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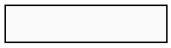

Views

Actions

27 Sustainability

Briefing Materials

The following materials illustrate concepts, interventions, outcomes and lessons learnt, including through stories from community members.

Slide decks

• WMOs: building sustainable partnerships for participatory water management

Thematic brochures

• Lessons learnt for scaling out: how participatory water management contributes to inclusive development
• WMOs: building sustainable partnerships for participatory water management

The Theory of Change, see figure 30.4 in Chapter 30, postulated by BGP to guide future interventions in the coastal zone under the aegis of the Bangladesh Delta Plan assumes that local economic development based in collaborative actions by community-based water management organisations, technical departments, local governments and local businesses is 'responsible development'. When communities, leaders and experts work together there would be a tendency –or maybe better put: an opportunity– to shape actions in such a way that long-term sustainability is enhanced and that outcomes contribute to the livelihoods of different classes of people. Such an integral approach to water management and agricultural transformation would produce results that are more inclusive and gender-responsive, and more sustainable. This section presents how BGP enhanced inclusiveness and sustainability and reviews the evidence for the claims of 'sustainability'.

As discussed in chapters 24, 25 and 26, 'inclusiveness' was given explicit attention through BGP's focus on women's empowerment, gender equality and poverty alleviation. 'Sustainability' was assumed to be achieved especially by organising communities into Water Management Organisations (WMOs), however, with a less explicit operative focus.

The Project Document presented the mobilisation of communities into WMOs in the legal form of cooperatives[Notes 1] -i.e. as independent business entities- as a precondition for sustaining improved water management practices, thereby sustaining the ensuing livelihood improvements. Promoting the productive use of water management infrastructure by the WMOs was mentioned as a second factor promoting sustainability. Sustainability in terms of sustaining BGP's expected outcomes after program completion was, however, not elaborated upon.

In line with the cursory guidance of the Project Document, implementation initially strongly focussed on reactivating, establishing and strengthening WMOs, with much attention to ingraining the internal management processes (elections, record keeping, conducting stipulated meetings). With time, attention shifted to promoting the productive use of the improved water management infrastructure, thereby emphasizing community involvement in establishing water management practices that enable and support improved farming practices. The concept of sustainability was not incorporated in the M&E framework of the project.

The assumption in Blue Gold's Theory of Change that an integral and participatory approach to water management for development inherently produces outcomes that are more sustainable than sectoral and centrally implemented programmes was based on anecdotal and indirect evidence. In particular, it was assumed that communities and their local governments would take steps to modify

existing water management systems, often benefiting the elite, to systems that are more conducive for their long-term production aspirations and benefiting a broader section of the community. Examples are the pursuit of a retention structure at Gajedrapur Uttar in polder 28 and the establishment of a pumped drainage system in Polder 2 extension. Observed actions to remove conditions causing drainage congestion and water logging and early response to damage to infrastructure have also encouraged the conviction that the participatory approach towards water management inherently adopts a long-term perspective.

While examples, such as the ones above, do suggest an inherently more sustainable nature of 'water management for development', confidence in this claim can be bolstered by a more comprehensive analysis of the admittedly scant evidence for enhanced sustainability. The following sections look at sustainability in five areas: the physical environment, the household capability to recover from shocks; the capacity to organise actions to maintain and improve water management; the community's access to services and support; and risk management. In addition, the impact of the COVID-19 pandemic and the Amphan cyclone is presented.

□

Contents

Physical environment[edit | edit source]

At the moment of writing this chapter (November 2020), a good proportion of the 22 polders have been adequately rehabilitated so that the primary flood defences and the main drainage networks are ready to deal with flood and rainfall extremes that occur roughly once in twenty years[Notes 2]; in the remaining polders the works have been completed within 2021. Embankment sections vulnerable to erosion have either been protected or have been retired further inland.

As per its design, BGP initially only invested in improving main infrastructure. But based on perceived needs, also in-polder water management (IPWM) was addressed. Small-scale works have increased the potential of intensified cropping in sub-catchments, whereas excavation of *khals* and minor drains have removed drainage congestion from many areas, thereby intensifying crop production and improving living conditions. However, roughly half of the main sluices were in 2020 not yet under community control, which is needed for proper IPWM. This implied a risk of continued unsustainable water use practices by influential individuals, such as *khals* being closed off for fish

production and saline water being let in for shrimp cultivation[Notes 3].

