



## **G3: Water Governance and Community Based Management**

### *Literature review*

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# **Review of the historical evolution of policies and institutions of community based management in coastal Bangladesh**

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## I. Introduction

This literature review was led to inform the project “G3 - Water Governance and Community-based Management”, funded by the Challenge Programme on Water and Food (CPWF). The specific objectives of G3 are to understand the different modes and outcomes of water governance in selected polders and the role that communities play in such governance. In this research project we look at several models of community participation including participation fostered by formal agencies such as the Bangladesh Water Development Board (BWDB) and Local Government Engineering Department (LGED). By understanding how policies and institutions have evolved over time, this review helps contextualize G3’s research findings and may help influence future research directions.

The coastal zone of Bangladesh exhibits unique natural features with an active delta and the world’s largest remaining mangrove forest and constitutes a highly sensitive and fragile environment. Situated on the mouth of the Ganges Delta, land formation in this region is still in process and highly influenced by tidal flows (Firoze, 2003; Samarakoon, 2012). Extensive areas of low lying land in the tidal zone of the southern Bengal are flooded by saline water as well as by direct rainfall, making the large parts of the coastal zones vulnerable to high tidal flows (FAO, 1985). The coastal zone thus faces many challenges. First, its landscape changes due to a highly active delta, with tidal flows, sedimentation and river erosion. Second, it is one of Bangladesh’s under-developed regions. It is a region highly dependent of water, as well as highly vulnerable to water. Inundation, salinity intrusion and severe flooding in the coastal areas are thus frequent occurrences in Bangladesh. This leads to loss of life and property as well as severe impacts on livelihoods. The government of Bangladesh has invested steadily in coastal zone management through construction and rehabilitation of polders. This infrastructure aims to protect communities from flooding, inundation and salinity intrusion. Their functions have changed over time and they now play a vital role in providing shelter from disasters and to increase food production. However, they frequently suffer from poor operation and maintenance (O&M). This leads to increased siltation and water logging and have negative impacts on agriculture and food security, while increasing risk of breaking during disasters.

Participation in water resources management has increasingly been recognized as an important step to increase legitimacy of multiple water uses. For instance, international agreements such as the 1992 Rio Declaration or the 1998 Aarhus Convention, European legislation such as the 2000 Water Framework Directive, and national regulations, e.g., the National Water Policy (Ministry of Water Resources, 1999) and Guidelines for Participatory Water Management (MoWR, 2001) recommend involvement of the affected parties in the management of natural resources such as river basins, and coastal areas. Over the past 20 years, participatory institutional arrangements in water resources management has shown some real potential as a tool to properly maintain infrastructure, institutions and innovations in the coastal polder areas. In Bangladesh, such participation has been initiated through the government requirement of setting up Water Management Organizations (WMOs) in each polder and sub-project to represent local stakeholders in operation and maintenance of the polders. Yet, top-down WMOs are at a risk of becoming captured by vested interests in some instances, while in other instances WMOs might truly try to reconcile different interests, opinions and perceptions across an entire cross-section of a community. In this paper, we review the historical evolution of policies, projects and institutions

governing coastal polders in Bangladesh and the role of local communities in their management. This is done through three thematically divided sections. The first section is a historical analysis of the evolution of policies and projects on community participation in the water sector in Coastal Bangladesh. The second section is an organizational comparison of the two main implementing agencies, Bangladesh Water Development Board (BWDB) and Local Government Engineering Department (LGED). The third section look at BWDB and LGED's experience of community based management and WMOs through the Small-Scale Water Resources Development Sector Project (SSWRDSP), and the Integrated Planning for Sustainable Water Management (IPSWAM). The Fourth section concludes with gaps in knowledge and avenues for future research.

### Methodology

The review was conducted based on mainly project documents and official websites from different government agencies and donors in Bangladesh, as well as through a series of key informant interviews conducted with senior officials, donors and WMO project staff in Dhaka January to March 2012. It also includes articles found through IWMI HQ Library and search motor engines such as Google Scholar Search. Finally a search was also made on the full collections of online journals: Science Direct, Taylor & Francis and Wiley.

The review first examines the different policy documents created by the Government of Bangladesh (GoB) over time on water management and community participation. It then uses a chronological system to link specific projects to concurrent policies based on decades. Most project information come from GoB agencies, donors and key informant interviews (KIs) with senior officials with at least 2 decades of experience working on participatory water management in the coastal areas. However, documents from the 1960s to early 1990s proved quite difficult to find, creating biases in the data available. Fortunately, evaluation reports, project documents and books were found on the twenty-year long Early Implementation Project that provided valuable insights for the 1970s-90s. Detailed documentation for the Land Reclamation Project, Systems Rehabilitation Project and Delta Development Projects were not found. Since these are landmark projects in water management, KIs with officials working on these projects were used to supplement existing secondary sources.

One key gap in the literature is the lack of linkage to local governments and NGOs. These institutions are mentioned briefly in the project documents as partners, but their roles and importance are not elaborated, nor is their literature discussing how 'participation' is espoused and evolving over the course of time in these projects. Therefore, discussions on the findings will also try to incorporate NGOs, local governments and participation/decentralization from sources globally and outside the water sector.

### Defining the concepts: Participation and decentralization in community based management

This project is about water governance and community based management of the coastal polders of Southwest Bangladesh. In this paper, water governance is defined by the political, social, economic and administrative systems that are in place, and which directly or indirectly affect the use, development and management of water resources and the delivery of water service delivery at different levels of society. Importantly, the water sector is a part of broader social, political and economic developments

and is thus also affected by decisions outside of the water sector (UNDP Water Governance Facility, 2012). As such, water governance is a complex area of social and political processes tied to the multiple uses, interests and stakeholders tied to water as a common natural resource. Community based management of water, or community based natural resource management (CBRM), in the light of water governance becomes an equally complicated term to define. In the broader discourse, CBRM refers to the idea that communities, defined by their tight spatial boundaries of jurisdiction and responsibilities, by their distinct and integrated social structure and common interests, can manage their natural resources in an efficient, equitable, and sustainable way (Blaikie, 2006). As such, this idea of community based management promoted by donors since the 1980s and 1990s, may be understood in three ways—community as a spatial unit, as a distinct social structure and as a set of shared norms (Agrawal & Ribot, 1999). However, communities are not always homogenous entities; rather they may represent a variety of different stakeholders with different interests and approaches where some authors criticize the idea of the ‘community’ as a myth (see (Cleaver, 1999)). According to Blaikie (2006) community boundaries of jurisdiction may make little sense in the rational management of an identified natural resource with boundaries that may bear no resemblance to community boundaries (e.g., a watershed, mobile fish populations, or the habitat of an endangered species of fauna). In the context of Bangladesh, the management of coastal polders could be considered limited to managing only pre-defined tasks, such as operation and maintenance, while the ‘real’ power lies in the ability to take decisions on the design and nature of the tasks at hand. CBRM is based on the idea of a community that neatly fits with the boundaries of a hydrological unit, yet offers little to bring on the levels of participation among stakeholders within the community or the external agents that interact with these communities. In Bangladesh, the concept of ‘people’s participation’ has a longer standing history. There is no appropriate translation for community in bangla, rather one speaks of the ‘common people’, thus people’s participation rather than community participation. This leads to the question of what does ‘participation’ mean and how is this related to the aim of managing natural resources such as water in an efficient, equitable and sustainable way as envisaged in CBRM? In the context of Bangladesh, community based management will be used interchangeably with community participation so as to highlight the importance of various degrees of participation as a means to equitable CBRM.

### *Participation*

'Participation' has been a central theme in water policy discussions since the 1970s and it has obtained several different meanings over time (Mollinga, 2008). It covers a range of levels from ‘involvement in tasks’ to ‘power in decision making’, signaling different degrees of ‘participation’ in community based management. Arnstein (1969) identified a number of different types of process, which have all been lumped together as participation. She presented these in the form of a ladder in which token types of participation were placed at the bottom and forms of participation involving genuine “citizen power” were placed at the top. The principle of ranking is essentially the extent to which participants have real powers over decision-making and will be guiding the conceptualization of the evolution of ‘community based management’ in water projects in the rest of the review.

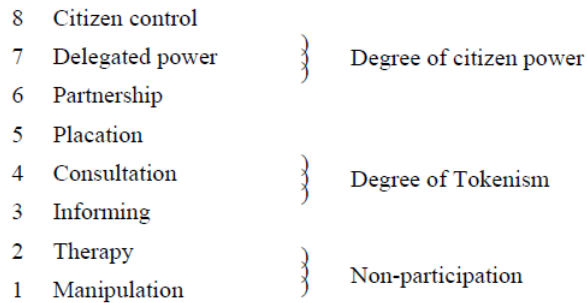


Figure 2. Arnstein's Ladder of Citizen Participation

Source: Arnstein, 1969.

Pretty (1994) distinguishes between the distribution of decision-making power between the community and the external project implementing agency and the type of contribution the community makes in the development planning (situation analysis, setting objectives, implementation). This is in a way similar to the typology on two schools of 'participatory development' by Hanchett (1997). One views participation as an end in itself, an organizational technique intended broadly to empower disenfranchised and poor people, where poor are free to decide what is in their best interest. The participation work of the big NGOs in the 1980s can be seen as 'participation as an end in itself' (Hanchett, 1997). Participation as a 'means to an end' intends to make technical planning socially useful. In this view, public meetings and other forms of consultation improve the quality of planning. Arguably, there is a degree of 'tokenism' in this type of 'consultation, as the final decision-making remains in the control of the professionals. Participation as a means to an end that fits in the lower half of Arnstein's ladder, while participation as an end in itself lies higher in the degree of decision-making. There is therefore significant scope that the degree of participation in community-based management may vary according to the type of project and the contextual situation of each project site. In addition, participation in decision making about the management of natural resources requires a wide range of quite radical reforms, including transparency in transactions, accountability downwards, the granting of a considerable degree of local discretion over environmental decision making (termed "environmental subsidiarity"), and a degree of competence, confidence and political sophistication by local institutions (Agrawal & Ribot, 1999; Ribot, 2001, 2002). For genuine participation through higher degrees of decision-making, concepts of decentralization can thus not be ignored.

### *Decentralization*

One key task with this paper is to review projects and policies that involve communities, in particular "inhabitants of an area who are directly or indirectly affected by water management" (MoWR, 2001) and how this has changed over time. Yet it is difficult to speak about governance, participation and local stakeholders, without also discussing the role of local governments and the discourse of decentralization. Community based management and participation are two issues that are linked to ownership, responsiveness to local needs and accountability to local people, topics seem to be promoted by decentralization (Ingham & Kalam, 1992; Martell, 2007). Decentralization may be defined as any political act in which a central government formally cedes powers to actors and institutions at



lower levels in a political-administrative and territorial hierarchy (Ribot et al, 2006). Many theorists argue that decentralization 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)<sup>1</sup>. In addition, for democratic decentralization, local actors and institutions should be representative and accountable to local people. Ribot et al (2008) note in their study that governments, international development agencies and large non-governmental organizations (NGOs) are transferring power to a wide range of local institutions, including private bodies, customary authorities and NGOs as part of decentralization reforms and projects. Recognition of these other local institutions means that local governments are receiving few public powers and face competition for legitimacy (Larson, 2003). For this paper, decentralization will cover two different aspects. One is decentralization by implementing agencies through transferring more responsibility and promoting 'participation' in different degrees to community based Water Management Organizations and whether this also involves a transfer of power. The other aspect of decentralization is the role of local government institutions in water management as directly elected democratic representatives of the people and whether there are provisions that strengthen or weaken their capacity in this regard. In Bangladesh, the main local government institutions (LGIs) consist of the Union Parishad and the Upazila Parishad<sup>2</sup>.

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<sup>1</sup> Review from (As-Saber & Rabbi, 2009)

<sup>2</sup> This is based on the Local Government Act 1973 following the independence of Bangladesh in 1971, The Act proposed a three-tier local government system with the Union Parishad (UP), Thana Training and Development Committee (TTDC) and the District Board (also known as Zila Parishad). The Union Parishad has stayed the same and is one of the longest running institutions in the country, dating back to the colonial times. Thanas were changed into Upazilas in the 1982 Upazila Parishad Ordinance Act. The military regime of Ershad during the 1980s promoted strengthening of the local governments. However, in practice this has been argued to be a way for an autocratic ruler to strengthen his rural power base and the Upazilas were weakened during the democratic regimes of the 1990s. Several acts have been created to revise LGIs for each government, as the support of the rural areas has been seen as a strategic interest for power (Hossain, 2004; As-Saber & Rabbi, 2009).

## **II. Timeline of policies and projects on community participation from the Zamindari system to today**

This sections reviews policies and projects in community based management in the coastal areas from the 1960s until the present time in a chronological order. The key focus is on management of ‘polders’ examining how projects and policies in the coastal areas have adopted to different factors over time.

### **1. Pre-1960s: Zamindari System**

Prior to the 1960s, zamindaris (landowners) held the responsibility of water management in the coastal areas. In this system communities would maintain the canal structure and when salinity was high they would build small localized mud walls that they managed jointly with the zamindars. These could be removed or built fairly quickly depending on needs (Chowdhury, 2012). The notable trait of this system was its dynamic and adaptive approach suited for the active delta of Bangladesh. The zamindari system continued until 1956 when it was abolished<sup>3</sup> (FAO, 1985; Chowdhury, 2012). In 1954, 1955 and 1956, Bangladesh, then known as East Pakistan, suffered from disastrous floods that drew world attention. The Krug Mission Report 1957 was a response to these three consecutive floods. Its most significant recommendation was to create a new government corporation with comprehensive responsibilities and authorities to deal with all water and power development problems. Following the recommendation, East Pakistan Water and Power Development Authority (WAPDA) was created in 1959 ( (Banglapedia:Water Resources Management in Bangladesh, 2006; De Silva, Sanjiv, 2012).

### **2. 1960s: 1964 Master Plan and Coastal Embankment Project**

As one old system disappeared, a new system had to be developed. This constituted a shift from a local system of management where the landowners had the responsibility to take care of the community to a public sector agency, WAPDA, tasked with protecting agricultural land from flooding and salinity. Later WAPDA was renamed to BWDB, Bangladesh Water Development Board. The gap arising from the abolishment of zamindaris combined with severe flooding gave rise to the polderization of the coastal zone of Bangladesh through the Coastal Embankment Project (CEP) as a means to increase food, particularly paddy, production by protecting land from tidal movement as well as to preserve sweet water in the channel system.

#### **2.1. The Coastal Embankment Project**

The CEP was funded through USAID assistance and started in 1961 while inspired by the Dutch dyke system (FAO, 1985). The CEP extended over an area of an estimated 4800 km of high embankments. They were built to enclose the entire tidal flood plain in the coastal areas of Khulna, Bakherganj, Noakhali and Chittagong (Huda, 2001). Out of this, the 1,566 km of embankments and 282 sluices were built in the Southwest region alone to increase agricultural productivity (FAO, 1985; Firoze, 2003). During this time, the WAPDA 1964 Master Plan was designed to meet the agricultural demand of water through large-scale public sector development and water management in both dry season (irrigation)

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<sup>3</sup> This led to a century long practice of fish cum paddy culture was stopped without any action to provide necessary infrastructure for promoting fish production (FAO, 1985).

and wet season (flooding). Major outcomes of the plan were the initiation of the process of national level water sector planning and the eventual implementation of large-scale Flood Control Drainage (FCD) and Flood Control, Drainage & Irrigation (FCDI) projects including the protection of most coastal zones against tidal flooding (Firoze, 2003). At this time, the flood plain was extensive, fish were abundant, the road network was limited, and there were virtually no water-polluting industries.

## **2.2. Agricultural productivity increased through large infrastructure project**

The polders were created in a global context of state-led development. After World War II, the world saw developing countries industrializing through strong and central government policies. During this period, most developing countries invested in large infrastructure projects, the Coastal Embankment Project (CEP) not an exception. The CEP was part of a series of 58 large-scale Flood, Control, Drainage and Irrigation projects, other examples include the Ganges Kobadak Irrigation Project (141 600 ha) and the Brahmaputra Right Flood Embankment Project (226 000 ha). In contrast to the highly dynamic chars and the mud wall structure of the zamindar system, polders are larger and permanent structures, imposing stability on a dynamic deltaic system (Samarakoon, 2012). The CEP was seen as having transformed the entire region into a perennial fresh water agricultural land, which benefited the local population who could now cultivate two or even three crops of rice per year (Firoze, 2003). This result was in line with the 1964 Master Plan's focus on increasing food production through large-scale public sector investments. Polders provided steady cultivation practices as drainage improved and people could now feel safe enough to settle inside the polders and create permanent settlements.

## **2.3. Problems caused by polderization**

The benefits from polderization were short lived. The construction of embankments led to tides surging farther inland and bringing salinity to new areas (Firoze, 2003). The polders also prohibited the silt from the rivers to deposit on the flood plains so that it instead deposited on the riverbeds. This raised water levels to higher than the land within the embankments and blocked flushing through sluices (FAO, 1985; Custer, 1993; FAO, 1985; Jenkins, 2012; Samarakoon, 2012; Collis, 2012). This caused drainage congestion during the monsoon, which later turned into permanent water logging that increased over time. By the 1990s water logging covered more than 100,000 hectares (FAO, 1985; Firoze, 2003). Water logging negatively affected agricultural productivity and homestead food production and caused the poorest to suffer from under nutrition and unemployment. Over time, siltation in the canal systems disrupted fisheries, while the intensive use of water for irrigation have caused natural water bodies to dry up (Sultana & Thompson, 1997; Craig, Halls, Barr, & Beand, 2004; Fariba, 2010; Rasul & Chowdhury, 2010; Samarakoon, 2012).

# **3. 1970s Shift to Small-scale Projects and People's Participation**

## **3.1. IBRD (1972) Report on Land and Water Resources, Bangladesh**

In the 1970s it became clear that little thought had been given to the consequences of implementing a system inspired by Dutch dykes (polders) in a country with an active delta with high sedimentation (Collis, 2012; Custer, 1993). In 1972, the International Bank for Rural Development (IBRD-1972), a part of the World Bank, reviewed the Master Plan of 1964. IBRD's Report on Land and Water Resources, Bangladesh report recommended a shift of priority from large scale and complex projects with long time

horizons to small scale projects in Flood Control, Drainage/and Irrigation (FCDI/FCD) projects. In contrast to the CEP, it recommended nonstructural measures in flood management and emphasized the need for quick results from water development efforts. It attached high priority to low cost, labor intensive projects<sup>4</sup>. At that time, almost all capital for capital intensive and large infrastructure projects for flood came from outside of Bangladesh. As the 1970s, was a decade riddled by oil and financial crises, one could argue that the IBRD (1972) recommendation came at a time where donors globally had lost the appeal of financing mega infrastructure projects that required much longer repayment periods. Thus the recommendation from the IBDRD was that Bangladesh should do smaller scale projects where returns could be gained more quickly (Ahmed, 2012).

### **3.2. Early Implementation Project Phase I (1975-1981) and Small Scale infrastructure**

The “Early Implementation Project (EIP)” during 1975 -1995 was the first BWDB project to follow the Small-scale recommendations by the IBRDB in 1972. It completed 88 sub-projects in 4 phases covering 463 250 ha. The EIP began as a bilateral project between the Government of Bangladesh and the Government of the Netherlands, spending several millions of USD on international and local consultants. The benefits of the EIP included increased security against flooding, increase of agricultural yield and the generation of employment for laborers where fallow land came under cultivation. In 1974, Bangladesh suffered from serious floods, famine and droughts that led to the first phase of EIP, 1975-1981. Initially, 10 projects were taken up and characterized by an increasingly popular approach consisting of technical short studies and quick implementation of small-scale flood control, drainage improvement and irrigation schemes. Nevertheless, agricultural growth had not been able to guarantee any form of trickledown effect and in an evaluation commissioned by the Government of Netherlands in 1977, it was emphasized that more attention to social equity was needed (Dutta, 1997).

### **3.3. Comilla cooperative model and participation during the Green Revolution**

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<sup>4</sup> Such schemes would involve low embankments and gravity drainage with irrigation canals and tubewells.

## *Cooperatives*

Cooperatives have a longstanding history in rural development in Bangladesh, with the Department of Cooperatives located in the Ministry of Local Government, Rural Development and Cooperatives. In 1989, the National Cooperative Policy was created with focus on increasing the contribution of the cooperative sector as the second sector of national economy, emphasizing that cooperatives gradually become self-managed and self reliant, while building on democratic institutions that are economically viable. The role of cooperatives was further elaborated in the Cooperative Societies Act 2001 to regulate the cooperative societies. Over time, cooperatives have increased in importance in the water sector, where Water Management Organizations (WMOs) may obtain rights as a legal entity if they register as a cooperative. This in turn has influenced some cooperative WMOs, as in the Water Management Cooperative Associations (WMCA) of the Local Government Engineering Department (LGED) to focus on income generating activities and democratic elections, beyond merely operating and managing water structures (De Silva, 2012).

In the 1970s the Government of Bangladesh realized that it was unable to distribute new technology of the Green Revolution to farmers due to lack of staff at the local levels. A cooperative model organizing farmers' groups was seen as potential solution. The Comilla cooperative model was developed in the early 1960s and it was one of the first formal models for community participation in Bangladesh. During the 1970s, the Bangladesh Agriculture Development Corporation (BADC) and the Bangladesh Water Development Board (BWDB) together with the Department of Cooperatives and Bangladesh Rural Development Board (BRDB) spearheaded this cooperative movement respectively for fast expansion of groundwater and surface water irrigation coverage in Bangladesh. This was combined with highly subsidized public sector programs during the initial years of the Green Revolution through the Integrated Rural Development Program (IRDP). The principal aim of this model was to bind farmers together into a functional unit, providing not only credit but also services that make the credit functional<sup>5</sup> (GoB, 2006).

### **3.4. Summary of 1970s**

The 1970s saw a clear donor driven shift away from large-scale mega projects to small-scale projects. Simultaneously, the Green Revolution pushed for rapid rural mobilization of farmers through a multi tiered cooperative model. Cooperatives were then institutionalized through the Department of Cooperatives and firmly tied to rural development in Bangladesh. The Comilla model in turn influenced the structure of water management organizations to come, especially in the cooperative model of the Local Government Engineering Department.

## **4. 1980s: Demand driven participation**

The next phase of evolution began in the early 1980s when the Government and donor community promoted community participation in water management as a means to efficient agriculture (ADB, 2003). It was surmised that the supplementary use of minor irrigation in combination with effective flood control and drainage would enable farmers to crop high-yielding varieties and reduce the risk of crop failure from flooding or drought at the beginning and the end of the monsoon season. O&M of water resources schemes was also usually a problem and it was hoped that active participation of local governments and beneficiaries in the development of small-scale water control schemes would help overcome this (ADB, 2007).

### **4.1. Early Implementation Project Phases II (1981-1986) and III (1986-1990): Evolution of Target Groups and Landless Contracting Societies**

The Comilla model and Phase I of EIP showed the need and effectiveness of involving farmers and community members in water management. Phase II of the EIP was implemented from 1981 to 1986 in 25 project areas by the BWDB. In 1983, the Swedish Development Agency (Sida) joined as a co-donor to the EIP and pushed for the inclusion of socioeconomic issues. Changes in EIP Phase II include a staff composition mixed with both technical experts and socio-economists. Despite this focus on social issues,

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<sup>5</sup> The model consists of a two tier cooperative system, one farmer cooperative at the village level (Krishna Surabaya Samity) and a federation at Thana (now Upazila) level that is run by a management committee consisting of elected representatives of the federating KSS called Thana Central Cooperative Association. The federated cooperative would provide access to credit for new technologies and inputs, as well as access to fertilizer, seeds, pesticides and pumps for irrigation. Another component was that the concept of a change agent from within the community GoB, (2006)<sup>5</sup>. The cooperative model centered around the mobilization of rural credit; it was an absolute requirement that every member of KSS put something into society's account every week, no matter how small (LGED SSWRDSP, 2006).

the Phase II evaluation found that EIP II had not been able to reduce inequality. Thus, equity issues became a much greater focus for EIP Phase III, where the need for involvement of beneficiaries resulted in the start of Landless Cooperative Societies (LCS) for the first time, as well as 'Target Groups' (TG).

Target Groups were created as a way of incorporating the opinions of the landless, marginalized and destitute on how the project could be designed to serve their interests. The TG concept showed one of the first signs of 'community participation' being integrated into government infrastructure projects and was included in Phase III of EIP and the Delta Development Project. TGs were the predecessors of routine earth workgroups such as Embankment Maintenance Group (EMG) and what is now known as Landless/Labor Contracting Societies (LCS) (Dutta, 1997). The LCS concept was introduced in EIP in 1987-1988 as a social experiment to bring benefits to the poorest people in the rural areas. The landless were given direct contracts to carry out earth works. Without having to go through the middlemen contractors, the LCS would receive higher remuneration for the same amount of work (Kausher, 2012). In Phase II it was envisaged that 25% of the total value of earthwork contracts should be given to the LCS. The LCS concept gained appreciation within BWDB was institutionalized as an earthwork and poverty alleviation tool in 1988. It has since then been incorporated in the Systems Rehabilitation Project, Char Development and Settlement Project (CDSP), LGED's Small Scale Water Resources Development Sector Project (SSWRDSP) and IPSWAM, and turned into a requirement in the GPWM (MoWR, 2001). One shift that has occurred is that from Landless Contracting Society to Labor Contracting society. When LCS initially started, the word 'landless' was emphasized to ensure that the work was allotted to the poorest section of the population residing within particular project areas. However, over time it has changed to Labor so as to also incorporate the marginalized farmers with small shares of land (Kausher, 2012; Reza, 2012).

The focus on social issues and targeting poverty was also evident in the EIP project design. For instance, projects were selected based on a minimum presence of 40% landless (Dutta, 1997). Engineers preferred site selection that would consider infrastructure needs but were over-voiced by socio-economists who held stronger support by the donors at the time (Duyne, 1997). Despite such efforts, some authors argue that that EIP failed to make engineers understand the complex socio economic processes of Bangladesh (Dutta, 1997; Duyne, 1997). On the other hand, the finding in the EIP Evaluation Mission of 1992 Tamm et al indicate that the EIP was deficient in technical engineering terms, while markedly more expansive in social and socio-economic terms (Tamm et al 1992:9, Report of the EIP Program Evaluation Mission, Bangladesh Water Development Board, cited from Dutta, 1997). This might reflect that more attention to the technical aspects of the project might have strengthened its overall impact.

