining basis with effective participation...a major constraint to water resource development'. People's participation was understood as involving the system users in operations and maintenance (O&M). The BWDB Systems Rehabilitation Project, which started in 1990, was the first project in the water sector in Bangladesh to reflect the new emphasis on farmers' participation and O&M. At the beginning of 1992, the public demand for greater transparency and more participation became very strong in the context of the Flood Action Plan (FAP). Pressure mainly came from national and international NGOs and advocacy groups with claims to

represent and act on behalf of the people (Adnan et al., 1992; Hughes et al., 1994).

The growing official confidence that 'participation' was instrumental in improving the performance of water sector development projects, combined with the public demand for participation in the context of the FAP, led to the formulation of the *Guidelines for People's Participation in Water Development Projects* (GOB/MOWR, 1995), a policy document that was formally approved by the Ministry of Water Resources in July 1995. These *Guidelines* represent an important milestone, because people's entitlement to participate was officially recognised for the first time, and because the lengthy process that led to their formulation in itself contributed to raising awareness and changing attitudes among the officials involved (Hanchett, 1997). Although the *Guidelines* have a number of limitations, the lively debate about people's participation in water management (Huq, 1996; Wood, 1995) and the search for alternative approaches (SRP, 1998) would not have been possible without them. However, they have had little impact so far at the local level, where the gap between the water management bureaucracy and the people remains as wide as ever.

### **Local initiatives in water management**

When the findings of the research on local initiatives were presented at three national conferences in Bangladesh, the reaction of the participants, who included academics, senior government officials, and representatives of NGOs and donors, was unexpectedly enthusiastic. All participants appeared to hear for the first time that indigenous water management practices in rural Bangladesh were well established and that people had the technical, organisational and material capacity to cope with their environment. A senior professor in the Department of Water Resources of the Bangladesh University of Engineering and Technology (BUET) called the study a 'bomb shell'. A former secretary to the Ministry of Agriculture encouraged the translation of the study into Bengali to make it accessible to junior civil servants, asserting that if he had known about these practices when he was a junior civil servant stationed in the rural areas, his whole way of interpreting the behaviour of rural people would have been different. The secretary of the Ministry of Water Resources declared that the study would strongly influence the on-going water sector reform programme. But, why — he asked rhetorically — was it necessary to learn from a foreign social anthropologist, about what people in rural Bangladesh have been doing from time immemorial?

One of the reasons, to my mind, is that most rural development research in Bangladesh follows a deductive approach; hypotheses are formulated in Dhaka's ivory towers, and attempts are then made to verify them on the ground. Similarly, evaluation exercises tend to search for the impacts of, and responses

to, external interventions, leaving little room to find out how people act on their own. As data are generally gathered through surveys by means of structured individual interviews, there is not much scope to identify issues beyond those which are already, at least intuitively, known or predictable.

This study on local initiatives in water management followed an 'inductive' approach. It aimed — with no preconceived ideas — to find out how people on their own manage surface water, and what they do to enhance the benefits or reduce the negative impacts of the public water management infrastructure. The study covered the individual and collective initiatives of existing informal or semi-formal organisations, as well as initiatives by individuals or groups of people organised exclusively for that purpose. Such water-related initiatives may benefit the community as a whole, or one particular individual or category of stakeholders; they may have a positive, a negative or no impact on other individuals or groups of people.

Originally, it was intended to focus only on initiatives which did not benefit from any external material or organisational support. However, in practice it turned out that such a distinction was not always possible. Focusing exclusively on purely local initiatives would have meant leaving out an important category, which we named *mixed initiatives*. Mixed initiatives are generally led by Union Parishads, which appear to have the unique capacity to mobilise external as well as internal resources.

The study would not have been possible without previous substantive knowledge about the areas and their people gained by participation in the BWDB Systems Rehabilitation Project (SRP) during recent years. The intensive interaction of the socio-economic team with the people helped us to realise how little is known about the nature of surface water management at the local level.