By the end of BGP the physical status of the 22 polders has been substantially improved through rehabilitation of major infrastructure along the periphery (embankments and sluices) and an improved drainage network for internal polder water management. Whether the present status can be preserved and even expanded upon, is discussed under the capacity to organise water management and maintain water management infrastructure.

Coping capability[edit | edit source]

From what is known at this point in time through outcome surveys and beneficiary interviews (see chapter 6 and/or chapter 23), agricultural production has significantly increased and includes a greater volume of high value crops. The demand for agricultural labour has also increased. Many households now have a better income base.

The increase in production and income was especially boosted by the high volume of skill training on improved agricultural technologies provided by BGP through FFS, both for field crops and homestead production, complemented by orientation on market linkages and strengthened service delivery. The homestead FFS activities have resulted in more diversified and higher incomes for especially poorer and landless households, as discussed in chapter 25. Many of these activities have specifically enabled women to enhance their production and income, improving nutrition and reducing poverty.

And as dicussed in chapter 24, empowerment of women, through FFS and other activities, exceeds their economic empowerment and decision-making on production and income, also covering increased self-confidence, more female leadership, increased mobility and larger social networks. Gender norms and roles gradually started changing, with women more often taking up tasks previously only done by men, whereas decision-making on production became more joint by husband and wife. This more robust role of women increased the resilience of their families.

Many Water Management Groups have enhanced the availability of affordable credit for their members, with so far Tk 34 million being invested in income generating activities through issuing small loans. Collective saving for making small loans available at concessional rates is significant: households in polder 30 have been able to invest in the development of freshwater *ghers* and could thereby diversify their income base. Availability of micro finance is an important factor in helping smallholder households to take part in the transformation to commercial agricultural. It is a point of discussion whether support to micro-finance and savings & credit operations should be left to specialised agencies (such as Micro-Finance Institutions and/or banks) and/or people's own initiative, rather than incorporating savings and credit operations into the Water Management Groups (WMGs). Within BGP the practice of actively promoting savings and credit operations by WMGs was discontinued over time as (i) the WMGs were re-registered under the BWDB legal framework, which unlike the Cooperative Law, does not require and support a savings and credit practice; and (ii) as savings and credit operations sometimes became the main focus of a WMG at the detriment to their primary focus on water management, laying claims on scarce management resources and also carrying an inherent risk of mismanagement.

Capability to maintain and improve water management[edit | edit source]

BGP helped mobilise over 70% of the beneficiaries of the 22 polders into a nested structure of Water Management Groups and Water Management Associations (i.e. the WMOs), with hands-on

experience in planning and undertaking water management actions at sub-catchment, catchment and polder level.

This structure for community-based organisation of water management enhances the voice of people in decision-making. This is especially important as the WMOs tend to represent smallholder producers. Their priorities e.g. for timely and full drainage during and after the monsoon, are better represented than in situations of absence of WMOs when the interest in retaining water of absentee owners engaged in fish and shrimp cultivation tend to dominate.

Within the WMO structure, women have a better voice in decision-making. Around 43% of the WMG members is female, and at least a third of the executive board positions in WMGs and WMAs are taken up by female leaders. With an active female membership, the pool of potential WMO leaders is larger and the diverse interests of communities are better represented.

However, experiences from the previous projects that supported WMOs showed that many did not sustain as active organisations beyond a duration of five years after project completion, apparently due to lack of capacities, activation and/or support. Therefore efforts have been made within BGP to create better conditions for sustaining the practice of maintaining and improving water management:

- Though maintaining the focus of WMGs on water management, also complementary roles have been supported, such as taking initiatives towards collective actions and playing a role in information dissemination and disaster preparedness; such roles tend to enhance the sustainability of WMGs.
- More emphasis has been put on establishing and/or strengthening Water Management Associations under the assumption that these would have more permeance and that – if the need arises – these can take the initiative to support and reinvigorate their constituent WMGs, including by conflict management if and when needed.
- For the same reason, the relationship between WMOs and Local Government Institutions (LGIs) has been fostered, in particular, with Union Parishads, but also with Upazila officials. LGIs are permanent institutions mandated to promote local economic development and, as such, stand to gain from active and constructive community-based organisations for water management. Many WMOs now cooperate with LGIs, especially in improving local water management, such as constructing cross-bundhs (small dams) or culverts. WMOs also have proved to fill the gap between the lowest level LGI and the communities, e.g. as demonstrated during the COVID-19 pandemic, when WMOs conveyed hygiene messages in cooperation with UPs, and the Amphan cyclone, when WMOs played a role in warning and in mobilising manpower to quickly repair damaged embankments.
- BWDB and the WMOs have a relation, as the former registers and oversees the latter. The relationship has however been made more robust through promotion of personal contacts and by developing a polder-level O&M agreement between each WMA and BWDB that governs their complementary responsibilities towards ensuring the sustained integrity of the polders.
- In a break with the thinking in the Project Document (and in the Guidelines for Participatory Water Management), BGP realises that WMGs and WMAs alone cannot ensure sustainable water management in the polder. They need to cooperate with the aforementioned local governments and with concerned departments, agencies and private sector actors to develop a dynamic and progressive link between water management, commercial agriculture and local economic development. BGP therefore helped WMOs present themselves to the stakeholders around them and stimulated them to develop robust networks with others, both within the government (DAE, DoL, DoF, etc) and in the private sector.

While the network established for better in-polder water management is a prerequisite for a more

sustainable polder, it must be admitted that this linkage itself remains vulnerable:

- The linkage to the Union Parishads, though very important for undertaking small works, for cleaning of *khals* and for obtaining control of the sluices, is highly reliant on personal relationships between Union and WMG leaders. This is a rather vulnerable basis for long-term cooperation.
- The relation of BWDB to the WMAs is governed by the O&M agreement, but BWDB does not have the manpower and budget to keep up its part of the bargain. Moreover, the O&M agreements are particular arrangements for a particular project and they are not automatically a universal pact between BWDB and water users after BGP completion.
- The BWDB Office of the Chief Water Management, which is responsible for supporting and overseeing WMOs, is severely strapped for resources and does not have an adequate local presence. Any effective backing of WMOs by BWDB therefore is not realistic.

The above concerns are not specific to the BGP area, and a better partnership between communities, BWDB, LGIs and others on local water management priorities would partly depend on the improvement of water sector governance in Bangladesh. This is one of the concerns that is to be addressed under the wings of the Bangladesh Delta Plan.

Longevity of infrastructure also presupposes that resources for maintenance, operation and modification are or can be mobilised. This is an area of concern. BWDB, in its responsibility for periodic and emergency maintenance, lacks a budgetary reserve for this and would need to go through a standard requisition procedure for obtaining funds for specific investments. The process is lengthy and ill-suited especially to emergency works. At the same time, WMOs and their communities – despite having been able to mobilise funds and labour for maintenance and small works -often with LGI support – have very limited ready-at-hand liquidity to invest in immediate maintenance and repair needs beyond small repairs, and have as yet not developed robust procedures for resource mobilisation across all beneficiaries of the water infrastructure.

Network of services[edit | edit source]

A community is more resilient, and its endeavours are more sustainable, if that community can rely on good services from local governments, departments, private sector and NGOs; and if it has an adequate voice in the public decisions affecting them. Roughly from 2017, when BGP launched its exit strategy ‘sustainability from the start’, it has been giving more prominence to networking by WMOs and to the development of constructive partnership relations with key stakeholders. This is partially discussed in the above section on sustaining water management, but here the discussion focusses on services in the realm of commercial agriculture.

Agricultural extension aimed at creating adaptive capacity. Producer capacity was enhanced to make the most of the production potential arising from infrastructure rehabilitation and developing water management abilities. The focus was on business and decision-making skills of both male and female farmers to pursue increasing levels of production ambitions and create the ability to adapt to changes in the business environment, be it water management, technological, market or climatic changes, while considering risks. Many producers expanded and established better relations with other actors in their value chains and in support functions. Key to this were building networks and networking skills to facilitate access to goods, services and information, boosted by the use of mobile phones and stimulated by Horizontal Learning. In the process, the outreach of DAE, DoF and DLS were expanded alongside the engagement of the private sector. The bargaining power of producer groups was enhanced through Resource Farmers organising collective actions. Also 125 local input providers and traders were introduced to collective actions so that systemic change evolved as both

sides increasingly appreciated the win-win potential hereof and the practice spread on its own.