During Phase III, it was decided that NGOs would be involved to facilitate, train, supervise and monitor the LCS groups, and communicate with BWDB field offices. The use of local NGOs was important, where the oldest and now largest NGOs in Bangladesh: BRAC, Proshika and ASA were three of seven NGOs involved in EIP LCS formation<sup>6</sup>. Working with NGOs, as well as promoting poverty alleviation through

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<sup>6</sup> NGOs were not invited to participate in the planning process (Dutta, 1997).

LCS, were approaches that were strongly donor driven by both Sida and the Government of the Netherlands who were also funding rights based empowerment NGOs directly at the time (Kabeer, 2011). Writing a decade later, Duyne (1997) argues that big NGOs in Bangladesh are just as hierarchical and top down as government agencies and would necessarily not be skilled at community mobilization. However, according to Dewan (2009) there has been a paradigmatic shift from empowerment and rights based NGOs of the 1970s and 1980s to service delivery NGOs 1990s as a result of donor fatigue and emphasis on tangible results. Duyne's statement may hence reflect the changing role and function of NGOs as community mobilizers versus service delivers.

In 1993 the Swedish Development Cooperation Agency withdrew its support to the EIP, while the Dutch donor did not continue support for Phase V. Nevertheless, the EIP survived for two decades through four consecutive phases that built on the lessons learned from each previous phase. Key concepts that evolved during the EIP did influence other contemporary projects, such as the Delta Development Project and Land Reclamation Project, as well as later projects. Especially the LCS approach has been formalized through policies and guidelines.

#### **4.2. Land Reclamation Project (1978-1991): Redistributing land to the landless**

The LRP was along with the EIP and DDP funded by the Dutch; evolving in parallel with these two projects and implemented by the BWDB. The LRP was based on the creation of chars and the idea of reclaiming this 'new land' from the sea and use it for settling people. The main target was to redistribute this land to landless people and by so doing, enhance socio-economic uplift through land accretion oriented works and infrastructural development works of char lands. The concepts of Target Group, LCS and Embankment Maintenance Groups were evolving also in the LRP, as the Government of Netherlands was a key donor in the EIP, LRP and DDP. The LRP was succeeded by the Char Development and Settlement Project (CDSP) in 1994 and that is now continuing on its fourth phase (Kausher, 2012).

#### **4.3. Delta Development Project (1981-1991): Rights based group formation of landless**

The Delta Development Project (DDP) was financed by the Dutch and built on the Land Reclamation Project. The DDP started off with an infrastructure design that was highly technical and engineering focused (BWDB, 1982). This was complemented by local stakeholders' participation in project planning by site selection of irrigation inlets and organized inlet-committees for participatory O&M. The DDP was conducted in two polders, polder 29 and polder 22 that were included in BWDB's IPSWAM project ten years later. The DDP conducted rehabilitation of the physical infrastructure and repaired sluice gates and created additional structures/regulators, such as inlets that allowed people to enter water during high tide. It followed the Target Group approach and consulted with the TG on where inlets should be placed (Kausher, 2012). In many ways the approach of DDP resembles many of the steps required in GPWM.

Similar to the EIP, BWDB used NGOs to create and form TGs and LCs. In DDP, Nijera Kori ('we do it ourselves'), a rights based NGO, was contracted. In the 1980s commercial shrimp cultivation was quickly expanding in the coastal areas and Nijera Kori organized poor people to oppose commercial shrimp

farming and received financial support from the Dutch for such activities (Kausher, 2012). In that sense, Nijera Kori used DDP to also promote its own agenda to oppose shrimp farming, while at the other hand succeeding in mobilizing the community to feel that they shared common interests. The main focus on the DDP was to mobilize and motivate the landless groups of the two polders to feel ownership of the rehabilitated infrastructure. According to Muffazal Ahmed and AKM Kausher, project consultants under IPSWAM, this previous legacy of community mobilization especially in polder 22 helped contribute to smooth participatory water management activities the same landless people active in water management during DDP became members of the of the WMA committee formed under IPSWAM (Ahmed, 2012; Kausher, 2012).

#### **4.4. LGED enters small scale water sector (mid-1980s)**

In the 1980s, the Swedish International Development Cooperation Agency (Sida) funded the Rural Employment Sector Program in greater Faridpur. The project worked with the LGED on rural infrastructure, roads, bridges, culverts, where for the first time water resources component was built into a rural development program. The Swedes introduced the idea of working with local people to better incorporate people's participation, whereby LGED prepared the Guidelines and Manual for Operation and Maintenance of Small-Scale Water Resources Schemes in 1984. In the view of Ekliur Reza (2012) at LGED and formerly at BWDB, Sida influenced LGED to more strongly prioritize and emphasize community participation, in the sense that the implementing agency should take into and create continued interactions with local stakeholders through creating committees.

#### **4.5. Summary of the 1980s**

The 1980s saw the push and involvement of donors for BWDB and the GoB to focus on participatory approaches through people's participation and consideration of the poor and marginalized. The concepts of Target Group and LCS evolved in parallel in three landmark projects, the EIP, LRP and DDP, three projects that came to influence the shape and form of coming water related projects in the coastal zone also in the 1990s and the structure of the GPWM in 2001.

## **5. 1990s Formalizing people's participation in policies and projects**

### **5.1. Early Implementation Project Phase IV (1990-1995): Problem of maintenance recognized**

The EIP consisted of four consecutive phases that ran for a period of 20 years. From a mainly engineering bias, it progressive broadened to include specific attention to stakeholders' participation, local level water management, operation and maintenance, and multidisciplinary participatory project planning, with several pushes from involved donors. This phase focused on standardizing the lessons learned from the projects and practices from the 1980s. For instance, feasibility studies were standardized using rapid rural appraisal techniques, the LCS component was extended and manuals on participation were completed (Dutta, 1997).

One key theme and cause for concern identified during Phase IV was that of maintenance and the sustainability of a project after the intervention ends. Embankment Maintenance Groups were seen as a way to address this issue and were based on experiments on maintenance of rural infrastructures by



poor rural women in the 1980s through projects such as Regular Maintenance of Roads (RMR)<sup>7</sup>. However, it soon became evident that the EMGs would often collapse after the end of a project or become dysfunctional over time. Key causes were identified as inadequate maintenance funds allocated for EIP coupled with misallocations of existing funds, as well as undefined responsibilities and poor accountability of officials (Dutta & Nishad, 1997; Duyne, 1997). Islam and Asaduzzaman (1997) argue instead that the lack of sustainability was partly due to local power interests and partly due to the lack of institutionalized interaction between the BWDB and local government institutions at Upazila and Union levels. This is supported by Duyne (1997:82) who argues that "...Union Parishads are aware and often quite responsive to the needs of their constituencies, that they are able to identify and implement relevant water management projects, and have the unique capacity to mobilize external as well as internal resources". As was discussed in Section I, local government institutions are the closest democratic representatives of the government to the people and in their mandate they would represent local interests. However, the empowerment of LGIs such as Upazilas and Union Parishad has been highly political and contested. In the beginning of the 1990s, the newly democratic regime tried to disempower the LGIs as they were seen as extended networks of rural patron-clientelism under the former autocratic Ershad regime (As-Saber & Rabbi, 2009; Hossain, 2004). Arguably, the lack of institutionalization in practice of Phase IV reflects the national politics of the time where the new democratic regime tried to dismantle Ershad's rural support base.

## 5.2. Flood Action Plan: Contested by Civil Society

The Flood Action Plan consists of 26 studies that were conducted at the request of GoB during the Ershad regime and arose from the 1989 UNDP Flood Policy Study on controlled flooding and compartmentalization through secondary embankments (Brammer, 2010). The FAP was a large plan for huge infrastructure investments to address major flooding by building tall embankments around Ganges, Brahmaputra and Meghna costing 5-10 billion USD (Custer, 1993), showing a reverse direction from the 1970s focus on small scale projects. Key features of the FAP included the attention to urban FCD and non-structural flood proofing and the emphasis on social and environmental impact, effect on fisheries, and people's participation in flood control and water management (World Bank, 2005). In the second conference of the Flood Action Plan in 1992 a set of guidelines for participation in management of projects were produced (De Silva, 2012).

Though the donors deemed FAP to be participatory, they themselves imposed top-down instructions to BWDB to turn over control of technical project planning to rural people, something that BWDB engineers felt reluctant towards (Hanchett, 1997). The FAP failed to materialize for several reasons,<sup>8</sup>

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<sup>7</sup> The EMG concept was taken from the 'Employment Guarantee Scheme' in Maharashtra, India and was brought to Bangladesh in the early 1980s. It was adapted by the large NGO Proshika and introduced in the Intensive Rural Works Program (IRWP) a rural infrastructure development program funded by the Swedish and Norwegian government (Dutta & Nishad, 1997).

<sup>8</sup> Such permanent structures on a young and active delta that is still changing, was seen as inappropriate (Custer, 1993). Considering the large costs, it was not seen as financially attractive as it only marginally protect agricultural land (Brammer, 2010). Messreli and Hofer (2007) in (Brammer, 2010), showed that damaging floods in Bangladesh are caused by heavy rainfall over Bangladesh itself occurring at times when the rivers are running at high levels. Flood embankments would not be able to protect against heavy rainfall in the land behind them (Brammer, 2010).

many of which are synthesized in *Floods, People and the Environment* by Bangladeshi academics (Adnan et al, 1992). In essence, the FAP faced strong resistance from NGOs and civil society who protested against top-down policies perceived as an unrealistic and expensive scheme without an appraisal of experiences within the country and that failed to truly include people's participation in practice (Adnan et al, 1992; Custer, 1993; Hanchett, 1997; Brammer, 2010; Huq, 2012)<sup>9</sup>.

### **5.3. System's Rehabilitation Project (1992-1997): Issues of sustainable WMOs**

The System's Systems Rehabilitation Project (SRP) started in 1992 was implemented by BWDB. SRP espoused the idea of people's participation through Water User Groups (WUGs) that would engage in sustainable operation and maintenance. However, people's participation was narrowly defined as 'farmers' as the only water users and participation as responsibility for O&M, showing the inherent bias for agriculture over other water uses (Hussain, 2004). Prior to SRP, DDP and EIP had spent significant time on forming and mobilizing 'TGs' and LCS. The difference in SRP was the focus on farmers and the rapid process of which the groups were formed. During 1995-96 1,386 WUGs were formed during the year. By the end of June 1997, 3,506 WUGs had been registered in 35 sub-projects (Soussan, Mallick, & Chadwick, 1997). In surveys post-intervention, these WMOs were seen as virtually non-existent or decaying. Most WMOs had no office of their own, meet infrequently if at all, and had very little in terms of institutional training. Their activities appeared to be limited to surveillance of the embankment and operation of gates (GoB, 2006), where it has been argued that SRP is a failure and BWDB as a unit uncommitted to people's participation (Soussan, Mallick, & Chadwick, 1997; GoB, 2006). Arguably, this could be due to the quick process of forming WMOs and the weakened position of the Directorate of Land and Water Use after 1992, where its capacity to oversee WUGs through its agronomist staff was reduced after having handed over agricultural extension responsibilities to the Department of Agricultural Extension (Kausher, 2012; See Section III). In addition, rehabilitation and involvement of farmers took place several years after the original structure had been built. This further limited the sense of ownership that a group may sense if they are involved in the planning and design stage. Nevertheless, the SRP served as a learning experience and contributed to the IPSWAM project, where focus was on spending long time on the mobilization process and sustaining ownership and activity of the WMOs throughout the project period.

### **5.4. Ganges-Kobadak Project (G-K) and the Pabna Irrigation and Rural Development Project (PIRDP): From EMGs to Water Management Groups and Associations**

In the late 1990s, the BWDB sought to institute participatory water management in the Ganges-Kobadak project to promote sustainable improvements in irrigation performance and rapid adoption of new high yield varieties (HYV) technology in rice and wheat. To that end, existing Outlet Committees and EMGs were re-named as Water Management Groups (WMGs) and comprised of nine members: one-third each from large, medium and small farm categories. 10-15 WMGs from each of the tertiary canals were then formed into Water Management Associations that were expected to manage water distribution in all field outlets from head to tail attached to the same tertiary canal. The WMGs and WMAs worked under

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<sup>9</sup> The dominating and surviving narrative is that the FAP was completely wrong and nothing good had been suggested in it. However, some key informants on the issue argue selected FAP would have been beneficial for flood protection in Bangladesh, but they abandoned due to the 'biased' attacks against the FAP. Finding documented evidence of the 'successes' of FAP studies has, however, been difficult to obtain at this stage of the research.

close supervision of the BWDB officials and were responsible for distribution of water. These institutional changes at the field level were expected to help increase irrigation performance and thereby crop production productivity (Hussain 2004). Distribution of irrigation water for crop use from available flows in the canals in both G-K and PIRDP was determined by the WMGs and the corresponding WMAs in collaboration with the BWDB field officials. Irrigation water was to be distributed to the crop fields on the basis of requirements with reference to land quality, given the availability of surface water in the tertiary canals. Any conflict relating to the distribution of water was to be addressed by BWDB in consultation with the WMGs (Hussain, 2004). According to the study conducted by Hussain (2004) success was determined largely by the active participation of water users through WMGs and WMAs and the efficiency of the BWDB officials in supporting them. In the 'worst' tertiary, proper formation of WMGs and WMAs had not occurred and the farmers did not have access to systematic irrigation information. In PIRDP performance of the WMGs and WMAs was found to be poor. Institutional constraints such as poor performance of the concerned government officials, problems with the pathway, theft of water etc., had not been addressed. Collection of the water charges was poor in both G-K and PIRDP. In G-K as a whole, annual rates of collection in the 1990s ranged from 5 percent to 15 percent of the targeted sum; moreover, the collection rate had fallen overtime. In PIRDP, collection was to only 9 percent for 2000/01 (De Silva, 2012). This project is one of the first examples of the use of WMGs and WMAs currently used by BWDB under the GPWM (MoWR, 2001). It also shows the importance of active support by officials or project start to facilitate participation in these groups, as well as the long-term issues of cost sharing arrangements by communities, that seems to deteriorate over time. In essence, the way these projects are portrayed show participation as a means to an end where the selected stakeholders give input to a process already decided by the project.

#### **5.5. Char Development and Settlement Project (1994-Present)**

The CDSP is the successor of the Land Reclamation Project resettling landless on newly developed 'chars' in the Noakhali and Chittagong areas. It was developed in parallel with EIP and DDP. In its first phase (1994-1999) the focus was on land distribution among landless farmers. In Phase II (1999-2005) it focused on a coordinated institutional arrangement: connecting different government organizations, development agencies and NGOs through participatory interventions. The unique feature of the LRP and CDSPs was that existing land conflicts were less prominent, as they were able to reallocate new land. In EIP areas in Khulna, Satkhira, Jessore and Barguna, existing land titling could not be as easily overcome. In phase III and IV, a multi-stakeholder approach was adopted where several line ministries (BWDB, LGED, Dept of Agricultural Extension, Dept of Fisheries and Livestock and Dept of Public Health) are cooperating. There is also a strong role for local NGOs to work with group formation, capacity building, extension services, educational support and human rights, while targeting landless, single female headed households, small tenants. The main learning from CDSP III to CDSP IV was that of creating institutional structures for sustainable interventions, where NGOs instead of being directly contracted by the Royal Netherlands Embassy (EKN) are now contracted directly by the technical assistance team. From the onset of LRP, the Dutch were the main funders. In CDSP IV, IFAD is now also a major co-donor. CDSP IV follows a strong micro-credit plus approach, with focus on micro credit and income generating activities, with added components on water and sanitation, health and family planning etc. It has

provided several lessons learned to the GPWM and other projects such as SSWRDSP and IPSWAM (MoWR, 2009).

### **5.6. Khulna Jessore Drainage Rehabilitation Project (KJDRP) (1994-2002): the importance of local initiatives and bottom up participation/protestation**

The Khulna-Jessore Drainage Rehabilitation Project (KJDRP) is an important example of the severe problems of water logging caused by polderization and top-down engineering strategies lacking consultation from local stakeholders. The KJDRP project was implemented by BWDB from 1994 to 2002 and was financed by the Government of Bangladesh and the Asian Development Bank (ADB). The Project was expected to cover one fourth of the Coastal Embankment Project area (approximately 100,000 hectares in Southwest Bangladesh<sup>10</sup> (ADB, 2007). The KJDRP project aimed to reduce poverty through increased agricultural production by (i) mobilizing beneficiary participation for project design and implementation; (ii) operation and maintenance of the project facilities and (iii) reduce drainage congestion through rehabilitation of the existing drainage infrastructure and protect the project area from tidal and seasonal flooding.

*Mobilization of Beneficiary Participation* involved organizing stakeholders in Water Management Organization (WMOs) at different layers. Around 42 000 members were organized in 507 Water Management Groups (WMG), 58 Landless groups and 14 fisherman groups at the root level, 9 Water Management Associations (WMA) at mid level and a Water Management Federation at the top level. The WMOs were intended to participate in project planning, project design and implementation and monitoring and take over the responsibility of operation and management as prescribed in 'participatory guidelines' by the donor (ADB, 1993). Based on experiences of EIP and Comilla cooperatives where NGOs had successfully organized farmer-based groups, NGOs were contracted to form WMAs. Despite this focus on 'participation', Tutu (2005) argues that local people from the onset in 1993-94 contested the KJDRP project, expressing their doubts about the effectiveness of the project. This is supported by an external evaluation report (ADB-OED, 2007) that reveals that opposition from local people caused a more than 3-year delay in project implementation. Arguably, the claim that ADB in its project proposal put forth of people's strong willingness to support KJDRP (ADB, 1993) can be seen as highly contested.

One reason for the contentiousness of the KJDRP may lie in the fact that local indigenous solutions against water logging were being ignored and sidelined in favor of top-down and structural engineering solutions (Tutu, 2005; BIC, 2007). In the KJDRP area people had identified the polders as the main cause of water-logging and began to cut away polders to allow tidal flows. This concept is called the Tidal River Management (TRM) system and locally known as jowar-bhata khelano (free play of tidal flow). The TRM prevents sediment accretion on the riverbed and ensures drainage of excess water during monsoons and creates better navigation in river channels (Tutu, 2005; BIC, 2007)<sup>11</sup>. According to Duyne (1997),

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<sup>10</sup> The Project also had provision for constructing 8 new and rehabilitating 25 drainage structures, rehabilitating 30 kilometers of embankments and 70 tidal irrigation inverts (locations for silt excavations to enable free flow of tidal water in irrigation canals), river dredging (1.6 million cubic meters), and a need-based O&M budget.

<sup>11</sup> The main purpose was to get suspended sediment deposits gradually under a controlled system, going from tidal channels up to the mean high tide level in the waterlogged areas. This planned system means that deposits will be made in a certain site by

BWDB generally failed to recognize and build upon local initiatives seeing them as more time and resource consuming than permanent engineering structures<sup>12</sup>. In KJDRP, these diametrically opposed perspectives on engineering versus indigenous solutions led to continued and forceful tensions between BWDB and the local communities (Tutu, 2005; ADB-OED, 2007). ADB claims that communities were consulted prior to project starting in 1993 (ADB, 1993), yet the ADB Operation's Evaluation Mission revealed that the WMAs were formed after project design and the WMG at the village level were formed at a much later stage; having minimal contribution to project design and implementation. The evaluation did not find any verifiable evidence of WMGs and strong public participation in establishing ownership and responsibility for operating and maintaining the project facilities (ADB-OED, 2007). Arguably, this could be linked to the fact that donors pushed the focus on beneficiary participation as a project requirement as in the SRP and FAP. The problems were further exacerbated by a slow decision-making process in recruiting consultants, NGOs, contractors, and suppliers as well as rapid and superficial consultation without reaching all sections of communities and short time given to form sustainable and community anchored WMOs (ADB-OED, 2007). Another controversy is that ADB (2004) claims that the project quickly responded to beneficiaries and adopted a TRM approach. Yet, the project was approved in 1994, while the TRM was not adopted until 1999, after repeated and intensive public opposition and the completion of a TRM feasibility study by CEGIS<sup>13</sup>. According to the ADB's Project Completion Report (ADB, 2004), project outputs were satisfactory. This claim is heavily disputed by local and national civil society organizations who fault the ADB for inundating several hundred hectares of land, while causing rivers to dry up (Kibria, 2006).

The key lesson from KJDRP is that ignoring local solutions, strong bottom up resistance was created that greatly delayed the project, forcing the ADB to at least partially integrate ideas of TRM. The main fact that the TRM and indigenous solutions had not been incorporated, questions the efficacy and representativeness of the WMOs created as part of 'mobilization of beneficiary participation'. If real emphasis is to be given to participation, then careful planning and time must be given for various segments of the communities to give their input for project design before structural engineering solutions are imposed in a delicate ecosystem.

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a specific tidal channel. Later on, deposit sites may be shifted to other sites according to the topography of the area. Breaches may be shifted to ensure uniform silting within a basin. Depending upon the position of the water-logged areas, different methods of TRM may be adopted for different types of basins (Tutu, 2005).

<sup>12</sup> Duynne (1997) contends that donors partly are responsible for this gap between indigenous and technical knowledge in Bangladesh. Prior to the polders and BWDB, there were indigenous technologies managed by the people. Examples include cross dams that people would construct in large numbers all over Bangladesh at end of monsoon and remove at end of dry season. These cross dams were important to store water in khals for irrigation, domestic or fishing. Many of BWDB's structures were built to replace such indigenous approaches. In her study she found that historically people would stage opposition against such structural interventions they disliked.

<sup>13</sup> In 1997, EGIS was approached by the Ministry of Water Resources for an independent Environmental and Social Impact Assessment Study (EIA/SIA) of the project. Source: *EGIS Report on the study Environmental and Social Impact Assessment of KJDRP*, <http://www.cegisbd.com/products.htm>

### **5.7. Small-Scale Water Resources Development Sector Project (1995-Present): LGED formalizes its role in the water sector**

The Local Government Engineering Department is one of the two key implementing agencies in water infrastructure in Bangladesh along with the BWDB. The SSWRDSP is currently in its fourth phase, with Phase I starting in 1995 in the coastal areas. The SSWRDSP provides flood control, drainage, and irrigation infrastructure to subproject areas less than 1000 ha. The approach relies heavily on local stakeholders' initiative to identify interventions, ratify engineering design, demonstrate commitment to operating and maintaining infrastructure by contributing a specified amount of funds in advance of physical construction, and to sign a post-construction lease agreement for managing, operating, and maintaining the infrastructure. The project's strategy included not only the process of organizing stakeholders and beneficiaries, mostly poor people and small farmers, into effective co-operative organizations, but also the introduction within LGED of responsibility for, and commitment to the development of small-scale water resources development schemes and supporting WMCAs in their operation and maintenance (ADB 2003b). In many ways the LGED approach builds on previous experiences from the EIP and SRP. However, the main difference is size and institutional background. LGED operates in small sub-projects within or outside polders, not covering areas bigger than a union or a few villages. Thus it only has one WMO per project area, Water Management Cooperative Associations (WMCAs) that are intended to represent all stakeholders in the area. The WMCA holds legal status through the Cooperative Department and holds regular elections. Instead of relying on NGOs to form the groups, LGED has its own staff of Upazila based community organizers and socio-economists that form WMCAs under a 18 month period and then provide continuous support and facilitation. The LGED acts as a coordinating actor as it provides linkages between the WMCA with Union Parishad, Upazilas as well as trainings by other line agencies (agricultural extension, fisheries, public health). In many areas, LGED can provide access to communities through their established relations with WMCAs.

The SSWRDSP is based on strong linkages with local government institutions and linkages with the field level. Instead of the 'target group' approach, the emphasis is on the broader beneficiaries in the area and to facilitate a sense of ownership of the structures through continuous interactions. Income generating activities combined with a legal cooperative status have been added to provide some sort of sustainability after the project intervention has ended. More details on the innovations and challenges of the WMCAs and LGED's organizational approach will be discussed in Sections III and IV.

### **5.8. National Water Policy and Decentralization**

The Bangladesh National Water Policy (NWP) of 1999 for the first time recognized the role of water in poverty alleviation and called for inclusive water management (Quassem, 2001). It provided a comprehensive policy framework for pressing water issues in Bangladesh and provides a way forward in coordinating various water issues<sup>14</sup>. The NWP is a product of its time, during a decade that saw the shift from people's participation and focusing on the poorest in infrastructure projects, to involving wider stakeholders, 'beneficiaries'. This occurred in parallel to a growing global discourse on decentralization

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<sup>14</sup> The NWP was a significant landmark that reflected a major shift in the approach to water resources management within government circles. In particular, the dominance of floods as the issue and infrastructure as the solution is challenged by the new policy that prioritizes a range of issues and recognizes the importance of, in particular, institutional change (Chadwick and Datta 2003).

and a reduced public sector role in water management. This materialized through policies and interventions through greater involvement of the private sector and an emphasis that communities should also be *responsible* for water management. Both of these trends are made evident in NWP where it was conceived that O&M and selected water management responsibilities should be handed over to local stakeholders. NWP promoted the idea of stakeholder participation in water management, where all stakeholders are to “actively and fruitfully participate in water management decision making at all stages” (MoWR, 1999:18). In particular, it stipulates that the interests of low-income water users and women are adequately protected in water resource management. Ultimately, the NWP envisages transfer of ownership of the small schemes (those below 1,000 ha) to local government and management to (water Management Associations) WMAs; transfer of management of schemes between 1,000 ha and 5,000 ha to WMAs, with ownership remaining with BWDB. Finally transfer of management of schemes over 5,000 ha to a joint team consisting of WMAs and Local Government with ownership remaining with BWDB.

The NWP has spawned a number of related initiatives including the preparation of a National Water Code, completion of the National Water Management Plan, and finalization of the Guidelines for Participatory Water Management (World Bank, 2005). Most importantly for the purpose of this paper, it gives attention to the importance of polders through institutionalizing WMOs based on lessons learned from 20 years of EIP and innovations from the CDSP and SSWRDSP.

### **5.9. 1990s: Evolving ideas of people’s participation**

By the 1990s, the idea of ‘people’s participation’ was high on the agenda of donors and governments in water resources management. On the one hand civil society and NGOs were promoting participation as an end in itself reflecting the legacies of the 1970s and 1980s and on the other hand FAP hinted at an idea of participation as a means to an end, something that has come to influence the NWP and GPWM.