We found an unexpectedly large total of **723 local initiatives** directly linked to the management of surface water resources. Some of these refer to recurrent activities that have taken place every year since time immemorial. Other initiatives, such as the construction of relatively large structures, occur once, although they may be followed by recurrent maintenance activities. The oldest case studied referred to a large crossdam constructed over thirty years ago, while other cases were just about to take place during the period of the study. The most common type of initiative relates to the collective construction of **gravity flow irrigation canals**. The construction of field channels by individual farmers is a well-known practice in Bangladesh. What have not yet been documented, are local efforts to build and maintain main channel systems that serve large and heterogeneous groups of farmers. We found 418 such systems, each one the result of well organised collective action.

Another significant discovery was 92 collectively maintained **contour bundhs**. Contour bundhs, locally called *jangal*, are a water management

technology unique to the *haor*<sup>1</sup> area. More than 50 km of contour bundhs cross the borders of several villages in Chaptir Haor. Because of this technology, which has been locally developed without any external support, the farmers of Chaptir Haor retain sufficient moisture to make irrigation during the early stage of paddy cultivation almost superfluous. Moreover, contour bundhs serve as roads needed for the transport of crops from the fields to threshing grounds and homesteads.

Contour bundhs are a well-known technology in other countries (e.g. the Sahel region), but, to our knowledge, have never been documented in Bangladesh. In Chaptir Haor irrigation canals and the contour bundhs are an ancient technology. In Chaptir Haor nobody was able to say when their irrigation canals and contour bundhs were originally constructed. But every year considerable human and material resources are invested in repairing and maintaining them. In some cases people contribute to these works by offering several days of free labour, whereas in other cases funds are collected among the farmers, in proportion to the amount of land owned. When a contour bundh benefits the whole community or more than one village, and maintenance work does not require too many labour days, local daily labourers are employed, their wages being paid by selling fish from natural ponds (*dhoba*).

Natural ponds represent an important common (*ejmali*) property in the *haor* area. They are often leased out by the village to create what are locally referred to as *panchayat funds*. These funds, which can be found in almost all villages in Chaptir Haor, are instrumental in providing financial support to many local initiatives.

Very common all over Bangladesh are locally constructed **crossdams**. The 86 crossdams vary considerably in size, and serve a number of purposes. Their most common function is to retain surface water for irrigation and domestic use.

Another significant category of local water management initiatives relates to the construction of **drainage outlets**. Twenty-three drainage outlets, entirely financed and constructed by local groups of people, were found on the coastal embankment in Banskali. The construction cost of one drainage outlet varies between Tk 3,000 and Tk 40,000. The people benefitting contribute to finance these outlets in proportion to the land owned in their command area, at an amount ranging between Tk 30 and Tk 50 per acre. To ensure regular maintenance of these drainage outlets, one individual person is generally appointed to do this. In return for his work, he obtains the exclusive right to install his fishing gear (nets and *chai*) near the outlet.

**Embankment cuts** are a well-known practice, generally referred to as *public cuts*. From the BWDB's perspective, these initiatives represent a criminal offence. Anti-Flood Action Plan activists interpreted 'public cuts' as the ultimate

---

1. The Bengali name for an extensive depression between the natural levées of a river, with a deep central channel permanently under water.

proof that 'the people' are against embankments. Sophisticated regulators are often constructed as a solution to what is perhaps wrongly perceived as a 'problem'. Embankment cuts are a common, in many cases functional and cost-effective, water management practice. Embankments are generally cut in a well-planned and systematic way and unless people are certain that someone else (e.g. the BWDB, Union Parishad) will close them again, they make sure to do it themselves. In fifteen out of twenty cases, embankment cuts are closed again by the people.

Finally, 17 collective efforts were identified to **raise embankments** to protect homesteads and agricultural land from flooding; 12 in Chaptir Haor, 3 in Chapai Nawabganj, and 1 in each of the two remaining regions.

Details about the social and economic organisation of these indigenous water management practices are presented extensively in Duyne (1998). In this context, two illustrative examples are provided below.

