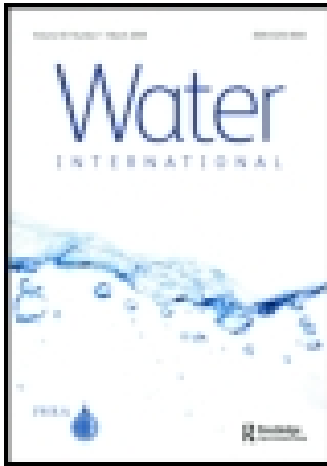


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Camelia Dewan^a, Aditi Mukherji^b & Marie-Charlotte Buisson^c

^a Department of Geography, Environment and Development Studies, Birkbeck College, University of London, UK

^b International Centre for Integrated Mountain Development, Kathmandu, Nepal

^c International Water Management Institute, India Office, New Delhi, India

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Evolution of water management in coastal Bangladesh: from temporary earthen embankments to depoliticized community-managed polders

Camelia Dewan ^{a*}, Aditi Mukherji^b and Marie-Charlotte Buisson^c

^aDepartment of Geography, Environment and Development Studies, Birkbeck College, University of London, UK; ^bInternational Centre for Integrated Mountain Development, Kathmandu, Nepal; ^cInternational Water Management Institute, India Office, New Delhi, India

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This article examines the historical evolution of participatory water management in coastal Bangladesh. Three major shifts are identified: first, from indigenous local systems managed by landlords to centralized government agencies in the 1960s; second, from top-down engineering solutions to small-scale projects and people's participation in the 1970s and 1980s; and third, towards depoliticized community-based water management since the 1990s. While donor requirements for community participation in water projects have resulted in the creation of 'depoliticized' water management organizations, there are now increasing demands for involvement of politically elected local government institutions in water management by local communities.

Keywords: decentralization; participatory water management; community-based natural resource management; Bangladesh

Introduction

The Bangladeshi coastal zone is one of the most hydromorphologically active regions of the world; its delta constantly shapes and reshapes the landscape by creating and destroying lands through sedimentation and erosion. Such dynamic physical processes along with ever-increasing population and economic pressures have led to changes in boundaries of human settlement and progressive encroachment into mangrove forests and wetlands, which have been increasingly converted to agricultural land (Richards & Flint, 1990). The current ecology of coastal Bangladesh is the result of a long-term evolution where land use practices throughout the past millennium, from the Turkic Sufi saints of the 1300s who cleared the Sundarban jungles for agricultural land (Eaton, 1993) to the British colonial state's engineering works of rail embankments and commercialization of mangrove forests (Iqbal, 2010), have played an important role in tandem with the natural processes specific to this active deltaic region.

Mosse (2003) suggests that ecology and history are ultimately inseparable; contrasting ecologies are produced historically rather than being simply given. This is especially true in Bangladesh, where the evolution of society and environment are intrinsically linked. This article explores how the changing water ecology of the coastal zone is tied to institutional changes driven by ideas and discourses of effective water management. We also aim to demonstrate how ideas of water management in Bangladesh have been affected by larger global discourses by chronologically following coastal policies and

*Corresponding author. Camelia Dewan is also at the Department of Social Anthropology, SOAS, University of London, UK. Email: C_Dewan@soas.ac.uk

projects from the 1960s onwards. We conclude by noting that even though the stated intention of Bangladesh's water policy is to empower local people, there is a serious neglect of the role of local government institutions in water management, thereby partly undermining the very aim of local empowerment.

This analysis also invokes the concept of myths in public policy and how they can potentially be used to frame policy discourses: "behind widely accepted problem definitions are myths, stories which draw on tradition and taken for granted knowledge" (de Neufville & Barton, 1987, p. 181). We propose that in this instance, the myth is that of 'apolitical' community-based water management organizations that were supposed to fill the vacuum created by withdrawal of government support in maintenance of water infrastructure in the 1990s. For example, the myth of a unified and idealized community without internal tensions and power struggles helped "legitimize policies that benefit the powerful" (de Neufville & Barton, 1987, p. 181), in this instance the rural elites.

Community-based water management organizations as promoted in Bangladesh are a by-product of larger discourses on community-based natural resource management (CBNRM). CBNRM works on the assumption that communities, defined by their distinct and integrated social structure and common interests, can manage their natural resources in an efficient, equitable and sustainable way (Blaikie, 2006). Calling it the second wave of interest in community-based development,¹ Mansuri and Rao (2003) note that community-based or community-driven development processes, like CBNRM, have been fully absorbed into mainstream development processes and have formed the core lending policy of all international financial institutions, including the World Bank, since the early 1990s. In the mid-1990s governments, international development agencies and large NGOs began to decentralize by transferring power to a wide range of local institutions, including private bodies, customary authorities and local NGOs (Ribot, Chhatre, & Lankina, 2008). However, decentralization as promoted by CBNRM is essentially different from democratic decentralization. Democratic decentralization happens when powers are transferred to existing local and democratically elected government institutions (Larson, 2003).