The approaches of the 1980s show a clear acknowledgement of the inherent power inequalities embedded in Bangladeshi society. Participation could thus be argued to be ‘an end in itself’. The use of words such as ‘Target Group’ rather than the broader ‘beneficiary’, ‘Landless’ instead of ‘Labor’ Contracting Societies for the LCS, also shows the strong focus of the 1980s on participation by the poorest rather than a vague concept of ‘community’. The main ideas and visions was that of empowered members of the community that could challenge government policies they disagreed with. The outcome could be such that the poor majority becomes free to decide for itself what is in its best interests. Mukherji et al (2009) found that community participation was often a donor imposed idea and highly costly as a process and difficult to replicate. However, Bangladesh’s legacy of big empowerment NGOs since the country was formed in 1971 has greatly shaped its identity and it is the most NGO dense country in the world and has experienced donor involvement since its inception (NGO Affairs Bureau, 2008). The main empowerment NGOs such as Proshika, GSS, BRAC, not only worked as community mobilizers for government projects, but they also had their own programs with special focus on participation of ‘all the community’ and women’s empowerment (Shahjahan, 2012). The FAP shows ‘participation as a means to some end’, a method of making technical planning socially useful, where public meetings and other forms of consultation improve the quality of planning that remains in the control of professionals (Hanchett, 1997). This concept consolidated over the 1990s and 2000s in terms

of involving communities in infrastructure planning. This shift shows the difference of the ‘end in itself’ approach that would grant the less powerful participants a high degree of control over the outcome, while the means to an end approach would reserve the ultimate decision making authority for the more powerful participants (Hanchett, 1997:278). This type of participation had gained priority in the agenda of water resources projects and several efforts were made to operationalize this concept through policies and guidelines that have been tried in some Flood Control, Drainage and Irrigation (FCDI) projects and lately from the G-K project, SRP, CDSP and SSWRDSP. Examples include Local Government and Engineering Department (LGED)’s Guidelines for Operation and Maintenance of Small Scale Flood Control and Drainage Scheme (GoB, 1996), Guidelines for Participatory Process of Small Scale Water Resources Development (GoB, 1999) and the Guidelines for People's Participation in Water Development Projects (GPPWDP) (MoWR, 1994). In 1998, a revised Guidelines - Institutionalizing Local Participation: Proposal for Guidelines for Participatory Water Management, which in particular addressed the rights, duties and responsibilities of all those involved in the processes for water development and system management was created. This was a landmark as it was not only concerned with the procedures to involve the people in the processes, but also formally institutionalized a shift of responsibility to community members as a means of ‘participation’.

Arguably, the amount of manuals and guidelines produced emphasizing people’s participation could be seen as a major shift to formalizing the involvement of communities in water resources projects. Different concepts of WMGs, target groups, water user groups, sluice gate committees, inlet committees were instead called Water Management Organizations, with different tiers such as Water Management Groups at village levels and Water Management Associations at polder level. These were operationalized in projects such as LGED’s SSWRDSP and BWDB’s SRP, Char Development and Settlement Project and KJDRP and later formalized in the National Water Policy (MoWR, 1999) and Guidelines for Participatory Water Management (MoWR, 2001).

## **6. 2000s to today: Continued decentralization and more formal community participation**

### **6.1. Guidelines for Participatory Water Management (2001): Consolidating participatory guidelines of the 1990s**

In order to operationalize the NWP, the policy document Guidelines for Participatory Water Management (GPWM) (MoWR, 2001) was created<sup>15</sup>. The GPWM is the final document combining the experiences of the EIP, DDP, LRP, CDSP, FAP, KJDRP and SSWRDSP and the plethora of guidelines and manuals for beneficiary participation that were created throughout the 1990s. The Ministry of Water Resources made use of an inter agency taskforce from BWDB and LGED to formulate Guidelines with representatives from WARPO, Bangladesh Agricultural Development Centre (BADC), Department of

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<sup>15</sup> In 1994, the Government formulated the ‘Guidelines of Peoples Participation’ applicable to water resources projects of BWDB. A major limitation was that these guidelines mainly focused on irrigation projects and not flood control projects despite the critical nature of flood control and drainage aspects in Bangladesh. Consequently, new Guidelines for Participatory Water Management (GPWM) were formulated in 2000 taking into consideration past experience, and applicable in all flood control, drainage and irrigation projects of the country (Quassem 2001).



Agricultural Extension (DAE), Department of Fisheries and Livestock etc to formulate the GPWM. The GPWM synthesizes all exercises and experiences of the concerned implementing agencies in respect of participatory water management to be used by all agencies, stakeholders and management for efficient and balanced utilization of the scarce water resources; including the LGED and BWDB.

The main aim of the GPWM is to increase/improve stakeholder participation/involvement in water management, give local stakeholders a decisive voice at all stages of water management and raise environmental awareness among the local stakeholders and the implementing agencies in flood control, drainage, irrigation and other surface/ground water management activities. In its definition of participation it emphasizes wider stakeholder consultation by explicitly including local stakeholders, Water Management Organizations (WMOs), Local government institutions (LGIs), NGOs, community level self help groups, private sector providers, implementing agencies and other public sector agencies. This is linked to the very inclusive definition of local stakeholders used in the GPWM: “inhabitants of an area who are directly or indirectly affected by water management”. Though the definition of local stakeholders is broad and inclusive, the institutional structure for participation is limited to WMOs as the ultimate unit for water related decisions. The WMGs operate at the grassroots and are to be directly involved in water management while the WMAs are to provide the necessary coordination at the polder level. This is the level where formal agreements relating to respective duties and obligations of the parties concerned are to be signed. However, this WMO structure seems to be in conflict with the broad definition of local stakeholders in the GPWM that includes a diverse group of interests. In the GPWM (MoWR, 2001), it is not made clear how WMOs in their structure can prevent capture of decision-making power and how they in practice would make sure that the composition of members is inclusive. Furthermore, WMOs are formal institutions created by the state and the NWP does not acknowledge the extent of informal management structures that are already in place and how they work relative to WMOs. It is thus quite different from the ideas of community participation being promoted by NGOs and civil society in the 1970s and 1980s.

The GPWM formalizes previous guidelines and processes on participatory water management and prescribes six stages of participation to involve local stakeholders, i.e. WMOs. WMOs must be formed prior to project intervention and should be formed during the feasibility study stage at the latest. If this is delayed, consultation only becomes nominal, as experienced in the KJDRP project discussed in the previous section. Below is a table on the different stages of participation for both the BWDB and LGED to follow in their water resources projects.

Stages	Description
<b>1. Identification/pre-feasibility study</b>	<ul style="list-style-type: none"> <li>▪ Organize local level meetings to discuss and identify problems.</li> <li>▪ Conduct wide and effective dissemination of information on potential intervention</li> <li>▪ Conduct assessment and reconnaissance of social, agricultural, fishery, livestock and environmental issues.</li> </ul>
<b>2. Feasibility study</b>	<ul style="list-style-type: none"> <li>▪ Look at alternative solutions and proposals so that public funds are spent on widely beneficial and sustainable interventions; reducing the amount of ‘losers’.</li> <li>▪ Create a forum where concerned implementing agency, local Parishads, interest groups, GOB officials at Upazila and District</li> </ul>

	<p>levels, Project Affected Persons and local stakeholders are free to offer opinions, interact on each other's opinion, determine trade offs for different stakeholders.</p> <ul style="list-style-type: none"> <li>▪ Find definite potentials for formation of WMO</li> <li>▪ Detail out the project concept for physical implementation along with an O&amp;M plan for its sustainability.</li> <li>▪ Conduct PRAs and FGDs</li> </ul>
<b>3. Detailed planning, design and stakeholders' institution building</b>	<ul style="list-style-type: none"> <li>▪ Close interaction between design team and local stakeholders</li> <li>▪ Provide the team with all necessary information on special complexities in water management, the peculiarities and uniqueness of the area-specific land and water characteristics, diversities of water use etc.</li> <li>▪ Form appropriate WMO and register it.</li> </ul>
<b>4. Implementation and trial operation</b>	
<b>5. Operation and maintenance</b>	
<b>6. Monitoring and evaluation</b>	

Table 1: GPWM participation stages adapted from GPWM (MoWR, 2001)

This table shows the wider consultation of community in the identification/pre-feasibility study and that WMOs should be formed by stage four: implementation and trial operation. In practice, the most successful examples of WMOs have occurred where the groups have been mobilized and formed at least 18 months before project intervention, giving ample time for discussions, interaction and feedback between WMOs and the implementing agency, as in the DDP and SSWRDSP<sup>16</sup>. In cases like KJDRP, WMOs were slower to form and much farther behind the planning and implementation of the project, leading to a gap between expectations of the local communities and the actions of the implementing agency. Ultimately, it is the main responsibility of the implementing agency, i.e. BWDB or LGED, to undertake all necessary steps for the formation of local stakeholder groups. This would include contracting NGOs or consultants to carry out participatory process and social mobilization activities on behalf of the implementing agency or ensure appropriate involvement and capacity development of the local stakeholders. The role of consultants and NGOs is made clear where they are to be contracted in a timely manner and assist BWDB or LGED with these group forming activities. The WMGs at the lowest level of hydrological unit with WMAs for medium and WMFs at the apex for large projects shows a clear evolution from the Embankment Maintenance Group and Target Groups of the past, to a broader focus on 'beneficiaries'.

In sum, the GPWM builds from past experiences of community participation in water resources and provides a comprehensive framework to be followed by the two main implementing agencies, both with different institutional and organizational characteristics (See Sections II and III).

<sup>16</sup> Preliminary findings from G3 research based on key informant interviews and field based focus group discussions, as well as on various evaluation reports from different projects.

## **6.2. National Water Management Plan, National Rural Development Policy and increasing the role of LGIs**

Building on the National Water Policy, MoWR's coordinating body WARPO prepared the National Water Management Plan (NWMP) in 2004 (MoWR, 2004). The NWMP is a framework plan for the ministries to define strategies; agencies, department, and local bodies to prepare projects; guideline for those who are responsible for the maintenance and delivery of water and water related services and development of water resources in Bangladesh. It consists of 25-year plan for short, medium and long-term implementations<sup>17</sup>. In terms of the NWMP, the South West region is identified as needing urgent attention. Major pressing issues include remedial actions for existing FCDI schemes, the restoration of dry season freshwater inflows to the region, maintenance of coastal embankment system and alleviation of coastal drainage congestion. As in the NWP, the NWMP reflects commitment to decentralize and devolve water management and promoting an established and substantial role for local government institutions and community groups in water management. Similarly, the National Rural Development Policy focuses on the role of local government institutions to coordinate and be involved in implementation at the local level. The Coastal Zone Policy 2005 also recognizes the vulnerability of the coastal zone as well as supports national processes of decentralization and privatization. The Draft Bangladesh Water Act 2009 does not go into depth on coastal zone water management; however, it uses an analogous discourse as previous policies that participatory water management will somehow benefit the coastal water management (IWM, 2012).

## **6.3. Fourth Fisheries (1999-2006) the inherent contradiction in shrimp vs. paddy**

The Fourth Fisheries Project (FFP) was a community based fisheries project working in the polder areas seeking to promote sustainable growth in fish and shrimp production for domestic consumption and exports. It started in 1999-2000 terminated in 2006. To date, the FFP was the largest fisheries project of the Government of Bangladesh and carried out activities in 49 sites covering more than half of the districts in Bangladesh. The Department of Fisheries, Ministry of Fisheries and Livestock implemented the project with assistance from the Bangladesh Water Development Board (BWDB) and the Local Government Engineering Department (LGED). The project received financial support from the Government of Bangladesh, the World Bank and the Department for International Development (DFID) and the Global Environmental Facility (GEF) (Fourth Fisheries, 2005). In brief, the activities were of four types --stocking of water bodies with fingerlings, setting up of fish sanctuaries, habitat restoration through re-excavation of canals and beels, and construction of fish passes and fish-friendly regulators to ease river-floodplain migration of fish (Aeron-Thomas, 2005)<sup>18</sup>.

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<sup>17</sup> According to the World Bank (2005) it is generally recognized that the development of groundwater for irrigation has required virtually no public sector financing in contrast to a capital cost to the public sector for surface water systems ranging anywhere from US\$500 to US\$1,800 per hectare. Farmers readily mobilize the financial and technical resources needed to operate and maintain groundwater irrigation infrastructure, in contrast to surface systems where, in most cases, the cost of irrigation user fee collection has exceeded the fees collected (World Bank, 2005).

<sup>18</sup> The project consisted of five major components: (i) Improving community-based inland open-water fisheries management; (ii) Developing and applying an appropriate extension strategy for freshwater aquaculture; (iii) Developing environmentally friendly smallholder shrimp production and improving the sustainability of shrimp fry collection; (iv) Studying key issues in aquatic resource development and management. Developing a socially feasible and ecologically sound management plan for

NGOs were to be used to create Community Based Organizations (CBOs). However, the process of contracting NGOs was hasty, with inadequate attention to selection procedures and guidance. This in turn resulted in weak CBO structures with poor performance in managing fisheries<sup>19</sup>. The main insight by project staff from FFP on participation was therefore the importance of mobilizing and empowering the local people. This is not limited to decision making, but also includes taking a leading role in management and planning, ply with plans and rules, as well as are able to enforce them and stand up to local elites (Aeron-Thomas, 2005; Thompson, 2005; Andreasson, 2012). Both CBOs in FFP and WMOs in BWBD and LGED projects are susceptible to elite capture when economic opportunities may arise through a project intervention. According to Paul Thompson (2005) these threats are best met by an institutional structure that limits the opportunities for elite capture; by thorough training in procedures for decision-making and record keeping that will support openness and transparency; and by a set of supporting institutions that are fully committed, aware of their roles and responsibilities and adequately funded to perform them. Capture is also a problem in terms of leasing and the management of the canal systems, locally known as khals. Khals are important for irrigation and drainage and are also an important source of water for fisheries access and conservation, as such these water bodies' present highly profitable opportunities (Valbo-Jørgensen & Thompson, 2007). In FFP, stocking of fish was a major component and such khals would easily be appropriated 'grabbed', by local elites. It was found that the community groups that worked best when FFP stopped with stocking and did no longer attract interests of elites (Andreasson, 2012).

The FFP was heavily resisted by the local rights based NGO Nijera Kori (also the organizer of LCS in the 1980s Delta Development Project), significantly disturbing the project. This was partially due to the shrimp-promoting component of the FFP, where salt water shrimp required a water management approach that was harmful to paddy cultivation. To achieve these ends, FFP went into operation and restructuring of water regulators (sluice gates) and the maintenance and use of inner canals (khals) in a way that increased salinity inside the polder. As the CBOs had not incorporated and addressed the conflict between shrimp and paddy systems when deciding on the operation of the sluice gates this further exacerbated the conflict and this element of the project had to be thwarted (Andreasson, 2012).

The background of the shrimp-paddy conflict stretched back to the 1980s, where Bangladesh saw the emergence of large scale commercial shrimp cultivation, where shrimp farmers changed the design of the polder through cuts, pipes and extra gates in order to access salt water needed for shrimp cultivation. Shrimp prices were high throughout the 1980s, 1990s and 2000s and the GoB heavily promoted the shrimp industry, as it was a good source of foreign exchange. This is made clear by projects such as First, Second, Third and Fourth Fisheries, the activities of the World Fish Center and the National Fisheries Policy (MoFL, 1998). The Ministry of Agriculture (MoA), on the other hand, in its National Agricultural Policy (NAP) states that saline water together with shrimp enclosures in adjacent

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the conservation of hilsha fisheries; (v) Strengthening the institutional capacity of DoF to manage and support the fisheries sector

<sup>19</sup> CBOs in turn would fill similar functions of WMOs to represent local stakeholders in this fisheries, rather than polder project.

areas has been a source of environmental pollution (MoA, 1999). This becomes an interesting source of conflict as the Environment Policy & Implementation Plan (MoEF, 1992) further states that activities causing pollution must be prevented. Salinity pollution is a main cause not only for environmental degradation and increased flood risk, but may also hinder the national goal of self-sufficiency in food as stated in the NAP (MoA, 1999). Currently, Bangladesh is a food importer with shrimp production reducing land for paddy cultivation (Horn, 2012; MoPL, 1997; Huda, 2001; Shanahan et al, 2003). The Fifth Five Year Plan 1997-2002 (MoP, 1997) FFTP recommends that under these circumstances there is a need for careful planning for the development of the area without irreparably damaging the eco-system of the area. Considering the priorities of the Ministry of Fisheries and Livestock, versus that of the Ministry of Agriculture and the Ministry of Planning, it becomes clear that various government agencies and their policies are in conflicting positions on the development and future opportunities of the coastal zone.

#### **6.4. Integrated Planning for Sustainable Water Management (IPSWAM) (2003-2011): culmination of BWDB and GPWM experiences in participatory water management**

The IPSWAM project consolidates all the lessons learned from previous projects and interventions on participatory water management. It dates back to the methodologies of the DDP and EIP to the more recent experiences of the CDSP and SSWRDSP (LGED) for medium sized Flood Control and Drainage (FCD) projects (BWDB, 2011), where several of the consultants for the IPSWAM project team have combined worked on all water related projects in Bangladesh (Jenkins, 2012; Kausher, 2012). The aim of the IPSWAM project is to support the BWDB to find an operational approach to introduce practical and sustainable participatory and integrated water management in line with the Guidelines for Participatory Water Management in the polders that it is responsible for. The project started in November 2003 for a period of five years. Due to cyclone damage during Sidr in 2007 and Aila in 2009 funding was extended twice and terminated in June 2011 (EKN and BWDB, 2011). It is currently waiting on decision on a phase II, whereby the IPSWAM office located at the BWDB is currently in a 'limbo phase'. IPSWAM consists of two interrelated components (i) piloting and demonstrating a practical and pragmatic approach to participatory water management through development of water management in nine medium sized<sup>20</sup> polders in the South West and South Central zones of Bangladesh and (ii) institutional strengthening of BWDB offices concerned and dissemination of integrated and participatory water management practices throughout the BWDB. The IPSWAM follows a six step approach based on identification and selection of projects, selection of WMOs, participatory data collection, planning, rehabilitation and long term O&M. More in-depth discussion on IPSWAM, its methodology and results are found in Sections III and IV.

The experiences of IPSWAM in participatory water management were used to prepare guidelines for participatory water management in practice for other water management projects in the BWDB portfolio. Two of these projects include the Water Management Improvement Project (WMIP) funded by the World Bank and the Royal Government of the Netherlands, and the Southwest Area Integrated Water Resources Planning and Development project funded by the Asian Development Bank.

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<sup>20</sup> Up to 15,000 ha.

## 6.5. Water Management Improvement Project (WMIP)

The WMIP was intended to adopt the approach developed by IPSWAM and makes direct use of its training modules and information material. However, it consists of 30 rather than 6 steps, and 4 implementing agencies rather than 1. In many ways, WMIP is quite different from IPSWAM, adding on more layers and complexities<sup>21</sup>. Since the participatory approach by WMIP is quite different from the IPSWAM process, the BWDB (2011) final evaluation report concludes that the rehabilitation of the nine IPSWAM polders by the WMIP would be undesirable. In addition, it argues that such rehabilitation would remove the responsibility of WMAs and the institutional strengthening achieved by the IPSWAM project. Overall, the report concludes that expected synergy between IPSWAM and WMIP, where the IPSWAM approach would be disseminated throughout BWDB through the WMIP project, has not materialized (EKN and BWDB, 2011).

### Key issues identified as causes for WMIPs lack of success in community participation<sup>22</sup>:

1. The implementing team did not understand what was meant with actual participation in water management
2. Project was badly designed and badly planned by World Bank, this led to delays
3. Project was too complicated and did not address the main issues. Consultants added extra and unnecessary steps to show how they are 'innovative' and 'different' from the IPSWAM approach instead of learning from what worked.

## 1.2 Southwest Area Integrated Water Resources Planning and Management Project (SWAIWRPMP)

Similar to WMIP, SWAIWRMP was envisaged to disseminate the IPSWAM approach to more BWDB polders to be replicated throughout the country with a key focus on forming and strengthening WMAs. The project areas are located in the southwest areas of Bangladesh and consist of a number of sub-project areas containing the existing FCD/I systems in the Rajbari, Faridpur, Magura, Narail and Jessore districts, totaling around 100,000 hectares [ha]. The model for participatory subproject development closely follows the six steps formalized by the BWDB, but uses different terminology (EKN and BWDB, 2011). However, in terms of broad stakeholder consultation local communities of the Southwest areas know little about the project (Pasha, 2010). According to local NGO sources, it seemed that the ADB or BWDB organized several FGDs and sharing meetings in the project area but did not clarify issues about the project and did not supply them documents in the local language as promised in several documents (Pasha, 2010). Despite ADB's claims to integrate peoples' opinions and reflections on the implementation of the plan, it is seen as having failed to do so due to poor planning in the consultation process (Pasha, 2010). In the Embassy of the Kingdom of Netherlands and BWDB (2011) evaluation report for IPSWAM it was found that the Southwest WMAs were more focused on the development of economic activities than on water management issues. When WMOs work with other issues that water management, this is also called 'water plus' approach. Water plus is similar to the income generating activities of LGED's WMCAs, where WMOs are integrated or connected to income generating activities

<sup>21</sup> From key informant interviews January to April 2012.

<sup>22</sup> Based on key informant interviews with professionals involved in BWDB/IPSWAM/WMIP

for when they do not work on water management, a reoccurring issue with the water plus approach in WMOs that will be discussed in Section IV.

#### **6.6. IPSWAM Phase II**

The IPSWAM project ended June 2011 and is now in transition phase, awaiting confirmation for whether or not there will be a Phase 2 of IPSWAM. Considering the deviations from the IPSWAM approach by WMIP and the Southwest project, this seems to have become increasingly prioritized in order for the nine IPSWAM polders to receive continued support. Through discussions with the Embassy of Netherlands, there seems to be a Dutch interest to continue IPSWAM through a 'water plus' approach. "We want a long term image of water management being translated to sustainable livelihoods" (Bose & Zaman, 2012). Several additional components are being discussed, such as a water, sanitation and hygiene component, new Dutch technology, dams with oysters and mussels, more ICT and Data satellite, gender, cookeries and biofuel and the transition of WMOs to cooperatives. These extra components are to be applied to 50 polders simultaneously (Bose & Zaman, 2012). IPSWAM, on the other hand, consisted of few steps and was trying to be simple. It intervened in a carefully selected number of polders through thoughtful planning and preparation of mobilizing communities, forming WMOs and creating ownership for maintenance. WMIP and SWARPMP have so far departed from this path, and seem less successful due to more complications and hastiness. One source stated that IPSWAM 2 should be without adding extra complications or 'innovations'. "The best projects have a good plan that is not complicated and a team that is dedicated". Nothing is officially finalized for IPSWAM II and it will be interesting to see which narrative that will shape the course of the continuation of IPSWAM, one that is closer to the original project or one that more resembles the more complicated and ambitious participatory frameworks of WMIP and Southwest.

Step No.	BWDB/IPSWAM	SW Project	WIMP <sup>23</sup>	CDSP			
				Chapter <sup>24</sup>	Step <sup>2</sup>	Steps WMO formation <sup>25</sup>	
1	Identification/ selection	Project Orientation Meeting at District Level	Pre-Identification/ Identification	Process of participatory water management	Preparatory stage	Information campaign	
2	Investigation	Consultation meeting / Workshop at Union Level	Assessment of Schemes	Identification of water management issues and scope for improvement	Identification of water management issues and scope for improved water management	Workshops with key persons on demarcation of area	
3	Mobilisation	Clearance from the Union Council	Screening		Concept of participatory water management and institutional structure, election of committee members	Plan for WMG formation	
4	Plan Finalisation	DLIAPEC Approval	Mobilisation		Workshop with stakeholders	Mass meetings (men and women separately)	
5	Rehabilitation	Project Confirmation	Planning	Structure of the organisation and elections	Decide structure of organisation and its functions and procedure of election	Induction orientation session on tasks and responsibilities of WMG, election of 12 member committee	
6	Operation and Maintenance	Preparation of Beneficiaries List	Design		Formation of election commission	Regular meetings, preparation of byelaws, training of members and leaders, registration with DoC	
7		Formation of WMG Foundation Committee	Implementation	Capacity development of the water management organisation	Preparation for election of committee members	Assumes responsibility for operation of structures, strengthen liaison with LGI, mobilising savings	
8		Clustering of Villages	Management Plan		Election and declaration of results	WMG involved in activities of other implementing agencies, WMA formation	
9		Members Enrolment (Continuation)	Operation and Maintenance		Process of management transfer	Identification of required capacity building	
10		WMG Formation (Ad-hoc)	Evaluation and Management Transfer			Storage of information	
11		WMG Bye-Law drafting Committee (BDC) formed		Training Needs Assessment			
12		Training to BDC members on Bye-Law drafting		Identification of training			
13		Election Committee formed		Preparation of handing over contract			
14		Draft Bye- Law Prepared		Handing over of subproject			
15		Voter List		Mitigation plan and implementation			
16		Election / WMG Formed		Taking over responsibility of water management			
17		Bye-Lay approved in General Meeting		Monitoring and evaluation of WMO	Monitoring of the organisation		
18		Application Submission date to DoC for Registration			Identification of problems and required solutions		
19		Date of Registration by DoC			Monitoring of organisation and election		
20		Target date for O & M Signing between WMG & SMO			Monitoring capacity development of organisation		
21		WMG Proceeds to O & M with monitoring	Handing over responsibility of water management project				

**Table 2 Steps in the participatory subproject development of different externally supported development projects under BWDB (BWDB, 2011)**

<sup>23</sup> For the Mid-Term Review/Restructuring Mission (May 2011) the TA Team proposed a simplified model for the participatory process. This simplification does not reduce the number of steps, but rather the activities included in each step. The original and simplified models are presented in Annex 2 of the Aide Memoire of the Mission.