### *Collective efforts to raise embankments*

Collective efforts to raise embankments generally occur at a moment of crisis, for example, when a specific area is threatened by flood. In these situations there is little or no time to apply for external assistance. Nor can people be bothered with implementing strict rules and modalities to finance the initiative. In general, the people who would be most severely affected by an eventual flood and who live closest to the vulnerable portion of the embankment contribute to these initiatives with their voluntary labour, regardless of the fact that other people will also benefit from their work. The highest number of initiatives belonging to this category was found in Chaptir Haor.

Some recent actions in Chaptir Haor are powerful examples of people's material and organisational ingenuity. In 1996, a breach in the embankment threatened to destroy the crop of the whole *haor*. Immediately after the breach occurred, thousands of people gathered to raise two distinct roads-cum-compartmental embankments. They worked without stopping for three consecutive days and nights. A committee was immediately formed to manage the crisis. Within a few days it succeeded in mobilising over 60,000 taka. The contribution to be made by each of the 26 villages was decided at a public meeting. Three persons, who were well-known and trusted by everybody, were asked to make an estimate of how much — based on their socio-economic condition and proportional benefit from the compartmental embankment — each village should contribute. The amount was finally determined by making an average of the figures proposed by each of the three men. Two persons were appointed for each village to collect the money. Many villages were able to contribute their shares through *panchayat funds*, which enabled them to save valuable time. The 60,000 taka were partly spent on the purchase of bamboo and bamboo mats, kerosene for the lamps, and in particular on employing 15

watchmen, once the compartmental bundh was raised sufficiently. These watchmen patrolled the embankment 24 hours a day to make sure that any damage, which could have caused a breach, would be identified immediately. This intensive patrolling was necessary for about a month, until the harvesting of the *boro* paddy was completed. Thanks to this initiative a dramatic event that could have caused a severe local food shortage was successfully prevented. Only a small fraction of the crop was destroyed.

The people in Chaptir Haor are aware that their livelihood will also depend in the near future on maintaining these two compartmental bundhs. So the *Badh Rakha Committee*, which was formed ad hoc immediately after the breach on the main embankment, has developed into a permanent organisation with a mandate to ensure regular maintenance of the compartmental bundhs.

Three similarly remarkable initiatives were found in Chapai-Nawabganj, where high levels of the Mahananda River threaten almost every year to flood the entire area and damage the *aus* and *aman* crops. About 475 labour days were spent last year on works that successfully protected an area of about 3,470 acres of land, the backbone of seven villages' livelihood. In 1995 a comparable initiative was taken by the people of Shilkup in Banshkali, after a portion of the coastal embankment was severely damaged, causing the intrusion of saline water which badly damaged agricultural land, ponds and homesteads. The local initiative in this case consisted of closing the breach and repairing a 300 m section of the embankment. About 100 people, 80 of whom were volunteers and 20 paid by wealthy farmers, worked for ten days. Funds were collected to provide food and entertainment (which included the rental of musical equipment!) for the labourers. This initiative protects several homesteads and about 300 acres of agricultural land from the intrusion of saline water, and benefits about 2000 people. The embankment also serves as an important road. For the last two years, the people of Shilkup have regularly repaired and maintained the relevant section of the embankment. However, it continues to be a vulnerable spot, and people fear that they may lose their capacity to protect the embankment without external assistance.

Another initiative, to repair and maintain a portion of an embankment in Galachipa, relates to a very vulnerable location in the southern part of this Pathuakali district polder. About six years ago the BWDB built a 'withdrawn' (set-back) embankment because the original embankment was beyond repair. The gap between the old and the new embankments left 63 families and an area of about 75 acres of land in an extremely vulnerable situation. About 10 families abandoned their homes and land and migrated. The remaining 53 families, having no better option, decided to do their best to continue to obtain protection from the abandoned older embankment. Given the high risk to which they were exposed, they did not wait until the rainy season to take action. So, every dry season since 1993 all 53 families work on a voluntary basis to rehabilitate the old 350 m embankment. About 400 labour days are required to



resection it. So far, they have been successful, thereby preventing the erosion of their homesteads and lands.