While CBNRM has become the dominant discourse and forming community-based organizations has become the *modus operandi* of the implementation for any project, there are several critiques of this approach and very little evidence that apolitical community-based organizations do indeed perform better. For instance, Larson (2003) argues that democratic decentralization by involving locally elected governments has in fact been neglected in favour of these alternative transfers of power. Summers (2001, as cited in Mansuri & Rao, 2003), in a strong critique of the World Bank's role in promoting local-level institutions, noted that such institutions create parallel structures which could undermine or compete with locally elected government institutions.

Another critique of CBNRM comes from the way complex concepts like 'community', 'empowerment' and 'participation' are operationalized to suit the needs of large developmental projects working on tight deadlines (Mosse, 2001). They, along with Araral (2005), point to the mismatch of incentives between project implementers and the stated goals of the projects and how the more tangible and measurable goals like physical construction of infrastructure can easily take precedence over longer-term goals like participation and empowerment. And others have pointed out that the notion of a homogeneous community, free of internal politics and power dynamics, is neither practical nor feasible (Bakker, 2008). Several evaluations in Asia and Africa have found that CBNRM policy has failed to deliver on its stated aims (Blaikie, 2006; Mansuri & Rao, 2003; Shackleton, Campbell, Wollenberg, & Edmunds, 2002).

Despite years of criticisms, CBNRM is still promoted due to its stated aims of efficiency, equity and sustainability. Bangladesh has seen significant involvement of major international financial institutions and donors in promoting CBNRM and decentralized water management in its water policy reforms. In the adoption of the National Water Policy (MoWR, 1999) and the Guidelines for Participatory Water Management (MoWR, 2001), responsibilities for water management were shifted away from state implementing agencies to externally initiated community-based water management organizations (WMOs). This occurred without the explicit involvement of local government institutions.

In this review, we posit that donors' theoretical understanding of participatory water management drove the 'myth' of 'community-based' WMOs. Once community participation was made a project requirement, it went on to become mainstream policy in Bangladesh. However, as the product of an external theoretical concept, WMOs did not reflect or address local social and ecological realities, thus failing both to ensure functional participatory management and to address the major problems of waterlogging, siltation and river erosion plaguing the coastal zone. Indeed, the implementation of donor water infrastructure projects in coastal Bangladesh is characterized by its institutional separation from the local ecology. In this article, we chart these changes in water management policy since the 1960s and try to explicitly link with prevailing international development discourses. Figure 1 illustrates the changing trends and discourses around water management and also shows all the relevant projects that were implemented since the 1960s and the different discursive paradigms of the time. This analysis is largely based on a desk review of Bangladesh's water-related project documents and information on official websites and has been supplemented by a series of key informant interviews conducted with water professionals in Bangladesh.

Before the 1960s: water management in the colonial period

The colonial period saw the emergence of *zamindars*, or landlords, who were awarded rights of revenue collection to this new coastal land. They were responsible for the construction of temporary earthen embankments during the eight dry months of the year to protect these agricultural lands from saline ingression. During monsoon months, natural river floods would sweep away these temporary embankments, and after recession of the floodwater, new ones would be constructed. Communities took part in construction of these small earthen embankments (*bandhs*) through compulsory labour and maintained the canal structure jointly with the *zamindars*. The *zamindars*, in turn, supervised labour inputs and provided capital if needed. The *zamindari* system was abolished in 1950, after the partition of India in 1947. The uncertainty following partition and the ensuing gap in leadership coincided with the disastrous floods of 1954, 1955 and 1956. These events led the United Nations, through the Krug Mission Report (United Nations, 1957), to recommend government intervention in flood protection and resulted in the creation of the East Pakistan Water and Power Development Authority (EP-WAPDA) in 1959, which became the Bangladesh Water Development Board (BWDB) following Bangladesh's independence from Pakistan in 1971.

1960s: mega-infrastructure projects and top-down engineering

The EP-WAPDA, vested with considerable international donor funding, constructed 4000 km of embankments aimed at flood control in coastal Bangladesh. The 1960s was a period when the problems facing the water sector were seen as an issue of construction, of