Besides the capacity strengthening of 250 DAE's Sub-Assistant Agricultural Officers (SAAOs) and Departmental Trainers, there is a cadre now of around 1000 trained local resource persons, who the community can revert to for technical advice. This includes in the first place some 700 Resource Farmers (70% female), with an enhanced networking capacity and information seeking behaviour, an ability to lead collective actions, and a reflex for Horizontal Learning and involving local model farmers. In addition, there are 225 Farmer Trainers (40% female), 60 Community Poultry Workers (all female) and 40 Community Livestock Workers (nearly all male), as well as people trained in catchment planning processes. Awareness of these local resources was facilitated by stimulating that resource persons' networks became linked to WMOs and access to these resource persons was enhanced by stimulating the use of mobile phones, the latter also enabling farmers to enter into contact with market actors.

The outcomes in terms of agricultural growth and the commensurate rise in incomes and demand for labour in the polder economy are encouraging but sustainability would be further enhanced:

- by the implementation of the lessons from agricultural extension in the coastal zone, both in terms of content and approach
- by attention to the future binding constraints emerging from the improvement of water management and increasing production, such as labour shortages and feminization of agriculture
- by striving towards more pluralistic agricultural extension, using the capacities of various service providers, both public and private, in partnership.

Risk management[edit | edit source]

During the most recent cyclonic storm (Amphan, May 2020), WMOs and local governments worked in many instances together to prevent embankment breaching or to implement emergency repairs. This suggests that communities and their institutions are ready to address the risks facing them.

While the above is very encouraging indeed, from the perspective of overall risk management a few reservations need be made:

- Union Parishads and Upazila's have been given extensive responsibilities for disaster preparedness. This goes beyond the reactive approach seen in the aftermath of Amphan as the responsibility – when fully addressed – constitutes comprehensive and proactive disaster management. However, barring a few incidental supports, BGP did not avail of the opportunity to address risks facing the polders' sustainability by supporting the disaster preparedness responsibility of the Union Parishads with materials, capacity development and/or a specific linkage for this activity to the WMOs.
- While BGP helped reduce the destructive force of water and helped harness its productive potential, the focus has largely been on the present situation. Risks to the polders' sustainable performance that relate to processes augmented by climate change were not part of the mandate of BGP and were not incorporated during its implementing period. This relates specifically to the enhanced sedimentation of rivers, especially in Satkhira and Khulna; to the deeper intrusion of saline water into the Delta; and to the greater variability in weather conditions paired with longer spells of drought or high rainfall.
- Finally, little thought has been given to larger socio-economic risks affecting the project area. This relates to the consequences of substantial out-migration for local development and the somewhat related phenomenon of feminisation of agriculture. These two may combine to a shift to (saline) *ghers* and/or a regression to lower value subsistence agriculture, in particular

if there is shortage of labour and/or if agricultural extension fails to better target women farmers. Such lower value agriculture may not create enough surplus to support the main polder water management infrastructure, whereas owners of saline *ghers* are not interested.

Although BGP did not explicitly pursue risk management of the polders, the fact that the WMOs and LGIs do cooperate in addressing pressing risks, shows that a participatory and integral approach to water management for development tends to pay attention to sustaining its outcomes.

Impact of disasters and resilience to face them[edit | edit source]

The year 2020 brought two major disasters that -at least temporarily- impacted BGP beneficiaries, negating some achievements of the preceding period of BGP supported development: the COVID-19 pandemic, which continues to be a threat (see Report COVID-19 Survey); and the Cyclone Amphan, which hit several polders on May 20 and 21. Most impact of COVID-19 is related to the drastic measures that were imposed by the government in March 2020 to minimize infections by the virus. These measures included a lockdown, urging people to stay home and maintain social distancing. It meant that almost all transport was stopped and businesses, markets and educational institutions were closed. This had an immense impact on the communities in the BGP area.

Agricultural production and farmers' income[edit | edit source]

Farmers experienced severe difficulties selling their produce because traders stayed away and fish export had stopped. Farm gate prices fell, leading to lower prices for almost all produce, such as milk, eggs, poultry, vegetables, fish and various *rabi* crops. Vegetables rotted due to lack of buyers. On the other hand, prices for inputs, such as seeds and feed, increased due to shortage in supply. On top of this, the Amphan cyclone caused floods and water logging, destroyed crops, made fish ponds overflow, and flooded homesteads, affecting field crops, fish and homestead production. As a result of the two disasters, the increases in agricultural production and/or income observed during the years of BGP interventions were often undone as a result. For Blue Gold's endline survey this meant that production and income data were collected for the three agricultural seasons preceding COVID-19, i.e. for 2019, rather than for 2020.

