



**Bangladesh Water Development Board (BWDB)**



**Kingdom of the Netherland**



**Department of Agricultural Extension (DAE)**



## **Half-Yearly Progress Report January to June 2020**



# Half Yearly Progress Report

January to June 2020

## The Blue Gold Program

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## Issue and Revision Record

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2	23 July 2020	TA Team	Dr Sharmin Afroz		Final draft of HYPR
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## Glossary

ADP	Annual Development Plan
ADG	Additional Director General
AEO	Agricultural Extension Officer
AGEP	Agricultural Growth and Employment Program
BAU	Bangladesh Agricultural University
BWDB	Bangladesh Water Development Board
CAHW	Community Animal Health Worker
CBO	Community-Based Organisation
CDMP	Comprehensive Disaster Management Program
CDSP IV	Char Development and Settlement Project Phase IV
CEIP	Coastal Embankment improvement Project
CGIAR	Consultative Group on International Agricultural Research
CIMMYT	International Maize and Wheat Improvement Centre
CO	Community Organizer
CPWF	Challenge Programme on Water and Food (CPWF)
CSISA	Cereal Systems Initiative for South Asia
DAE	Department of Agricultural Extension
DAM	Department of Agricultural Marketing
DLS	Department of Livestock Services
DoC or DOC	Department of Cooperatives
DoF or DOF	Department of Fisheries
DP III	Department of Planning III
DPP	Development Project Proforma
DTL	Deputy Team Leader
EKN	Embassy of the Kingdom of the Netherlands
EOI	Expression of Interest
EMM	Euroconsult Mott MacDonald
EWM	Equitable Water Management
FFS	Farmers Field School
FGD	Focus group Discussion
GAP	Gender Action Plan
GESAP	Gender Equality Strategy and Action Plan (of BWDB)
GoB	Government of Bangladesh
GoN	Government of the Netherlands
GPWM	Guidelines for Participatory Water Management
IRRI	International Rice Research Institute
Ha	Hectare
HH	Household
IF	Innovation Fund
IFMC	Integrated Farm Management Component
IGA	Income Generating Activity
IMRC	Inter-Ministerial Review Committee
IPM	Integrated Pest Management
IPSWAM	Integrated Planning for Sustainable Water Management
IPSWARM	Guidelines for Integrated Planning for Sustainable Water Resources Management
IWM	Institute of Water Modelling
IWMI	International Water Management Institute

IWRM	Integrated Water Resources Management
LCG	Local Consultative Group
LCS	Landless/Labour Contracting Societies
LG	Local Government
LGED	Local Government Engineering Department
LGI	Local Government Institutions
M&E	Monitoring and Evaluation
MRL	Monitoring, Reflection & Learning
MoU	Memorandum of Understanding
MoWR	Ministry of Water Resources
MTR	Mid – Term Review Mission
NGO	Non-Governmental Organisation
O&M	Operation and Maintenance
PCD	Project Coordinating Director
PCWM	Polder Community Water Management
PD	Project Director
PDP	Polder Development Plan
PMC	Project Management Committee
PM	Progress Marker
PSC	Program Steering Committee
PWMR	Participatory Water Management Rule
SDE	Sub-Divisional Engineer
SVC	Strengthened Value Chains
SWAIWRPMP	Southwest Area Integrated Water Resources Planning and Management Project
TA	Technical Assistance
T&C	Training & Communications
TL	Team Leader
TNA	Training Needs Assessment
TOT	Training of Trainers
UAO	Upazilla Agricultural Officer
UP	Union Parishad
WAP	Water Management Group Action Plan
VC	Value Chain
VCA	Value Chain Analysis
VCD	Value Chain Development
VCS	Value Chain Selection
WASH	Water Sanitation and Hygiene education
WMA	Water Management Association
WMG	Water Management Group
WMIP	Water Management Improvement Project
WMO	Water Management Organisation
WRM	Water Resource Management
WUR	Wageningen University and Research Centre
XEN	Executive Engineer (BWDB)
ZSEs	Zonal Socio-Economists

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## Executive summary

The Blue Gold Program (BGP) aims to reduce poverty and stimulate economic development in 22 coastal polders in Bangladesh through improved water resource management and enhanced agricultural productivity and profitability. This report presents the progress of the BGP between January-June 2020. In this reporting period, O&M agreements with WMA and BWDB have completed in 22 polders under the Blue Gold Program. As a result, the responsibility of operation and maintenance of water management infrastructures have been formally handed over to WMOs. Due to improved water management system, farmers of the BGP polders have been able to increase cropping intensity including fish ghers as well as adaptation of HYV of different crops in different seasons especially last Rabi and Kharif-I season. In Khulna and Satkhira there have been significant increase in area of fish ghers, and there has also been an increase in boro paddy. In Patuakhali and there has been a significant increase in area of non-rice crops, primarily mung bean which has largely replaced keshari (grass pea). However, these progresses of crop production have been severely hindered through a dramatic natural disaster- cyclone Amphan and the world wide pandemic Covid 19.

An outcome study in 2019 to see the impact of BGP interventions in BGP confirms that overall cropping intensity has increased by 41 percentage points, from 187% to 228%, with a larger increase in Satkhira of 76 percentage points - largely due to expansion of fish ghers in polder 2. Increases in cropping intensity was reported for almost all polders and for 80% of WMG. In rabi season, in Khulna zone, there has been considerable expansion in boro, some growth in fish and some decline in other crops, with significantly less fallow land. In the kharif 1 season fish ghers were, and still are, the main land use, with the area now significantly increased. This, along with some growth in other crops, means that more than half of the land is now cultivated in this season. In Satkhira, land use in the rabi-boro season is predominantly boro paddy, and the area of this has increased. Along with a small increase in area of fish gher, overall land use in this season is now nearly 100%. The main land use in kharif-1 is fish, which has increased significantly as before BGP over two thirds of land was left fallow. In Patuakhali, there is virtually no use of land for fish/shrimp ghers. In the rabi/boro season virtually the only use of land is for other (non-rice) crops, which have expanded considerably during BGP. In the kharif-1 season almost one quarter of land was used for aus paddy, but this has now declined, with an increase in the area of fallow land.

Also, at homestead level more production has been generated, especially meet up the household level demand and benefitting the women. Better linkages with market actors and private sector also resulted in more profitability from produce sold.

During this reporting period, the following activities of BGP contributed to this success:

- Rehabilitation works executed in 21 polders, with estimated completion of 78% for FY 2019-2020 (as of June 2020). Overall physical progress is around 91%, 73% and 83% and financial progress is around 81% 64% and 64% for Satkhira, Khulna and Patuakhali respectively. The damage report of cyclone Amphan shows that damage has taken place in 47 location which altogether around 6.2 km damage with a tentative cost of rehabilitation of BDT 910 lakh.
- A total 190 catchment O & M plans has been completed earlier. O&M sub-committee members have carried out the catchment water management planning and implementation

process. They are also working for the improvement of routine O & M, IPWM and working relations with LGIs and the line departments of GoB.

- In addition, 92% and 90% of small-scale water management infrastructure works that was planned for 2018-19 and 2019-20 have been completed. Moreover, 144 WMGs have been contracted to implement the works value BDT 227 *lakh* under small scale water management infrastructure during 2019-20, this includes, 75 pipe culverts, 8 gated box culverts and re-excavation of 73 km *khal*. All of them will impact on efficient IPWM and crop production.
- The WMGs reported that a total of 41305 WMG members (22% women involvement) in collective actions for O&M with an estimated value of BDT 12,299,798 through cash, kind and labour. This has been supported by many reported activities of WMOs related to repair of embankment and other infrastructures, cleaning water hyacinth and removing obstacles from canals, and excavating field drains and canals.
- The effective role out of DAE and TA FFS helped to increase the crop production and homestead-based production. Along with the improved water management, new crop varieties and new technologies supported farmers to adapt new cropping patterns that ensured the higher productivity and profitability from field crop production. After having the homestead-based production training, the production and consumption of egg, meat and fish multiplied to 2-3 times, and commercial sale increased from an average ~20% to ~80%; also, sale of eggs, poultry and fish multiplied on average 3-4 times. Households are earning significantly through beef fattening activities.
- Cropping Intensity Initiative (CII) was implemented in 13 WMGs. A total of 152 farmers were involved in CII that covered 43 acres of land also suffered due to Aphan and pandemic related constraints. Total 25 (Patuakhli 13, Khulna 06 and Satkhira 02) CAWM schemes were initiated that includes area is 447 ha (21.29 ha/CAWM), 1697 farmers (average 68 farmers/CAWM).
- Activities on strengthening value chains and collective action for economic development have resulted in a tremendous increase in adoption. Now FFS members trained use to keep records, contact market actors, use ICT and do collective purchase & sale, now even on average 45% women have adopted these practices. During difficult time of nationwide shutdown, marketing of agricultural products become possible through using these strategies.
- A program-wide agro-extension approach has been developed and is being rolled out. As part of that training messages and good practices on water management, agriculture and collective action have been spread further by Horizontal learning activities and many success stories have reported. Also, community friendly posters, festoon, videos and drama shows have motivated residents of polders to form strong WMGs and a new experiential learning approach for field staff has resulted in better facilitation towards polder communities. Large audience coverage of Drama show regarding water management has very positive impact on coastal communities.
- Special training for women on income generating options and market linkage through Gender and Leadership Development training, gender court yard sessions and celebration of International Women's Day has positively influence on increased women mobility and

involvement of women in income generating activities. As a result, now women have better status within the HHs as well as more roles in intra household decision making.