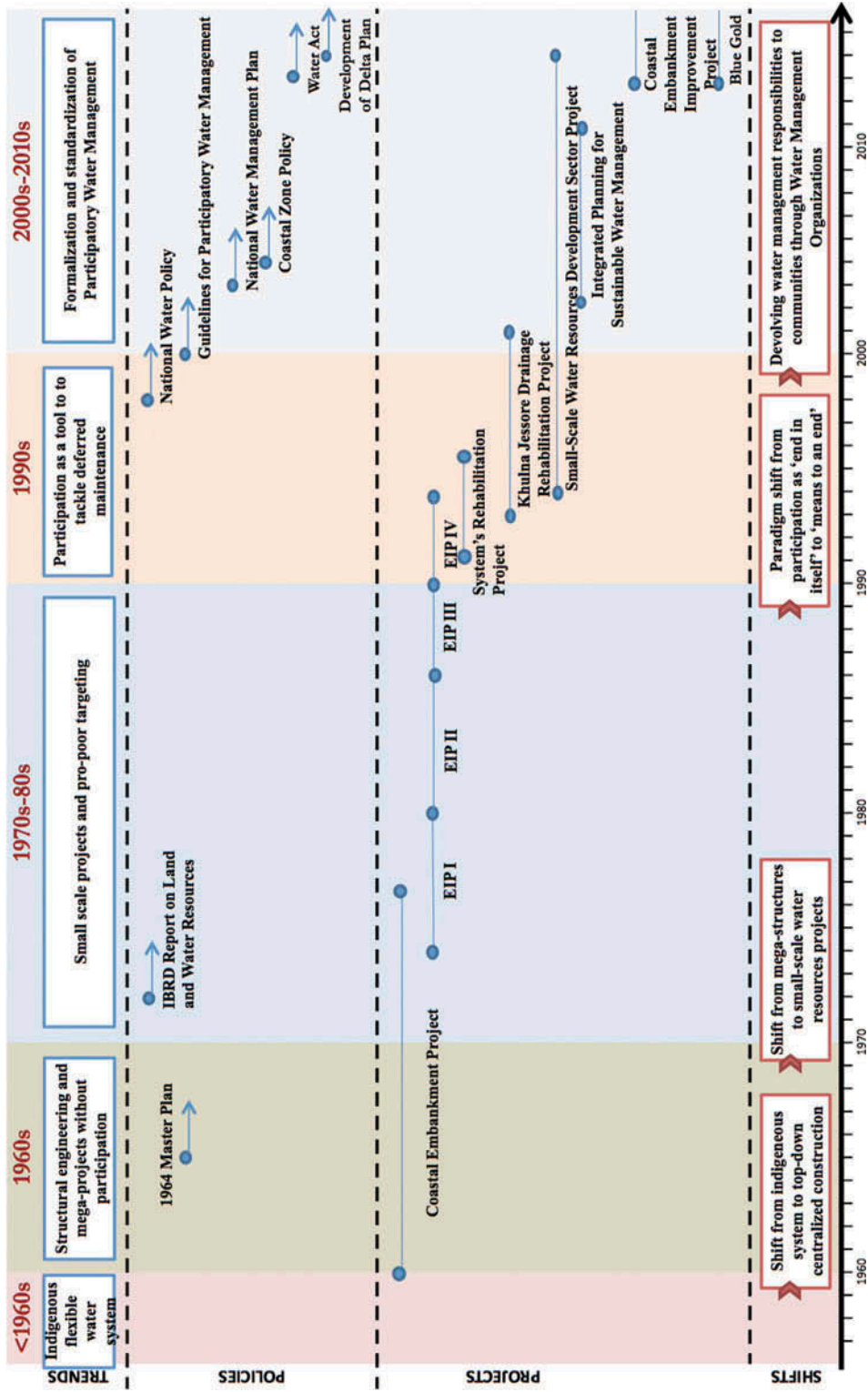


Figure 1. Timeline of projects, policies and trends.

infrastructure. Thus, solutions were largely thought to be the domain of engineers. The 1960s saw a shift from a local, traditional system of flood management to the construction of large-scale polders through the Coastal Embankment Project (CEP), which was inspired by the Dutch dyke system. The older system of temporary earthen embankments had been adapted to the ecology of the Bengal Delta and its thousands of ever-changing waterways; it was adaptive to the constant process of river erosion and sedimentation that would widen or narrow rivers and canals. It helped protect agricultural land from salinity during the dry season, while also allowing fertile silt to settle on the fields and flood plains during the monsoon. However, the 1960s was characterized by the idea of universal and structural blueprints. Following the global discourse supporting mega-structures for water control, most developing countries invested in large infrastructure projects. The CEP was one such flagship programme. Other examples of large-scale water infrastructure projects in Bangladesh in the same period include the Ganges-Kobadak Irrigation Project (141,600 ha) and the Brahmaputra Right Flood Embankment Project (226,000 ha). These projects reflect that in coastal Bangladesh, Dutch-style embankments were deemed the optimal solution for the dual purpose of flood protection and providing food security through better water control, independent of local ecology.

The CEP started in 1961 with USAID funding to the EP-WAPDA/BWDB to create 136 polders spread across the entire coastal belt of Bangladesh (FAO, 1985). In the south-west region alone, 1566 km of embankments and 282 sluices were constructed. The immediate impacts were positive; the CEP transformed the entire coastal area into a more agriculturally productive region. From being able to harvest paddy during the rainy season, the local population could now cultivate two or even three crops per year (Firoze, 2003). Moreover, the sense of permanence and security that the polders created encouraged more and more people to settle inside them, and the population in the coastal areas increased rapidly.