### *Cutting and closing embankments*

We found the highest number of embankment 'public cuts' in Chaptir Haor. In this region they represent a traditional drainage practice to facilitate final fishing and navigation, and to create the conditions necessary to prepare the land for planting *boro* paddy, the only crop that can be grown in the *haor*. Traditionally the costs involved in cutting and closing the embankment were borne by *beel*<sup>2</sup> leaseholders, who are the main actors behind these cuts. They had to deposit an agreed sum of money with the village *mathabars* (traditional local elites) as an insurance that they would close the cuts again after having completed the final fishing. There is a formal agreement between the farmers and the leaseholders that no embankment will be cut before *Phalgun* 15th (end of February). The exact date of the cut is always discussed in advance with representatives of the farmers. The water level to be maintained inside the *haor* for irrigation is equally decided and enforced by the farmers. The farmers are also interested in draining a certain volume of water so as to be able to start the preparation of their seedlings and ploughing. Today, however, a number of these cuts are closed by the BWDB, which provides an unfortunate example of public resources spent for the benefit of a few privileged people. In fact, the leaseholders represent a category of stakeholders who profit highly from their exclusive control over public resources and who have the means to assume this responsibility.

Unlike in Chaptir Haor, in Banshkali embankment cuts aim to relieve some low land areas from drainage congestion which damages the *aus* paddy, hinders communication and submerges homesteads and ponds. The cuts are made up to 3-4 times in a season and immediately closed again. The cuts are always done at the same places, which coincide with the locations where the people affected have already constructed their own drainage outlets. Under normal conditions, the drainage outlets are sufficient to relieve the area from water congestion, but in case of excessive rainfall, cuts are essential.

The labour involved in cutting embankments is minor. However, considerable labour is required to close them up again. In Chaptir Haor, the leaseholders generally send their seasonal labourers to close the cuts. In Banshkali the people benefitting contribute 30-40 Tk per acre in proportion to the land owned within the command area of the cuts.

---

2. The Bengali name for a low-lying depression in the floodplain which generally retains water throughout the year.

## **Lessons learned**

This study on local initiatives provides strong empirical evidence to challenge some common assumptions about rural people in Bangladesh.

(i) First of all, the number and the magnitude of local water management initiatives clearly show that — contrary to what is often assumed — people in rural Bangladesh are not passive recipients or victims of water development projects.

(ii) It was found that projects delivered by the BWDB basically respond to needs that are strongly felt among all sections of the rural society. However, the top-down approach that characterises the BWDB, and its officers' limited contact with the people, do not always permit the agency to deliver projects fine-tuned to specific local needs. Several of the initiatives identified by the study aimed to adapt the BWDB infrastructure to local conditions.

(iii) Many local initiatives — such as embankment cuts and the construction of crossdams — are well-known phenomena. In particular, embankment cuts have often been either condemned as criminal offences or interpreted as evidence that people are the victims of harmful interventions in their environment. In the context of official rehabilitation projects, the problem of embankment cuts (generally interpreted as a sign of drainage congestion) is solved by building sophisticated and costly regulators. Our findings suggest that embankment cutting is a carefully planned indigenous water management practice, a much cheaper and often more appropriate one than a regulator. In Chaptir Haor, where embankment cuts are primarily related to fishing practices and water transport, the costs involved in cutting and closing an embankment are only a fraction of what would be the yearly maintenance costs of a regulator. We do not want to suggest that embankment cuts are in all cases an alternative to regulators, but to underline the importance of collecting basic data about the actors, objectives, costs and benefits behind public cuts, before deciding to install costly infrastructure.

(iv) Civil engineers are often openly sceptical about people's participation in the design of hydraulic infrastructure. While cutting and closing embankments perhaps does not require sophisticated engineering skills, some of the water management infrastructure constructed without any external assistance proves that people have clear concepts and the capacity to design and construct complex water management infrastructure. A good example is the gravity flow irrigation canals in Chaptir Haor and Chapai-Nawabganj and the drainage outlets on Banshkali's coastal embankment, which differ little in their design from those generally proposed by the BWDB. A major difference exists, however, in

construction cost. Not only was this infrastructure financed by the local users themselves, but it also amounted to a fraction of the cost of the same infrastructure constructed by the BWDB.