Main remaining challenges and proposed mitigation strategies:

- The effects of Cyclone Amphan and Covid-19 pandemic has seriously constrained the planned activities of BGP. Different working groups have revised their plan to implement planned interventions with different strategies.
- The infrastructural progress needs to be further accelerated during 2020-21 to fulfil the target of completion of all WRM works. With the approval of the revised DPP, mobilisation of additional resources by BWDB will help to reach the targets for rehabilitation / construction works. In addition to these, IPWM initiatives were great help for communities. especially, proper implementation of small-scale infrastructure.
- Field staffs could not travel and face-to-face communication become difficult. TA FFS sessions had to be stopped considering health and safety of participants. Organized HL session and other meeting of WMOs were hindered. Once the situation improves a bit, opinion from potential participants and WMG management would be taken on TA FFS. It is decided that there will be reassessment of situation before planning TA FFS sessions again. The zonal experts have to ensure quality of implementation.
- Weather was not so favourable, especially cyclone Amphan causing serious obstacle in implementing relevant interventions as well as hamper the crop production significantly. BGP is working with farmer to recover their loss of during rabi and Aus season.
- Unstable price for crucial products like rice can be considered a major challenge for BGP beneficiaries since core of SVC was to encourage increase in rice production, promote additional crop and subsequent income. Volatile market situation affects farmers decision making. Often farmers find themselves in a situation where input prices go up but selling price for rice goes down, making rice production not so profitable. BGP initiatives at educating farmers on -reducing production cost, adopting profitable crop or collective selling to attract higher price- considered often not enforceable.
- Many homestead level producer farmers found it difficult to sell products. There was unethical business dealing by opportunist actors, many of them were surprise entries into the value chain. Overall efficiency of value chain reduced. In future, use of ICT and collective action will be very important to protect farmers. Farmers need to be aware about market system to find innovative ways to deal with profit monger market actors. Farmers also need to diversify their production basket, include local poultry and traditional fruits in their production planning. Collective action around water management and economic development can be further expanded and scaled out, especially paying more attention on local needs and community-based service providers like RF and FT. BGP aims to continue the activities under collective action further, increased the number of beneficiaries through the unbundled FFS module, more experiential training for WMOs, catchment level O & M planning, initiating small scale infrastructure development for IPWM, expanded implementation of horizontal learning on good practices, results those are already tested and found successful and effective.

## 1 Introduction

After the independence of Bangladesh, the Governments of Bangladesh and Netherlands have been working closely together in the coastal zone of Bangladesh to create a sustainable environment for a better livelihood of the coastal communities. The Blue Gold Program (BGP) is designed systematically on the experiences and the lessons learnt over the past ten years of the different coastal project like IPSWAM and considered new insights in how to deal with the challenges created in the environment. The BGP aims to reduce poverty and stimulate economic development through improved water resource management that ultimately supports to improve agricultural and economic development in the polders.

The BGP became operational in March 2013 and extends over a 8 year period, until December 2020. Its operations concentrate on 22 polders of four districts: Khulna, Satkhira, Patuakhali, and Barguna. This project aims to reduce poverty and improve food security through equitable water management and strengthened value chains-resulting in improved livelihoods for communities. The expected outcome of the project is that crop and water management practices will be reduced poverty for 199,326 households living in 119,124 ha of selected coastal polders by creating a healthy living environment and a sustainable socio-economic development the Southwest Coastal Zone of Bangladesh.

BGP is being implemented by the Bangladesh Water Development Board (BWDB) in the lead, and the Department of Agricultural Extension (DAE) with separate DPP– in association with Department of Livestock Services (DLS) and Department of Fisheries (DoF) through MoU with support of the Technical Assistance Team jointly funded by the Governments of Bangladesh and the Netherlands. The BGP is also guided by different national policies of Bangladesh like the National Water Policy (NWPo, 1999), the Guidelines for Participatory Water Management (GPWM, 2000), the National Water Management Plan (NWMP, 2000) and the Participatory Water Management Rule (PWMR, 2014).

After the introductory chapter, the half-yearly progress report January-June 2020 presents a discussion and description on major trends and achievements within the Blue Gold Program (Chapter 2). The following chapter illustrates polder wise changes in term of agricultural productions and water management (Chapter 3). The next three chapters focus on the update on Monitoring, Reflection and Learning (Chapter 4), the progress of the Innovation Fund (Chapter 5) and Financial Report (Chapter 6). The last chapter (Chapter 7) of this report highlights on the Project Management.

## 2 Major Blue Gold Trends & Achievements

### 2.1 Households Reached & Area Covered

BGP is working with its full efforts in all the selected polders (22), covering an estimated 199,326 households and an estimated area of 119,124 ha.

The household coverage is around 19% higher than the initial beneficiary target as set out in the original Development Project Proformas (DPPs) with the Bangladesh Water Development Board (BWDB) and the Department of Agricultural Extension (DAE). In term of land coverage, Blue Gold working area is 26% smaller than originally envisioned in the DPP.

### 2.2 Increased Production and Profitability

#### 2.2.1 Improvement in cropping system

BGP water management works have improved drainage and increased the supply of water for irrigation. WMG have also contributed their own labour for routine maintenance and minor works, and have sometimes made contributions to the cost of BGP works. BGP is also supporting them to adopt improved crop management technologies and efficient marketing of their products. These interventions all together helped the coastal communities in 22 BGP polders in practicing an improved cropping system these is in turn ensuring increased production and profitability.

According to Technical Report 26 (TR-26), 2019, majority of the WMGs (86%) say that water management infrastructure has been improved that has reduced in water-related constraints to crop production. These primarily relate to water scarcity (for irrigation) and water logging – with salinity and flooding much less serious. Water scarcity is now slightly more frequently reported than waterlogging. Only 9% WMGs reported ‘bad’ or ‘very bad’ water management condition compared to 59% WMGs prior to BGP. Most of infrastructure works were undertaken by BWDB-BGP with WMG support, with WMG themselves mainly being responsible for khal cleaning and better sluice operation. Local government have had an important role in culvert improvement. Participants identified technologies which they had learned and adopted. For crops, new varieties and improved cultivation techniques have mostly been fairly widely – including by farmers who are not members of FFS. These interventions all together helped the coastal communities in 22 BGP polders to efficient use and increase cropping intensity of the land and this is one of the main agendas of the Blue Gold program.

The reporting period is related to kharif-1/Aus season and Rabi/Boro season. According to TR 26, use of cultivated land has been divided for each season into three categories: (i) paddy; (ii) other crops; and (iii) fish/shrimp ghers. Table 1 shows, for the Khulna zone in the rabi/boro (winter/dry) season before the project boro paddy and other crops were of almost equal importance, followed by fish ghers, with over one third of land fallow. There has now been considerable expansion in boro, some growth in fish and some decline in other crops, with significantly less fallow land. In the kharif 1 (early monsoon) season fish ghers were, and still are, the main land use, with the area now significantly increased. This, along with some growth in other crops, means that more than half of the land is now cultivated in this season.

Table 1: Land use in the kharif-II season in the Khulna zone

		Khulna		Satkhira		Patuakhali		Total	
		Before BGP	Now	Before BGP	Now	Before BGP	Now	Before BGP	Now
Rabi/boro	paddy	27.7	46.6	74.7	84.8	0.1	2.3	23.8	35.7
	other crops	26.2	21.3	1.8	1.7	53.3	84.9	32.8	41.4
	fish	11.2	16	8.7	12.2	0	0	6.9	9.8
	total	65.1	83.9	85.2	98.7	53.5	87.3	63.5	86.9
Kharif 1	paddy	1.5	0.4	2	4.2	24.5	18.8	9.7	7.4
	other crops	9.3	13	5.6	6.9	0.3	0	5.6	7.6
	fish	30.5	43.2	23.8	54.8	0	0	18.8	29.3
	total	41.3	56.6	31.4	65.8	24.8	18.9	34.2	44.4

In Satkhira, land use in the rabi-boro season is predominantly boro paddy, and the area of this has increased. Along with a small increase in area of fish gher, overall land use in this season is now nearly 100%. The main land use in kharif-1 is fish, which has increased significantly as before BGP over two thirds of land was left fallow. An increasing area under fish ghers, along with small areas of paddy and other crops mean that almost two-thirds of land is now utilised in this season.

In Patuakhali, there is virtually no use of land for fish/shrimp ghers. In the rabi/boro season virtually the only use of land is for other (non-rice) crops, which have expanded considerably during BGP. In the kharif-1 season almost one quarter of land was used for aus paddy, but this has now declined, with an increase in the area of fallow land.

However, these progresses of BGP have been severely hindered through the dramatic natural disaster- cyclone Amphan and the world wide pandemic Covid 19.

### 2.2.2 Trends among Farmer Field School (FFS) members

#### Postponed of 14<sup>th</sup> cycle of TA FFS

14th cycle FFS was planned to implemented from April-November 2020. Due to the pandemic of Covid-19, BGP has established a set of practices which will reduce the spread of the virus amongst our team and partners at many different levels. As a result, the implement of this cycle has been postponed.

#### Trend among FFS members

Blue Gold program implemented 1133 FFSs of different modules to improve livelihood of poor WMG members in different BGP polders from 2013 to 2019. To assess the immediate effect of the FFS training, outcome has been measured comparing end line and benchmark data after completion of each cycle. To understand the production or changes in behavior of FFS members

have sustained over a longer period or not, BGP conducted a follow-up survey<sup>1</sup> among 10th and 9th cycle FFS members after 1.5-2 years of completion of the FFS. These cycles were implemented in Khulna and Patuakhali.