Notably, these projects were entirely engineering projects; in the 1964 WAPDA/BWDB Master Plan neither community management nor involvement of stakeholders was mentioned (Firoze, 2003). Detached from local knowledge of the ecology at hand, these embankments imposed stability on a dynamic deltaic system. Polders prevented the silt from the rivers from being deposited on the flood plains, resulting in high rates of sedimentation, congesting both rivers and canals and causing many of them to dry out over a period of decades. The sedimentation in the riverbeds raised water levels in the rivers higher than the land within the embankments and led to drainage congestion, which later became permanent waterlogging. By the 1980s and 1990s waterlogging covered more than 100,000 ha (Custers, 1993; FAO, 1985; Firoze, 2003). This affected food production, thereby negating some of the earlier benefits.

Overall, the construction of large-scale polders led to changes in regional hydromorphology and resulted in disruption of river–floodplain connectivity and tidal amplification, leading to higher tides and the loss of ecosystem services such as flood-plain storage and biodiversity through disruption of the tidal flows required for fish breeding grounds. Furthermore, their permanent boundaries do not account for the geological feature of the delta, which includes the eastward shift of the Ganges and the constant river erosion on the one side of the river and sedimentation on the other, leading to high costs to maintain the polders from erosion. Over time, lack of maintenance led to siltation in the canal systems and disrupted fisheries, while the intensive use of water for irrigation and the reduced upstream flow caused natural water bodies to dry up (Alamgir, 2010; Craig, Halls, Barr, & Bean, 2004; Rasul & Chowdhury, 2010; Sultana & Thompson, 1997).

1970s: shift to small-scale projects and people's participation

In the 1970s it became clear that implementing a system inspired by Dutch dykes (polders) in a country with an active delta was problematic. To address the criticisms of top-down engineering in water management, donors again played a key role in reshaping Bangladesh's water policy. At this time, shortly after independence from Pakistan, the International Bank for Reconstruction and Development reviewed the Master Plan of 1964 and recommended a shift of priority from large-scale projects with long time horizons to small-scale projects in flood control, drainage and irrigation. It recommended non-structural measures for flood management and attached high priority to low-cost, labour-intensive projects like low embankments, low lift pumps and shallow tube-wells (World Bank, 1972). At that time, almost all investments in capital-intensive and large-infrastructure projects came from foreign donors, but as the 1970s was a decade riddled by oil and financial crises, one could argue that this recommendation came at a time when financing mega-infrastructure projects with long repayment periods had lost its appeal for donors.

This changed approach led to implementation of a number of small-scale projects under the flagship programme of the Early Implementation Project (EIP). A collaborative project between the governments of Bangladesh and the Netherlands, the EIP started in 1975 and continued until 1995. Its projects were characterized by quick implementation of small-scale flood control, drainage improvement and irrigation schemes. However, confounding expectations of a trickle-down effect, agricultural growth did not occur in a way that benefitted poor and disadvantaged groups in the community. Evaluations of Phase I, therefore, emphasized that more attention to social equity was required (Datta, 1997).

Another development of this decade with a far-reaching impact on participatory water management was the Comilla cooperative model. The model emerged in the Green Revolution period as a way for the state to reach rural farmers and to disseminate new technologies and agricultural inputs. The Comilla model was centred on the mobilization of rural credit: members contributed to the cooperative's funds on a weekly basis, and through this, got access to subsidized fertilizers and pesticides (LGED, 2006). Over time, the cooperative model influenced participatory models in water management through its ideas of management committees, membership contributions and legal recognition, which influenced subsequent participatory projects that will be discussed later.

1980s: demand-driven participation with empowerment objectives

The Comilla model and Phase I of the EIP illustrated the importance of including local stakeholders such as farmers and community members in water management. Since WAPDA/BWDB was mainly an engineering agency, Phase II of the EIP saw the hiring of multidisciplinary staff with both technical and socio-economic expertise in order to integrate a social component into these technical projects. However, later evaluations found that despite this progress, the programme was still unable to achieve its aim of social inclusion. Learning from this experience, equity issues became a central focus for EIP Phase III (Datta & Nishad, 1997).

Phase III focused on pro-poor targeting through the creation of Landless Cooperative Societies and Target Groups for the first time. Target groups were created as a tool to incorporate the opinions of the landless and the marginalized, in one of the first active attempts to include people's participation in designing government infrastructure projects. The focus on social issues and targeting of poverty was also evident in the project design

of EIP Phase III, where projects were selected based on the presence of a minimum of 40% landless households (Datta, 1997).

The Target Groups were also the predecessors of routine earth workgroups such as the Embankment Maintenance Group and what are now known as labour contracting societies (LCSs) (Datta, 1997). The LCS concept was based on creating groups of landless labourers and giving them direct contracts to carry out earthworks rather than using commercial contractors. Later, in 1988, this concept was institutionalized by the BWDB as an earthworks and poverty alleviation tool (Datta & Nishad, 1997). This was also codified in the Guidelines for Participatory Water Management, requiring that at least 25% of all earthworks in a project must be contracted to LCSs (MoWR, 2001). In the 1980s, small-scale projects were combined with a more pro-poor approach to rural development with the aim of creating more profitable employment opportunities for the landless and marginalized and including them in decision-making processes through landless cooperative societies and target groups. The Delta Development Project and the EIP, through their use of NGOs as community mobilizers, further demonstrated the importance of empowerment-oriented NGOs in promoting participation by communities.