<sup>24</sup> From the CDSP Guidelines for Participatory Water Management 2004

<sup>25</sup> From Technical Report no. 9, 2011



## 7. Discussion: Discontinuity, Continuity and Convergence

### 7.1. Analyzing the time line

Decade	Trend
1950s	Zamindari system: Small mud embankments managed by communities
1960s	Polderization: Top-down Engineering Mentality
1970s	Shift: From Mega-structure to Small-scale Water Resources Projects
1980s	Focus on pro-poor: Targeting landless and marginalized populations
1990s	People's participation: Competing perspectives of participation combined with push for decentralization of responsibility to communities
2000s	Formalization: Guidelines for involving communities in water management through Water Management Organizations

Tracing the evolution of policies and projects from the 1950s to today, we see a shift from small-dynamic 'bandhs' until the 1950s to a very top down and technical engineering mentality in the 1960s polderization of the coastal areas, to another shift to small-scale water resources projects pushed by international donors in the 1970s. In the 1980s small scale projects were combined with a more pro-poor approach to rural development, creating more profitable employment opportunities for landless and marginalized through LCs and Embankment Maintenance Groups. The DDP and the use of NGOs as community mobilizers during Phases II and III of the EIP further demonstrate the importance and activeness of empowerment NGOs to promote participation by communities. By the 1990s, donor discourse dictated that community participation should be a component in each project. This push led to the creation of several guidelines on participatory water management and how to create WMOs in the early 1990s to be followed by the main implementing agencies, BWDB and LGED. Different projects, donors and implementing agencies followed different approaches to people's participation, participatory water management and community-based management. These experiences finally culminated in the Ministry of Water Resources' National Water Policy (MoWR, 1999) and Guidelines for Participatory Water Management (MoWR, 2001) that provided unified guidelines to be followed by all implementing agencies in the water sectors. LGED and BWDB are now following the GPWM and NWP in a way that also incorporates their own experiences of participatory water management. IPSWAM and SSRDSP projects have now set the stage for newer water management projects, where LGED's WMCA model has inspired several 'water management plus' approaches of creative WMOs as cooperatives also engaged in income generating activities as incentive for continued activity in WMOs after the intervention has ended.

### 7.2. Discontinuity: from pro poor participation to technical inputs and cost-sharing

Target Groups and focus on Landless Contracting Societies, rather than on broader WMGs and Labor Contracting societies show a shift from a target approach to the poorest stakeholders, to a broader

involvement of stakeholders in a community. In the 1980s, very little was expected from communities. The key focus was on motivation and awareness raising and obtaining inputs for minor earth works and maintenance. Since the 1960s, government funded gatekeepers called khalashis were responsible for the operation of sluice gate. By the 1990s, there was less funding going to the water sector and a global trend towards decentralization and giving more responsibility to communities. Less funding led to the khalashis slowly disappearing during the 1990s as the BWDB staff was to be reduced from 24 000 to 8 000 people. Once khalashis retired, they were not replaced (Chowdhury, 2012). Instead of government financed staff as gate keepers, the GPWM and the participatory water management in small scale water resources project are promoting the role of communities through various committees to take over such responsibility or to mobilize funds themselves to pay for this. In Bangladesh, the NWP illustrates a concept where the community, represented by a WMO, would share the costs of maintenance and operation with the implementing agencies for water resources. For instance, LGED's Small-Scale Water Resources and Development Sector Project relied heavily on local stakeholders to demonstrate commitment to operating and maintaining infrastructure by contributing a specified amount of funds in advance of physical construction, and to sign a post construction lease agreement for managing, operating, and maintaining the infrastructure. Arguably this is tied to the trend of decentralization at the time with the justification that local communities and local governments know their own needs better, have more of a stake in the proper functioning of infrastructure that affects them and that this would be more efficient than central planning (Faguet, 2004; Jenkins, 2012). In the 2000s there has been a change in legislation that permits financial resources collected for operation and maintenance of publicly financed water management systems to be retained for local operation and maintenance use. This has helped facilitate a greater willingness to commit to financial contributions in advance of receiving services by end users in many World Bank water projects<sup>26</sup> (World Bank, 2005). The 2000s see participation as way to remove costs from the donor and the government. This in a sense is a discontinuity of the 1980s view that participation in itself was empowering and an end in itself (Hanchett, 1997). This could arguably also be tied to the changed role and function of NGOs, who have due to donor dependency increasingly shifted away from social mobilization and rights based activities to become service deliverers and consultants (Wood, 1994; Hashemi, 1996; Edwards & Hulme, 1997; Holloway, 1998; Sogge, 2002; Rahman, 2006; Dewan, 2009).<sup>27</sup> Palmer Jones et al (2010) further argue that the shift to participation as an end in itself may lie in the fact that the participatory approach has

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<sup>26</sup> However, there is little commonality in terms of the local institutional structure put in place to manage the interventions. Some may be informal structure while other are in accordance with the Guidelines for Participatory Water Management and use a formal structure with legally registered organizations. For minor irrigation, the end users are and always have been the driving force (World Bank, 2005). This latter approach is being followed by BWDB, especially through its IPSWAM intervention and LGED in the SSWRDSP.

<sup>27</sup> The 'service-delivery paradigm' refers to the donor emphasis on financial sustainability and quantitatively measurable results as a response to donor fatigue and greater budget constraints. The social-mobilization paradigm refers to more political developmental activities; challenging local, landowning elites through collective action and empowerment of the rural poor and disadvantaged. This rights-based approach, traditionally favored by Bangladeshi NGOs, is long-term, qualitative and politically contentious (Dewan, 2010).

itself become mainstream, a 'tool' to give a 'human face' to depoliticized and technocratic projects (See Palmer-Jones et al (2010)'s review of Chambers, 1994).

The end in itself approach is also strongly linked to devolving financial and maintenance responsibilities to communities. The cost-sharing in O&M and handovers are criticized as removing too much responsibility from the state by "eating the poor people's fish" (Quddus, 2012); i.e. trying to make the rural poor pay part of the infrastructure bill that they cannot afford. Similarly, Samarakoon (2012) points to the dangers of assuming that communities should take over polder management. He argues that there cannot be co-management, i.e. a partnership between local communities, water management groups or BWDB and LGED due to conflicts relating to complicated land issues, both in practice and by law that are related to deep inequalities embedded in the society. Land ownership, landlessness, 'illegal grabbing' of government land and canals for own use, are issues and conflicts that are reoccurring in the coastal zones where land is decreasing due to river erosion, salinity and demographic pressures. As Ingham (1993:1811 from Hanchett, 1997) suggests'...There is no necessary correspondence between democracy and the dispersal of administrative power to regional and local levels...Elites [may] capture the benefits of decentralization.' Decentralization thus makes it easier for capture and collusion at the local level, while also empowering communities to take things into their own hands.

### **7.3. Gap in the literature: Importance of Local Governments in Community Participation**

The literature reveals that policies are in general favorable to decentralization to water management organizations and smaller water resources projects. However, there is a difference between decentralization to community-based organizations, which was operationalized through WMOs and decentralization to local government institutions (LGIs). The increased role of the latter was strongly supported by key informant interviews with senior government officials, donors and project implementers as they are the lowest level of government and closest to the people (Kamal, 2012; Collis, 2012; Rahman M. , 2012; Ahmed Z. , 2012; Maruyama, 2012; Haq & Khan, 2012; Islam N. , 2012). For CDSP and LGED's SSWRDSP, such institutionalization seems to have materialized over time. CDSP begun as the LRP in the 1980s and has established networks of cooperation with LGIs, while the LGED through its mandate as a local government engineering department has an established position with local government institutions. Several recent studies assert that positive (Islam N. , 2012) decentralization outcomes require effective and accountable local institutions where local politicians are enabled to represent the preferences of their constituents. In addition to sufficient resources, some scholars argue that effective decentralization requires a combination of devolution of significant powers to the local government, representation and downward accountability (Blair, 2000; Crook & Manor, 1998; Manor, 1999; Rolla, 1998 see review in Anderson et al, 2006:579). Donors such as JICA have been developing Union Development committee meetings for nearly 20 years in order to connect local governance with local stakeholders (Maruyama, 2012). In the GPWM, LGIs are envisaged to provide support, facilitate and coordinate assistance to the concerned WMOs in respect of participatory water management at the local level (MoWR, 2001).

However, the decentralization to local governments though popular in theory and in policy, suffers from lack of political will by the central government to empower them through transferring the required

financial and authority power. This is supported from a majority of key informant interviews (Kamal, 2012; Islam N. , 2012; Rahman M. , 2012; Haq & Khan, 2012), local studies on decentralization in Bangladesh (As-Saber & Rabbi, 2009; Hossain, 2004; Fox & Menon, 2008) as well as from several global case studies finding that the desired institutional arrangements for effective decentralization are rarely observed (Review from Ribot et al, 2006; review from Clement, 2010; Ribot 2003; Larson and Ribot 2007; Devas and Grant, 2003). The literature identifies in essence that central governments—ministries and front line agents—often transfer insufficient and/or inappropriate powers, and make policy and implementation choices that serve to preserve their own interests and powers. Most decentralization reforms are either flawed in their design, or encounter strong resistance from a variety of actors that erodes their effectiveness. This suggests that fundamental aspects of decentralization, including discretionary powers and downwardly accountable representative authorities are missing in practice (Ribot et al, 2006). At the same time, national policies in various sectors, government implementing agencies and donors want to increase the role LGIs should play in development, without the institutional structure, resources and authority needed to handle such tasks. Several key informants among senior officials supported that this case is applicable in Bangladesh where it was emphasized that Union Parishads should be strengthened through improved legal status and financial capacity. However, the main problem to achieve this end seems to be political will. Statements such as “Even though some government agencies may be ready to give responsibility and funding for Upazilas, this would not work centrally, financial devolution is not popular” or “No one wants real empowerment of WMOs or LGIS, but they are getting the blame for their failures” were common, but also confidential. This also supports the discrepancy between public and hidden discourses (Mosse, 2005). The problem of high expectations and responsibilities to LGIs coupled with a lack of political will to empower them in practice is common also outside Bangladesh, where powerful actors use repertoires of domination effectively to circumvent or neutralize formal policy change (Poteete & Ribot, 2011). Throughout the projects evaluations have emphasized that more linkages were needed between LGIs and the BWDB. However, the reality of Bangladesh was that several acts to reform the local government system in Bangladesh have been used for political purposes of the sitting government rather than to promote a stable system that persists over time (As-Saber & Rabbi, 2009; Hossain, 2004). Empowering and involving LGIs may be a public and official role, but something that does not happen in practice. Arguably this is reflected in the limited attention they have received in the discussion on water management and community based Water Management Organizations.

### III. Organizational comparison of LGED and BWDB

#### 1. Organizational theory

The previous section reviewed several projects and policies related to water management in Bangladesh. Two things became evident, the varying success of BWDB in participatory water management, and the seeming success of the LGED's SSWRDSP in involving local stakeholders. It was also concluded that the GPWM and NWP were created as a learning response to decades of project experience, standardizing procedures and responsibilities for BWDB and LGED respectively. However, these two organizations are quite different and it has been debated whether a uniform approach may be appropriate considering their differences both as organizational and institutional entities. This section examines the organizational structure and culture of these two main implementing agencies and how and why they may differ in their approaches and ability to implement community based management of polders. For this section, the terms of organization and institution will be separated to highlight the importance of structure versus norms. 'Organizations' are defined as groups of people and the governance arrangements they create to coordinate themselves against other groups, while 'institutions' are the "rules of the game", consisting of both the formal legal rules and the informal social norms that govern individual behavior and structure social interactions (institutional frameworks) (North, 1995). This section will use an organizational theory framework adapted from Fujita (2011) to review the organizational characteristics of the BWDB and LGED. Based on the findings from this, difference in institutional approaches will be discussed in the conclusion.

Figure 1 Framework for Comparing BWDB and LGED



Organizational theory in the broad sense includes both organizational structure and organizational behavior. Organizational structure is concerned with the division of labor and associated coordination

mechanisms and how structure affects an organization’s effectiveness while organizational behavior is concerned with the behavior in an organization of employees as individuals, mechanisms of collective decision-making, internal communication systems and factors that enable groups to function better within the organization (Fujita, 2011). The main methodological constraint with this section is the abundance of organizational analysis on LGED and the lack of such reports for BWDB as a whole, except for the IPSWAM Institutional Analysis report (MoWR, 2005). To address this, use of key informant interviews, project evaluations and insights from the previous section are used.

## 2. LGED as an organization

### 2.1. Background

LGED is located within the Local Government Division and is responsible for planning and executing rural works since the early 1960s. With offices in every district and Upazila, it provides technical guidance and personnel support to Upazila Parishads in implementing rural road and water projects and also second executive engineers to larger municipalities. In 1992, LGED was upgraded to its current Department status and could use the Revenue Budget for maintenance of rural infrastructure. The number of staff, which was 500-600 in early 1980s, grew to 3,000 in 1992 and was greater than 10,000 in the financial year of 2008-09). The budget increased with its share in Annual Development Program (ADP) allocation increasing from 10% in the financial year of 2000-01 to 14% in 2009-10; one of largest shares among the departments of Government of Bangladesh. Since the 1980s, LGED is involved with stakeholder-driven small-scale surface water management projects with command areas less than 1000 ha. It places a strong emphasis on local participation, with representation on Upazila Co-ordination Committees. In regard to water sector projects, LGED draws its mandate from Upazila Parishad Act (24 of 1998) that

Thana Irrigation Program (TIP)	<b>1960s</b>
Canal Digging Program (CDP)	<b>1979-1996</b>
Infrastructure Development Project (IDP), under the Rural Employment Sector Program (RESP)	<b>1986-1996</b>
Rubber Dams Projects	<b>1994-2007</b> <b>2009-2014</b>
First Small Scale Water Resources Development Sector Project	<b>1995-2002</b>
Second Small Scale Water Resources Development Sector Project	<b>2002-2010</b>
Small Scale Water Resources Development Project in Greater Mymensingh, Sylhet & Faridpur (JICA)	<b>2007-2013</b>
Participatory Small Scale Water Resources Development Sector Project	<b>2010-2017</b>

make LGED responsible for ensuring the best possible use of surface water, for adoption and implementation of minor irrigation project in line with government directions (ADB, 2003).

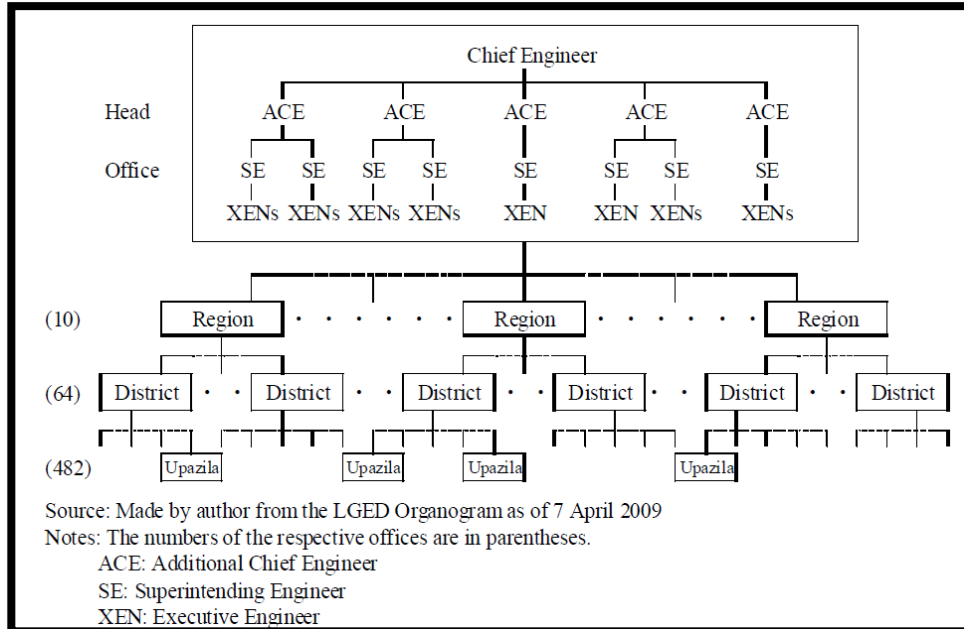
Figure 2 LGED Projects in Water Management

## 2.2. Organizational structure of LGED

### Division of labor into specific tasks

The LGED consists of a head office and three-layer local offices: regional, District and Upazila. Regional offices were created nation-wide to monitor and supervise the activities of district offices. District offices are deployed, one in each of sixty-four districts and supervise of the activities of Upazila offices in the district. An Executive Engineer who has 12-13 staff heads each district office. The 482 Upazila offices are distributed throughout the country. An Upazila Engineer with 18 support staff heads each Upazila office. The District and Upazila offices are principal agents for the planning and implementation of LGED projects. Decision-making authority regarding procurement, financial management, etc. below a certain value is largely delegated to them. The Chief Engineer heads the head office and has Additional Chief Engineers – for maintenance, implementation, urban management, planning, and education under him. The Additional Chief Engineers’ tasks are divided among Superintending Engineers and their tasks are further sub-divided among Executive Engineers. In addition, officers at the Executive Engineer level are appointed as project directors for particular projects and lead the associated project teams (Fujita, 2011).

Figure 3 Organizational structure of LGED, from Fujita (2011)



### Coordination and Standardization

As government agencies in charge of implementation over large areas across the country, both LGED and BWDB must be able to coordinate both internally and externally, particularly with Water Management Organizations (WMOs) in their project areas and with other government agencies.

### Permanent Unit

In 2003, LGED established the Integrated Water Resources Management Unit (IWRMU) as a permanent unit to monitor completed projects and ensure that they are being operated and maintained in accordance with agreements signed between LGED and local stakeholders. By 2016 there will be 1000 completed subprojects resulting from the four phases of SSWRDSP. The monitoring framework includes monitoring the health of the WMCAs as well as the operability of the infrastructure. Under the SSII project, it has been recommended that ten “revenue ” positions for Socio-economists be created in the field at regional centers, and two positions within IWRMU at National level, one a Socio-economist and one a Gender and Development Officer. These field appointees will monitor the performance of subprojects within their region. During the implementation of SSW-2, a DAE officer was permanently assigned to IWRMU, and this arrangement is to continue for the Project’s duration. In addition it has been agreed that a Fisheries Specialist from the Department of Fisheries will be seconded to IWRMU under a similar arrangement (Fujita 2011). Arguably having a unit for coordination and oversight with permanent staff provides continuity and nourishes institutional memory.

### Institutional standardization

Standardization helps determine processes, outputs and inputs in advance through manuals and rules so that outputs of individual tasks can be easily integrated into organization output. Standardization of process is to decide in advance and control how individual tasks will be conducted; and that of output is to determine in advance and control what will be produced by individual tasks. Standardization of inputs is to ensure uniform skills and knowledge through staff recruitment and training and through utilization of qualified external experts (Fujita, 2011). LGED’s particular strength is in standardization of inputs: training of staff and other stakeholders, including beneficiaries and contractors, at District, Upazila and Union levels in a variety of areas: project management, ICT, financial management, quality control, construction technologies, etc. More than 90% of the people trained are other than LGED staff (LGED, 2009; ADB, 2008). Through training, the capacity of LGED has been scaled up more broadly to stakeholders concerned with rural development. However, donors perceived LGED as weak in standardization of process and outputs and had therefore emphasized preparation of manuals and guidelines regarding rules of financial management and audit quality assurance. This has been argued to contribute to the standardization of various aspects of LGED’s work (Fujita, 2011).

Since the early 1990s, donor assistance from Nordic donors (including the Swedish Government) supported the institutional strengthening at headquarters and field levels for staff development, physical planning and mapping, and technical and management development through the Institutional Support Project (ISP), 1990-2001, supported (Smith et al. 2008:5 from Fujita, 2011). However, issues of sustainability arose when Sida would phase out the ISP support, when 70% of the headquarter officials were financed by ISP (ISO et al. 1998a:21 from Fujita, 2011). The Asian Development Bank provided assistance to the Management Capability Strengthening Project (MANCAPS), 1994- 1998 to ensure organizational sustainability after such phase out. Thus LGED had received significant technical assistance to strengthen its management elements since its early start (Fujita, 2011).

One key example of LGED’s ability to standardize outputs is found in the *Operation and Maintenance Strategy Development for Small Scale Water Resources Subprojects: Small Scale Water Resources*



*Support Strategy and O&M Manual* (LGED, 2009). This manual outlines the process and strategy for development and continued support to SSWR subprojects to be provided by LGED. The manual is consistent with National Water Policy<sup>3</sup> and the Guidelines for Participatory Water Management. It builds on and replaces previous guidelines and is a clear example of standardization of outputs that provides clear and step-by-step guidance on how to proceed with participatory water management projects.

### Interagency coordination

The LGED has been fairly active and successful in engaging in interagency coordination and cooperation. In the 1990s when the LGED first entered the water sector on a larger scale through the SSWRDSP I, it came into several conflicts with BWDB, who had been the sole implementing agency in the water sector prior to this. After the demarcation of responsibilities stipulated in the National Water Policy (MoWR, 1999), where BWDB would be responsible for projects above 1000 ha and LGED for those below 1000 ha, relations improved and there is a formalized MoU between the two organizations with increasing collaboration on LGED sup-polderization within BWDB polders (Rahman M. , 2012; Kausher, 2012; Reza, 2012). Another key partner for LGED is the Department of Cooperatives (DoC) since WMCAs are obliged to register under the Cooperative act under the DoC (GoB, 2006). Subsequently, the DOC is responsible for the establishment, legal registration, training, savings & loan operations, monitoring and audit of accounts of the WMCAs. With increasing subprojects and numbers of WMCAs, the DoC workload is increasing without its resources being able to fully meet demand. In 2012 it was decided that LGED will establish a dedicated water cell<sup>28</sup> in the DOC to focus on WMCAs. This would provide a direct link for improved coordination with IWRMU and provide focused training to DOC in the roles and responsibilities of the WMCAs (LGED, 2012).

Coordination with DAE, DoF and DoL is also established. LGED provides agricultural extension services to the subproject areas through local offices of the DAE so that the farmers rapidly adopt improved and environmentally sound agricultural. Similarly, cooperates with DoF to provide necessary extension services and training where fisheries opportunities (LGED, 2012). In addition, LGED signed a memorandum of understanding (MOU) with the Ministry of Land in October 2002 to ensure user rights to water bodies within the subproject area of the affected people. The MOU helps ensure that the beneficiaries have priority access to these water bodies after paying standard fees to the Ministry of Land (ADB 2007). In terms of local governments such as Union Parishads, LGED is currently aiming to support training to concerned Union Parishads on local small scale water resources development and management with particular reference to the enhancement of local production and employment and on participatory operation and maintenance (O&M) through WMCAs (LGED, 2012).

## 2.3. Organizational behavior of LGED

### *Motivational incentive and performance*

LGED has operationalized several incentives to increase staff incentive and performance. In most GoB agencies, seniority is an important factor in staff promotion rather than competence and performance.

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<sup>28</sup>This will be a Unit within DOC comprising a dedicated team of persons (perhaps in DOC Dhaka HQ a Joint Registrar, a Deputy Registrar and an Assistant Registrar with necessary support staff and at District level 1 Inspector) responsible for WMCAs initially and Water Management Associations (under BWDB) later and their strengthening.

However, in LGED well performing officers may receive early promotion top management recommendation (MOFA, 2006:43 in Fujita, 2011). In addition, LGED has put in place a system to give official recognition and awards for good performance in projects/activities and satisfy staff need for recognition. LGED also tried to take care of its staff through the services provided by the employees' welfare association such as day care facilities, medical treatment and children's education, and use of vehicles (MOFA, 2006:43 in Fujita, 2011). LGED has also invested in modern and central office space close to donors and filled with modern ICT facilities contributing to the effectiveness of day-to-day operations by reducing coordination costs (Fujita, 2011). According to Fujita (2011), by emphasizing staff competency providing services and also pride through modern office space and ICT, LGED has both improved its effectiveness and motivated its staff. ISO et al. (1998a: 17) observed strong "team work" in LGED, asserting that most members are proud to be part of 'Team LGED'. Perhaps this group cohesiveness is the reason to why most of the LGED staff trained under donor institutional projects is still with the organization as found in ADB (2007).

### *Organizational hierarchy and decision-making*

LGED has devised several practices that facilitate quick decision-making and effective internal communication. First is informal decision-making. When necessary and appropriate, concerned officers use informal decision-making through telephone, fax and e-mail and reach provisional decisions; thereafter, they complete the formal process using documentation (MOFA 2006: 42-43). This was supported by first hand interactions with LGED both at the field level and head quarters by G3. Quick decisions took place over phone to facilitate field operations that were then formalized by documents. In terms of hierarchies, LGED is collegial and does not give 'foreigners' special treatment, as seen in many other organizations in Dhaka. JICA staff placed at LGED had to follow organizational procedures and norms like Bangladeshis; it goes for the number of international staff and consultants based at LGED HQ in Agargaon<sup>29</sup>. In addition the Super-intending Engineer has an open door policy, where he allows for discussion and input from his coworkers. In terms of gender, there are several women engineers at the IWRM unit who also are sent as representatives for LGED at workshops. Based on JICA's previous assessments (ADB, 2007; Fujita, 2011) and our own interactions, LGED's organizational hierarchy seems to consist of a flat gradient in Uphoff (1991)'s pyramid of organizational hierarchies that facilitates dynamic decision-making.

### *Internal communication*

A relatively flat organizational hierarchy and informal decision-making supports internal communication in LGED. This is further facilitated by frequent use of face-to-face communication, including regular monthly/weekly meetings. At these meetings on-going projects and operations are reviewed, problems are discussed, and solutions are adopted. According to LGED high-level officials, this meeting mechanism

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<sup>29</sup> Due to GOB budget limitations, regular staff cannot easily be increased to meet a rapid increase in work volume, available through donor technical assistance, When there is a rapid increased in work volume, consultants and experts can be used to meet the shortfalls in terms both of numbers and technical expertise and contribute to technology transfer. This has been a strategy to reconcile the fact that regular staff is not financially viable to keep at all times to meet such demands due to GoB budget limitations. However, donor technical assistance releases funds for temporary project staff (Fujita, 2011).

is one of the most powerful tools for swift problem solving. In addition, LGED organizes for frequent visits to the field and to district offices by headquarter executives and by the Executive Engineers at district offices. It is one of the rare government organizations where staff members at same and different levels are frequently in touch with each other, both formally and informally through various channels that serves as glue of the organization (MOFA 2006:42 in Fujita, 2011).