## Trends in homestead vegetable production

In the Homestead Module, FFS farmers have learnt the utilization of homestead areas with several improved practices, such as intercropping, Integrated Pest Management (IPM), utilization of surplus production, market orientation etc. Table 2 shows that the number of different types of vegetables grown within a homestead become double. Fertilizer use and pest management were sustained with a large number of farmers, but the amount spent for pest management has increased. It seems that farmers were reluctant to practice good agricultural practice more to prevent pest attack. The average number of fruit trees per homestead had increased. The distribution of some saplings during the FFS helped this increase. All farmer use fertilizer for their fruit trees. The produced vegetables were used partly for HH consumption while surpluses were sold with an increasing trend.

**Table 2: Comparison of homestead vegetable production between 10th cycle and follow-up survey**

Sl no.	Particulars	10th cycle survey (2017-2018)		Follow-up survey (2019-2020)
		Benchmark	End line	End line
	<b>Average Homestead area (dec.)</b>		<b>16.5</b>	<b>16.5</b>
<b>1</b>	<b>Key technologies for vegetable</b>			
1.1	Average types of vegetables grown (no.)	2	6.8	6.9
1.2	Homestead locations used for cultivation (no.)	1.8	7.2	7.2
1.3	Fertilizer use for veg. cultivation (% farmer)	53.5	93.5	96.7
1.4	Follow IPM for pest management (% farmer)	0.2	84.9	92.8
1.5	Avg. money spent for pest management (BDT)	285.5	176.5	267.1
<b>2</b>	<b>Key technologies for fruit</b>			
2.2	Average number of fruit tree/HH	23	32	48
2.1	Fertilizer use for fruit tree (% farmer)	15	100	100
<b>3</b>	<b>Outcomes</b>			
3.1	Sell half of the production (% farmer)	3	49	31
3.2	Sell more than half (% farmer)	1	14	24

<sup>1</sup> 400 FFS members were randomly selected (200 members each from the Homestead-Poultry-Nutrition and Beef-Fattening-Nutrition module) for a semi-structured questionnaire interview



## Trends in poultry production

In the poultry module, the FFS farmers learnt several improved poultry rearing practices, such as vaccination of the birds, the use of hazals and candling of eggs etc. Table 3 shows that farmers of the follow up survey have been practicing their FFS learning that resulted higher production. They reported that shortage of vaccination services is a problem for poultry production and regular vaccination to the birds is challenging for them. Even though BGP has already developed several poultry workers in different polders, still many farmers have faced vaccinating difficulties. Outcomes of these practices are noteworthy after 1.5 years among FFS members. Egg, poultry production and consumption has increased and statics compared to the first end line.

**Table 3: Comparison regarding improved poultry rearing practices among the benchmark, end line and follow-up survey**

SI no.	Particulars	10th cycle survey (2017-2018)		Follow-up survey (2019)
		Benchmark	End line	End line
<b>1</b>	<b>Identification</b>			
1.1	Number of chicken (Avg.)	2	9	11
<b>2</b>	<b>Key technologies %</b>			
2.1	Use of <i>hazol</i>	2.3	89	100
2.2	Chick separation after 1 week	1.5	74.5	68.9
2.3	Chick separation after 2 weeks	1	13	29
2.4	Egg candling	4	89.5	100
2.5	Regular vaccination	49	55	44
<b>3</b>	<b>Outcomes</b>			
3.1	Eggs per hen per year	45	77	77
3.2	Eggs sold per month	7	6	49
3.3	Chicken sold per year	5	22	37
3.4	Own egg consumption per week	3.2	7.8	8.3
3.5	Own poultry consumption per month	0.45	1.2	3.0

## Trend in beef fattening production

The follow -up survey shows a significant improvement in the beef fattening production. Table 4 shows that farmers are still providing balanced feed for better fattening. Using chemically treated straw (UMS) slightly decreased after 2 years but still it is more than the benchmark survey. Cattle housing for cattle improved during the end survey still they are usable and proving healthy space for cattle. All farmers reported that now they de-worm their animals regularly compared to the benchmark; the results after 2 years are still very good. During the FFS, the beginning weight of a

cattle was 288 kg and at the end the weight increased to 366 kg with an average increase of 78 kg. The follow-up survey shows meat production per cattle increased from 116 kg to 156 kg with an average increase of 41 kg. It shows a decreasing trend due to less use of UMS. Farmer are reluctant to prepare UMS at daily basis and provided to their fatten cattle. In Patuakhali, availability of molasses's in time is also a problem. Resource farmer and farmer trainer need to be more communicative in that issues with FFS members.

**Table 4: Comparison of technology adoption for Beef Fattening module among benchmark, end line and follow-up survey**

Sl no.	Particulars	9th cycle survey (2017-2018)		Follow-up survey (2019-2020)
		Benchmark	End line	End line
<b>1</b>	<b>Identification</b>			
1.1	Number of cattle in average	3.0	3.1	3.2
<b>2</b>	<b>Key technologies %</b>			
2.1	Cattle shed has ventilation	19.0	98.3	95.2
2.2	Cattle shed has gutter for drainage	14.7	93.5	95.7
2.3	Cattle shed is cleaned daily	21.9	96.5	95.2
<b>3</b>	<b>Cattle feed used (%)</b>			
3.1	Roughage, concentrate and straw	6.9	87.5	82.1
3.2	Know how to make UMS	0.9	98.4	94.7
3.3	Feed UMS to cattle	0.9	94.4	86.8
3.4	Knowledge on body weight measurement	0.2	100	98.9
3.5	Deworm regularly	3.9	98.4	95.7
<b>4</b>	<b>Outcomes</b>			
4.1	Meat production	288	366	157

## Trend in fish production

With fish module, most of the farmer using perennial pond for fish production. The average pond size is still standard for fish production. The surveys include several questions that relate to rearing practices and knowledge about fish rearing methods. Table 5 a big improvement found in the end line survey, which has sustained after 2 years of the FFS. Fish production increased during the end line survey, which can be partly contributed to the distribution of some fingerlings and feed to FFS participants. But in the follow up survey, production had further increased, which shows that improved fish production has well sustained after completing the FFS training. Compared to the benchmark, the production has almost tripled after 2 years.

**Table 5: Comparison of technology adoption for fish module among benchmark, end line and follow-up survey**

SI No.	Particulars	9th cycle survey (2017-2018)		Follow-up survey (2019-2020)
		Benchmark	End line	End line
<b>1</b>	<b>Identification</b>			
1.1	Average pond size (dec.)		14	12
1.2	Year round pond (%)		87.5	85.7
<b>2</b>	<b>Key technology (%) farmer</b>			
2.1	Know pond preparation fully (%) farmer	2.5	98.5	100
2.2	Fingerling selection Knowledge (% farmer)	0.5	98.6	98.4
2.3	Use of supplementary feed (% farmer)	9	98.3	95.7
2.4	Knowledge on stocking density (% farmer)	2.9	99.4	98.9
2.5	Knowledge on natural feed test (% farmer)	1.1	99.0	99.4
2.6	Knowledge on sampling (% farmer)	0.9	99.7	99.4
<b>3</b>	<b>Outcome</b>			
3.1	Fish production kg /dec.	4.6	14.1	13.9

### Trend in Nutrition module practices

It found from the Table 6 that the percentages on knowledge on cooking procedures and moringa leaves are less than the end line but still higher than compare to bench mark survey indicates that those learning were in practice.

Findings from follow-up study shows that increased of homestead production has a good impact on FFS members dietary changes. It is noticeable that weekly meat, fish, meat, fruit and vegetable consumption has increased significantly. Findings also show that the percentages on knowledge on cooking procedures and moringa leaves were less than the end line but still higher than compare to the bench mark survey indicates that those learning were in practice.

**Table 6: Comparison of nutrition knowledge and dietary changes among benchmark, end line and follow-up survey**

Sl no.	Particulars	10th cycle survey (2017-2018)		Follow-up survey (2019)
		Benchmark	End line	End line
<b>1.</b>	<b>Nutrition value (%) farmer)</b>			
1.1	Fully Knowledgeable of cooking procedures	10	91	66
1.2	Knows and has eaten moringa leaves	4	73	61
<b>2</b>	<b>Dietary changes</b>			
2.1	Meat days per week	0.99	1.3	1.5
2.2	Fish days per week	2.5	3.3	3.9
2.3	Egg days per week	1.5	2	3.3
2.4	Fruit days per week	1.1	2.4	3.2
2.5	Vegetables consumption per week (gms)	1446	1769	1993

#### Trend in market orientation practices

This training inspired them to keep linking with markets; as a result, a considerable percentage of participants reported that they have communicated with market actors, keeping records, used ICT for agricultural information collection and collective selling after the training and they are continuing these practices. From each of the FFS, one advance farmer trained as a Resource Farmer (RF) on market orientation issues. They all were attended an exposure visit to local market. It has a positive impact among the FFS members to involvement more with market orientation issues (see Table 7).

**Table 7: Comparison of market orientation issues among benchmark, end line and follow-up survey**

Sl no.	Particulars	10th cycle survey (2017-2018)		Follow-up survey (2019)
		Benchmark	End line	End line
	<b>Key practices (%) farmer</b>			
1	Record keeping	0.5	99	99
2	Use of ICT sometimes	1.5	77	92
3	Collective selling sometimes	0.4	77	94
4	Have market actor phone number	1.5	97	100

## 2.3 Building organizations and WMO capacity Building

### 2.3.1 Building Organizations

#### Introduction

BGP has geared up its efforts towards sustainable participatory water management (PWM) through the functional WMOs. The functional WMOs are able to ensure the proper operation and maintenance of water management infrastructures and build partnerships and networks that drive higher productivity and profitability from their livelihood options like agriculture, aquaculture, livestock and poultry. Below progresses have been achieved during the reporting period (January-June, 2020) to ensure functional WMOs

#### Formation and Registration of WMOs:

- There was no new WMG and WMA formation and registration with the reporting period. 509 WMGs and 35 WMAs already have their registration, 2 WMGs and a WMA registration processes have hindered due to court cases.