Income from agricultural wage labour[edit | edit source]

In the first period of the lockdown, wage labourers were reluctant to go out to work, resulting in loss of income for them and labour shortage for crop farmers. The closure of many businesses and markets country-wide resulted in many migrants returning to their home villages, where they were idle and without income. When lockdown measures were somewhat relaxed and wage labour work picked up again, there was over-supply of labour, and wages dropped. As male labour was available at rates previously paid to women labourers, farmers mainly hired male labour; women labourers being disproportionally impacted. In particular women headed households, with the woman as only breadwinner, fell back to a situation of hardly any income. This was a big reverse from the positive developments in recent years, with the increasing demand for wage labour and increased wages, also for women workers.

Infrastructure[edit | edit source]

The COVID-19 meant a temporary stop or slowdown of the implementation of infrastructural works, as contractors were not interested or able to work during the lockdown and (skilled) labour returned to their home villages. Gradually work was taken-up again, also aiming to speed up the works such

as *khal* re-excavation and sluice construction. The Amphan cyclone caused damages and breaches of embankments. WMGs -often in coordination with Union Parishads- did emergency repairs to limit the damages due to flooding. The scope of ongoing BWDB contracts with contractors was extended to include emergency work. However, proper quality control at critical stages was sometimes lacking as visits by TA quality control engineers were not always possible, especially due to the COVID-19 situation.

As much as possible, work on the in-polder water management infrastructure continued, such as CAWM field channel (re) excavation and the SSWMI works, i.e. works implemented by the WMG members themselves.

Socio-economic impact[edit | edit source]

In addition to the dwindling incomes from agriculture, also other categories of workers saw their incomes lost or reduced. Migrant workers lost their jobs and returned home to their villages; entrepreneurs with small or bigger businesses saw their revenues decrease. Overall, many households fell back into poverty and food insecurity, and food intake was reduced. As is common, such situations affected women most, as they were the first to skip a meal, or taking less food per meal. WMG members stopped saving with WMGs; rather people had to take more loans from money lenders.

The situation of women also changed due to husbands and children staying home most of the time, which not only led to more domestic work (demands of husband and responsibility for hygiene), also domestic violence increased as well as early marriages. The reduced family income also contributed to an increased demand for dowry, whereby married men put pressure on their wives -also by beating- to demand her family for new dowry payments. Reduced access to health services was another negative impact of the COVID-19 situation; for example, there was an increase in home deliveries. In addition, loss of assets and damages to housing were caused by the Amphan cyclone.

Resilience[edit | edit source]

Signs of resilience, enhanced by BGP interventions, were also observed. WMGs – often hand-in hands with Union Parishads – helped raise awareness about COVID-19, including about protection measures such as hand washing, social distancing and mask wearing. WMGs played a role in issuing warnings for the upcoming cyclone. Some beneficiaries were even able to use the cyclone information to sell their watermelons quickly through collective action before the cyclone hit their land. WMGs also were instrumental in mobilising labour to protect and repair damaged embankments, thereby minimising losses. Their closer association with government officials, as build up with LGIs, DAE and others during BGP, enabled farmers and communities to better obtain support. Households that had diversified and improved their homestead production proved to be more self-reliant. And empowered women were more likely to take initiatives to address their situation; they were also more able to stand up against the (increased) domestic violence.