The approaches of the 1980s show a clear acknowledgement of the inherent power inequalities embedded in Bangladeshi society. The key focus of participation, then, was on empowerment, awareness-raising and giving voice to the poor and the marginal. Little was expected from communities for day-to-day management of water infrastructure; government-employed gatekeepers called *khalashis* were entrusted with the responsibility for operating sluice gates. Participation in the 1980s could thus be argued to be 'an end in itself'. The use of words such as 'target group' rather than the broader 'beneficiary', and 'landless' instead of 'labour' contracting societies for the LCS, also shows the focus of the 1980s on participation by the poorest rather than a vague concept of a homogeneous 'community'. This in turn may be linked to Bangladesh's legacy of empowerment NGOs since the country was formed in 1971. This legacy greatly shaped the identity of the country and its capability of true empowerment and participation (Arvidson, 2003; Dewan, 2009). The main empowerment NGOs such as Proshika, GSS and BRAC not only worked as community mobilizers and extension arms for government projects but also had their own programmes, with special focus on participation of 'all the community' and women's empowerment. These programmes were at their peak in the 1970s and 1980s, and water projects in which these NGOs were involved gained from this empowerment agenda.

1990 to the present: depoliticized participation and participation as decentralization

By the 1990s many of the hundreds of large and small canals began to dry out as a result of high sedimentation rates in the rivers, while the embankments and their regulators increasingly required maintenance and repair due to erosion processes. In addition to these environmental issues, the construction of the embankments focused on agricultural and economic gains but neglected distributional effects of the costs and benefits (Rasul & Choudhury, 2010). By the 1990s, CBNRM was seen as a potential means to address these issues, particularly increased waterlogging and social inequities in distribution of benefits. Indeed, 'community participation' in water resources management was high on the agenda of donors in the 1990s and was increasingly required as a component in each project. This section will argue that the way the external concept of CBNRM and 'community' participation was envisaged and implemented in Bangladesh in fact led to the creation of water management organizations that do not reflect local socio-economical power

dynamics and that have been unable to fill the void resulting from the devolution of state responsibility in the maintenance of high-cost coastal infrastructure.

The 1990s saw two key shifts in coastal water policy: depoliticized participation through WMOs; and participation as decentralization of water management responsibility from centralized state agencies to local communities (CBNRM). Both these trends came to be embedded in the National Water Policy (NWP) of 1999 and codified in the Guidelines for Participatory Water Management by the Ministry of Water Resources in 2001. The way in which the discourse of participation changed in the 1990s is illustrated in the shift towards the depoliticized term of ‘stakeholder’ in the NWP. The definition of local stakeholders is broad: they are “inhabitants of an area who are directly or indirectly affected by water management”, and all stakeholders are supposed to “actively and fruitfully participate in water management decision-making at all stages” (MoWR, 1999, p. 18). In line with the main tenants of CBNRM, Chadwick and Datta (2003) argue that the NWP should be understood as an official shift from structural solutions to recognition of the importance of institutional change and inclusive water management.

However, despite its broad definition of local stakeholders, this potential inclusion of a plurality of interests is restricted by the NWP by stating that the WMO will be the unit that “represents all local stakeholders” (National Water Policy 1999). The NWP in effect envisages ‘community’ as an entity responsible for coastal water infrastructure in terms of operation, maintenance and financial cost-sharing. As such, it moved away from the politicized empowerment of Target Groups and Landless Cooperative Societies in the 1980s, where interventions aimed to empower the marginalized sections of society through participation in decision making related to water infrastructure. This shift matches the evolution of the agenda of the donor community, who came to prefer service delivery to social mobilization, the latter having become more and more politically contentious, with issues like land redistribution emerging as a core demand of civil society (Dewan, 2009; Edwards & Hulme, 1996; Hashemi, 1996; Holloway, 1996; Rahman, 2006; Sogge, 2002; Wood, 1994). The word ‘community’ removed the emphasis from such politically contentious subjects, facilitating the implementation of technocratic projects while still attempting a semblance of inclusion.

This shift towards the ‘depoliticized’ is also illustrated in the way the meaning of LCS changed in the NWP, from Landless Cooperative Society to Labour Contracting Society. This new type of LCS focuses on poverty alleviation through providing income-generating activities to the landless, without necessarily including them in either decision-making processes or the operations of water infrastructure. Unlike in the 1980s, there was very little mentioned of the landless or of pro-poor targeting in the 1990s, other than having a ‘landless representative’ in the WMO. Rather, all the segments of the society – the landed and the landless, the agriculturalists and the non-agriculturalists, the poor and the non-poor – are lumped together and represented through one single institution, the WMO. Thus, despite the idea of ‘people’s participation’ in water resources management being high on the donor agenda, the approach taken was fully depoliticized and disconnected from the issues of landlessness, power dynamics and embedded societal inequalities. This is arguably an instance when a ‘myth’ of ‘homogeneous’ community started to influence and shape policy discourse (de Neufville & Barton, 1987).