#### Collection of Savings

- 237 WMGs have collected BDT 15,27,775/- as savings. About 25% of the WMGs have invested their savings for income generating activities among members for crop production, poultry rearing, cow fattening, small business, etc.

#### O&M fund generation and Utilization by WMGs

- 210 WMGs have generated O&M fund of BDT 838,738/- and 121 WMGs have utilized O&M fund amounting of BDT 551,892/-. In most cases, WMGs were generating O&M fund for emergency work from members and non-members of WMGs and also from large farmers. WMG have also collected O&M fund through seasonal collection of crops during harvesting periods (Aman, Boro/Rabi e.g. Mung bean etc.).

#### Contribution of WMGs in SSWMI and CAWM

- 139 WMGs have contributed BDT 77,60,599.52 (30% of total cost) to execute SSWMI to remove drainage problems of their areas. On an average 15-18 ha of land in each WMG has benefited from this initiative.
- 21 WMGs have contributed BDT 31,94,719.23 (on an average 30% of total cost) to execute CAWM to remove drainage problems of their areas. On an average 20 ha of land in each WMG has benefited from this initiative.

#### O&M Agreement signed between BWDB and WMA/s

- 5 WMAs of 6 Polders have signed O&M Agreement with Executive Engineer of BWDB, Khulna Division 1 & 2.

#### Upazila Workshop

- 2 upazila workshop (One in Amtali Upazila under Barguna District and another in Batiaghata Upazila under Khulna District) were held on implementation of polder water management plan and partnership development

### Reviewed and updated WMGs/WMAs Annual Action Plan (WAP)

- 420 WMGs and 34 WMAs have reviewed and updated WAP.

### Reviewed and updated Catchment O&M Plan

- 190 WMGs have reviewed and updated Catchment O&M Plan.

### Challenges faced:

- In Bangladesh, COVID- 19 was found in the 1<sup>st</sup> week of March, 2020. The government of Bangladesh declared general holiday as well as lockdown in the whole country from 26<sup>th</sup> March, 2020. Due to COVID- 19, the field movement of Zonal and Polder Staffs were limited. The moved to the field by strictly maintaining Govt. and Project Policy regarding COVID-19. During COVID 19, situation, much gathering is prohibited, so there was no scope to arrange Annual General Meetings (AGMs) by WMGs and WMAs. Polder and Zonal team members were assisting WMGs to implement SSWMI, CAWM schemes, and other Organizational Activities, if and when necessary.
- Ensure implementation of catchment O&M plan by the catchment O&M sub-committees
- Collection and utilization of O&M fund
- Follow up WMOs' activities by the Office of the Chief Water Management (OCWM)
- Established constructive relation and partnership among the WMOs and OCW, O&M Divisions of BWDB and O&M of water management infrastructures was also challenging.

### Lesson learnt

- WMGs which have a big amount of money in their fund would be more sustainable
- WMGs are more functional where there are WM infrastructures than the non-infrastructural area
- BWDB specially OCWM should take the responsibilities of WMOs strengthening;
- Audit Directorate of BWDB should audit WMGs and WMAs regularly;

### 2.3.2 WMO Capacity Building

A functional WMO drives higher productivity and profitability in agriculture-based livelihood options like crop farming, aquaculture, livestock, and poultry through water resource management. BGP put significant efforts towards functional WMOs through the initiatives below:

1. Training
2. Farmer Field School (FFS)
3. Horizontal Learning and Communication

#### Training

Along with water management groups (WMGs), BGP training team has been working on capacity building of water management associations (WMAs) since last year as it has been envisioned that they will enter the central stage in polder-level water management. Within the reporting period, training program aimed to support on sustained WMOs capacity using the principle of self-sustaining organizations and giving explicit attention to catchment water management plans. For the training detail, see Table 8

Table 8: Details of training activities by Blue Gold Program

No.	Training Activities	Targeted Participants	No of Batch	Total participants			Objective/Rational
				M	F	T	
1	Program on O & M agreement signing between BWDB & WMA	BWDB, DAE, UP, WMA	2	86	20	106	To make WMA & BWDB agreed on the roles & responsibilities on O&M of WM infrastructures; signing & formal handing over the documents to the partners.
2	Upazila Workshop on Partnership Development	Upazila level officer (DAE, BADC, BWDB), UP, WMA,	02	82	6	88	To develop partnership with the UZ administration & GoB departments for implementing WM plans & exploring support for sustainable organizational.

### Farmer Field School (FFS)

To improve the skill and knowledge of the members of WMOs in modern agriculture practices, BGP implements farmer field school (FFS) through DAE and Technical Assistance (TA) team. DAE FFSs are mainly for crop agriculture while TA FFSs focus on homebased production like homestead vegetable cultivation, poultry, beef fattening, pond aquaculture. Due to the pandemic Covid-19, TA FFS has been postponed, please see 2.2.2. Table 9 shows the detail of FFSs .

Table 9: FFS training for WMG people

SL no.	Zone	Type of FFS	No. of FFS	Participants		Comments
				M	F	
1	Khulna	DAE FFS	24	600	600	TA FFSs have planned for the period of April -November 2020 are yet to start due to the pandemic of Covid-19. Number of male and female are shown in the table may change after final selection.
2	Patuakhali	DAE FFS	34	850	850	
3	Satkhira	DAE FFS	11	275	275	

Section 2.2.2 and 2.5 represent the impact on production, consumption and technology adoption among the of FFS participants.

### Horizontal learning and communication

Through horizontal learning and communication, members of WMOs learn from successes elsewhere and then replicate the learning in their areas. Horizontal learning and communication tools are using to achieve scale with agricultural technology, water management, organizational strengthening, and capacity building of the WMOs. Within the reporting period, a number of WMGs organized their own experience-sharing visits to witness and then replicate good practices/ experiences (for details pls see the section 2.8).



## 2.4 Improved Water Management

### 2.4.1 Water Resource Management Infrastructure

Most of the new works for FY 2019-20 are awarded within December 2019 and few new works have been undertaken within the reporting period. In addition significant amount of carried-over structural works and some earthworks from 2018-19 are on-going. Infrastructural rehabilitation works have been carried out in the 21 polders (except 28/2) within Blue Gold Program. Despite the vulnerable situations – Covid 19 and cyclone AMPHAN, the works have been carried out in the polders. Joint Final Progress is not yet finalized and it will be done after all post-work measurements, then the progress calculation will be finalized and minor changes (if any) will be incorporated. It is anticipated that the cumulative physical progress for all the three zones (Patuakhali, Khulna & Satkhira) for 2019-20 is around 78%. Tables 10, 11 and 12 below summarize the progress of rehabilitation works (including carried over and new works) in three zones. Tables below summarize the progress of rehabilitation works (including carried over and new works) in three zones and also the Damage report of Cyclone AMPHAN. The damage report of cyclone Amphan (Table 13) shows that damage has taken place in 47 locations which altogether around 6.2 km damage with a tentative cost of rehabilitation of BDT 910 lakh

**Table 10: Rehabilitation Work Progress for Satkhira**

Work Items	Unit	Work Completed	Works still on-going (as of Jun 2020)	Progress of on-going works
Embankment Re-sectioning	Km	1.644	0.495	66%
Embankment Retirement	Km	-	-	-
Canal Re-Excavation	Km	-	6.754	73%
Repair of Sluices	Nos.	-	07	93%
Repair of Outlet/ Inlet	Nos.	-	-	-
Construction of Sluices	Nos.	02	-	-
Construction of Outlet	Nos.	-	-	-
Construction of Inlet	Nos.	-	-	-
Construction of Pump Shed	Nos.	03	01	70%
RCC Pipes	M	499	-	-
Low Cost Temporary Protection	Km	0.292	0.060	91%

Other than this, the land acquisition of total 9.01 hectare area has been finalized amounting to 29,140,481 taka. This acquisition has been done for Surjokhali Khal Re-excavation at Bewla Mouza (5.1 Acre) and Paithali Mouza (3.91 Acre) in Assasuni Upazila under Satkhira District. Overall Physical Progress is around 91% and Financial Progress is around 81% for Satkhira District.

**Table 11: Rehabilitation Work Progress for Khulna**

Work Items	Unit	Work Completed	Works still on-going (as of Jun 2020)	Progress of on-going works
Embankment Re-sectioning	Km	0.870	18.210	87%
Embankment Retirement	Km	0.985	1.400	54%
Canal Re-Excavation	Km	24.737	55.971	63%
Repair of Sluices	Nos.	17	4	73%
Repair of Outlet/ Inlet	Nos.	-	-	-
Construction of Sluices	Nos.	3	4	63%
Construction of Outlet	Nos.	-	-	-
Construction of Inlet	Nos.	-	-	-
Interior Dyke	m	205	-	-
Construction of Culvert	Nos.	1	1	11%
Low Cost Temporary Protection	km	0.119	0.085	88%
Flood Damage Repair	km	0.880	0.666	53%

Overall Physical Progress is around 73% and Financial Progress is around 64% for Khulna zone.