### *Leadership*

Leadership is the ability to influence an organization or group to achieve their goals. A leader who can motivate his followers and exert strong influence on them is termed a “charismatic leader.” This kind of leader displays the following characteristics: a clear vision; a willingness to incur risk to attain the vision; full attention to environmental constraints; consideration of followers’ needs; and extraordinary action. Charismatic leaders are apt to emerge when an organization is newly established or in a critical situation (Fujita, 2011). In the key informant interviews, the strong leadership of Quamrul Islam Siddique, the founding LGED Chief Engineer, was frequently praised. Siddique designed the strategy, organizational structure and incentive systems of LGED, creating an organizational culture distinct from that of other GOB organizations. Many LGED characteristics - emphasis on competence development, work ethic, rapid decision-making, and teamwork – were introduced during his term (Fujita, 2011; Reza, 2012).

### *Organizational culture*

Organizational culture is defined as a system of values, norms and beliefs shared among members of an organization. Organizational culture first emerges from interaction among the ideas of the founder and the experiences of the initial employees. Staff recruitment, behavior of management and socialization (training) are key factors for maintaining organizational culture. In the case of LGED, Siddique emphasized both participation and capacity building through training. Top management has with the help of donor assistance thus continuously invested in both participatory approaches in the field, for capacity development and training. This was facilitated by that by the time LGED entered the water sector, the concepts of people’s participation in project formulation and management had become a major priority among donors. LGED therefore had the opportunity of developing and implementing projects incorporating the concepts of peoples’ participation in formulation, implementation, operation and management, and without any historical organizational culture to inhibit this process (De Silva, 2012). This is demonstrated through the provision of a strong technical assistance team at LGED headquarters, a Sociologist at the district level, a Community Organizer at the thana level and a NGO facilitator for each sub project/WMCA (De Silva, 2012). Over the past 30 years, many donors, including the Swedish Government, the World Bank, the Asian Development Bank (ADB) and the Japanese Government have extended assistance to LGED for capacity development (CD) and have further strengthened participation as part of the organizational culture.

## **3. BWDB as an organization**

### **3.1 Background**

Bangladesh Water Development Board (BWDB) has held the responsibility of executing flood control, drainage and irrigation projects to boost up productivity in agriculture and fisheries since 1959. It was and still is predominantly an engineering, construction-oriented agency, where most staff is engineers

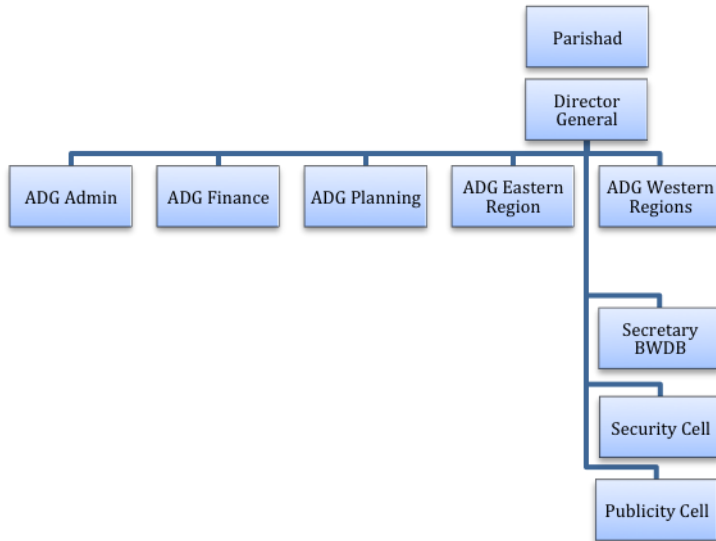
by training. It is characterized by a centralized structure that is suited to large-scale construction-type activities as was seen during the 1960s and 1970s (Chadwick & Datta, 2003). However, the 1990s saw a push for decentralization and people’s participation, which were then formalized structural adjustment process that required BWDB to change its approach to water management and engage more with water management organizations rather than state funded ‘gatekeepers’ (khalashis). The restructuring of BWDB took place in 1998 and was further developed through the enactment of the BWDB Act (MoWR, 2000) that focuses on decentralization and a radical change in the organizational structure of the BWDB.

Coastal Embankment Project	<b>1960s</b>
Early Implementation Project (Phases I-IV) (EIP)	<b>1975-1995</b>
Integrated Rural Development Program (Comilla model with BARD)	<b>1970s</b>
Land Reclamation Project (LRP)	<b>1978-1991</b>
Delta Development Project (DDP)	<b>1981-1991</b>
Ganges-Kobadak Project (GK Project)	<b>1990s</b>
Pabna Irrigation and Rural Development Project (PIRDP)	<b>1990s</b>
KhulnaJessore Drainage Rehabilitation Project (KJDRP)	<b>1994-2002</b>
Char Development and Settlement Project (CDSP)	<b>1994-Present</b>
Integrated Planning for Sustainable Water Management (IPSWAM)	<b>2003-2011</b>
Water Management Improvement Project (WMIP)	<b>2008-Present</b>
Southwest Area Integrated Water Resources Planning and Management Project (SWAIWRPMP)	<b>2006-Present</b>

Figure 4 Overview of BWDB projects

### 3.2 Organizational structure

Figure 5 BWDB organizational structure



#### *Division of labor into specific tasks*

The BWDB is a massive and complex organization. It is responsible for several structural engineering tasks (construction, de-silting, maintenance), as well as a number of non-structural functions (applied research and establishment and training of water users association and other water management organizations to participate in project planning, design, operation and maintenance). The non-structural functions has since the 1980s included stakeholder’s participation through social mobilization and evolved to ensuring public participation at all stages of project cycle since the 1990s. This formally became a BWDB responsibility in the National Water Policy (MoWR, 1999) and the Guidelines for Participatory Management (MoWR, 2001) where BWDB was required to form and build capacity of WMOs and ensure their participation in implementing O&M and M&E. In the BWDB Act of 2000 (MoWR, 2000), BWDB was also required to hand over management responsibilities to WMOs and local government institutions (MoWR, 2000).

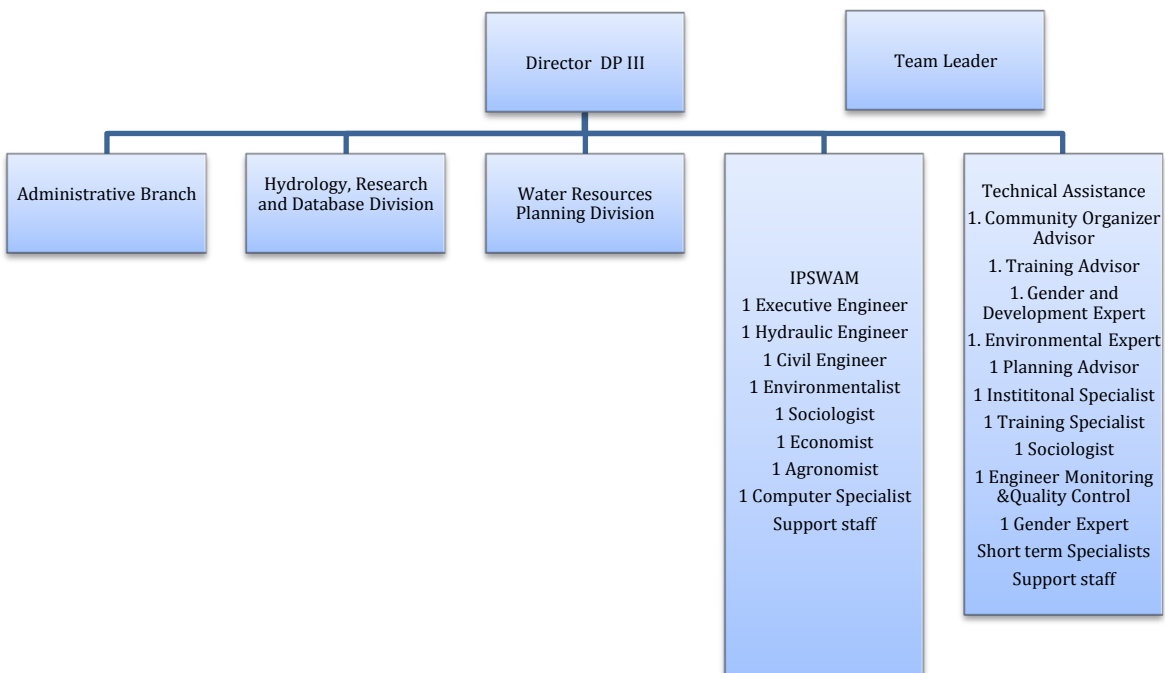
BWDB consists of several different ‘wings’ headed by the Office of the Director General (see Figure 5). The DG office is charged with all decision-making responsibilities and ensuring that all other offices function efficiently. The Administration Wing covers human resources and recruitment, and the Planning Wing provides inputs to Five Year Development Plans; undertakes hydro-geological studies; and supports the Water Resources Planning Organization (WARPO) and other water sector agencies in the development of efficient water resources management and utilization plans. The Operation and Management (O&M) Wing is tasked with the inventory of completed projects, and O&M of projects over 5000 ha. It is the main body responsible for rehabilitation of projects and transfers of projects under 1000 ha to local and community organizations. The Finance Wing is responsible for the management of

all financial matters including budgeting and fund disbursement, while the Implementation Wing deals with matters related to human resources recruitment (MoWR, 2005).

The O&M Wing manages the largest number of professionals in the field and carries out the main work of the BWDB. The O&M field units consist of 7 zones, 21 circles and 63 divisions. An Executive Engineer heads the divisions; the Superintending Engineers and Chief Engineers in turn supervise them. One zone consists of three circles, and one circle consists around three divisions. The Planning and Financial Wings supports O&M and their implementation. From an organizational structure point of view, the division of labor between the O&M and Planning Wings are quite interesting. The Integrated Planning for Sustainable Water Management (IPSWAM) is placed in the Planning Wing under the Directorate of Planning III and has formed zonal planning teams in Khulna and Barisal respectively under the administrative control to the Zonal Chief Engineer. Each team is coordinated by an Executive Engineer, and comprise of a Deputy Chief Extension Officer, a Sub-Divisional Engineer, a Deputy Chief economist, an extension overseer and support staff (MoWR, 2005:10). IPSWAM is field based and under the administrative control of the O&M Zonal Chief Engineer, while simultaneously under the technical control of Director DP III. These are independent units and it has been questioned whether IPSWAM has been properly placed in the BWDB and if the zonal level is functioning properly (MoWR, 2005).

Figure 6 below also illustrates how the IPSWAM project, that de facto works with O&M through WMOs, is completely detached from the O&M Wing. During our data collection, it was found that the Planning Wing does not have access to O&M budget data, despite the fact that maintenance is a long-term risk and sustainability problem for WMOs and the longevity of project interventions.

Figure 6 Organizational structure of IPSWAM



There seems to be a gap of knowledge between the Planning Wing and O&M, where there is little interaction or experience-sharing between Planning III and O&M (Dhali Abdul Qayum, in MoWR, 2005 Annex). Each Wing has its own dynamic and this particular project focuses on the Planning Wing due to IPSWAM. More attention needs to be given to understanding the role of O&M Wing.

In 1998, the restructuring plan for BWDB reduced staff from 24 000 staff to 8000, a staff where 95% were engineers. For the past 14 years, numbers have been reduced through retirement and not hiring new staff. Due to the restructuring, no new sluice gate keepers/operators (khalashis) have been hired since the old ones retired and are increasingly replaced by WMOs (whether this has been successful or not is a debate for Section IV) (MoWR, 2005).

### *Coordination and Standardization*

Overall, this review has been unable to find documents supporting the standardization of inputs for BWDB. Unlike LGED, BWDB is a much older, centralized and bureaucratic organization. In addition, the restructuring plan of 1998 has significantly altered the demographic composition of BWDB and has received more focus than organizational capacity building. Rather, training is project specific. This is arguably tied to the project based focus of BWDB during the past two decades where BWDB has covered up staff deficiencies in water management by hiring temporary help from outside, mainly NGOs or consultants. This has occurred without institutionalizing their outputs and insights into the organization or had a system in place to ensure institutional memory (GoB, 2006: 48). In terms of standardization of outputs, this too varies depending on the project and donors. IPSWAM and CDSP have detailed standardized guidelines and manuals, while there is not as well documented monitoring or enforcement of compliance of non-project affiliated WMOs.

### *Permanent unit*

During the first phases of the EIP, DDP and LRP, the BWDB had a Land and Water Use Directorate (LWUD). The LWUD was responsible for the formation and coordination of water users groups. In consultation with BWDB's O&M personnel it would identify the problems related to irrigation, drainage, waste of irrigation water, and their solution in consultation with O&M personnel. As part of its mandate it would also liaise and coordinate with DAE on irrigation, water requirement, cropping waters, demonstration farms, credit and training. Arguably the LWUD is a counterpart to LGED's the IWRM unit. The World Bank, however, recommended a re-arranged role in BWDB projects in 1992, where the agricultural extension activities of LWUD would be transferred to the DAE and that LWUD would focus exclusively on water management (Annex III in MoWR, 2005). In the 1998 Restructuring Plan it was decided that the LWUD would be phased out and in the the BWDB Act of 2000, it was converted into the Water Management Division for institutionalizing participatory water management in BWDB projects. In 2008 it was recommended that a Resources Cell for Participatory Water Management would be established through IPSWAM at DP-III. Effective establishment, however, has not yet taken place mainly due to the on-going restructuring of BWDB (MoWR, 2005). LWUD was firmly connected also to the O&M wing. Two things are not clear, the linkage of LWUD when it became the Water Management Division, and how it has functioned in a potential cell in DP-III. Furthermore, there already seem to be issues of coordination between O&M and Planning wings, is it therefore effective to have a coordinating unit

located under a certain Wing? In that case, how are coordination linkages to O&M wing and field staff maintained?

### Interagency coordination

BWDB is the key implementing government agency in the water sector under the Ministry of Water Resources. It is therefore required that it maintains relationships and linkages with several other organizations from other sectors that are involved in water related activities, spanning nine different ministries, as outlined in Table 1 below.

**Table 3 Government agencies working on water related issues**

Department of Fisheries
Department of Environment (DoE)
Local Government Engineering Department (LGED)
Directorate of Agricultural Extension (DAE)
Public Health Engineering Department (DPHE)
Bangladesh Inland Water Transport Authority (BIWTA)
Road and Highways Department (R&H)
Bangladesh Agricultural Development Corporation (BADC)
Department of Forest (DoF)
Bangladesh Rural Development Board (BRDB)
Water and Sewerage Authority (WASA)
Municipal Corporations/Municipalities
NGOs working in Bangladesh

The LGED and BWDB only recently signed an MoU for cooperation in sub-polderization (Rahman M. , 2012). BWDB also holds an MoU with the DAE with a clear division of tasks (MoWR, 2005). However, contrary to LGED, the linkages with DAE and DoF are weaker on the ground. WARPO coordinates agencies at the national level, while the Development Coordination Committee (DCC) at Thana and District Levels coordinates activities of various government in all stages of the project cycle, this includes BWDB activities with other actors. The DCC is formally intended to ensure that these actors and projects do not compete or frustrate each other through facilitating discussions of possible

constraints among projects. The BWDB Executive Engineer and DCEO are to participate in such meetings along with representatives of WMF/WMA (MoWR, 2005). In addition, local government institutions (LGIs) at Union and Upazila level are to provide support to water management through facilitating and coordinating to BWDB and serve as advisors to WMOs. As they are democratically elected, LGIs are seen to represent local stakeholders in water management projects. However, the structure of the BWDB is highly centralized, especially in terms of decision-making and may not be able to cater to local demands and needs (Duyne, 1997).



### 3.3. Organizational behavior

#### *Motivational incentive and performance*

In contrast to the vast information on motivational incentives for staff in the LGED documents, very little of that has been reported in the documents reviewed for BWDB and was not a focus of IPSWAM's institutional study. However, what has become clear from focus group discussion and key informant interviews from the field is the negative perception of community members of BWDB performance. In addition, the BWDB is seen as having a poor performance in terms of maintenance, responding to community requests and maintaining relationships with WMOs (GoB, 2006; Duyne, 1997).

Five reasons may lie behind this. Firstly, BWDB is a large organization with several different wings with differentiated tasks, and may therefore provide incentives for performance in different ways. How O&M and Planning Wings deal with incentives for staff is an interesting avenue for further research. Secondly, the idea of sustaining structures through WMOs is new, when previously there were state-financed gate openers (khalashis) who would be responsible for operation and report any maintenance needs to the BWDB. Thirdly, the available funds for maintenance do not match the demand, leading to a public perception of BWDB as a corrupt and non-performing government agency. Fourthly, structural impediments to BWDB's performance and staff incentives could arguably be tied to the organizational restructuring since 1998, where tasks and roles of departments have been redefined (LWUD) and an age and engineering distortion caused by several years without any new hires (in Organizational culture section). Fifthly, logistics and proximity to other key actors matters. While LGED is centrally located in Agargaon close to the dynamic areas of Gulshan and Banani with several other donors and government agencies, BWDB offices are scattered around in remote Motijheel where it can take two hours one way to reach during traffic congestion. Arguably, this remoteness has made it less than easy to increase face-to-face interactions on a regular basis. The scattered location of the BWDB offices in Motijheel also does not help to contribute to a sense of unified BWDB identity. The buildings visited so far are quite out of date and run down, a stark contrast to the modern facilities of LGED that been seen to strengthen staff motivation (Fujita, 2011).

#### *Organizational hierarchy and Decision-making*

Uphoff (1991:382) has suggested that in addition to the number of levels in an organizational hierarchy, the shape of the organizational pyramid has important consequences for its operation. An organizational structure can be relatively tall and narrow - i.e., be steeply sloped - or it can be shorter and broader, with a flatter gradient. The height of the organizational pyramid will be greater in large systems because there will be more levels. But the gradient reflects the extent, ease, and directions of coordination and cooperation, and the locus of authority. A flatter gradient results when: a) the flow of decisions and information are fully two-directional; b) authority is delegated and subordinates participate in decision-making; and c) there is accountability to lower levels and ultimately to users. However, BWDB decision-making processes are characterized by a centralized structure where senior officials take most decisions rather than delegating to their sub-ordinates (MoWR, 2005:23). Radwan (1998) argued that organizations with steep gradients where both decisions and information flow downward lead to sluggish management processes. In his case study of Egypt's irrigation agency (MPWWR), Radwan found that there is little participation of lower levels in decision-making and little

accountability of higher to lower levels, or the organization to its customers. This is arguably similar to the structure of BWDB. In order to adequately execute the Guidelines for Participatory Water Management, BWDB staff must be able to not only listen to superiors, but also cooperate actively with high and lower levels vertically and horizontally, within and outside BWDB and with communities and LGIs (MoWR, 2005). The existing system in which subordinates execute superior's instructions does hence not 'fit' with the role foreseen for BWDB in the development of WMOs.

### *Internal communication and leadership*

Radwan further found that sluggishness is exacerbated by the reluctance to share data. In the Egyptian case study that data was hoarded rather than shared, where access to information is often possible only through personal contacts. Frequently, the process for gaining access to what should be public data is often highly formalized and lengthy (Radwan, 1998). A similar issue with information sharing was also discovered during the data collection for this study. BWDB Planning Wing does not have the budget data for O&M currently under the O&M Wing, despite the role Planning has in forming and sustaining WMOs for sustainable operation and maintenance. In terms of project data and information, the author also used personal contacts to access various BWDB project documents and data. BWDB has been quite flexible and helpful despite the MoU being finalized at a later stage. Similarly, BWDB staff have given time for interviews and provided introductions to colleagues in other units that may have the data we require. The main problem may therefore not be BWDB's attitude towards sharing information, but an institutional structure that makes information sharing complicated, bureaucratic and slow. Also, detailed organizational investigation of BWDB's internal communication is not available for the organization as a whole. This in turn is a recurrent problem for BWDB, it works, contracts staff and shares information on a project basis. In contrast to LGED's decade long technical assistance to strengthening its institutional and organizational capacity, BWDB has been restructured and weakened rather than received any focused attempts on improving internal communication and decision making.

### *Leadership*

LGED has several Superintending Engineers and Executive Engineers, but it was the Chief Engineer that shaped and molded LGED to what it is today. Such a charismatic leader has not been as reputed in the BWDB, with its many wings and plenitude of directorates and Directors. The current BWDB Director General is a political appointee with limited background in water management. The post of DG in turn does seem subjected to a high turnover rate, based on conversations with interviewees, many of which have been former DGs themselves (Shahjahan, 2012; Chowdhury, 2012; Kausher, 2012). This arguably hinders a strategic direction. Each directorate has its own profile and portfolio. Planning III is leading IPSWAM forward and to its second phase, while CDSP is the hub of knowledge on land reclamation (LRP) and char settlements (CDSP). Leadership is thus important at the Directorate level, but it is not clear how the Director General coordinates these different units with their own agendas and priorities.

### *Organizational culture*

BWDB's organizational culture is colored by an engineering bias. While the LGED is a relatively new actor in the water sector (joined in 1980s), BWDB's involvement stretches back to 1959. In the previous section it was concluded that most of the BWDB projects were highly technical and based on a blue print approach of 'we plan, we build, we fund', until the 1980s when donors promoted participation in water

management. Consequently, BWDB had to add on 'participation' after most of the structures and projects had already been completed. Though BWDB had engaged in different modes of participation through Target Groups and LCS, the requirement for WMOs came much later. As a result, areas with projects completed many years previously, such as the PIRDP, saw the formation of WMOs years after structures were created (GoB 2006). BWDB's inability, or unwillingness, to engage with 'communities' has been criticized during its engagements in the Flood Action Plan (Hanchett, 1997), Ganges-Kobadak and Pabna Irrigation and Rural Development Project (GoB, 2006), Early Implementation Project (Duyne, 1997) and the Khulna Jessore Drainage Rehabilitation Project (Kibria, 2006). A similar trend was a short deadline for the creations of hundreds of WMO without the adequate preparation to mobilize communities and form sustainable WMOs that feel ownership for the project. These examples support the argument that BWDB sees 'participation' (as defined in GPWM as WMOs) as both a policy and donor conditionality that has to be met (GoB, 2006) rather than something which they see as helpful in their work. However, key project people involved in CDSP, IPSWAM, LGED SSWRDSP and Water Management Improvement Project are all former senior BWDB staff who has internalized the discourse on 'participation' and the use of WMOs.

Rather, an issue is that Land and Water use Directorate (LWUD) was responsible for these organizations and has been phased out, while the new participatory water management unit has not been fully developed. Since the BWDB Act of 2000, there has been an aim to create multi-disciplinary teams embedded within the overall framework of BWDB. However, new recruitments have been stalled since 1998, where staff size has been reduced as a result of officials retiring. This has led to a significantly skewed age structure, especially among the Extension Overseers, where 144 out of 258 Extension Overseers will have retired from 2005 to 2015 (MoWR, 2005). Change of organizational culture and behavior depends on achievement orientation, openness to innovations and cooperation, and stimulation of teamwork, responsiveness to participation, decentralized and transparent decision (MoWR, 2005). Without new recruits, the old systems prevail. With the retirement of many experienced officials, the knowledge and insights of lessons learned might become lost if these are not continued as consultants as is currently the informal practice. There are therefore profound contradictions between expectations of the role of the participatory organizations and the operational characteristics of the BWDB. In sum, the organizational culture of BWDB is based on a technical engineering bias shaped by a steep pyramid of top down decision-making. More focus has been on reducing numbers than on institutional strengthening, coordination and memory, where a BWDB losing its talents through retirement.

## **4. Discussion: Differences in approaching community participation**

### **4.1. Organizational structure**

In terms of organizational structure and responsibilities, it can be argued that LGED's division of labor is clearer. The tasks between units are well defined, standardization has been promoted through long and comprehensive technical assistance by major donor and a permanent unit has been created within LGED to promote coordination of water management cooperative associations from various phases (there are currently four SSWRDSP projects running). As LGED works with several different agencies closely, this has been standardized through the creation of a water cell at the Department of Cooperatives, a key

partner in following up WMCA activities, MoUs with BWDB for sub-polderization and regular facilitation for DAE and DoF for training in local communities. BWDB started off as a much larger organization with the structural infrastructure projects. The non-structural tasks of forming and maintaining relationships with WMOs came several decades later and did not shape the development of the organization. The experiences of participation starting in the 1980s were limited to specific donor driven projects rather than a mandate for the organization itself. Examples stretch from the Early Implementation Project to IPSWAM, from Land Reclamation Project to Char Development and Settlement Project. The several Wings of the BWDB are autonomous and within them they have various directorates with key responsibilities for specific projects. In a sense, it is difficult to envisage a clear organizational identity for BWDB considering its size and segmentation. This is further exacerbated by the tendency to run BWDB based on specific projects rather than as a unitary organization. The seeming lack of formal coordination and information sharing between Planning and O&M could be seen as a key impediment in terms of Planning being responsible for WMOs, who are to be responsible for operation and maintenance. It is not clear how the permanent unit proposed by the IPSWAM project would address this issue as it is clearly planned to be located within Planning III.

#### **4.2. Organizational behavior**

LGED's effectiveness is widely recognized by its donors as well as by the general public (MoFA, 2006; World Bank, 2009). Leadership, decentralization and delegation, teamwork and a strong work ethic are identified as LGED's strengths. In terms of motivational incentives and increasing staff performance, LGED has followed a clear strategy, arguably facilitated by strong donor technical assistance and increasing funding availability over the years. Over time, BWDB has seen several economic, social and demographic changes and the addition of non-structural tasks. Since the late 1990s there have been attempts at institutional reform to achieve decentralized and devolved management with greater role for local government, community groups and the private sector. Yet the benefits from this seem unclear, where problems of non-rehiring are more evident than any institutional efficiency gains. For BWDB to both create sustainable WMGs in a true participatory process and to be able to respond to the various requests and needs of these communities over 1.21 million ha of land, it requires a large amount of multidisciplinary manpower. Arguably then, BWDB's hands are tied since cannot recruit new staff and the people they have that were open to community participation have retired with no replacements, their numbers dwindling. In addition, the very agency that was perceived as incapable of managing the water management system in the first place is to implement 'participation' and the policy that will reduce its power and authority (See Mukherji et al, 2009:49 for parallels with IMT). As one BWDB official mentioned "We are engineers. We cannot promote community ownership. We cannot manage these things, nor can we hire the people that can. They just forced community participation on us".