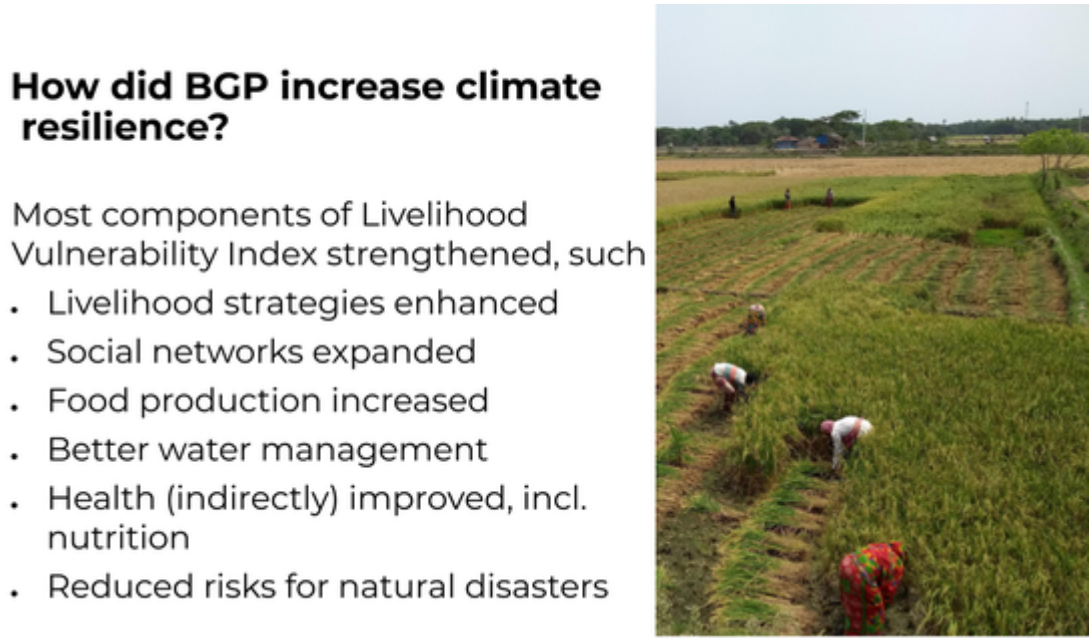

Figure 27.1 BGP's contribution to increased climate resilience[Notes 4]

By the end of 2020 the situation was gradually returning to normal, as more transport and market activities were possible, and more shops and businesses have opened again, despite still people being affected by the virus. The second lockdown in 2021 again affected polder inhabitants, with more families personally affected by COVID-19; but with less strict lockdown measures, e.g. private transport remaining available. Still many people remained without work and income; or incomes remain lower, e.g. due to less work for (women) wage labourers and lower wages. By the end of BGP it therefore cannot be predicted to which extent the impact of the two disasters remains felt in the coming years.

Figure 27.2 Women's empowerment resulting in increased climate resilience[Notes 4]

Conclusion[edit | edit source]

The evidence available shows that conditions for long-term sustainability of the polders and of the 'water management for development'-practice have improved; resilience to face disasters improved as well. At the same time, one may wonder whether this is enough. The country framework for water

sector governance is weak; and local good water management practices are still in their initial stages. A future project intervention design for the coastal area would do well to:

- Support improvements in the overall water sector governance from inception onwards
- Promote local action for better water management and climate smart agricultural transformation from the start of the project
- Link BGP's experience with harnessing water management for local economic development with the development of policies for better water sector governance, as undertaken under the aegis of the Bangladesh Delta Plan.

Notes[edit | edit source]

1. ↑ At the time that the Project Document was elaborated (in 2012) the only option for legal registration of WMOs was as a cooperative under the Department of Cooperatives. Since the PWMR of 2014, however, registration of WMOs under the Office of the Chief Water Management, BWDB, became the standard.
2. ↑ Climate change considerations, in particular sea level rise, were knowingly not taken into account; rather, embankments were rehabilitated back to their original design situation. It was considered not yet needed to extra raise the embankments, because over time -and after future erosion- new rehabilitations will be needed.
3. ↑ Shrimp cultivation usually refers to saline water production; prawns to fresh water.
4. ↑ [4.0] [4.1] Source: Slide from the presentation "Empowering Women for Economic Development and Resilience" at the Gobeshona6 International Conference on Climate Knowledge of January 2020

See more[edit | edit source]

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Blue Gold Wiki

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A defined set of temporary activities through which facilitators seek to effect change

Blue Gold Program

In BGP's context this refers to inclusive and sustainable development as transversal elements within BGP's approach, with inclusiveness meaning that also women and poor household benefit from BGP

A livelihood is a way of making a living. It comprises capabilities, skills, assets (including material and social resources), and activities that households put together to produce food, meet basic needs, earn income, or establish a means of living in any other way.

The inclusion of the (interests of) different types of people and treating them fairly and equally, considering their different roles and interests in water management

empowerment is a process, enabling people to make choices and convert these into desired actions and results. In doing so, people take control of their own lives, improve their own position, set their own agenda, gain skills, develop self-confidence, solve problems, and develop self-sufficiency. Empowerment leads to genuine participation of all actors as it is a process of gaining self-confidence for individual development as well as to contribute towards development of others.

Gender equality exists when men and women, boys and girls are attributed equal social value, equal rights and equal responsibilities; and men and women have equal access to the means (resources, opportunities) to exercise those rights and responsibilities. This does not mean that women and men

will become the same, but rather that rights, responsibilities and opportunities will not depend on whether someone is born male or female.