**Table 12: Rehabilitation Work Progress for Patuakhali**

Work Items	Unit	Work Completed	Works still on-going (as of Jun 2020)	Progress of on-going works
Embankment Re-sectioning	Km	34.980	8.810	83%
Embankment Retirement	Km	0.870	1.400	65%
Canal Re-Excavation	Km	48.140	14.460	56%
Repair of Sluices	Nos.	25	19	73%
Repair of Outlet/ Inlet	Nos.	03	-	-
Construction of Sluices	Nos.	02	10	80%
Construction of Outlet	Nos.	05	12	72%
Construction of Inlet	Nos.	-	-	-
Construction of Pump Shed	Nos.	-	-	-
RCC Pipes	M	3981	-	-
Low Cost Temporary Protection	Km	-	-	-

Overall Physical Progress is around 83% and Financial Progress is around 64% for Patuakhali zone.

Table 13: Water infrastructure damage report for cyclone Amphan

Sl. No.	Polder no.	Location of Damage	Damage length (Km)	Tentative Rehabilitation cost (Lakh BDT)
1	22	6	0.29	39.87
2	29	4	0.66	82.06
3	30	4	0.79	148.86
4	31(P)	2	0.19	23.23
5	34/2(P)	6	1.32	315.75
<b>Sub-total (Khulna)</b>		<b>22</b>	<b>3.24</b>	<b>609.77</b>
6	43/2A	17	1.62	98.09
7	43/2D	2	0.03	2.25
8	43/1A	2	0.20	26.00
8	43/2F	2	0.69	15.00
9	47/4	2	0.40	159.00
<b>Sub-total (Patuakhali)</b>		<b>25</b>	<b>2.93</b>	<b>300.34</b>
<b>Total</b>		<b>47</b>	<b>6.17</b>	<b>910.11</b>

### Challenges, Mitigation Measures and Lessons Learned

Covid 19 has become a challenge for continuation of rehabilitation works during this period. Despite this pandemic situation, works have been carried out with safety precautions in order to keep up with the planned progress and overall work plan.

Another big challenge was the cyclone AMPHAN during May 2020. AMPHAN occurred during the peak working season causing a great amount of damage. However, the polder people worked together with the help of BWDB field officials and BGP zonal team to handle the disastrous situation.

#### 2.4.2 In Polder Water Management

##### Introduction

The Blue Gold Program (BGP) aims to increase profits from agriculture and fisheries through enhanced In-Polder Water Management (IPWM). In-Polder Water Management is the planning, implementation, operation and maintenance of the water management infrastructure inside the polders. As IPWM works on a variety of scales and is context-specific, we think a mix of approaches is appropriate. We implement:

1. Catchment O&M Planning (see 2.4.2.1)

By inter-WMG communication for proper operation of sluices for regulation of water levels of main khals in the catchment and good for all catchments.

2. Community-Led Agricultural Water Management (see 2.4.2.2)

The optimization of sub-catchments, a scale that allows for crop synchronization, collective action, intensive inputs and results that can be easily related to by other farmers. This can be used for horizontal learning, but also for further policy dialogue on In-Polder Water Management.

3. Small scale water management infrastructure (see 2.4.2.3)

Improving water management infrastructure that does not fall under jurisdiction of the Bangladesh Water Development Board (e.g. secondary and tertiary khals) because it is too small, but is too big an investment for farmers to improve themselves. It follows a 'hand-off' approach, as the

### 2.4.2.1 Catchment O & M Planning

This is the 3<sup>rd</sup> step of Water Management and O&M planning process by the WMA. Before that, the O&M sub-committee members prepared this for WMG and then compile this to prepare Catchment Water Management & O&M plans. Once it is drafted as Catchment Water Management and O&M plans, the WMA presented it to the UP, BWDB, DAE and other WMA representatives to validate and finalize the plans through a one day workshop. To strengthening the capacity of the WMA, BGP zonal teams are facilitating the process, coaching WMA members and O&M sub-committees members to carry out the catchment water management planning and implementation process (See Table 14).

On the other hand, the WMOs needs to establish a practical coordination and linkages with the Upazilla Parishads and concerned GoB line departments in order to obtaining support in implementing catchment plans for developing in-polder water management activities. BGP considered that as a priority activities and working for developing partnership relations in between WMA, UP, UZ & GoB line Departments through organizing a day-long workshop. Afterwards BGP polder teams are facilitating to strengthen this process to establish a meaningful and active relations among them.

In Jul to Dec 2019 catchment plans were covered 42,200 hectares under 7 polders. During this reporting period (Jul to Jun 2020) catchment plans are completed the remaining areas 76, 924 hectares. Up to this reporting period IWRM operational plans has completed the coverage of total area 119,124 hectares under 22 polders.

Table 14: Progress of catchment planning

Name of Zone	No. of Polders	No. of WMA	No. of Catchment	No. of follow-up visit	No of Participants		
					Male	Female	Total
Patuakhali	07	09	48	53	369	10	379
Khulna	11	11	48	63	249	41	290
Satkhira	01 + Ext.	03	12	35	363	90	453
<b>Total</b>	<b>20</b>	<b>23</b>	<b>108</b>	<b>151</b>	<b>981</b>	<b>141</b>	<b>1122</b>

### Bringing change

During this tenure there are numbers of examples that WMAs have developed partnership with the Union Parishad in order to increase support service to implement Catchment WM Plans and improve in-polder water management for agricultural productions. Some of the WMAs are in regular contact with the UP and UZ administration and obtaining positive responses in conflict resolutions on water management issues, direct/indirect support & contribution for O&M activities and service from the line departments which is developing WMAs confidence and soldering their self-sustainability. These are positive sign of a functional WMAs.

During this reporting period 151 follow up visit were conducted by the polder teams to assess the progress of catchment WM plans and facilitated to implement the catchment plans by the WMAs initiatives. The polder teams followed the catchment committee and they kept communication over phone & virtual meeting using messenger apps. The catchment O&M sub-committees have already been implemented about 65 percent of the actions of last year plan. At the 2nd half in June 20, all the Catchment Committees with the support of WMAs are preparing the next year (Jul 20 to Jun 21) catchment WM plans. The following changes were observed during this period:

1. *Improvement of routine operation and maintenance:* removal of siltation from the channel, Water Hyacinth, construction/removal of Cross Bandh, Eviction of Illegal Occupancy of Sluice & Channel, regular operation of sluice gate and taking care and maintenance of sluice gates as per the action plan. Several examples of excavation re-excavation of small khals, field channels by their labour contribution and from their own fund (WMA O&M funds) and also collected from the UPs. These all are the practical examples of improvement routine O & M.
2. *Improvement in-polder water management:* during this reporting period WMA has removed siltation from the channels, excavated field channels, fixed/replaced wooden gates, actively involved and contributed in implementing SSWMIP and obtained support from the UP, UZ and District administration. These all are contributing in-polder water management for agricultural production.
3. *Improvement working relations with UP, UZ and GoB Line Departments:* In conflict resolutions, for getting possessions of sluice gates & khals occupied illegally, removal of cross-dam the WMAs are now playing professional roles to communicate with UP and UZ Parishad. During the reporting period polder teams observed some of the WMAs were placed written

application with resolutions to the UZ and District administration for necessary actions and finally got support.

4. *Developing WMO ownership on the Water Management Infrastructures:* WMOs are observed to develop O&M Fund Generation to maintain WM infrastructures. Most of the WMGs have generated a good amount of O&M funds through collecting crops for water management service from the farmers and other sources. WMOs are well WMG members/farmers are willing to contribute crops during harvesting period as they are highly motivated for effective water management.

Now WMAs are observed highly interested to develop partnership relations with UP, UZ Parishad and District level GoB line departments for getting administrative support & solutions, conflict resolutions, obtaining financial and technological support to improve polder water management systems in absence of Blue Gold. Before phasing out the polders, WMAs are highly expecting to be introduced with the UP, UZ and Dist. Level GoB line departments what will build their confidence and housing in future.

### Success Story: Removal of Net Patta with help from UP

The Parbotiaghata O&M Sluice catchment committee is very active and prepared catchment plan but they were not able to implement all of the plans due to some influential people who have been using net patta for fishing for their own benefit. This also seriously hinder agricultural activities as it silted-up some link canals and created water logging in 800-acre land. This was a long-lasting problem and WMA was not able to solve the problem as the people were very influential. However, WMA arranged a meeting with Batiaghata UP Chairman and submitted an application to the UNO through UP Chairman requesting to remove net-patta from the canal. After having the application, UNO visited that spot and immediately ordered to remove all the net-patta from the canal and take out to the UZ office.

After that UNO arranged a mobile court on 9<sup>th</sup> June 2020 and burned all the net-patta that was removed taken from that canal. The WMA President, UFO, UP Chairman/Members, members of different WMOs were present during the mobile. Now around 2000-acre land will get effective water management support for higher agricultural production.

### Trends

The WMOs are now well aware and shifted their thinking in IPWM that is very important for their agricultural production, regular operation & maintenance, small scale water management infrastructures and LGI support. They are taking care of water management infrastructures, review and preparation of catchment water management plans (Jul 20 – Jun 21) and intend to develop coordination and linkages with LGI which is a positive trend during this reporting period.

There are a number of examples and success stories of WMO self-directed activities on O&M activities for improved water management are reflected. These activities are from the catchment WM plans prepared by WMA. WMOs are becoming highly conscious for higher agricultural production which is the result of effective water management. They become serious to review & prepare catchment water management plans using internal and outside resources.

### Challenges, mitigation measures and lessons learned

The tropical cyclone Amphan was a powerful and deadly that damaged several water management infrastructures, houses and severely affected agricultural fields at Satkhira, Khulna and in Patuakhali in April 2020. The WMA tried to protect their WM infrastructures and agricultural field. Immediate after the cyclone they have repaired many affected points and segments with their limited capacity along with UP and involving community people. On the other hand, the COVID 19 also created their movement limited as a result the maintenance of water management infrastructures become a challenge. The BGP staff inspiring them through physical visit and sometime through virtual discussion/meeting.