BWDB is an engineering organization where 'participation' was introduced through donor conditionalities and formalized through NWP and GPWM, making it a requirement for both BWDB and LGED. LGED has received technical assistance throughout the 1990s to strengthen it institutionally and make it adapt for participatory water management. BWDB's process of institutional strengthening and creation of multidisciplinary teams, on the other hand, has been slow and hindered by over a decade of sluggish restructuring and a centralized organizational hierarchy. This has been aggravated by a loss of

institutional memory through retirements and heavy reliance on temporary project staff. LGED, on the other hand, has developed a tighter organizational identity and established coordination and standardization mechanisms such as the Integrated Water Resources Management Unit. The small scale nature of LGED projects further makes participatory water management feasible and realistic in terms of manageability and human resources, while the vast millions of ha BWDB has under its responsibility is much more complex and requires significant numbers of staff devoted to forming a plethora of WMGs, WMAs and also WMFs.

**Table 4 Organizational differences BWDB**

	<b>LGED</b>	<b>BWDB</b>
<b>Background</b>	Small and recent entrant. Heavily shaped by donors.	Large and responsible for all major water infrastructures in Bangladesh.
<b>Division of Labor</b>	Clear structure for responsibility and reporting.	Several different Wings all directly responsible to the Director General. Coordination O&M and Planning Wings unclear. Restructuring since 1998.
<b>Coordination and Standardization</b>	Permanent unit coordinates WMCAs. Interagency coordination: MoUs with several government partners. Established water cell in DoC. Standardization: training, and technical assistance by donors	Permanent unit Land and Water Use Directorate phased out during 1990s. IPSWAM proposed a new model under Planning III. MoU with key partners: LGED and DAE.
<b>Motivational incentives and performance</b>	Several incentives to boost staff motivation and performance. Modern and central facilities	N/A. Different Wings may have different policies. Old and scattered facilities
<b>Organizational hierarchy and decision-making</b>	Flat hierarchies and flexible decision-making.	Steep hierarchy and centralized decision-making
<b>Internal communication</b>	System for frequent information sharing: face-to-face meetings, phone calls, field visits. Staff at different levels regularly in touch.	N/A. Organizational structure of information sharing between Wings not clear.
<b>Leadership</b>	Charismatic leader shaping organization.	Each Wing has a different identity
<b>Organizational culture</b>	Strong focus on participation, learning from mistakes and collaboration with different stakeholders.	High quality engineering, but lacking multidisciplinary teams on a permanent basis for participation due to not being able to hire new staff.

## IV. Experiences with WMOs: A review of their success and failure

### Examples from LGED's SSWRDSP and BWDB's IPSWAM

Based on the organizational differences between BWDB and LGED, the first two sub-sections discuss the experiences of LGED's SSWRDSP and BWDB's IPSWAM. The section concludes with a discussion of various themes arising from the cases relating it to broader experiences of WMOs and the different institutional approaches by BWDB and LGED as two different organizations.

#### 1. LGED's Small Scale Water Resources Development Sector Project (SSWRDSP)

##### 4.1. Project and Methodology

SSWRDSP phases I and II (SSW-1; SSW-2) are the first formal examples of LGED's use of Water Management Cooperative Associations as part of participatory water resources management. The SSW methodology consisted of 3 stages that would take 3-6 years to complete, Identification and Feasibility, Engineering design and WMCA formation and thirdly Construction and O&M Handover. In recent years, two additional stages of Initial Sub-project Grading & Strategy Preparation and Sustainable O&M and Performance Evaluation have been added. These additional stages developed as an institutional response to the findings of 2008 O&M study (ADB, 2008) where deferred maintenance had become a serious issue of build and neglect, causing deterioration of sub-projects and 'rewarding' the sub-projects that had performed the worst by channeling funding to them (Clark, 2012). More details on SSWRSP processes and procedures can be found in the *Small Scale Water Resources Support Strategy and O&M Manual* (LGED, 2009)<sup>30</sup>. Instead of entering an established sub-project from anew, this manual prescribes that they should enter directly into either Stage 4 (Grading) or Stage 5 (Sustainable O&M).

Figure 7 LGED Sub-project development stages. Source: ADB and LGED (2009)

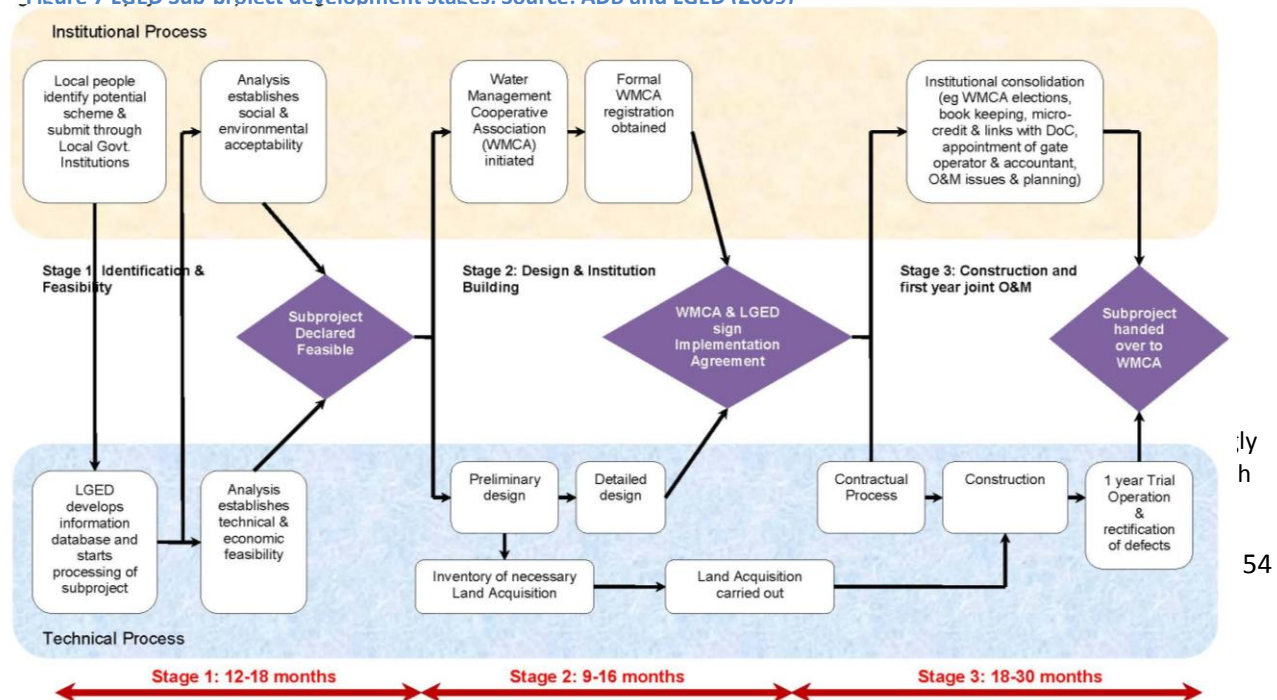
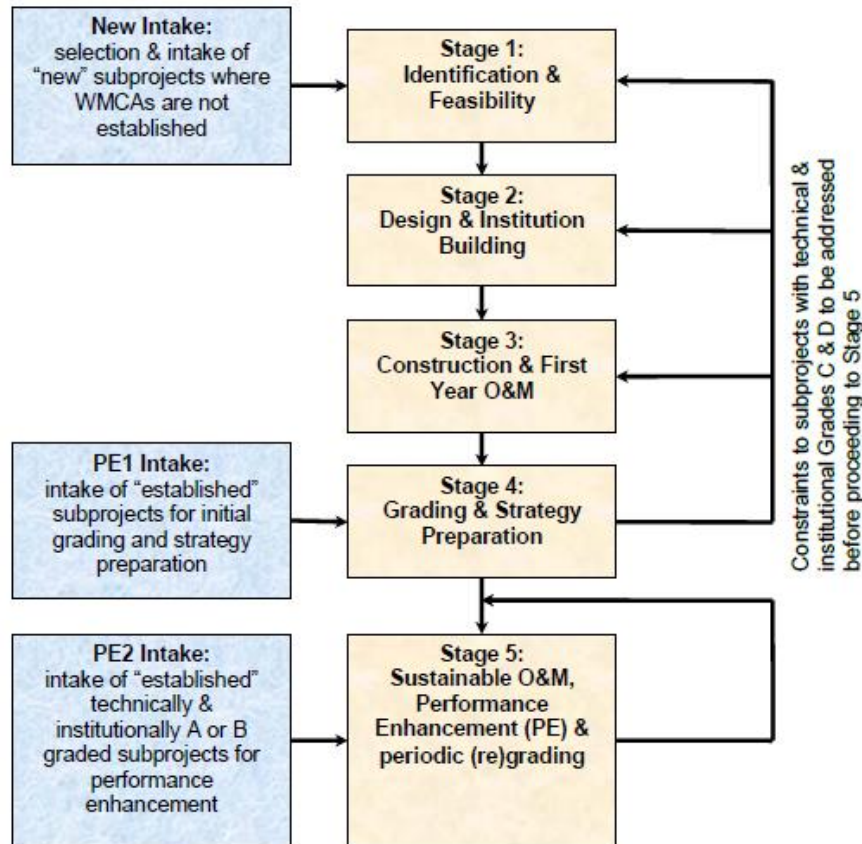


Figure 8 LGED Sub-project intake and development stages, Source: ADB and LGED (2009)



### Stage 1: Identification and feasibility

Firstly LGED identifies suitable sub-projects for the intervention, ranging from 500 to 1000 ha. According to a BIDS study, in most cases the major reasons for constructing the sub-projects have been motivated by local people due to crop losses (73.6%), drainage congestion, flooding (52.6%), water logging (56.2%) and lack of irrigation facilities (38%) (BIDS, 2008). Once the site is identified, LGED conducts an awareness campaign to inform potential local stakeholders that they can request assistance for water management needs. Local stakeholders submit a proposal to LGED with the assistance of their local government institutions (e.g. Union Parishad). The LGED Upazila Engineer office visit the proposed site, prepares a brief proposal and submits it to the Upazila Parishad for approval. Once approved, the LGED Executive Engineer at district level forwards it to LGED head office. LGED's Integrated Water Resources Unit (IWRMU) pre-screens the proposal and sends a multidisciplinary team for field reconnaissance and to conduct Participatory Rural Appraisal (PRA) and a feasibility study. Each subproject is reviewed and approved by District Level Inter-Agency Project Evaluation Committee (DLIAPEC) (ADB and LGED, 2009). This is standardized for LGED and shows a strong sense of routine and enforcement mechanisms, relying on demand and activity from local stakeholders, both communities and LGIs.

### Stage 2: Design and Institutional Establishment

LGED spends significant amount of time on community mobilization and forming WMCA as a process of constructing a group identity, local ownership and incentives for collaborative action (GoB, 2006:41).

These are conducted by LGED sociologist/socio-economist, together with project funded community organizers or NGOs. Together they try to promote the enrollment of 70% of direct beneficiary households<sup>31</sup>, collecting an upfront contribution by beneficiaries as a percentage of the construction base cost (LGED, 2009). In addition, this team is responsible for the creation of a 12 member WMCA executive committee with 4 women members and assistance with conflict resolution. The association of local stakeholders is formalized and becomes a WMCA and a legal entity through registration with the Department of Cooperatives (LGED, 2009). In parallel, LGED typically undertakes engineering design work in consultation with stakeholders who must discuss and approve the design. The process of mobilizing community and having their input in design culminates in the signing of a formal Implementation Agreement between the WMCA and LGED (LGED, 2009).

### *Stage 3 Construction and First year O&M activities*

The construction stage (1-2 years) commences after the implementation agreement has been signed and the engineering design has been discussed and approved. The hydraulic structures are tendered to local contractors. Earthworks are awarded to Labor Contracting Societies composed of economically disadvantaged men and women (LGED, 2009). One year after completion, LGED assists the WMCA in rectification of any defects. The WMCA forms an O&M Committee and mentoring is initiated covering: (i) WMCA elections; (ii) maintenance issues such as maintenance costs, fund raising and implementation; (iii) subproject (gate) operation and objective of operation and (iv) book keeping (ADB and LGED 2009). After ensuring that the infrastructure is operating properly the users' right of the subproject is transferred to the WMCA through a formal Handover Agreement with LGED. In this agreement the WMCAs must mobilize the funds for most repairs.

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#### Criteria for Handover

1. **Engineering designs presented to and agreed by WMCA (passive)**
2. **WMCA membership includes at least 70% of benefitted households (vague term, not targeted)**
3. **At least 1/3 of the management committee members are women**
4. **Contribution for O&M (3% of earth work and 1.5% of structures fully collected by beneficiaries**
5. **WMCA has established an office facility accessible to all members**
6. **WMCA has engaged a Manager or Accountant who has been working on their behalf for at least 3 months**
7. **Regular meetings (for the general membership) and the First Management Committee for at least 6 months**
8. **Project affected people have been duly consulted during the preparation of the Environmental Mitigation Plan, before it is signed by parties concerned**
9. **WMCA Registers and records preserved according to the Cooperative Acts; and**
10. **WMCA is officially registered with the Cooperative Department**

### *Stage 4: Initial Sub-project grading and strategy preparation*

This stage grades the institutional, technical and agricultural performance of subprojects and helps inform decisions of further funding for maintenance and operation and improvement strategies. These may include, for example, regulators at junctions to smaller branch khals, additional bunds to retain water within the command area, enhanced flood protection, khal extension/deepening (LGED, 2009)

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<sup>31</sup> Direct could mean the beneficiaries with land benefitted from the sub-project rather than the indirect beneficiaries that might be landless or small share croppers.



and increasing the number of inlets/outlets or changing the design of the sluice regulator. One key step here is also that the subproject maintenance strategies in Stage 4 will focus on realistic maintenance requirements and costs. This would include that WMCAs must account for limited funds from LGED and must address how they also can raise funds for O&M.

#### ***Stage 5: Sustainable O&M and Performance Enhancement***

Stage 5 reflects LGED's insight of following up on sub-projects after an intervention ends. It follows up the O&M agreement and continues throughout the lifetime of the subproject. LGED and partner agencies will support implementation of the strategies, mentoring the Executive Committee and O&M subcommittee members as well as the WMCA bookkeeper and gate operator. GoB funding support for established subprojects will include 100% funding for any new works and matching funding for periodic maintenance such as desilting of khals. Routine maintenance such as vegetation removal is the responsibility of the WMCA and not eligible for GoB funding support (LGED, 2009). The Department of Cooperatives are expected to conduct an annual audit for every WMCA established under the Project in accordance with their rules and regulations, and provide additional support particularly for any micro-credit activities.

## **4.2. Results**

### ***Representativeness of WMCA management committee***

As discussed in Section II, the GPWM stipulates a broad definition of local stakeholders from all cross sections of society, where the WMOs would be the institutionalized unit representing them. However, one frequent occurrence is the domination of the rural elite in the management committee of the WMCAs (MoP, 2005; BIDS, 2008; ADB, 2008; ADB, 2007; Nowreen, Khan, & Huq, 2011; Rahman, Rahman, & Rahman, 2007). Rather, WMCA executive members tend to be male and either larger landowners, members of the Union Parishad or have other primary sources of incomes with more financial capital. In the view of BIDS (2008), the dominance of local elites in the WMCAs seems to have prevented fuller participation of the general people one of the key aims in the GPWM. Of the 12 members of the management committee, 4 members should be women. However, these women have often been found to be 'token' members with no real decision making power in the WMCA decision making process, except for one or two exceptional situations (MoP, 2005; ADB, 2003). Similar token positions have been found among the WMCA landless representatives.

Several different performance evaluations and external reviews of LGED's WMCAs reveal a varying degree of performance, where some WMCAs are active in maintenance and distributing social impact benefits (BIDS, 2008; GoB, 2006), while others were found to be capturing WMCA benefits for themselves neglecting other stakeholders (Nowreen, Khan, & Huq, 2011; ADB, 2007). While local elite domination is probably inevitable, efforts to ensure that the committee primarily represents farming interests and farmers of both high and low-lying land are essential. Secret ballot elections, promotion of the need of diverse competencies (farming, management, bookkeeping and entrepreneurial skills); and wider representation of local stakeholders from both high and low-lying elevations, different geographic coverage and village representation has been recommended as potential strategies (ADB, 2008).

Creating wider ownership through broad community mobilization prior to forming WMCAs could also help facilitate a meaningful election of the WMCA management committee.

### *Stakeholder consultations in engineering design*

LGED SSWRDSP Stage 2 clearly outlines the exact steps and processes to be followed to make sure that engineering designs are in lines with local needs (See LGED, 2009). However, the ADB Final Study Report (2008) discovered insufficient analysis and local stakeholder consultation concerning scheme operation. Instead a blueprint and top-down approach to engineering had often been undertaken; leading to flawed engineering designs leading to dissatisfaction among local stakeholders and trade-offs between high and low elevation uses<sup>32</sup>. Examples of inadequate technical solutions cover number of regulators, gaps in embankment, uncontrolled opening, khal re-excavation, vent size, water retention, leakage and interference with BWDB projects (ADB, 2003). LGED might therefore need to ensure compliance with broader consultation in the design process and address competing local needs.

### *Labor Contracting Societies (LCS) and earthwork*

The literature reviewed focused mainly on the direct beneficiaries in the WMCA. LCS groups were conveyed as an operational arm with no stake in decision-making. Rather, focus was on their performance in earthwork (ADB, 2003) or the capture of the formation of LCS groups (BIDS, 2008). However, the GPWM clearly states that indirect beneficiaries such as LCS are also to be considered local stakeholders. There is therefore a gap in the literature that needs to examine the voice and capacity of LCS groups. This is pertinent as a common finding was the exploitation of women laborers of LCS in terms of wages, illustrating the vulnerability of gender and class.

### *Funding and Maintenance*

Since 1996 over 550 small-scale water resources subprojects were improved under SSW-I (1996 – 2002) and SSW-II (2002 –2009) and once they were completed they were handed over to WMCAs for operation and maintenance (ADB, 2008). This section reviews issues of funding and maintenance post-intervention.

#### *WMCA O&M Fund*

The WMCA O&M fund consists of an O&M reserve account and a savings account. The up-front community contribution of a minimum share, (10 shares à 10 BDT) conveys membership rights to the WMCA and is paid prior to signing of the Implementation Agreement: The members' contributions are deposited into a *O&M Reserve Account* managed by the LGED District Executive Engineer and the WMCA Chairman/Secretary and can only be used for O&M. O&M funds are usually collected through (i) regular contributions from beneficiaries either as a flat rate or proportional to benefit experienced, in cash or in kind such as labor or a proportion of crop produce; (ii) fees for lease of fishing rights; (iii) fees for use of water for irrigation; and (iv) revenues from income generating activities such as micro-credit

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<sup>32</sup> For example the LGED designer may consider a single regulator with a high / tall (2m) gate to be sufficient to retain water to the required depth over a water body (beel). However, a single regulator is unable to reconcile two competing demands where low-elevation beneficiaries may wish to draw down the water level to plant paddy, while high elevation beneficiaries may wish to retain water to minimize pumping costs from shallow tube wells. Greater stakeholder consultation may have resulted in several regulators with small (1m tall) gates giving greater flexibility of operation, albeit at a higher cost, and with each group able to operate their sub-systems as they wish (ADB, 2008).

facilities, tree plantations, etc. Occasionally the Union Parishad may provide funds for maintenance. The savings account is used for minor and routine O&M, and jointly funded activities with the LCS. Over a 3-year period actual O&M expenditure by the WMCA averaged 7.02 million BDT, approximately 28% of estimated annual O&M costs spent on 181 to 207 schemes. The amount spent by WMCAs on maintenance is less than micro-credit amounts disbursed by WMCAs (12.74 million BDT per year for 280 schemes). In general, it was found that WMCA contributions to maintenance were not sufficient to prevent a gradual build up of deferred maintenance (LGED, 2012; ADB-OED, 2007; GoB, 2006).

### GoB Emergency Fund

The Government of Bangladesh (GoB) Emergency Fund is intended to meet most major and emergency maintenance. It is currently utilized to meet most of annual maintenance, where 30% of this 'emergency' budget is used for periodic maintenance such as re-excavation of khals, rectification and repairs. It is approximately 2.6 times the size of WMCA budget and is heavily over-subscribed. The annual demand is 68.5 million BDT, while actual expenditure is merely 18.2 million BDT (ADB, 2008). This is arguably tied to the practice of requesting funding from the Emergency fund when maintenance exceeds the "routine" maintenance.

Table II-9: O&M Budgets & Expenditure

Nr	Item	2004-2005				2005-2006				2006-2007			
		Nr of SPs	Total Amount (Tk)	Avg Amount (Tk / scheme)	(% of 1-yr O&M Estimate)	Nr of SPs	Total Amount (Tk)	Avg Amount (Tk / scheme)	(% of 1-yr O&M Estimate)	Nr of SPs	Total Amount (Tk)	Avg Amount (Tk / scheme)	(% of 1-yr O&M Estimate)
<b>Estimates of O&amp;M Requirements</b>													
1	Upfront contribution equal to 1-year of O&M (3% EW, 1.5 Str., 0.5% total)	280	35,956,744	128,417		280	35,956,744	128,417		280	35,956,744	128,417	
2	Annual maintenance budget to be funded by WMCA (routine maintenance)	265	13,970,594	52,719	41%	234	45,149,722	192,948	150%	169	20,850,094	123,373	96%
3	Annual maintenance budget to be funded by GoB (Emergency Fund)	174	59,463,928	341,747	266%	168	79,079,585	470,712	367%	179	66,949,878	374,022	291%
4	Total annual maintenance budget estimated by WMCA	265	73,434,522	277,111	216%	259	124,229,307	479,650	374%	181	87,799,972	485,083	378%
	Ratio emergency / WMCA budget		4.3				1.8				3.2		
<b>Actual O&amp;M Collection &amp; Expenditure</b>													
5	Total amount collected by WMCA in year	254	8,544,833	33,641	26%	257	9,649,011	37,545	29%	256	16,921,589	66,100	51%
6	Actual expenditure by WMCA	207	3,201,816	15,468	12%	197	9,649,011	48,980	38%	181	8,214,665	45,385	35%
7	Actual expenditure by GoB (Emergency fund)	98	19,751,527	201,546	157%	135	18,815,292	139,373	109%	112	16,073,839	143,516	112%
8	Total actual expenditure on O&M	207	22,953,343	110,886	86%	197	28,464,303	144,489	113%	181	24,288,504	134,191	104%
	Ratio emergency / WMCA expenditure		6.2				1.9				2.0		
	Ratio actual expenditure / annual budget (%)		31%				23%				28%		

Source: IWRMU MIS Database

Table 5 Maintenance categories SSWRDSP (LGED, 2009)

Category	Description	Source of Funding
Additional infrastructure	Additional regulators or bridges, extension of khals or embankments, construction of (brick) reference sections along khals, construction of masonry pillars to inform operations, brick paving to embankments	100% GoB
Emergency maintenance	Due to abnormal exposure condition such as floods, cyclones etc.	100% GoB
Theft and willful damage to	Stolen parts on regulators, cuts and	Matching fund: 50% GoB and 50%

infrastructure	pipes etc.	WMCA
Periodic maintenance	Sediment removal from khals, re-sectioning/modeling and sodding of embankments, tree planting, repair of failed brick paving every 3-6 years	Matching fund: 50% GoB and 50% WMCA
Routine (annual) maintenance	Gate greasing, gauge re-painting, embankment rain cut repair and surface re-grading (after cattle damage	100% WMCA

### Deferred Maintenance

Table 1 above outlines the main responsibilities and funding sources after handing over the sub-project infrastructure to the WMCAs. The WMCAs engage in a matching fund for willful damage as well as periodic maintenance that include desilting from khals that should be conducted every 3-6 years, with half the costs borne by GoB and the remaining half by WMCAs. However, siltation needs to be removed from khals each year and could be considered routine maintenance. Depending on the size and numbers of khals, this could be a significant task even when done every year. It is not mentioned as a ‘routine’ maintenance to be conducted and paid for by WMCAs alone. Nevertheless, WMCAs are faulted for ‘only’ concentrating on small vegetation clearance and gate greasing rather than significant khal excavation and repairing (ADB, 2008; LGED, 2012). Independent of whether or not WMCAs ought or should not engage in this, the lack of regular maintenance causes damages that when unattended for too long make the structures dysfunctional and costly to repair. Some argue that communities do this purposefully, where grave damages force the implementing agency such as LGED to intervene and repair it; thus rewarding poor performance (Clark, 2012). Nevertheless, the maintenance categories themselves combined with the matching funds create a sense of ambiguity of expectations of the role of the government vs WMCAs. When LGED itself frequently uses Emergency funds to finance periodic maintenance, one cannot fully blame WMCAs for expecting the government to step in. Khal excavation is costly, technical and not part of their routine mandate. There needs to be some sort of flexible funding available other than the use of the Emergency Fund. In SSW-III and SSW-IV this has been addressed through adding stages of grading and performance, where clear and specified O&M plans delineating such responsibilities take place (LGED, 2009).

### Activeness of WMCAs in maintenance

O&M fund inadequacy has been attributed to a general disinterest in assuming responsibility for maintenance and lack of competency in the WMCA management committee (ADB, 2008; BIDS, 2008). In an earlier external evaluation commissioned by the ADB it was found that some O&M sub-committees were inactive and half of the WMCAs had no O&M plan, despite this being a requirement for hand over (ADB, 2003). Inactiveness in operation and maintenance seem to be trend, where either WMCAs did not perceive adequate O&M as a priority and were more interested in micro credit programs, or that there had been a lack of proper planning and understanding of O&M requirements, and perhaps indifference, resulted in deferred maintenance making some projects unsustainable (ADB, 2003; BIDS, 2008). This is illustrated in some data on participation where only 6.2% of beneficiaries participated in O&M activities (BIDS, 2008:pxxiv). This lack of motivation could be tied to the history of Bangladesh where “any

property built/developed by the government is not people/community's property but property of the government" (Hussain, 2004). In contrast to the findings of BIDS (2008) and ADB (2008), ADB (2007) argued that WMCAs are generally sustainable, taking into consideration the WMCAs' survival for the past 5 years. In one study active management committee was found in 19 of the selected 22, where WMCA management committee and O&M subcommittee members demonstrated a mix of competencies and broad representation: different villages and elevations, while being locally respected (ADB, 2007). The review of the performance of WMCAs in terms of participation, performance and sustainability seems to be mixed over time. Arguably, this could be due to a selection bias, different methodological approaches of the evaluators or that the performances of WMCAs have differed over time (as a result of years since intervention completed, or change of WMCA due to elections).