Water Management Organizations - The common name of organizations of the local stakeholders of a water resource project/sub-project/scheme. The concept WMO typically refers to WMGs and WMAs (and/or WMFs) together

Monitoring and Evaluation

The strapline of the Blue Gold Program for a transformative approach to smallholder agriculture which combines water infrastructure and locally-led initiatives for better water management, using modern agricultural technology and a business-orientation.

a structure that provides for the storage of runoff and is designed to maintain a permanent pool of water.

An area of low-lying land surrounded by an earthen embankment to prevent flooding by river or seawater, with associated structures which are provided to either drain excess rainwater within the polder or to admit freshwater to be stored in a khal for subsequent use for irrigation.

the south-western coastal zone is characterised by broad tidal flats and fluvio-tidal plains, lying approximately 1 metre above sea level, with drainage provided by numerous tidal creeks and channels a some major rivers. Empolderisation now protects the intrusion of sea water to agricultural areas but restricts the deposition of sediments to within the channels, thus reducing the drainage capacity of the rivers and channels, causing drainage congestion.

human intervention in the capture, conveyance, utilisation and drainage of surface and/or ground water in a certain area: a process of social interaction between stakeholders around the issue of water control.

In-polder water management; term used in Blue Gold to describe water management interventions which aim to deliver excess water from the field through field drains to secondary khals and thence to primary khals for evacuation through the sluice/regulator

In-polder water management; term used in Blue Gold to describe water management interventions which aim to deliver excess water from the field through field drains to secondary khals and thence to primary khals for evacuation through the sluice/regulator

Any individual or group who, in one way or another is favourably influenced by the project.

Farmer Field School - A group-based learning process through which farmers carry out experiential learning activities that help them to understand the ecology of their fields, based on simple experiments, regular field observations and group analysis. The knowledge gained from these

activities enables participants to make their own locally specific decisions about crop management practices. This approach represents a radical departure from earlier agricultural extension programmes, in which farmers were expected to adopt generalized recommendations that are formulated by specialists from outside the community.

Also known as 'business linkages'. Linkages refer to the trading relationships between and among producers, input providers and traders, and other enterprises in a supply chain or value chain. We refer to Backward linkages on the input side and Forward linkages on the output side of the producer.

assumed in this report to operate up to 0.5 acres (0.2 ha)

Water Management Group - The basic organizational unit in Blue Gold representing local stakeholders from a hydrological or social unit (para/village). Through Blue Gold, 511 WMGs have been formed and registered. The average WMG covers an area of around 230 ha has 365 households or a population of just over 1,500.

An area enclosed by low embankments to store either freshwater or brackish water for the production of fish, shrimps or prawns.

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Bangladesh Water Development Board, government agency which is responsible for surface water and groundwater management in Bangladesh, and lead implementing agency for the Blue Gold Program

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Water Management Association - In Blue Gold, the polder-level representative of WMGs, and signatory to an O&M Agreement with BWDB

Part of the catchment which is not directly connected to the regulator, and is hydrologically independent from other parts of the catchment.

Water Management Organizations - The common name of organizations of the local stakeholders of a water resource project/sub-project/scheme. The concept WMO typically refers to WMGs and WMAs (and/or WMFs) together

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Collective action - by a producer group is one way to partially overcome constraints such as in weak markets, where inputs and services essential to production innovations, are generally scarce, costly to access and/or to obtain. Collective action is working in group instead of individually in order to gain economic or social benefit. Through collective action, farmers can address constraints in their market linkages, organise their activities jointly and use their collective bargaining power to reduce input costs through bulk purchase, or to obtain services from buyers such as farm-level collection of produce

Local Government Institutions - Union Parishad, Upazila Parishad etc

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Water Management Association - In Blue Gold, the polder-level representative of WMGs, and signatory to an O&M Agreement with BWDB

A process by which the local stakeholders are directly and actively involved in identification, planning, design, implementation, operation & maintenance and evaluation of a water management project.

agricultural production aimed at meeting market-demands. It is based on establishing a profitable farming unit and involves a multitude of business relations with other actors in the market system. Used in contrast to subsistence farming which focuses mostly on home consumption.

Department of Agricultural Extension, a department of the Ministry of Agriculture responsible for disseminating scientific research and new knowledge on agricultural practices through communication and learning activities for farmers in agriculture, agricultural marketing, nutrition and business studies.