The key challenges for the WMA in polder water management are – leasing of khals/canals and shrimp cultivation by the influential people, illegal occupation of sluice gates & its uses, construction of cross-dam/net-patta, illegal occupation of embankment & construction houses/toilet/brick field, cutting embankment slopes & converting agriculture land, siltation of khal/river, lack of funding support for SSWM infrastructures, O&M funds, coordination among the WMA, UP, BWDB and UZP which are emerged from the UZ workshop. WMA could not overcome these challenges accept UP, UZP and District Administration support. WMA is expecting before ending project support, they need to be introduced and develop coordination with the LGI, GoB line Dept. at UZ and District level.

#### 2.4.2.2 Community-led Agricultural Water Management (CAWM)

##### Introduction

CAWM can be measured as sustainable Internal Polder Water Management (IPWM) by catchment level water management planning, implementation, operation, maintenance by WMOs with support of relevant stakeholders, especially DAE and LGIs. This is result in a year-round approach to crop system management, in which the coastal belt will no longer be mostly single cropped, but provides opportunities for double and triple cropping combined with aquaculture. Year-round diverse crop system management approach is more effective, when WMO farmers cultivating in the same agricultural unit combine it with the stimulation of collective market action. It is an intensive approach in which field staff of DAE, BWDB and TA team have an active role (i) to strengthen the motivation and leadership of WMGs, (ii) to stimulate crop synchronisation and diversification, (iii) to build capacity in new agri-technologies, water management and marketing and (iv) improve community ownership over water management infrastructure. To create a sense of ownership the infrastructure is only co-funded by BGP and handed over to WMGs directly. WMGs develop an operation and maintenance plan which includes insurance of labour contribution and the creation of funds (cash/crops) by the community. Through the provision of technical support and horizontal learning between WMGs, the practices are executed and spread. The linkage with LGIs for conflict conciliation and the technical support from BWDB, DAE and other service providers is also a key factor for success. This with the ultimate aim to increase production and household income.



### Major Achievements

A total 21 (Patuakhali 13, Khulna 06 and Satkhira 02) CAWM includes area 457 ha (21.76 ha/CAWM), 1402 farmers Please see Table 15 for the summary information of CAWM. It is noted that BGP have summarised only Aman (HYV) during 2019 in the CAWM extended/replicated area of the 10 Patuakhali polders. The Aman was replicated through horizontal learning in 175 WMGs out of 187 (94%) WMGs and the area was 21818 ha out 37042 ha (60%). Still local varieties covered 14019ha (38%). The replication of Rabi crops area is not yet calculated.

**Table 15: General information on CAWM**

Zones	No. of Polder	No. of WMG	WMG members	No. of Farmers	Total land (ha)
Patuakhali	6	13	5235	707	304
Khulna	2	06	2177	509	113
Satkhira	1	02	677	186	40
<b>Total</b>	<b>9</b>	<b>21</b>	<b>7989</b>	<b>1402</b>	<b>457</b>

### Scaling up

The upscaling initiative is led by the WMOs, DAE, supported by UP and facilitated by BGP TA team by sub-catchment level water management through small scale water managements (SSWMI) and in Polder water management (IPWM). WMGs self-mobilised and established independently the area boundaries. They made their own farm inventories and selected and synchronised cropping patterns by coordinated with farmers. SAAO, DAE field staff has provided support in the selection process and providing special CAWM-FFS trainings on improved crop technologies, on-farm water management and market orientation to the involved WMGs. The report has prepared for January to June that's only covered Rabi period. In CAWM area Mung bean BARI-6 replaced instead local Mung bean. In the last year polders 47/4 and 47/3 there is no Mung bean cultivation in the CAWM area, through SSWMI and storage of rain/sweet water the CAWM members cultivated Rabi crops specially Mung bean but the cultivation of watermelon and Aus paddy was not significant. Farmers of BGP areas have been experienced crop damage for the last 2-3 years due to worse climatic condition. In Patuakhali region, farmers couldn't make expected profit from growing crops particularly mung bean (local), chilli, groundnut, watermelon etc. This year, in the CAWM area, farmers have planned to cultivate mastered but due to unpredictable farmers could not able to cultivate the mastered. In Patuakhali, in CAWM area, land used for Rabi cultivation was 235 ha out of 457 ha (51.42%). In Khulna, farmers cultivated 111 ha out of 113 ha (98.23%), and Satkhira 40 ha (14 ha land was under relay crop) Rabi cultivated out of 40 (100%). Please see the Table 16 for scenarios of Rabi crops (2020) in CAWM areas of three Zones.

Table 16: Crops-wise land used and yield data in CAWM during rabi season

Crop	Area (in ha)	Patuakhali	Khulna	Satkhira
	Yield (ton/a)			
Mung bean BARI-6	Area	182	-	-
	Yield	1.15	-	-
Groundnut	Area	21	-	-
	Yield	1.36	-	-
Watermelon	Area	2	3	-
	Yield	14	15.5	-
Boro paddy (HYV)	Area	3	77	40
	Yield	5.46	6.2	6.3
Sunflower	Area	4	-	-
	Yield	1.76	-	-
Mustered (intercrops)	Area	2	14	14
	Yield	1.15	0.62	1.49
Chilli	Area	5	-	-
	Yield	2.231	-	-
Other	Area	16	17	-
	Yield	1.3	9.3	-

#### Success story – Monashatali Khal WMG

In Polder 47/4, Monashatali Khal WMG with 20 ha land has been selected for CAWM in FY 2019-2020. In this season, they cultivated mung bean and production was not as expected due to salinity of land. 3 PVC gated pipe culvert were constructed in last FY 2018-2019 under Monashatali CAWM program. As a result, there has been some improvement in polder water management at CAWM field. Through CAWM activities, they learned about cultivation of high yielding variety of mung bean and benefits, processes of collective action and networking for collecting inputs. Fifty-seven farmer has cultivated BRR1 mung-6 in 20 ha of land through jointly land plowing and preparation, purchase seeds, fertilizer, pesticides, operating sub-catchment level water management and finally they jointly sold the crop. Resulting, about 550kg of mung bean produced per acre of land, which is about 220 kg more than last year. Md. Zahirul Islam (cellophane 1719 93 74 07) General Secretary, Monashatali Khal WMG, said that production cost of Mung bean per acre of land was about BDT.14,800. Mung bean sold at BDT. 60/kg, total sold BDT. 33,000.00, farmers benefited about BDT. 18,200.00/acre of land. Resulting farmers of Monashatali CAWM benefited immensely. Other farmers in the area have inspired by the findings of CAWM activities and have planned collectively cultivate BARI Mung-6 in coming Rabi season.

## Bringing Change

- CAWM have changed a lot in the BGP polders regarding IPWM through implementation of small-scale water management infrastructures (SSWMI) led by community (WMOs) resulting adaptation modern varieties of crop and increased its production & income.
- Strengthening of Water Management organization (WMGs/WMAs) through collectively action e.g. O&M for water management infrastructures, maximum level of water use, collectively action on crops seed/fertilizers/pesticides purchases and collectively sell of the agro-products. So, through these activities WMOs building their internal unity, communication. The linkage between WMGs to WMAs is creating new dimensions for self-driven development activities through “Horizontal Learning” this is one of the effective means to sustainable development of WMOs.
- A successful CAWM initial priority is IPWM, community agreement for collective action, community contribution for O&M on water resource management and agro-economics activities. The mostly important issue in the costal polders is good linkage/communication and support from outside stakeholders i.e. LGIs, GoB and non-GoB organizations and service providers etc. Now CAWM/WMGs are getting support from LGIs specially UPs, BADC, LGED regarding WRM structures, conflicts resolving and other social support. They have established good linkage with private service providers and getting quality seeds, technical knowledge on agricultures.



**Figure 1:** Mung bean BARI-6 cultivation in Polder 47/4

## Major Trends

In the BGP Polders area cropping pattern have changed through implementation of CAWM especially for sub-catchment level water management e.g. small-scale infrastructures implementation. Many of these farmers have adapted this concept, they are initiating sub-catchment water management for increase production through adapting modern varieties and crop diversifications. In BGP polders area, we have observed modern varieties of aman crop has increased (related to last Aman season). Cultivation of short duration HYV aman allowed early drainage of water. Due to risk of other Rabi crops (except Boro) and availability for irrigation water by LLP, Boro rice has been increasing in Satkhira and Khulna (in Polder 22, watermelon is increasing). In Patuakhali, due to increasing facilities of storage water in channels, Boro cultivation has increased in Polder 47/4. In Polder 43/2B and 43/1A most of the area is under watermelons crops. In this regard, women are involving in all types of farm activities for watermelon cultivation except marketing. BGP has organized women groups for capacity development training on

marketing linkage for women at Polder 43/1A. Some women have started marketing watermelon in the local market. It is important to note that, women’s husband and WMOs leaders have helped to create an environment for involvement of women in marketing. For current cropping patten please see the Table 17

**Table 17: Present cropping pattern trend in CAWM areas**

Rabi/Boro season	Kharif-I/Aus season	Kharif-II/Aman season
Boro (BRRI dhan 28/47/67)	Fallow	T. Aman (MV)
Boro (hybrid 1203/1204/Hira-4)	Fallow	T. Aman (MV)
Wheat	BARI Mung bean 6	T. Aman
Chili/sunflower	Jute	T. Aman
BARI Mung 6	Aus	T. Aman (BRRI dhan 52)
Maize	-	T. Aman (MV)
Maize	T. Aus (MV)	T. Aman (MV)
Mustard (BARI Sharisha14)-	Mung bean	Jute

### Challenges Mitigation Measures and lesson learned

- Climate change risks are key obstructions to increase cropping intensity
- Unpredictable climate/weather, need adaptive measures to combat with this.
- Non- availability of quality, need support for this.
- High input price during season and low market price after harvesting
- WMOs is working as an institution
- Capacity building of WMOs/farmers
- Farmers collectively work to improve IPWM and adapting modern varieties of crops
- Need to develop market/value chain

#### 2.4.2.3 Small Scale Water Management Infrastructure

A fund has been made available to use a “hands-off” approach, with a low-level of involvement by the BWDB/DAE/TA team, to implement small scale water management infrastructure (SSWMI). With the experience of the first call for infrastructure over 2018-2019, the second call for the 2019-2020 has been developed only for Khulna and Patuakhali and the progress is given in the Table 18.