Thus, the varying findings illustrate that not all LGED sub-project under the SSWRDSP suffer from deferred maintenance and inactive WMCAs. In general, WMCAs are capable of organizing and implementing routine O&M but they need the assistance of LGED for major items of maintenance work (ADB, 2009; ADB, 2003b). In the past few years, LGED has thus adapted through focusing on the rehabilitation of existing projects and creating a system through stages 4 (grading) and 5 (performance evaluation). This process started with specific projects to address rehabilitation, upgrading of existing small-scale water resource subprojects and addressing outstanding works and deferred maintenance issues. For instance, the GoB made available 231.7 million BDT (2007-2009) to these ends to support rehabilitation and upgrading in sub-projects under three small scale water projects. Rectification and additional works make out the largest share of costs together with major periodic works, minor and routine maintenance costs much less (ADB, 2008:63). This infusion of funds shows the importance of rehabilitation and upgrading to prevent deferred maintenance. However, this is a one-time infusion relying heavily on the government stepping in due to ambiguities in the division of tasks. Institutionalization of rehabilitation and upgrading of sub-projects is therefore key to ensure the sustainability of an intervention after the project ends.

### *Sustainability*

#### *Sustainability through training and permanent staff that visit post-project intervention*

One key organizational feature of LGED is its strong focus on training, both to staff, local governments, extension agencies and WMCAs (GoB 2006). In the SSWRDSP projects, WMCA members receive training on cooperatives, gender, sanitation, agriculture, fishery, livestock and poverty alleviation (GoB 2006; ADB 2007). Rather than relying on only temporary staff, LGED through its four phases of SSWRDSP has institutionalized the need for permanent staff to sustain and maintain participatory water management processes. It has done so by creating the positions of Sociologists and Community Organizers for every district and thana respectively. These positions were initially funded under LGED's development budget and have now been permanently transferred to the revenue establishment with support from the various donors involved (ADB, JICA, Netherlands) (GoB, 2006). Through these positions LGED may provide ongoing support and training so that WMCAs develop capacity to run their affairs by themselves. However, post-project evaluations have found that this support has developed into an over reliance on LGED staff. Hand over one year after completion is argued as too short of a time frame and

not sustainable without follow up and monitoring by LGED staff (LGED, 2009; MoP, 2005; ADB, 2003). One reason for why WMCAs have lasted many years after their creation can thus be attributed to the presence of LGED field staff that maintain relations to WMCAs and provide a continuous link between their demands and needs to the LGED head office.

### Sustainability through water plus

SSWRDSP has been seen as a success as WMCAs have lasted several years after they were created. One reason for this may lie in the cooperative nature of WMCAs as they are engaged in micro credit and income generating activities<sup>33</sup> (GoB, 2006; ADB, 2003). Water management activities can only engage WMCA members for only 4 to 6 months in a year, with income generating activities the members are incentivized to be active as a year round activity. Microcredit, along with shares, constitutes the main sources of funds for WMCA (GoB, 2006), while one third of the beneficiary respondents have access to micro-credit from WMCAs (MoP, 2005). Access to credit has also been used as a strategy by WMCAs to gain community support and legitimacy (De Silva, 2012). As such, the presence of micro credit has served as an incentive for community members to join the WMCA and contribute to the O&M fund. It has also been argued that the surplus generated by microcredit may help meet the O&M costs and also contribute to the socio economic development of the WMO members (GoB, 2006). However, it has also been argued that micro-credit distracts away from O&M responsibilities (ADB, 2008; LGED, 2009) and that the benefits are unequally distributed between the richer and poorer (ADB, 2007). It is difficult to assess the validity of both claims, yet it does point out the importance to be aware of panaceas. Micro credit activities might not in itself create sustainable WMCAs or automatically result in improved O&M funding and active maintenance. One key issue is to explore how incentives can be created for maintenance, or whether the level of maintenance responsibility should be reduced to a level WMCAs are willing to commit to, one that might be far lower than that stipulated in GPWM.

Sustainability relies on cost-intensive social mobilization, presence of committed staff and the availability of funds for large rehabilitation works of structures. In addition, sustainability is served by financial incentives to WMCA members where micro-credit keeps them active in the group. However, since micro-credit is not always tied to water management, it serves both as an opportunity and a risk. Though the WMCA may be active as a cooperative, it might not necessarily be active as a water management association.

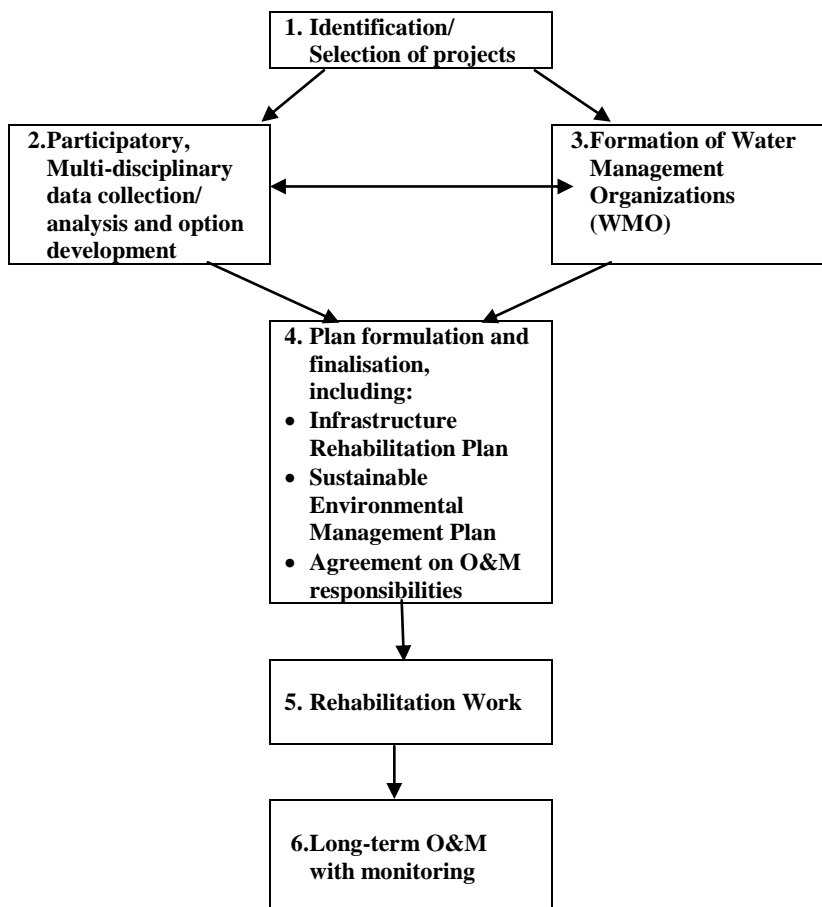
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<sup>33</sup> The capital base for each WMCA microcredit program is made up of the proceeds from the sale of shares and the accumulated savings of individual members with the WMCA. Each member is required to contribute each month to a savings account, usually Tk10 but up to Tk100, depending on the WMCA by-law. Collection rates of WMCAs visited were generally high, but not 100% in all subprojects. The funds generated from monthly savings and purchase of shares is used to provide microcredit loans to members, with an interest rate of up to 15% (ADB 2007).

## 2. IPSWAM

### 2.1. Project and Methodology

As mentioned in Section II, the IPSWAM project consolidates all the lessons learned from previous projects and interventions on participatory water management, including both BWDB experiences and LGED's SSWRDSP. The aim of the IPSWAM project is to operational practical and sustainable participatory and integrated water management to be taken up by BWDB through development of water management in nine medium sized polders in the South West and South Central zones of Bangladesh. It follows a six step approach based on identification and selection of projects, selection of WMOs, participatory data collection, planning, rehabilitation and long term O&M. One key limitation comparing IPSWAM with SSWRDSP is the fact that IPSWAM has only been implemented in nine polders, while SSWRDSP has been implemented in more than 555 sub-projects in four continuing projects since 1996 to date. While there have been several external and internal evaluations for SSWRDSP, mostly internal reports are available for IPSWAM. While SSWRDSP has been significantly shaped by ADB, JICA and to some extent IFAD and the Netherlands, IPSWAM remains a Dutch financed project. The key document used is the MoWR (2008) Guidelines for Integrated Planning for Sustainable Water resources management and an evaluation report by the Embassy of the Kingdom of the Netherlands and BWDB (EKN and BWDB, 2011).



#### *Step 1 Selection*

In IPSWAM two months are spent on selection. The polder should be between 1000-15000 ha large and without major conflicts in the communities and between occupational groups. While LGED supports that LGIs submit the proposal, IPSWAM limit LGI involvement to demonstrating a positive attitude. It also highlights the importance of existing committees or local stakeholders interested in establishing WMOs, contributing to O&M costs and to participate in the planning, implementation and O&M activities (MoWR, 2008).

### ***Step 2 Participatory, multi-disciplinary data collection/analysis and option development***

Step 2 collects data through a socio-economic survey on the agricultural and environmental situation (including fisheries status), and an engineering survey on the condition of the water management infrastructure. Based on these two sources, IPSWAM analyzes the possible causes of water management problems and together with stakeholders formulate options for improvement and development. Through the socio-economic survey, consultation and Focus Group Discussions are held at household and village level by a team of field investigators with different stakeholders (men and women). The engineering survey is conducted by BWDB engineering staff who create an inventory of hydrological structures. This is then cross-checked with existing maps and complements missing information. The data/information is verified and prioritized through village level meetings at different locations of the project to consolidate existing water management issues. Together with local stakeholders, strategic options for improving water management are discussed. The results of this phase are included in a detailed planning study report (MoWR, 2008).

### ***Step 3 Water Management Organization (WMO) formation and development***

Step 3 is closely linked with data collection and is carried out in parallel with it. The objective of this step is the mobilization and social organization of interest groups at the community level. The GPWM requires that WMOs are to be created to represent local stakeholders of all occupations and income levels actively and effectively participate in all stages of establishing sustainable water resource management. To this end, IPSWAM aims to create Water Management Groups (WMGs) at village level that represent all sections in the community including landless people, destitute women and fishermen. As required in the GPWM, at least 30% of the WMA should be women, with ideally one male and one female representative elected by each WMG. Such an approach attempts to realize and recognize power inequalities and have different interests within a community agree on the distribution of rights, benefits, concessions and obligations. By emphasizing the expected general benefits of the project, IPSWAM through this step tries to create a sense of social unity through organizing people around a common interest (MoWR, 2008). Arguably, the selection of polders without any conflicts and that tend to be homogenous, tend to contribute to the ability of creating such a sense of social unity. A successful WMO committee would enable all of its members to effectively participate in decision-making and have their voices heard. It is also attempted to create coordination and linkages with Local Government Institutions such as the Union Parishads, Upazila, Nirbahi Office and the Agriculture Office for a more comprehensive approach to governance.

### ***Step 4 Plan formulation and finalization (Infrastructure Rehabilitation Plan, Sustainable Environmental Management Plan and Agreement on O&M responsibilities)***

Based on the information gathered and problems identified in step 2 an integrated water resources management plan is formulated. The plan consists of an Infrastructure Rehabilitation Plan, a Sustainable Environmental Management Plan and an Operation and Maintenance (O&M) agreement between the WMA and BWDB. The Infrastructure Rehabilitation plan is the outcome of a consultative process between the WMA and other community members; the planning team and BWDB Divisional staff, in which various options to resolve the water management problems were discussed. It is the main document of design for implementation of the infrastructure work to be conducted under the IPSWAM



project. The Sustainable Environmental Management Plan (SEMP) identifies existing environmental problems and possible negative environmental impacts (resource impacts, pollution impacts, or human impacts). The SEMP includes a timeframe for the implementation of identified environmental measures, identifies persons or organizations such as LGIs, agricultural extension, environment, fisheries, forestry departments and NGOs who should be contacted for necessary cooperation and action. The O&M Agreement is a contract between the BWDB and the WMA outlining the roles and responsibilities of the contract partners based on previous discussions (BWDB, 2007; MoWR, 2008). In general, it follows a similar pattern as the SSWRDSP, where WMOs are responsible for operation and routine maintenance from its own funding (voluntary labor contribution or income from leasing of BWDB land/khal), while BWDB is responsible for major periodic maintenance and emergency works, though percentages and matching funds are not specified (MoWR, 2008). In this agreement, BWDB is to be responsible for the provision of technical assistance and training to the WMA, as and when required, in the areas of water management and operation and maintenance of the structures (MoWR, 2008). It is also mentioned that Training Resource 15 Group (TRG) should be formed and functioning at the Polder level, composed of trained and skilled members of the WMO, will help ensure that WMOs' functionality and training concerns will continuously be addressed<sup>34</sup>(MoWR, 2008).

#### ***Step 5 Rehabilitation work***

This step is concerned with implementing the physical works included in the rehabilitation plan and in accordance with the technical design. At the onset of the project, construction of new gates and rehabilitation of the existing gates was required. WMOs defining their respective water management problems in the different blocks during village level meetings and based on their prioritization BWDB Design-III prepared the designs of the water infrastructures for each of the nine polders (EKN and BWDB, 2011). As in SS-I and II, contractors implement repair and construction, while Landless Contracting Societies (LCSs) do earth works (MoWR, 2008)<sup>35</sup>.

#### ***Step 6 Long-term O&M monitoring***

Once the rehabilitation activities are concluded, part of the long term Operation and Maintenance responsibilities are transferred to the WMO. During and after implementation, the WMOs receive training in the technical management of the hydrological system and organizational issues related to managing their organizational affairs, developing leadership skills and gender sensitivity, developing an efficient system of communication, effective management of conflicts, efficient conduct of meetings, savings generation and record keeping and monitoring activities. The key aim of this step is to ensure the implementation of the agreed long-term Operation and Maintenance arrangements between the BWDB and WMO, including the transfer of responsibilities. In this phase, BWDB is also responsible for giving lease to land/khal to WMOs by submitting proposals to the appropriate authorities and take

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<sup>34</sup> It is also mentioned that the TRG will closely coordinate with BWDB for all water management related training and with other government and non-government organisations, for their specific training needs. However, in the field and in evaluations, these TRGs have not been mentioned. Rather the lack of training post-intervention and post-project staff have left has been a key issue.

<sup>35</sup> Note that IPSWAM and BWDB staff still speak of LCS as Landless rather than Labor Contracting societies, either because they are excluding small farmers, or because they want to emphasize the poor and marginalized situation of the earth workers in the LCS. Kausher (2012) argues that the shift from landless to labor reflects the changing socio-economic context of Bangladesh where rural livelihoods have improved since the 1980s.

action against any third party who illegally occupies the lands or khals. In order to ensure monitoring and linkages with the BWDB, the WMA selects a monitoring sub-committee who will report the progress of the implementation to the WMAs, the WMGs and to the zonal team and Divisional Office. Once these plans are finalized, detailed designs are made, approved by the Design Directorate of BWDB and implemented by the relevant BWDB field division (MoWR, 2008).

## 2.2 Results

### *Selection of few and 'easy' polders*

EIP was conducted in 88 projects, while the Delta Development Project was active in only 2 (polders 22 and 29 in Dumuria, Khulna). LGED's SSWRDSP projects have totaled over 555 sub-projects continuously since 1996. For the IPSWAM project, 9 coastal polders were selected, 2 of which were former DDP polders (22 and 29). The small sample of polders provided greater focus; only 9 polders were selected for a 7-year intervention. One of the key selection criteria for IPSWAM polders was that they would not exhibit clear conflicts and it would be straightforward to create a common cause based on the benefits of water management. Such polders were relatively easier to manage than for instance polders with longstanding tensions between shrimp farmers and landless. By selecting 'easy' polders, IPSWAM was enabled to examine how people can reconcile different opinions through a well-developed participatory approach starting with the less complicated polders first (Jenkins, 2012).

### *Mobilization, formation and training*

KJDRP and Fourth Fisheries project showed the threats and limitations with not taking enough time to form water management groups. In IPSWAM a significant amount of time, effort and planning went to the problem identification and WMG formation stage. The IPSWAM team consisted of full time field staff comprising of socio-economists and community organizers that lived closely with the communities building trust-filled relations during 18 months to motivate ownership in the project, while asking communities to describe and prioritize their water problems. Thus, IPSWAM first mobilized the community and then created the WMGs so as to ensure that participation would comprise of interested community members representing broader groups of local stakeholders. The IPSWAM evaluation report (EKN and BWDB, 2011) found that despite 6 stages of participation, there was an absence of an effective platform for response and redress where local stakeholders are not yet effectively participating in decision-making. This applies in particular to "detailed" planning and design and contracting of works to contractors. In these stages local stakeholders are discussing, but not deciding issues, reflecting lower levels of participation. See (Arnstein, 1969) Section I and Section II.

### *Training*

In Step 2 and 3, training WMOs was emphasized as a tool to help them take over O&M responsibilities and was standardized and included in a toolkit (EKN and BWDB, 2011). It consisted of leadership training (for men and women), financial management and auditing, agricultural production, cooperative management, quality control of construction work, as well as operation and maintenance skills. Based on two evaluations/reviews, it seems that this training has been generally employed by WMO members and seen as useful (EKN and BWDB, 2011; BARD, 2009). The gender training combined with networking and exposure have been attributed to gradual confidence building of women (EKN and BWDB, 2011).

The concept of Training Resource Group seems to have been operationalized in some instances, where 50% of TRG members are women. This has been argued to be an indicator that women took their involvement in the WMOs seriously and may be worthy to more investments in the future (EKN and BWDB, 2011). In addition to the TRG, BWDB uses its Extension Overseers at field level to train and demonstrate appropriate agricultural and water management techniques to WMG members in polders. Currently, the number of Extension Overseers is limited and is anticipated to reduce dramatically as many of them are retiring the next few years (MoWR, 2005).

### *WMO linkages with local government institutions*

In Step 3, WMOs were also to engage with relationships with local governments, extension agencies and NGOs. Such networks would create opportunities for WMO members to negotiate their positions and increase their bargaining capacity with local government organizations. The DAE is supposed to play an important role in such linkages, where the Upazila Sub Assistant Agriculture Officers (SAAO) pay routine visits to the villages at Union level and demonstrate improved crop technologies to farmers groups. It was found that this practice was of limited effectiveness (EKN and BWDB, 2011). This was arguably exacerbated by the fact that the roles of the Local Service Providers (LSPs) are not specified in the guidelines (EKN and BWDB, 2011). In comparison to WMCAs, LGIs do not seem to have played as of an active role in the design and functioning of IPSWAM, limited to an advisory role and without any formal role.

### *Rehabilitation and institutional linkages*

The review of the rehabilitation plan indicates that nearly all physical infrastructures have been completed except for some re-excavation of khals that could not take place due to delayed release of funds by BWDB in 2010-11 FY. Overall, rehabilitation work according to the plan seems satisfactory (EKN and BWDB, 2011). Despite the EKN and BWDB (2011) finding that WMOs were not active in decision making in Steps 2 and 3, it was found that WMGs were able to revise the design during the actual rehabilitation work. Based on feedback from WMOs IPSWAM revised implementation through additional (i) re-excavation of khals; (ii) retirement of embankment; (iii) irrigation inlets and changes in the location of structures were included in the plan. In polder 43/2D a proposed 4-Vent Regulator was changed into two 2-Vent Regulators positioned at two different places at the request of WMGs. In polder 43/2B the WMGs changed the alignment of the retired embankment to make it more socially acceptable to the local community. In polder 43/2F WMGs changed the design of the canal excavation and suggested to make it deeper rather than wider to avoid land acquisition. Considering the focus on stakeholder consultation and participation in the creation of the rehabilitation plan, it is somewhat odd that these 'adaptations' had not been incorporated as suggestions from the start in Step 4, Planning. Little information is available on the Sustainable Environment Plan and how this operationalized in practice. The handover agreement is covered in the next sub-section.

### *Operation and Maintenance post-intervention*

In the 9 polders included in the IPSWAM project, altogether 242 Water Management Groups (WMG) were set-up. According to two reviews (BARD, 2009; EKN and BWDB, 2011) the WMOs showed a considerable level of activity for both operation and maintenance of the water management infrastructure as defined in their handover agreements and the GPWM. They regularly inspect the

condition of infrastructures, repairing holes and breaches in embankment, keeping canals clear and doing small maintenance of gates. This indicates that in the rehabilitated polders preventive maintenance is taking place. The estimated cost of the routine O&M activities carried out by WMOs in IPSWAM polders until December 2009 is Tk. 5,100,000. The contribution of WMOs in O&M is mainly in the form of voluntary labor, though they do occasionally collect cash contributions for contracting LCS and for procurement of small maintenance items (grease, paint). This is reflected in the finding that most of the polders are not suffering from deferred maintenance (EKN and BWDB, 2011).

#### 1.2.0.1.1.1 Monitoring

The WMAs as part of the handover agreement were responsible for monitoring of the water infrastructure. IPSWAM had trained a 7 member quality control sub-committee to observe deviations of contracted work and inform BWDB and IPSWAM quality control staff. BWDB entrusted the SO & SDE with quality control of the construction of the water management structures. According to IPSWAM's final evaluation, all work of rehabilitation had a tight system of quality control (EKN and BWDB, 2011).

#### 1.2.0.1.1.2 Lack of Maintenance funds to meet demand

Despite the positive role and activity of WMOs, BWDB and IPSWAM, these polders still suffer from maintenance issues. Some causes have been attributed to lack of funding as well as delays in disbursement. The following table presents demands for maintenance funding (from all zones and the allocation for O&M).

#### O&M demands and allocations in BWDB

Fiscal Year	Demand (Tk Cr.)	Expenditure (Tk Cr.)	Percentage (%)
2001 – 02	250.76	57.19	22.80
2002 – 03	235.18	82.19	34.95
2003 – 04	257.89	100.00	38.78
2004 – 05	276.90	125.90	45.47
2005 – 06	341.00	135.00	39.50
2006 – 07	350.00	150.00	42.86
2007 – 08	400.00	281.46	70.36
2008 – 09	529.00	305.00	57.66
2009 – 10	846.00	402.00	47.52
2010 – 11	1799.00	305.10	16.96
2011 – 12	3000.00*	317.00*	10.57

Source: data provided by Chief Engineer O&M and O&M Directorate. (Taken from EKN and BWDB, 2011)

\*2011-12 expected figure

This table clearly outlines how demand for maintenance funding greatly exceeds availability of funds. According to the DP-III, for current works being constructed, funds are taken from the Budget of Annual Development Program (ADP), consisting of approximately 15 billion<sup>36</sup> BDT for the year 2011-2012. For maintenance of completed works the Non-Development Revenue Budget (NDRB) is used. The NDRB is under the responsibility of the Director of O & M under the O&M wing and is allocated a lump sum annually (Ahmed M. , 2012). For 2011-2012, the NDRB was approximately 6.78 billion BDT out of which allocation for Repair & Maintenance (R/M) of completed works/projects is approximately 3.16 billion BDT, which is 46.60 % of the NDRB and 21 % of ADP Budget. The remaining NDRB budget is spent

<sup>36</sup> 1500 crore BDT

for buildings maintenance, utilities, staff salary, repairs, taxes, facilities etc. As such, the NDRB is a budget used for miscellaneous purposes and not only for maintenance (Ahmed M. , 2012). However, allocation for repairs and maintenance within the NDRB is increasing every year by 5-10% (Ahmed M. , 2012). Arguably, such an increase may reveal the growing importance attached to O&M post-intervention. This might help overcome a common criticism that BWDB faces that it places too much attention on new projects that ensuring the proper operation and function of completed projects (See GoB, 2006).

#### *Donor funding injected during disaster*

In the event of a disaster and emergency repairs of polders, funds are made available through the Division of Disaster Management and Relief under the Ministry of Food and Disaster management. In 2007 Sidr caused damages worth 170 million BDT and BWDB could not use its maintenance funds in this emergency. EKN thus decided to extend the project period until the end of June 2010 and made an additional Tk. 63 million available for repairing the damage caused by Sidr. When Aila hit in 2009, EKN granted another extension to IPSWAM to repair the new damages (EKN and BWDB, 2011). During both events, WMOs were active and addressed the damages immediately by minimizing breaches to the embankment through voluntary labor and materials, while awaiting further assistance. Emergency funding is generally not available in the BWDB and must wait for the bureaucratic process of obtaining funds from another ministry. IPSWAM has been fortunate to be targeted by a donor who could inject funds when needed.

#### *Income generation*

##### *Member contribution*

IPSWAM does not work based on member shares and upfront community contribution like the SSRDSP. Instead funds for the O&M require is collected from the landowners of each block in proportion to the land they own in the block. The money is recorded in a register and is kept with the cashier and O&M expenses are spent from the fund with him. In face of disaster, voluntary contributions in cash, kind or labor is used. General member contribution is low source of funding in IPSWAM and WMAs/WMGs have expressed that fund collection from the land owners is quite difficult and at times embarrassing and would prefer other sources of income for O&M, such as leasing of land and canals.

##### *Leasing*

One main source of income for WMGs/WMAs has been the leasing of unused government land (khas land) and canals. However, the ultimate leasing of land lies with the Ministry of Land and BWDB must gain the permission to hand over the land and canals it has the right to by the GoB for water infrastructure, to these community organizations. In many instances, the right to use land is conflicted. People may use this land or these canals for their own purposes in way that may obstruct WMA's work on operation and maintenance. The IPSWAM evaluation found that the lease of water bodies for fish and/or shrimp cultivation impeded the free flow of water for drainage or irrigation. The evaluation does not evaluate whether leasing of khals improves water management in the area or the mechanisms at play that prevents the WMAs to have full access and responsibility of land and water systems needed for proper water management in the polder. How leasing works in practice and its impacts on water

management is something that would require further exploration. In essence, it is not clear that such funds are adequate to meet the large costs of maintenance for re-excavation of khals and other large works.

### *Micro-credit*

Several studies have found that BWDB WMOs have taken up income generating activities, where the WMOs have started savings and loan operation for their members (EKN and BWDB, 2011; BARD, 2009). This has been taken up by WMOs on their own initiative; requesting services from Upazila technical departments. Since the saving is individual, this does not help address the funding gap in maintenance, rather it shows the interest in extra credit by rural communities.