Department of Fisheries, a government department under the Ministry of Fisheries and Livestock responsible for regulating the fisheries industry in Bangladesh

actions taken to prevent or repair the deterioration of water management infrastructure and to keep the physical components of a water management system in such a state that they can serve their intended function.

the adjustment of gates in water management infrastructure to control hydraulic conditions (water levels and discharges) in a water management system.

Learning from peers; and in the context of Blue Gold, farmer-to-farmer learning in which a host WMG invites representatives from visiting WMGs to witness an event - such as the harvesting of a

new variety of rice - to pass on the knowledge and lessons gained from their experience

Department of Livestock Services, a government department under the Ministry of Fisheries and Livestock responsible for the livestock industry in Bangladesh

Resource Farmers (RF) are members of Farmer Field Schools (FFSs). They are selected from the FFS groups to lead other members in organizing different useful collective actions and to maintain networks on behalf of the members. These RFs are given additional capacity building training to enhance their knowlege on simple record keeping and business skills.

Sub-Assistant Agricultural Officer (DAE)

Farmer Trainer - Well-performing and capable farmers, previously trained in Farmer Field Schools, who became FFS facilitator themselves after ToT training

Community Poultry Workers: members of the community who are trained to provide farmers with basic health and production support for their poultry

Community Livestock Workers: members of the community who are trained to provide farmers with basic health and production support for their livestock

Identification and planning of both interventions and operations & maintenance within the catchment, resulting in an action plan for the catchment.

Feminization of agriculture refers to the measurable increase of women's participation in the agricultural sector. This can be due to men taking up non-farm employment locally, male out-migration from rural areas to urban areas or abroad, poverty (need for women to raise income), and/or women's empowerment (women taking own initiatives to engage in agricultural production). The increase in agricultural productivity requiring more labour input (be it family or wage labour) can also contribute to a larger role of women in agriculture.

Earthen dyke or bundh raised above surrounding ground level, for example so that roads or railway lines are above highest flood levels, or so that an area is empoldered to protect it from external floods and saline waters.

Sedimentation is the process by which fine particles of silt and clay suspended in river water settle out, for example when there is a drop in velocity.

The dry season (typically mid-October to mid-March) with low or minimal rainfall, high evapotranspiration rates, low temperatures and clear skies with bright sunshine. Crops grown are boro, pulses, sunflower, sesame and mungbean.

drainage channel or canal

A vertical gate to control the flow of water; also referred to as 'regulator'

Technical Assistance

Community-led Agricultural Water Management - with DAE, Blue Gold established a network of schemes for demonstration purposes where locally-applicable annual cropping patterns are introduced along with water level control facilitated by small-scale water infrastructure, and the development of value chain skills in farmers

Small-scale water management structure: an initiative to improve in-polder drainage and irrigation conditions in Blue Gold polders which was started in 2018. The improvement of secondary and tertiary infrastructure across the coastal zone will involve a large number of small-scale structures and huge volumes of earthwork. The planning, design, contracting, supervising and monitoring of this small-scale infrastructure would be highly resource-intensive if provided with the same level of involvement as is provided by government engineering departments in large-scale infrastructure. Building on the success of the CAWM schemes, a pilot fund was made available so that WMOs could plan and implement small-scale water management infrastructure (SSWMI) with a relatively low-level of supervision from government or TA staff.

Collective action - by a producer group is one way to partially overcome constraints such as in weak markets, where inputs and services essential to production innovations, are generally scarce, costly to access and/or to obtain. Collective action is working in group instead of individually in order to gain economic or social benefit. Through collective action, farmers can address constraints in their market linkages, organise their activities jointly and use their collective bargaining power to reduce input costs through bulk purchase, or to obtain services from buyers such as farm-level collection of produce

Participatory Water Management Rules (2014)

Namespaces

- Page
- Discussion

Variants

Blue Gold Program Wiki

The wiki version of the Lessons Learnt Report of the Blue Gold program, documents the experiences of a technical assistance (TA) team working in a development project implemented by the Bangladesh Water Development Board (BWDB) and the Department of Agricultural Extension (DAE) over an eight+ year period from March 2013 to December 2021. The wiki lessons learnt report (LLR) is intended to complement the BWDB and DAE project completion reports (PCRs), with the

aim of recording lessons learnt for use in the design and implementation of future interventions in the coastal zone.