During the 1990s, donors required, possibly with good intentions, that community participation be a component in every water infrastructure project in coastal Bangladesh. The requirement to create WMOs in order to receive project funding for coastal water infrastructure projects resulted in the overnight creation of ‘participatory’ water management committees, a normative concept imposed by donors that in effect rendered invisible

the power dynamics and underlying conflicts of landlessness and embedded societal inequalities. For example, in the Systems Rehabilitation Project (1992–1997), participation was limited to farmers; other water users, including landless labourers and non-agricultural households, were not considered. The project created several thousand ‘farmers-only’ groups within a span of few years, which ceased to exist shortly after the end of the project (Soussan, Malick, Alam, & Chadwick, 1998). Similarly, despite the effort to mobilize approximately 42,000 people into water management groups, the Asian Development Bank–funded Khulna-Jessore Drainage Rehabilitation Project (1994–2002) was unable to create sustainable WMOs for the long term.

Assessments of WMOs several years after their creation and after project support withdrawal underline the lack of sustainability of these institutions over time (Kenia & Buisson, 2015).² A key issue for projects with ineffective and short-lived WMOs was that the groups were formed quickly and in vast quantities, without being anchored in local communities’ institutional and social realities. The Khulna-Jessore project, despite its proclaimed efforts to engage local populations to resolve the severe problems of waterlogging caused by polderization, has been heavily criticized for ignoring local communities and their indigenous solutions to waterlogging (ADB-OED, 2007a; Kibria, 2006; Pasha, 2010; Tutu, 2005).

In an attempt to learn from these experiences, the NWP sought to empower local stakeholders in water management decision making at all stages, as outlined in the Guidelines for Participatory Water Management (MoWR, 2001). These policies have influenced subsequent projects by the Local Government Engineering Development (LGED) and BWDB. The guidelines require representation of women and landless community members, yet they lack clear mechanisms to ensure that these stakeholders hold final decision-making powers. The provision for women and landless representation has remained vague and insufficiently articulated and therefore open to interpretation, not recognizing the different interests among different classes of women and men, and the social norms that often restrict the ability of poorer groups to challenge elites. In the LGED’s Small-Scale Water Resources Development Sector Project (SSWRDSP, 1995–present), water management groups must include women and landless in their 12-member executive committee. Despite this, evaluations have found that men from elite backgrounds dominate the proceedings, and women and landless remain ‘token’ members with no real decision-making powers or even a voice in WMO proceedings (ADB, 2008; ADB-OED, 2007b; Bangladesh Institute of Development Studies, 2008; Dewan, Buisson, & Mukherji, 2014; MoP, 2005; Nowreen, Khan, & Huq, 2011; Rahman, Rahman, & Rahman, 2007). A similar finding has been made in BWDB projects (which cover much larger areas), where it was found that local stakeholders were not effectively participating in decision making despite significant time and planning spent on mobilizing communities, as in the Integrated Planning for Sustainable Water Management project (MoWR, 2011).

Dewan et al. (2014) show clear evidence of ‘elite capture’ of WMOs in several polders and sub-projects managed by both BWDB and LGED, while women and the rural poor, even when they are members of WMOs, are sidelined from any decision-making process that affects them directly. Furthermore, through this pervasive elite capture and the consequent exclusion of marginalized groups, WMOs suffer from weak legitimacy among the community members they are supposed to represent (Kenia & Buisson, 2015). As such, an apolitical institution such as the WMO eschews the very reality of social exclusion and everyday politics in a fragmented society like Bangladesh, where access to every resource is fiercely contested and is the realm of local political negotiations. Instead, WMOs remain a depoliticized concept that is rarely able to create any

functional or sustainable form of representative participation in water management decisions (Dewan et al., 2014). In a similar vein, Mukherji et al. (2009) found that elsewhere in Asia, community participation was often a donor-imposed idea and rarely moved beyond rhetoric. Community participation could therefore be argued to be just a ‘tool’ to give a ‘human face’ to depoliticized and technocratic projects (Palmer-Jones, Arvidson, & Mandal, 2010).

The purported reason for creating a WMO which is separate from the elected local government is to ‘keep politics out’ of water management (Chhotray, 2007; Venot & Clement, 2013). These WMOs, in effect, constitute a parallel body to that of elected local government institutions. Such duplication of institutions has led to either of two things. The WMO is co-opted by the same political parties that it was meant to keep out; or it is sidelined, becoming an ineffective organization through lack of political patronage and acceptance. We contend that the idea of a ‘community-based’ WMO is in itself depoliticized, as it tends to obfuscate the power relations rooted in conflicts and deep inequalities embedded in society. Land ownership, landlessness and ‘illegal grabbing’ of government land and canals are contested issues in the coastal zones, where land is decreasing due to river erosion, salinity and demographic pressures. Ensuring equitable water use therefore becomes a complicated political issue. To see water management as an apolitical process is to wish away all the complexities involved.