(v) People in rural Bangladesh have the material, technical and organisational capacity to collect, administer and make optimal use of large amounts of financial resources. Even in the case of large initiatives, people can develop and implement effective strategies to finance water management initiatives. These rapidly developed systems are generally quite flexible; they allow lower-income people to provide their labour and higher-income people to contribute in cash. Poor people, and those who benefit only marginally from an initiative, are often exempted from contributing, in particular when the costs involved are not very high (e.g. construction of crossdams). In case of emergencies, such as, for example, the embankment breach in Chaptir Haor, large numbers of people and capital can be mobilised within a very short time. The key to successful mobilisation of material resources is local control, transparency, accountability and a cost-effective use of scarce resources. Such findings suggest that the assumption that local capacity to contribute to O&M is limited needs to be revised.

(vi) The fact that people take the initiative to solve their own problems does not mean that they would not welcome external assistance or that they do not consider it the government's responsibility to provide them with effective water management infrastructure. The initiatives do show that external dependence is not an irreversible condition, and that it is not as strong as is often assumed. In several cases, people first tried to get assistance from the government and only when they realised that they would not succeed, mobilised their own resources. BWDB interventions to take over responsibilities that are traditionally taken care of by the people themselves are generally quite welcome, if appropriate and provided in a timely way.

(vii) Yet another assumption challenged by this study is that rural people do not have a 'maintenance culture'. Many of the initiatives described in the study involve periodic maintenance and the rehabilitation of dilapidated water management infrastructure. In such cases people are resourceful in developing appropriate financing systems. In the case of raising Chaptir Haor's compartmental embankments, the large size and vital importance of the task led to the formation of the still active *Badh Rakkha Committee*. In Banshkali, adequate O&M of drainage outlets on the coastal embankment is ensured by formally appointing one person to assume the maintenance responsibility.

(viii) An analysis of the social organisation of local initiatives can suggest ways of increasing the viability of water management organisations, a recurring issue

in debates on people's participation. One sociological finding is that most local initiatives have a very local impact and are undertaken by people who live and work in the same area, and who already belong to the same social world. Accordingly, they do not need to be organised anew or to meet in formal gatherings to manage their surface water resources and related infrastructure effectively. In many cases decisions to take specific actions are taken in the context of casual but inevitable encounters in fields, markets or mosques, or during informal meetings called by the *mathabars* (traditional rural elites). In other cases, such as the *Badh Rakkha Committee*, a powerful, effective and well respected semi-formal organisation is established. In such organisations the *mathabars* play important roles. Their local credibility is strong, either because they have been elected or because they are already leaders, or because of their formal education, management capacity, wealth, and access to government officials.

(ix) Another interesting sociological feature of local initiatives is that women are completely absent, at least from the front line. Not a single woman was found to be present at meetings related to the planning and monitoring of local water management initiatives, or in any of the direct works created. However, they are very involved in a supportive capacity. In the case of Chaptir Haor's compartmental embankment and other similar initiatives, for example, the women contributed by sending snacks and sweets to the men engaged in the earthworks. This was an essential contribution because the emergency of the situation did not allow men to take time off to return to their homes to eat. The women's contribution was instrumental in keeping the work going and was the way they expressed their solidarity. The women also remained well informed. All women interviewed in the course of our study were fully aware of water management practices. It is remarkable that, although women are primarily responsible for domestic water supply and men for irrigation, women perceive their water management interests as being basically identical to those of men. None of the initiatives had a negative impact on women.