### *Gender targeted approach*

IPSWAM has a clear gender focus and consistently mentions the involvement of both 'men and women'. Two of its most successful polders in terms of both participation and maintenance also herald strong and vocal women WMA members (polders 30 and 22). It was observed that women were active in the discussion and planning of operation, maintenance and monitoring; articulating and asserting their views. Arguably, the availability of IPSWAM training and field staff may have encouraged these women to feel confident and empowered (EKN and BWDB, 2011). However, women are more involved in earthwork than in WMOs, which may illustrate a power discrepancy based on gender. Yet IPSWAM training (skill development, livestock, agriculture) for LCS groups has been argued to increase women's confidence and performance leading to an increase in income (EKN and BWDB, 2011). It has also been argued that women LCS members would receive the same wage for the same work as male LCS groups (EKN and BWDB, 2011). G3 project may try to find out what the situation of these women, in terms of participation and wages is.

### *Participation*

The aim of IPSWAM was to prevent the rule of the few over the many, to give the majority an opportunity to participate. However, using Arnstein's ladder of participation (1969), it could be argued that 'participation' can be limited to consultation and information giving and to actual decision-making. The IPSWAM evaluation study found that WMO members felt empowered by the fact that officials for the first time listened to their water management problems and acted to solve these within the limitations of what was technically and financially feasible (EKN and BWDB, 2011). However, none of the evaluations tended to go deeper into the issue of representativeness in WMOs and whether elite capture has been a problem in IPSWAM. Furthermore, it does not provide details on how various perspectives on O&M were reconciled. How was the operation of sluice gate decided on? How was the extent of maintenance formulated and how was the budget allocated? How was leasing arrangements agreed upon? How did people react to that of lower income groups when they spoke, did they have any opportunity to voice their real concerns? How much local influence did the executive committees of WMAs have and what was the impact on broader public benefits? Future research must delve deeper into the concept of 'local stakeholder' and uncover the different mechanisms and process behind different interests, decision-making and power.

### 3. Discussion of WMO experiences in SSWRDSP and IPSWAM

Both IPSWAM and LGED in their first stage identify the project area and initiate in awareness raising and mobilization of the community to feel interest in the project. Whereas IPSWAM focuses on finding homogenous polders with less conflict to intervene in, LGED conducts a broader approach encouraging local communities to submit a project proposal through their local government institutions, usually the Union Parishad. While IPSWAM only seeks the approval of the UP, LGED promotes the active involvement of the Union and Upazila Parishad in the sub-project development. This clearly shows LGED's embeddedness in the local government system and is further strengthened through this process being standardized and to be followed for each new sub-project. This shows a strong sense of routine and enforcement mechanisms, relying on demand and activity from local stakeholders, both communities and LGIs. In IPSWAM the focus is more on problem identification, both through consultation and hydrological measures where data is collected, discussed and verified with local stakeholders at village level meetings. Broader stakeholder consultation to involve cross sections of the community are envisaged prior to forming WMGs and WMAs, the former being created based on community members' delineation of water management problems.

#### *Participation*

LGED is a donor favorite and has systematically promoted that engineering design should be developed in consultation with stakeholders. All engineering design should be discussed and approved by them. Arguably, this gives stakeholders leverage of decision-making power. However, it has often been found that LGED technical solutions are inadequate and inferior to that of BWDB. In many instances, also the LGED engineers have failed to incorporate suggestions or feedback from local communities to capture solutions that may address different needs, instead opting for a blue-print approach. The embankment might be too low, poorly constructed, the size of vent might be inadequate, the size, type or number of regulators might be inadequate etc. BWDB is generally praised for its great engineering skills, where BWDB embankments are seen as durable and well constructed. However, BWDB engineers are also known for ignoring local stakeholders and imposing their ideas (Duyne, 1997). In the IPSWAM project, however, the relations with IPSWAM staff allowed the WMGS to give feedback on significant changes to the rehabilitation plan, which were then incorporated via IPSWAM who communicated this with the BWDB engineers. However, IPSWAM through its Step 4 also shows the many formal requirements it is trying to live up to, a rehabilitation plan, a Sustainable Environmental Management Plan and an O&M Handover Agreement à la GPWM. In the evaluation reports, the SEMP was rarely followed up. One might therefore wonder whether this environmental consideration is only a tick box for formalities?

Overall, this stage and the three outcomes to be produced are based on an assumption of active discussions and feedback from WMOs to feed into the rehabilitation work. In this sense, it supposed to help foster a sense of ownership. However, it is not clear if this three step approach is based on the needs and demands of the community as it is clearly trying to follow the top-down approach of the GPWM, or if a simpler method would be preferred by the community. The same might go for the requirements of women and landless in the WMG and WMA executive committees? Though the LGED evaluations found several incidences of WMCA committee capture, this was not highlighted in the IPSWAM reports. Participation of women in WMCA seemed to follow a similar pattern of tokenism for

the sake of participation, while IPSWAM preferred to highlight the success of women's participation in two of the best performing polders. Considering that the GPWM is trying to promote participation, it has a tendency to do it from a top down angle.

### *Capacity building and mobilization, long term*

In a global review of 108 cases of Irrigation Management Transfers (IMTs)/Participatory Irrigation Management (PIMs), Mukherji et al (2009) found that there were few successful cases of participatory irrigation management to communities. They argue that all these successful cases are hard or costly to replicate, and take place under very context specific and hard to replicate conditions. Global examples include Kubang Depu in Malaysia, Gal Oya in Sri Lanka and Baldeva LBMC in Gujarat, where pilot IMT/PIM schemes were initiated by the government or NGO (India and Sri Lanka). Both Baldeva and Gal Oya involved extensive capacity building activities that were carried out by reputed NGOs who stationed devoted staff in these projects for well over 5 years and these social mobilizers, as they were called, helped train and motivate the farmers so much so that these systems perform well even after the withdrawal of NGOs. However, the process of NGO involvement was long drawn and costly. Arguably, a similar approach has been followed by IPSWAM (9 medium sized polders) and LGED SSW-I and SSW-II, where community organizers/project staff have been stationed to create trust-build relations with the community to promote ownership and training to work on water management. In Bangladesh, this might have been facilitated by the presence of social mobilization NGOs since the 1970s, where water management projects in the 1980s did rely on such NGOs to mobilize and organize communities into projects. The presence of IPSWAM and LGED staff as multi-disciplinary teams including community organizers and socio-economists/sociologists might signal the institutionalization of such staff competency within the implementing agency, rather than relying on external NGOs. The both emphasize that this process of mobilization and capacity building takes time and require planning in order to ensure representativeness and broader ownership in the community. This is supported by other sources where 'ad hoc' and rushed formation of community organizations may create problems of rural elite taking the leadership or organizations, conflicting goals and vague objectives, inadequate or lack of participation by the membership, unacceptable patterns of benefit distribution and malpractice and corruption (Wijayaratna, 2002). In this view, carefully selected and well-trained catalysts or change agents could make such interventions, where experienced and committed NGOs could facilitate institutional development/strengthening, where the communities themselves would evolve local organizations to satisfy their own local needs (Wijayaratna, 2002). Though this has been the case in Bangladesh previously, it has been argued that there are no longer sufficient numbers of such NGOs around. A large body of literature, dating from the 1990s until the mid-2000s, has argued that rights-based NGOs in Bangladesh have gradually experienced pressure to set aside their radical messages for social change in order to keep funds flowing for the organization and its employee payrolls (Wood G. D., 1994; Hashemi, 1996; Edwards & Hulme, 1997; Holloway, 1998; Sogge, 2002; Rahman S. , 2006). NGOs are thus seen as severely donor-dependent. For example, in 1992, Sweden decreased its aid by ten percent, while the U.K suspended its aid completely (Tvedt, 1998:69-72), whereby in 1993-94, four percent of Bangladesh's NGOs had collapsed: a greater number than the previous years (NGO Affairs Bureau, 2008). The IPSWAM Institutional Analysis Study, found it difficult to rely on NGOs for social mobilization and community organization, mainly due to their lack of technical knowledge and



experience with water resources management coupled by a mission to focus on specific target populations rather than entire population in hydrologically defined areas. For LGED, permanent positions have been set aside at field offices for community organization and IPSWAM did the same through its project staff as well as through Extension overseers from the old LWUD. However, for both LGED and IPSWAM it has been found that the sustainability and activity of WMOs are strongly dependent on the presence of the project staff. If these were not to be there, the WMOs might collapse. This poses a particular problem for BWDB, as IPSWAM is only a project that in fact has been discontinued and is awaiting a Phase II that will be contracted out in a competitive bidding process rather than to be institutionalized within the BWDB. In LGED the IWRM unit has emphasized the importance of permanent and multidisciplinary staff, while BWDB is still functioning like a coalition of different projects and temporary staff. Since IPSWAM staff have been engaged for the past 10 years, much institutional memory might be lost if arrangements are not made to institutionalize their knowledge. Even currently, IPSWAM staff is situated in different organizations rather than feeding in their insights into BWDB's participatory projects.

### *Incentives and Water Management Plus Approaches*

LGED's WMCAs were created since the mid-1990s and many of them still exist today. Much of this has been attributed to their cooperative status, where they are not only water management organizations but also cooperatives engaged in income-generating activities for their members. Initially, the cooperative status was seen as way of making WMCAs into legal entities. Since water management activities would not occupy the WMCA the entire year, income generating activities were seen as a way of keeping WMCAs engaged throughout the year, while also creating an attractive opportunity for having members join and contribute to WMCA funds and savings. The micro-credit component has been popular in the LGED experience. It has often been a great source of funds for the WMCAs, being greater than funds allocated to maintenance. However, there has been little evidence that increased micro-credit has benefited maintenance and WMCA's remaining water management responsibilities. Rather, it has been contended that may deflect the WMCA from its core O&M functions, a deflection that should be avoided. Effective local organizations are often concerned with a single function. While interests may sometimes expand to involve other activities, it is not advisable to impose multiple functions (LGED, 2009). Nevertheless, micro-credit is increasingly being promoted within BWDB. However, in IPSWAM more focus was on gaining O&M funds through leasing of BWDB khas land and canals, though this has often turned out problematic both due to complicated legal issues of rights to this land as well as due to the political and social situation in Bangladesh. More information of the impact on leasing as a source of funding would be needed.

### *Deferred maintenance*

In Mukherji et al (2009)'s review, the reasons for failure of participatory irrigation management cases were found to be the same: unwillingness and lack of preparedness among the irrigation officials and farmers to take over management responsibilities. The paper argues that farmers have little motivation to perform regular maintenance and that this would not increase the actual water flow in the canal. This unwillingness has led to deferred maintenance that is linked to cost recovery of physical investments. In the Bangladeshi context of polder management where implementing agencies and donors fund the

actual construction and reconstruction, the costs of deferred maintenance are more linked to infrastructure collapse. In the coastal areas where SSWRDSP and IPSWAM work, sedimentation levels are so high that inner canals must be re-excavated regularly. This is often both costly and time consuming and often beyond the capacity of WMOs. Rather than disinterest per se, there seems to be a lack of funds to meet demand. Another version is that WMCA may not have understood the O&M responsibilities required by them and had not seen it as a priority. This indifference may also have resulted in deferred maintenance making some projects unsustainable (ADB, 2003b, BIDS, 2008). However, there is a difference between operation and maintenance. Arguably, the incentive to participate in operation is higher as the results and value added are clearly visible and tangible. LGED has attempted to address deferred maintenance, moral hazard and perverse incentives through adding stages 4 and 5 to already existing sub-projects where continuous monitoring and upgrading is put in place. In essence, it attempts to reward well-performing sub-projects while incentivizing poorly performing sub-projects to become more active in maintenance. To help facilitate maintenance post-intervention, the permanent IWRM unit combined with permanent field level staff to maintain relations and oversee WMCA is seen as equally important measures to avoid deferred maintenance. However, funding for maintenance is still an issue, which is discussed in the next section.

#### *Funding sources, relying on temporary injections?*

Both BWDB and LGED realize that there is a huge discrepancy between the availability of funds for maintenance and the demand. Not only is periodic maintenance of embankment and regulators necessary, but also quite large maintenance works of canals that are heavily becoming silted. Donors operate on project levels and have been reluctant to fund a permanent fund. Instead of providing continued maintenance donors have let maintenance collapse after a project intervention ends; restarting the entire rehabilitation process from anew (Kausher, 2012; Ahmed M. , 2012; Clark, 2012). However, this mentality is slowly seen as changing as ADB and LGED (2009) have jointly agreed on rehabilitation from stage 4 and 5 for existing sub-project and EKN is considering to provide continued maintenance funds as part of a second phase of IPSWAM (Bose & Zaman, 2012). BWDB has also submitted a proposal to the Government of Bangladesh that there should be 1 permanent BWDB junior staff per 30 WMGs to make sure that there is staff at the field level to provide continuous support to the WMOs (Kausher, 2012). Though attitudes and processes might be changing, there is still a large reliance on external funding. LGED was dependent on a one off funding in 2007-2009 for rehabilitation, or else seeking 'Emergency' funding for what is in fact periodic maintenance, leading to significant over-subscription where only one third of requests can be met. Similarly, BWDB does not have its own maintenance or emergency fund for existing projects. During emergencies it must either rely on the release of funds from the Division of Disaster Management under the Ministry of Floods and Disasters, or as in the case of IPSWAM hope that donors such as EKN steps in to extend the project and inject funds to address maintenance and repair costs after two severe cyclones. Arguably it is not sustainable that both LGED and IPSWAM rely on project funding to deal with periodic maintenance or disasters. Both agencies recognize that supply of funding does not meet demand of maintenance. Motivating donors to prioritize more permanent arrangements post-intervention is thus key.

### *Cost sharing as institutional mono-cropping?*

It has been highlighted that the GPWM may impose top-down views on 'participation', as was seen in both LGED WMCAs and IPSWAM's WMGs and WMAs. The NWP and GPWM both assert that there should be some cost sharing between the implementing agency and the WMO, either through community contribution or income-generating activities (micro-credit, leasing). These financial incentives may work to engage members initially into the WMO, but have been less used to actually fund routine maintenance. Only during disasters and emergencies to local communities, with or without WMOs, organize themselves to repair breaches to the embankment through voluntary labor and materials. Arvidson (2003) in a case study domestic tubewells, found that cost-sharing was motivated by a desire to create a sense of ownership, sustainability, empowerment of the poor through providing them with new roles (as owners of assets) through a contribution of a small amount of money towards a tubewell. However, there was a clear reluctance among all villagers to engage in this 'shared ownership' idea. This reflected local power dynamics where the rural elite would not grant the poorest a role as 'part owner' since "everyone" knew they only contributed symbolic and small amounts of money, and villagers foresaw potential conflicts with shared ownership (Arvidson, 2003). The outcome was that the ideas of P&E as envisioned in project documents were quietly abandoned while project activities went ahead with individual ownership; field workers were faced with having to manage the contradictions between the messages of project ideology and texts, the imperatives of their daily practices which were equally driven by the project logic of reaching targets, and the preferences as expressed by participating villagers (Palmer-Jones, Arvidson, & Mandal, 2010).

Perhaps a similar dynamic is at play with the GPWM structure for WMOs? In IPSWAM, there was less focus on cost-sharing than in LGED. Nevertheless the issue of leasing of khals was contested, either due to WMO members exploiting it, or if local elites obstructed WMO activities. Yet very little of this is mentioned in the evaluation reports. In terms of LGED, cost-sharing is much more established. WMCAs in particular must mobilize upfront contributions and pay for the services of a bookkeeper and gate operator (LGED, 2009). In the subproject maintenance strategies they are also required to address how they will raise the remaining funds for O&M considering the limited funds from LGED. All the while, the cooperative status and income generating activities provide incentives for various power dynamics and interests of 'influentials' who may expropriate project benefits for their own ends. Senanayake et al (2012) found that the executive members of WMCAs often happen to be influential people with varied interests in construction, business and many, if not most, have political ambitions. They look upon WMCA Chairmanship as a stepping-stone towards getting elected as Union Parishad Chairman. In the bipartisan political context of Awami League vs. Bangladesh National Party, WMCAs affiliated with a particular political party either face dissolution or are caught in limbo if the other party comes to power in a national election. In spite of best intentions to make these as representative as possible, the local power dynamics are such that elite and political capture happen often (Senanayake et al; Wood, G. , 1999)

In practice, management reform processes are often captured and reshaped at the local level, where patterns of formalized participation tend to reflect existing power asymmetries rather than evening them out (Molle, 2008, p. 132; Mosse, 2005, p. 19). For instance, Vollan (2012)'s study in South Africa

provides evidence that a high number of externally initiated committees have a negative effect on aggregated trust and reciprocity within a community. This is caused by a stronger lack of downward accountability and transparency as well as coordination problems leading to unclear leadership. Arguably, the word 'community' in itself is contested. It is a blanket term that in some ways depoliticizes the different and often competing interests of various stakeholders. The GPWM definition of local stakeholders is broad, yet only the WMO is the institutional unit to represent these varying interests. This could be argued as at odds with the realities of rural life in Bangladesh (Wood G. , 1999) and exclude key groups of stakeholders (such as fishermen, landless and boatmen) and key aspects of water resource management such as groundwater utilization, domestic water supply, fishing resources and navigation (Soussan, Mallick, & Chadwick, 1997). Rather, different 'communities' have different histories and thus different social cohesion and fundraising willingness. Consequently, their relative advantages in the devolution process differ (Vollan, 2012). By imposing a uniform institutional blueprint of WMO on local communities to be able to obtain assistance on water management, perhaps one can argue that the NWP and GPWM are engaging in a process of institutional mono-cropping, see Evans (2004, pp. 30-21). Rather, it must be made more explicit and recognized how participatory water management is embedded in society and how this process may become manipulated by local interests and external agencies that in various ways validated themselves as 'local knowledge'. Currently, many forms of data collection, not only WMOs, limit themselves to the male educated and influential. Often women are not spoken to, driven by an idea that 'they do not know anything about water management'. There is a perception that elite and farmers are better aware and hold better knowledge. Even in IPSWAM's 'success polder', Polder 30, one farmer questioned why a schoolteacher who has never done any farming is part of the executive committee taking the decisions that affect farmers. As Mollinga et al (1998) so aptly put it: water management and use is contested at all these levels, that is, that water control needs to be understood as a political process. At the same time, neither donors nor government agencies are willing or incentivized to discuss these issues. Rather, they through their evaluation reports often depoliticize development (Ferguson, 1994; Escobar, 1995) in which the essentially political issues of development are transformed into technical issues responsive to expertise and authority.

## V. Conclusions and future research directions

### 1. What we know

#### *Organizational differences BWDB and LGED*

We know that based on different historical trajectories and interactions with donors there are significant organizational differences between BWDB and LGED placing them in different positions to implement GPWM.

We know that the project-based focus of BWDB has led to less organizational coherence and institutionalized information-sharing across units and project offices.

#### *Factors for WMO success*

We know that micro-credit serves as an incentive to engage in WMOs, but may not lead to improved operation and maintenance. Incentive structure that can engage WMOs in maintenance activity should be developed, or reconsider the role of WMOs in maintenance altogether.

We know that the success of WMO depends on several different variables and contexts. In general, participation works better and creates more ownership in smaller hydrological units with lack of social conflict.

We know that the socio-economic context in Bangladesh is ridden with power inequalities and different interests. Participatory water management is more successful when these issues are addressed in the engineering design rather than simple blue print solutions ignoring local complexities.

#### *Maintenance*

We know that deferred maintenance is a problem that needs to be addressed through permanent institutional structures of follow up and monitoring combined with continuous and adequate funding post-intervention

### 2. What we know little about, but need to know more of

#### *Organizational differences BWDB and LGED*

We know that BWDB as an organization is segmented into wings. We do not know how these wings collaborate and how this can be made more efficient for maintenance for BWDB as a whole.

We know that BWDB has been active with participatory management since the 1980s and had a Land and Water Use Directorate consisting of agronomists in charge of water user groups and agricultural extension that has been phased out since the 1990s. We also know that IPSWAM has proposed a permanent unit within Planning III to have similar functions as LGED's IWRM unit. We do not know how this would be executed or how it would be different from LWUD.

We know that Planning and O&M wings are both important for water management and sustainable maintenance in the polder areas. We do not know the details of how the interaction, coordination and information-sharing between these teams take place in practice.

We know that government officials have internalized the discourse of participatory water management. We do not know to what extent this is driven by strategies of organizational survival (Mosse, 2004).

### *Factors for WMO success*

We know that GPWM, IPSWAM and SSWRDSP propose a methodology for participation and criteria for hand-overs. We do not know how much these steps correlated with the needs and demands of the communities or if they have their own ideas of simpler method they would prefer.

We know that in some instances women are participating actively in WMOs, but we do not know during what circumstances or what impact their participation has.

### *Maintenance*

We know that leasing of khas land and khals is a strategy for BWDB and LGED to give income to WMOs. We do not know what happens in practice due to overlaps of ownership (Ministry of Land, Upazila and District Chairman) and local power dynamics that may appropriate the land or canal for other uses.

We know that there are local (indigenous) solutions for adapting to changing functions of the polder, while the design has remained the same. We do not know to what extent and how implementing agencies recognize and learn from these informal and local solutions in adopting to changed functions of the polders.

## **3. What we do not know**

### *Role of Local Government Institutions*

We do not have a systematic or comprehensive overview of the role of LGIs when LGED and BWDB set up WMO committees and how this plays out in practice. Rather than a list of formal requirements of how to engage with LGIs, an ethnographic account on the existing informal power structures and how Union Parishads negotiate externally driven projects may shed light on the role of local governments vis-à-vis externally created WMOs.

We do not know the role that the Upazila-level development coordination committee plays in water management. To what extent are they able to coordinate different actors and projects and how does this relate to the intended coordination activities expected of WMOs?

### *Organizational structure of BWDB*

We know that BWDB as an organization is segmented into wings. We do not know how these wings collaborate and how this can be made more efficient for maintenance for BWDB as a whole.

We do not know the organizational structure and culture of BWDB O&M and Planning Wings or the coordination mechanisms that exist between the two.

### *WMOs and participation of the marginalized*

We do not know what impact the current WMO structure has had on increasing LCS decision making power and voice, as well as reducing wage discrimination and improving their working situation.

### *WMOs and impact on infrastructure condition*

We do not have a systematic overview of the performance of different WMOs and their institutional structures on the water infrastructure such as sluice gate regulators, embankment maintenance and khal maintenance. Nor do we know whether or not informal institutions might be better at these issues, or if they have alternative solutions for water management.

## **G3s contribution to filling the gaps**

### *WMOs and impact on infrastructure condition*

Through the participatory mapping and baseline maps created by the Institute of Water Modeling for G3, the project is enabled to link the resources with the institutions. This means that through resource mapping we can identify which water infrastructures are in good or poor conditions, linking it to the various formal and informal water management institutions identified and consulted with during the qualitative survey conducted by Shushilan.

### *Participation through WMOs vs informal/local solutions*

Through the qualitative survey, G3 will be able to identify active and inactive WMOs and the reasons for their successes and failures. Based on this preliminary problem identification, we will commission an in-depth case study investigating selected cases of WMOs to better understand their impact on maintenance and how they correlate with participation and local power structures. The problem identification identifies what is meant by 'participation' linking it to cost-sharing, responsibilities and decision making as well as discourses of power and exclusion. Who participates in 'community participation' and 'community based management'?

Firstly, the case study would investigate how WMOS connected to other local institutions such as Union and Upazila Parishads, NGOs and other government extension agencies.

Secondly, such a case study would also evaluate the efficacy of the methodology outlined by GPWM, IPSWAM and SSWRDSP in terms of to what extent these steps are correlated with the needs and demands of the communities. It would also explore if community members had their own ideas of simpler method they would prefer.

Thirdly, it would investigate what impact the current WMO structure has had on increasing LCS decision making power and voice, as well as reducing wage discrimination and improving their working situation. For instance, is a quote for landless helpful?

### *Maintenance*

We know that leasing of khas land and khals is a strategy for BWDB and LGED to give income to WMOs. Through the qualitative survey and participatory resource mapping we are able visualize and analyze what happens in practice due to overlaps of ownership (Ministry of Land, Upazila and District Chairman)

and local power dynamics that may appropriate the land or canal for other uses. Based on these results we may commission a case study on how such conflicts can best be resolved.

We know that there are local (indigenous) solutions for adapting to changing functions of the polder, while the design has remained the same. Through our study we can identify cases of local innovations and whether or not they have been recognized by government agencies and the reasons for this. We may then be able to create a toolkit of best practices of innovations that will help support knowledge sharing on informal and local solutions in adopting design to changed functions (shrimp farming) and problems caused by polderization and siltation ( drainage congestion).

Through our qualitative study, we are also able to inform policy makers on the most pressing problems related to maintenance in the polder areas and their key causes. Through our identification and analysis we aim to provide implementable policy suggestions for how to overcome deferred maintenance both as part of institutional structures, donor incentives, funding mechanisms and the use of local level institutions.

### *Organizational Differences*

We aim to commission a case study on the internal organizational dynamics of the BWDB as very little of this is available. Key aspects would be to understand the progress and functions the proposed permanent unit within Planning III, as well as in what ways it is similar or different to LGED's IWRM unit and the previous Land and Water Use unit. Another aspect would be to understand the differences of organizational culture and structure of the O&M and Planning Wings as well as the coordination mechanisms that exist between the Planning division and the field-based O&M Wing.

### *Role Local Government Institutions*

In the evaluation reports, there is no systematic or comprehensive overview of the role of LGIs when LGED and BWDB set up WMO committees as part of formal requirements and how this plays out in practice. Through G3's qualitative survey, the role of the Union Parishad and Upazila Nirbahi officer is explored. Such preliminary findings may shed light on existing informal processes and the role of LGIs in water management and coordination vis-à-vis externally created WMOs. Furthermore, we could commission a case study investigating to what extent Upazila level coordination committees are able to coordinate different actors and projects and how this fits with WMOs and participatory water management.

### *Gender*

We know that in some instances women are participating actively in WMOs, but we do not know during what circumstances or what impact their participation has. G3 will commission an indepth-gender case study investigating women's participation in water management, formally and informally, and explore the factors for their participation and the impact that this may have.



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