Similarly, though the CBNRM ideas of participation and decentralization are seen as tools to empower communities to take things into their own hands, more often than not they have pushed more responsibility onto the communities, often without equipping them with additional resources and capacity. Such additional responsibilities without commensurate power and resources have often made such CBNRM organizations ineffective (Poteete & Ribot, 2011; Ribot, Agrawal, & Larson, 2006; Ribot 2003), and the present case of water management organization in Bangladesh is one more example of the same. The NWP of 1999 states that communities should also be responsible for and contribute towards water management. This recent focus on local people’s sharing the financial burden of what once was a state responsibility reflects another discursive trend of the 1990s: the gaining popularity of decentralization and CBNRM in the water sector globally. The 1990s also saw the greatest increase in decentralization and privatization in the water sector globally (Tropp & Dewan, 2013). Donors have promoted decentralization on the basis that it should increase efficiency, equity and democracy “by linking the costs and benefits of local public services more closely” (World Bank, 1988, p. 154) and by “bringing the state closer to the people” (Faguet, 2004).

However, quite paradoxically, in Bangladesh this has led to a weakening of the BWDB’s ability to engage with communities in the long term. For example, prior to 1992, the Land and Water Use Directorate in BWDB were responsible for maintaining links with farmers through agronomists called extension overseers. After 1992, this link between water and agriculture was fully transferred to the Department of Agricultural Extension, per World Bank recommendations (MoWR, 2005). According to many BWDB staff, this led to a reduced ability to mobilize communities for water management projects. In addition, the system of *khalashi*, state-employed operators of inlets, had provided the BWDB with local field staff residing in the communities. This system disappeared during the 1990s as the BWDB staff was cut from 24,000 to 8000 people. Instead, the NWP promoted the idea of communities’ taking over such responsibility and mobilizing their own funds to pay for operation. Furthermore, the NWP stipulated that community participation should take place through WMOs for each new construction or rehabilitation project. For BWDB this involved having to create such groups in all the locations where

they have to excavate canals or maintain the embankment. This became a daunting task because each polder may cover 1000–5000 ha and there are at least 136 polders. BWDB's inability to consult with communities and to address their acute infrastructure needs has led to a perception of the agency as corrupt, inefficient and top-down. Yet, the same communities praise the engineering ability of the BWDB and the strength of their embankments and sluice regulators (Dewan et al., 2014).

With the changes in BWDB's structure and manpower, and the unwillingness as well as inability of WMOs to fill in the void, the polders are suffering from deferred maintenance. This is a structural problem that needs addressing not just in specific projects but throughout the south-west coastal zone. Almost a decade ago, the National Water Management Plan of 2004 identified this region as requiring urgent attention, especially in terms of (1) restoring the dry-season freshwater inflows; (2) maintaining the coastal embankment system; and (3) reducing coastal drainage congestion (MoWR, 2004). Accordingly, the plan recommended a substantial role for both local government institutions and community groups in water management. It suggested that the lowest levels of local government, the Union and Upazila Parishads, be financially strengthened and that powers and resources be devolved to them, so that they can play a more proactive role in water management.

The demand for a stronger role for local government institutions is not new. It was articulated in the early 1990s, when Wester and Bron (1998) proposed multi-tier water management systems comprising the chairmen of all Union Parishads located within each polder. However, at that time it did not find resonance with the donors or with the central government, and it was not incorporated in the National Water Policy of 1999, though it was later mentioned in the National Water Management Plan of 2004. However, it does not appear in the more operational Guidelines for Participatory Water Management, which is what is actually followed by all stakeholders. In this operational document that guides the decisions of the implementing agencies, like BWDB and LGED, local governments have been given only nominal roles, while the key institution is the supposedly apolitical WMO.

Key informants repeatedly mentioned that though decentralization is a popular policy, in practice powers have not in fact been sufficiently devolved, and thus in the creation of a separate WMO there is a duplication of institutions. Arguably, this is tied to the constant power struggle between the central and local governments for political patronage (As-Saber & Rabbi, 2009; Hossain, 2004), as well as a preference amongst donors to entrust natural resource management to non-government (thus 'apolitical') bodies – including a wide range of local institutions, private bodies, customary authorities and NGOs – over politically elected bodies like the local government institutions (Ribot, Chhatre, & Lankina, 2008). Thus, local governments face increased competition for legitimacy amid the creation of multiple and overlapping institutions with poorly delineated roles and responsibilities (Larson, 2003); in the process they either get undermined by, or work towards undermining, these parallel institutions that compete with them for power.