(x) At the central government level there is often scepticism about the capacity of Union Parishads to manage local projects. This study discovered many Union Parishad successes. They came up in the context of what we call *mixed initiatives*, which proved that Union Parishads have the capacity to — and *de facto* often do — manage small-scale FCD systems. In several cases Union Parishad chairmen successfully managed to implement locally identified projects by combining local and external resources (such as food-for-work wheat), which were acknowledged by many constituents as very useful. This indicates that the Union Parishads are aware of, and often quite responsive to, the needs of their constituencies, that they are able to identify and implement relevant water management projects, and that they have the unique capacity to mobilise

external as well as internal resources. This is an important conclusion, in particular in the context of the ongoing debate on the devolution of the water management infrastructure and the future role of local government in this sector.

(xi) Despite their remarkable achievements, local initiatives in water management should not be idealised. Each region has its own unique social and environmental characteristics. *Haor* conditions, where we found the largest number and most impressive examples of genuine collective actions, are quite unique and cannot be reproduced easily in other regions. Several crossdams in Galachipa, and the partition dyke and salt inlets in Banshkali, although they provide evidence of a high technical and material capacity at the local level, are purely private initiatives of influential individuals or groups of people, who have the means and the power to encroach on common resources and thereby virtually exclude other people from access to them. Some of them have negative impacts and cause conflict among different categories of stakeholders. Some local initiatives — while providing a cost-effective solution to the immediate problems of some people — damaged important public infrastructure, putting at risk the security of the local population as a whole.

(xii) These various findings lead to the conclusion that people and the government must work in collaboration. The government's lingering problems with the O&M of the public water management infrastructure will not be solved by turning over all responsibilities to the people. Although more decentralisation of control and authority over the water sector is essential, people and local-level institutions will continue to need professional, material and technical assistance. But professionals, on their side, need to take a closer look at ordinary people. Local initiatives should no longer be ignored or condemned. They should be closely monitored and taken into account by officials responsible for the nation's water development policies and strategies.

## Conclusions

The study on local initiatives was closely linked to a policy reform process in Bangladesh. Its findings have already been disseminated in three national conferences (GOB/MOWR, 1997) and in local newspapers (Duyne 1997a).

The study provided substantive arguments in favour of abandoning the earlier approach towards 'participation' in water resource management, which was based on water users' organisations. It demonstrated that it was more effective and consistent with indigenous organisational practices to rely, for day-to-day water management, on informal village-level organisations. Strong arguments were also provided for recognising Union Parishads, which currently are the only locally elected bodies in Bangladesh, as the capable and legitimate

representatives of local stakeholders. Although the new 'Guidelines for People's Participation' are not yet finalised and still need to be approved by the Ministry of Water Resources, the first draft clearly incorporated these recommendations. This study has also contributed to persuading academics, policy-makers and implementing agencies that people at the local level can contribute enormously to surface water management. It is to be hoped that the initial enthusiasm for its findings will indeed translate into concrete actions, as spontaneously suggested by some of the participants in the conferences where these issues were discussed.

However, appropriate guidelines and more awareness about indigenous water management practices are no warranty for change. Whether future water management projects will build upon local capacity and be successful in mobilising local human and material resources is contingent upon more radical reforms. Locally elected bodies also need to be empowered financially and to have more control over the use of local resources as well as development resources allocated to their region by the central government and international development agencies (Barenstein, 1994b). Control of decision-making processes has to be decentralised and to shift from government line agencies to locally elected bodies. Not only the Government of Bangladesh but also donors need to abandon their patronising attitudes towards local government and realise that real decentralisation is a prerequisite to participation.

## References

- Adnan, S. et al. (1992) *People's Participation, NGOs and the Flood Action Plan. An Independent Review*. Dhaka: Research and Advisory Services/Oxfam.
- Ambler, J.S. (1993) 'Rethinking the Language of Farmer Water Users' Association', in *FMIS Newsletter. The Farmer-Managed Irrigation System Network*. Colombo: IIMI.
- Barenstein, J. (1994a) *Overcoming Fuzzy Governance in Bangladesh. Policy Implementation in Least Developed Countries*. Dhaka: University Press Ltd.
- Barenstein, J. (1994b) 'The Fiscal Misery of Local Government in Bangladesh', *Journal of Social Studies* 66: 97–105.
- Cernea, Michael M. (1991) *Putting People First*. New York and Oxford: Oxford University Press for the World Bank.
- Coward, W.E. (1980) (ed.) *Irrigation and Agricultural Development in Asia. Perspectives from the Social Sciences*. Ithaca, NY: Cornell University Press.
- Duyne, J.E. (1998) *Local Initiatives in Water Resource Management*. BWDB/SRP Technical Report 56. Dhaka: BWDB.