**Table 18: Call for applications for small scale infrastructure**

Application	2018-2019	2019-20
Contracted WMG's	168	144
Total contracted Value (BDT)	200 lakh	227 lakh
Gated pipe culverts	91	75
Gated box culverts	31	8
Khal re-excavations	110 (52km)	124 (73km)
Other (fallboards, drains)	14	1
Completion	92%	90%

From 18-19, some of the carried over works due to unavailability of land are ongoing (Progress 70%) and soon to be completed. 19-20 progress has been impressive so far even though we faced two major problems such as Cyclone Amphan and Covid-19, but still amidst of all these, we made progress. Some of the works has been cancelled due to land problem, WMG's incapability of paying their share etc. Given the low involvement of TA and the high implementation rate, demand for these types of infrastructure seems large. In the previous report, we wrote on main challenges being balancing involvement of TA (we have now developed a construction sheet containing photographs with instructions in bangla for pipe and box culverts), construction safety (as part of the contract, we have added safety instructions), switching to HYV's (demonstration plots have been planted) and the use of excavators (due to the clear communication, this has not resurfaced). However, challenges remain with respect to quality of the structures and limited knowledge of the beneficial or harmful effects of the structure.

#### 2.4.3 Operation and Maintenance

BGP stimulates WMGs and WMAs to perform activities for Operations & Maintenance through Catchment O&M Planning and BWDB-WMA O&M agreements. They do this based on their cropping patterns. Firstly, members of the WMA-O&M sub-committee are trained to guide their O&M subcommittee and the WMGs to make catchment plans. These catchment plans are validated by the WMA Executive Committee. A major outcome of the activities is that WMG, WMA and the WMA - O&M subcommittees are focusing on and planning for O & M of their water infrastructure. In this process, O & M is actively planned by the communities during catchment planning. A major outcome of these activities is the linkage of WMGs not only with their WMA, but with LGIs and line agencies. A challenge which catchment planning is that that Local Government Institutions and other Government Line Agencies Challenges have to attend many planning workshops. In the coming months, they will be invited at an Upazilla level workshop, organized by multiple WMAs – which is more efficient. A challenge within the catchment is the distribution of costs (in kind or cash) of O&M between WMGs in a catchment.

This practice leads to a functional WMA, which we can have an example as below-

On May 20, 2020, several parts of embankment breached due to cyclone Amphan, which has immediately repaired by the WMOs. As a result, polder dwellers were able to protect their crops

from the floodwater. For Operation and Maintenance, WMOs used O&M funds/emergency funds raised from farmers and contributed voluntary labors. Currently, WMOs have admired by different institutions including Government and Non-government organizations for their various visible works in field of water management. All the farmers in polder areas are now dependent on water management organizations.

### Success story 1: Removal of fishing net

Chandpura Sluice (4-vent) under Bakulbaria-kallyankalash-Chiknikandi Sluice WMA at Polder 55/2C. Some immoral people obstructed the flow of water by fishing in Chandpura khal with fishing nets/fish trap. On 13 May 2020, Budharam Khal WMG and Chandpura Sluice O&M Sub-Committee have a meeting jointly, in the meeting it was decided that all fishing nets/fish trap, which were obstructing the flow of khal water will be removed. According to the decision of the meeting gate operator took initiative to remove the fishing net/fish trap. Some people themselves removed their fishing nets/fish trap. However, a man named Mohammad Ali (Cell- 01780 20 77 59) filed a case with Galachipa police station against three people including sluice gate operator. Police visited the spot and arrested an accused from there. Later on, Eng. Badsha Faysal, Alipur UP Chairman released him from police and police officer then requested both parties to go to the police station. WMG President, Budaram Khal WMG discussed the issue with Polder Team, BGP. Polder team advised him to contact with WMA and bring along a copy of O&M agreement with BWDB, Meeting minutes of District Water Resources Development and Management Committee and registration certificate copy of organization. On 03/06/2020, WMG came to police station with WMA and brought necessary documents. After looking all documents, police officer assigned representatives of WMA to settle the case. On 06/06/2020, WMA, WMG and representative of UP jointly solved the problem. It was also decided that in future if anyone obstructs the flow of water through net action will be taken against him.

### Success story 2: Removal of cross dam

Halima Begum has been cultivating fish for the last 20 years through illegally constructed cross dam on Burier Khal under the Katakhal-Kabirar khal WMG adjacent to Katakhal sluice of polder 47/4 because in that time nobody was concern about it. She is belong to local power class. Her fish farming created problems for irrigation and waterlogging occurs in the monsoon season, resulting, loss of crops about 300 acres of land. The WMG took multiple attempts to resolve the issue but they have failed. Md. Nur Hossain, (Cell Number-01712 88 25 85) president of Katakhal Kabira Khal WMG, built harmony among the farmers around the khal by updating terms of O&M agreement. Later, on 06 April 2020, by the initiative of Katakhal-Kabira khal WMG, they reported to the UNO, Kalapara in written form. UNO directed to Assistant Commissioner (Land) for investigate the matter and take effective measures to remove cross dam. On 15 April 2020, Union Land Officer inspected matter on spot. After inspecting the occurrence, WMG members, local farmers and Union Land Officer jointly have removed cross dam. Local farmers are hopeful that the removal of cross dam will increase crop production in about 300 acres of land in Baisha Kola.

### Participation of community people in O & M

Table19 and Table 20 show the number of WMG members and community people who participated in collective actions for O&M activities of infrastructure and estimated value of works. As shown in the following tables, WMG members and community people are involved in

collective actions for O&M of infrastructure. Up to June 2020, a total of 41,305 WMG members and community people were involved in collective O&M activities (with 22% female involvement).

**Table 19: Participation of community people in collective action for O&M (cumulative)**

Collective Activities	Results up to June 2020 (Source: BGP zonal office)		
	No. of Participant	% of Female	Estimated amount (BDT)
Cleaning of Khals	16134	28	4,598,075
Excavation of field Channel	6916	18	2,031,008
Repair of Embankment	11768	19	3,568,270
Repair/maintenance of structures-inlets	718	21	235,750
Repair/maintenance of structures-outlets	1009	7	318,915
Repair/maintenance of Structures-Sluice	4282	15	1,379,980
Others (regular maintenance of structures)	478	24	167800
<b>Total</b>	<b>41305</b>	<b>22</b>	<b>12,299,798</b>

The value of work accomplished works, which consists mainly of physical labor and in-kind contribution by the community, is estimated at Tk 12,299,798. The trend of WMG members'/community people's participation in collective actions for O&M of infrastructure has been positively increasing in every quarter – it is because they understand how their participation in O&M of infrastructure pays off in return.

**Table 20: Total contribution of WMGs members and community for O&M of infrastructure**

Fund or Activities (Source: BGP Zonal Office)	Results up to June 2020	
	Amount (BDT)	% of Total amounts
<b>a) Present O&amp;M fund of WMG</b>		
O&M Fund (Cash) available with WMGs	6,160,246	28%
<b>b) Total Pay-outs/contribution made for O&amp;M of Infrastructure</b>		
i) Cash Expenditure for O&M activities	3,412,848	16%
ii) Contribution in kinds/labour (Man days converted in value) for O&M	12,299,798	56%
Total Contribution for O&M in Cash and kind/labour	15,712,646	72%
<b>Total (a+b)</b>	<b>21,872,892</b>	



## Challenges

1. Occupancy of infrastructures by some political, influential and stakes at the local level has hampered Operation and maintenance of the infrastructure.
2. No legal procedure for active participation of UP, Upazila Parishad, local administration
3. WMOs are not mainstream of BWDB and shortage of Chief Water management staff, BWDB
4. Less interest and cooperation regarding elite beneficiaries.
5. Scarcity of O&M funds.
6. Lack of skilled operators with technical knowledge

## Mitigation measures

1. Communication with UP, local administration at Upazila level and BWDB has increased
2. Beneficiaries have been motivated regarding the benefits of PWM and the role of WMOs
3. Where organizations are successful, weak organizations need to link up through HL.
4. Arrange on job training for sluice gate operators.
5. OCWM to be established at Upazila level to strengthen WMOs

## Lesson learned

Sustainable development of water management will be possible if effective coordination between WMOs and affiliates such as Union Parishad, Upazila Parishad, DAE, DoF, AC Land Office and BWDB is ensured. If WMOs can identify water management related problems by themselves and take the initiative to solve on their own initiatives, and small-scale water management initiatives continuing, then the effective water management system will undergo a revolutionary change for crops diversity and production towards income.