To sum up, in the coastal Bangladesh case, decentralization reforms have led to shifting of responsibility to 'idealized' communities purportedly represented through the institution of WMOs—bypassing local government institutions representing, and legitimately elected by, this very same community. To make matters worse, both the communities and the state agencies lack the funds and capacity to address the acute infrastructural needs in the south-west coastal zone as identified by the National Water Management Plan of 2004. The lack of inclusion of locally elected government representatives, the inability of the state to fund maintenance, and the unwillingness of donors to fund maintenance

other than through specific projects all result from the discourse of decentralization to non-government bodies and depoliticized ‘community participation’. But what is amply clear is that the shift towards decentralizing responsibilities to community-based WMOs has not solved the problem of deferred maintenance; nor is it capable of addressing the ecological challenges of the region.

Conclusion

This article has traced discourses, policy priorities and project implementation of water management in Bangladesh’s coastal zone from the 1960s to the present. The experience of participatory water management illustrates the key role donors have played in shaping coastal water infrastructure – from financing mega-infrastructure projects during the height of the Cold War in the 1960s, to steadily reducing funding through small-scale community participatory projects in the 1970s and 1980s, and then to promoting decentralization through the participation of ‘communities’ from the 1990s onwards. Even more importantly, the very concept of ‘community participation’ underwent a change between the 1980s and more recently. A key aim of participation in the 1980s and early 1990s was to empower specific target groups through water management projects, a form of politicized empowerment. As ‘participation’ became an increasingly popular concept among donors in the 1990s, the meaning became depoliticized and instead connected to decentralization of roles and responsibilities, often without commensurate transfer of power and resources. Participation, in this new era, was limited to a group of ‘locally represented stakeholders’, the WMOs, which often consisted of a group of local male elites making all the decisions. This has proved to be an ineffective solution as they have not been found to be truly participatory and they are not sustainable since they tend to become inactive after the project has ended.

Simultaneously, the process of decentralization has paradoxically weakened government line agencies in terms of their capacity to work with communities, while restricting maintenance and rehabilitation funds to specific projects in limited areas. The assumption that community-based organizations such as WMOs are willing and able to maintain infrastructure constructed with donor funds and which were previously maintained by the government is being increasingly questioned, in view of evidence that local communities are not capable of and therefore not interested in such routine maintenance work. The gap left by the government and the inability of WMOs to fill this gap has led to an increasingly acute deferred-maintenance problem in the 2000s, and long-term maintenance of projects remains the Achilles’ heel of the water sector in Bangladesh.

In contrast, our primary fieldwork underlined the important role that local government institutions are already playing in providing drinking water in the coastal areas, as well as how they informally take responsibility for operation and maintenance of water infrastructure in the absence of formal state intervention and in the face of ineffective WMOs (Dewan et al., 2014). Therefore, we recommend that in solving the deferred-maintenance issues, the current conceptualization of decentralization (CBNRM) and ‘community participation’ be questioned and more centrality given to the role of elected local governments in coastal water management, including the need to increase the maintenance funding for rural employment schemes working on coastal infrastructure (canal excavation and embankment repairs). These recommendations are particularly relevant for the new projects currently implemented in the Coastal Zone, like Blue Gold and the Coastal

Embankment Improvement project, and should be considered in the policies under development, especially the Delta Plan.

Along the lines of Mosse (2003), we conclude by noting that history and ecology are intertwined and each plays a very important role in shaping institutions. Without the creation of Dutch-style polders in the 1960s we would not have the water management situation of today with both a changed ecology and changing institutions. Therefore, a historicized understanding of water management in Bangladesh is essential in crafting and modifying institutions that are then able to meet the ecological challenges of the present and the future. In this article, therefore, we attempt to understand the historical evolution of water management policies and institutions, with the aim of influencing the shape and contours of water management institutions in the future. In doing so, we especially emphasize the role of elected local government institutions and how they can play an even more formal and proactive role in shaping Bangladesh's water policy in the future, if only the myth of effectiveness of 'apolitical' community-based water management organizations is exposed as a myth, devoid of complex rural realities.

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Notes

1. The first wave was characterized by the cooperative movement and village self-governance models of Gandhi and his contemporaries (Mansuri & Rao, 2003).
2. In key informant interviews, project officials suggested that WMOs created by Local Government Engineering Development (LGED) tend to last long beyond the project period because they were also registered as cooperatives, while BWDB-created WMOs often fizzle out right after project completion and the withdrawal of donors. However, findings by Dewan et al. (2014) and Kenia and Buisson (2015) show that this is an unfair comparison, because the LGED's Small-Scale Water Resources Development Sector Project has never truly ended, thus supporting the longevity of its WMOs. Despite this advantage, LGED WMOs (known as water management cooperative associations) are no better at inclusive participation or maintenance of infrastructure than the WMOs created by BWDB. If anything, LGED-created WMOs often transform into micro-finance organizations, where providing loans becomes the main function. Since the start of the Blue Gold project, BWDB WMOs are now also registering at the Department of Cooperatives.

ORCID

Camelia Dewan  <http://orcid.org/0000-0003-3377-2413>

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