- Duyne, J.E. (1997a) 'The Process to Revise the Guidelines for People's Participation in Water Development Projects', *The Daily Star*, Dhaka, 18 December.
- Duyne, J.E. (1997b) 'Introducing Participatory Management in Flood Control, Drainage and Irrigation Systems' in *Proceedings of ICLARM/Danida National Workshop on Policy for Sustainable Inland Fisheries Management*. Dhaka: ICLARM.
- Duyne, J.E. (1997c) *An Empirical Assessment of the Role of Water Users Organisations in Participatory Water Management*. SRP/BWDB Technical Report No. 54. Dhaka: BWDB.
- Duyne, J.E. (1994) *Socio-economic Determinants of Participatory Water Management and Cost Recovery*. Technical Report No. 38, SRP/BWDB. Dhaka: BWDB.
- Gisselquist, D. (1991) 'Medium and Large Surface Water Development in Bangladesh. Analysis of Failures and Recommendations for Reform'. Unpublished report prepared for the World Bank.
- GOB/Ministry of Water Resources (1997) 'National Conference on Participatory Water Management, December 1997'. Background Information.
- GOB/Ministry of Water Resources (1994) *Guidelines for People's Participation in Water Development Projects*. Dhaka: Government of Bangladesh.
- GOB/Planning Commission (1990) *The Fourth Five Year Plan (1990–1995)*. Dhaka.
- GOB/Ministry of Cabinet Affairs (1975) *Bangladesh District Gazetteers. Chittagong*. Dhaka: Bangladesh Government Press.
- GOEP/Services and General Administration Department (1970) *East Pakistan District Gazetteers. Sylhet*. Dhaka: East Pakistan Government Press.
- Hall, A. (1988) 'Community Participation and Development Policy: a Sociological Perspective', in A. Hall and J. Midgley (eds) *Development Policies: Sociological Perspectives*. Manchester: Manchester University Press.
- Hanchett, S. (1997) 'Participation and Policy Development: the Case of the Bangladesh Flood Action Plan', *Development Policy Review* 15(3): 277–95.
- Hughes, R.S., Adnan, S. and Dalal-Clayton, B. (1994) *Floodplains or Flood Plans? A Review of Approaches to Water Management in Bangladesh*. London and Dhaka: International Institute for Environment and Development and Research and Advisory Services.
- Huq, S. (1996) 'People's Participation in National Water Planning', *The Daily Star*, Dhaka, 16 October.
- Ostrom, E. (1992) *Crafting Institutions for Self-Governing Irrigation Systems*. San Francisco: ICS Press.
- Parlin, W.B. and Lusk, M.W. (eds) (1991) *Farmer Participation and Irrigation Organization*. Boulder, CO: Westview Press.
- Rahnema, M. (1992) 'Participation', W. Sachs (ed.) *The Development Dictionary: A Guide to Knowledge as Power*. London: Zed Books.

- Rao, A. and Hashemi, S.M. (1995) 'Institutional Take-Off or Snakes and Ladders? Dynamics and Sustainability of Local Level Organisations in Rural Bangladesh'. Dhaka: GSS (mimeo).
- SRP/BWDB (1998) *Water Management in Flood Control and Drainage Systems in Bangladesh*. Technical Report No. 50. Dhaka: BWDB.
- UNDP (1989) *Bangladesh Agricultural Sector Review. Vol.3: Land, Water and Irrigation*. Dhaka: UNDP.
- Uphoff, N. (1986) *Improving International Irrigation Management with Farmer Participation*. Boulder, CO: Westview Press.
- Wood, G. (1995) 'A Review of the Guidelines of People's Participation in Water Development Projects'. Unpublished paper. Dhaka: UNDP.