## 2.5 Value Chain Improvements

### Introduction

First half of this year was more challenging for achieving field level implementation of Strengthened Value Chains (SVC) workgroup activities aimed at improving agricultural productivity and market linkages for project beneficiaries. All necessary steps, including draft curriculum preparation and primary selection of participants, completed to conduct capacity building training on entrepreneurship development of WMG members and resource farmers (RF). Similarly, SME development program for input traders and other market actors planned but not implemented due to pandemic. However, capacity building training on watermelon production and intercultural operation conducted by private sector partner in the project area during this period. A total of 1,674 farmers received the training that contributed in increase in production and income. Detailed implementation plan and budget approved for TA FFS cycle 14 for 50 field schools, initiated at Khulna, Patuakhali and Satkhira zones to transfer improved production technology and strengthened market linkages for mostly resource starve household members. Formal sessions could not start and the program had to be postponed for the time being to ensure safety of participants. In a suitable time, after reassessing the situation, TA FFS cycle might be implemented if there is ample time and human resource available that can ensure implementation quality. The winter crop, the last crop, in Cropping Intensity Initiative (CII), involving 152 farmers in 13 WMG continued in 43 acres also suffered due to Aphan and pandemic related constraints.



SVC effort in promoting demonstration of quality seed from private companies continued in 17 demonstrations by lead farmers. SVC workgroup worked extensively within this period, to evaluate performance of key interventions of all 13 cycles of implemented TA FFS. Short reports were prepared on impact of homestead production, livestock rearing and aquaculture for sharing with concerned authorities. Two consultants were engaged to assess performance of BGP implemented fisheries and livestock activities. A sharing event organized at DoF with its DG and other high officials, to aware them about the positive impact of fisheries activities by BGP in the project area. SVC team participated at eGobeshona seminar to share its experience about needed modification in coastal extension with a global audience.

### Bringing Change

There were few very interesting events took place during this period. Experience of agricultural development with market linkage for economic development at BGP shared with external audience. SVC activities highlighted at a high-level visit by general economic division. Presentations were made at DFID and international seminar at IUB to promote learning from project implementation work at coastal areas. Activities and success of BGP promoted at CIMMYT led international workshops as part of BGP funded IF project on sustainable and market smart ICT based Mung production, weather forecast and market price dissemination effort with a global audience. Due to the effort by SVC to popularize use of ICT in conducting collective actions and using network, marketing agricultural products by farmers become possible during difficult time of nationwide shutdown. Farmers could organize collective actions for selling rice, local poultry, egg, watermelon and mung.

### Trends

There were difficulties in transportation of agricultural products. The number of buyers decreased, resulted in limited option for sellers. Overall, the price of agricultural product was less than expected at farm gate. Demand for product also decreased. Farmers generally faced negative trend in demand of product with sliding prices. However, demand for local poultry and egg remain stable. Price was also increasing. Vegetable price was lower than that of same time last year. Watermelon price was also low at farm gate but was still giving little margin for producers. Moreover, cyclone Amphan contributed in further distortion of demand-supply situation. Overall agribusiness seen a down curve. Very quickly agricultural inputs were out of supply and prices went up.

### Challenges, Mitigation Measures and Lessons Learned

There was sporadic information collection from farmers. Field staffs could not travel and face-to-face communication become difficult. TA FFS sessions had to be stopped considering health and safety of participants. Once the situation improves a bit, opinion from potential participants and WMG management would be taken on TA FFS. It is decided that there will be reassessment of situation before planning TA FFS sessions again. The zonal experts have to ensure quality of implementation.

SVC initiatives often aimed at educating farmers on -reducing production cost, adopting profitable crop or collective selling to attract higher price. It appeared that collective actions using ICT is very much useful in difficult situation to communicate with potential buyers. Few matchmaking events

planned to strengthen linkages with private sector e.g. aroth and WMAs with lead farmers to reduce demand supply gaps. This can help farmers sell their product efficiently. SVC will motivate local resources e.g. farmer trainers (FTs), RFs to play role in collective actions for timely inputs and reducing supply chain constraints.

Covid 19 pandemic is unprecedented. Many homestead level producer farmers found it difficult to sell products. There was unethical business dealing by opportunist actors, many of them were surprise entries into the value chain. Overall efficiency of value chain reduced. In future, use of ICT and collective action will be very important to protect farmers. Farmers need to be aware about market system to find innovative ways to deal with profit monger market actors. Farmers also need to diversify their production basket, include local poultry and traditional fruits in their production planning.

### **Strengthened supply chain by developing an actor: A success tory**

Protiva Boiragi lives in Rangpur village (Rangpur moddo WMG) with her husband Animesh Boiragi, who is a day labour. She has their two children. Rangpur is approximately 15 km away from Dumuria upazila HQ. Most of the families of this area depend on small-scale gher farming as their main livelihood. She has 100 decimal of land beyond her homestead that is leased out for gher system farming.

After receiving training from the Blue Gold program on improving productivity of dyke cropping and marketing, Protiva now dreams of a better future for her family. Dyke farming in this region involves different types of cultivating vegetables on dyke round the year. In addition to her job as a laborer, Protiva`s husband is involved in growing vegetables in small piece of land. Yet they could get enough profit from their field. With little knowledge of integrated gher farming, Protiva used to help her husband.

In order to play a greater role in their gher farm, Protiva joined the Blue Gold Program along with 24 other women and men from her village to receive training on dyke vegetables and market orientations in the gher system. During the training, Protiva learned new technologies and concepts. She learned about use of quality seed, preparing seedbed, use of sex pheromone, organizing collective actions, ways of improving market linkage, record keeping and networking. She shared these learning with her husband and convinced him to adopt these practices including collective purchase of quality inputs from trustworthy company and dealer, use sex pheromone trap and use organic fertilizer.

Recognizing her enthusiasm, BGP established a demonstration area in her gher site with Protiva`s name on the signboard. Protiva`s husband also noticed her proficiency and readily allowed her to take new responsibilities in their farm and society. Protiva takes pride in her contributions, which require little time. She took lead in solving problems of fellow farmers. She started purchasing collectively different varieties of vegetable seeds from reputed companies and distributed to interested farmers at fair price.

These collective actions could ensure quality seeds at fair price, save transportation cost and time. Therefore, farmers provided service charge happily. She could earn BDT 15000 in just one season.

As a resource farmer, she also took lead in selling vegetables collectively. Farmers individually kept bagful of vegetables in her house and she sold all vegetables to buyers. She kept good record of all transactions in her notebook. Later she repaid all suppliers. During peak time, she even went to Upazila/ District arots for selling vegetables when she has to manage bulk quantity. She earned about BDT 35000 supplying vegetables to arots that established her as a reliable supplier. However, vegetable was not her only product. Protiva harvested rice and made a profit BDT 22500. In the winter season, she sold prawn for a total of BDT 65000 against expenditure of 35000 with a profit of BDT 30000. Protiva sold vegetables and made a profit of BDT 25000 form her own dyke. On average, her monthly income from agriculture stood around BDT 12291. This made her most respectful member of the family.



**Figure 2:** Protiva at shop during collective purchase

At present, she has collected trade licensee and have planned to set up a permanent input shop and vegetables selling center. She is now more eager to serve both fellow farmers and market actors more efficiently and effectively.

Neighboring women now motivated by Protiva, involved with her initiatives. People of Rangpur have witnessed her success. She became a role model of agribusiness. Many people in the community now see the benefit of involving in business activities and evaluating their potentials. This year many women who are involved in gher production system and observed the results of Protiva`s work, have started to engage in agri business initiatives.

## 2.6 Gender Equality & Women Empowerment

### Introduction

The Blue Gold Program aimed to ensure reducing gender inequalities and enhancing women’s empowerment by integrating attention to gender into its interventions and by implementing selected gender specific activities. Attention to women’s empowerment also contributes to better achieving BGP’s overall objectives, such as poverty reduction.

### Major Achievements

In this reporting period several field-based gender activities continued, but only until the covid-19 situation forced a standstill. The focus of the gender related work therefore shifted even more to documenting lessons learned. Main activities in the reporting period:

- In the first three months of 2020 the Gender and Leadership Development (GLD) training (new approach, with 5 informal sessions per group) continued successfully in BGP’s new polders, with 2122 women and 964 men as participants.
- In the old polders, the one-off gender courtyard sessions (CYS) continued to create more gender awareness, reaching 1353 women and 956 men.
- International Women’s Day (8<sup>th</sup> of March 2020) was celebrated in the three BGP zones and in Dhaka, with in total over 1000 participants (WMG / WMA members, UP representatives and representatives of BWDB, DAE and TA team).
- Communication materials focusing on gender equality and women’s empowerment were developed or completed: 5 case study hand-outs (2-pagers), a 4-pager and a slide deck. This activity included the collection at field level of stories of women who had become empowered during BGP as input for these communication materials.
- During the Gobeshona conference in January 2020 a successful session was prepared and conducted titled “Empowering Women for Economic Development and Resilience”, drawing about 70 participants.

Success story: Elements which made this session special:

1. Two women guest speakers from the BGP polders, who impressed the audience by confidently and convincingly sharing their own stories of empowerment
2. The use of interactive software (AhaSlides), enabling the audience to actively react.

- Contribution to relevant (gender / women’s empowerment) sections of the Lessons Learned Report (LLR) and the Project Completion Report (PCR).
- Contributed to drawing lessons from BGP’s engagement of Labour Contracting Societies (LCS) in several ways, including collecting case studies and preparing input for an LCS case study handout (2-pager).

The LCS study and LCS case studies demonstrated that participation of female LCS members in farmer field schools has been guiding and enhancing their investments in productive resources using

LCS income. Investments in resources such as poultry and livestock give better returns when the women have skills and knowledge about improved practices.

- Many women WMG members (an estimated 3400 women in Khulna, Patuakhali and Satkhira) played essential roles in communicating covid-19 related hygiene measures in various local communities, promoting handwashing, use of face masks, and social distancing. They assisted their Union Parishads in identifying families for food or financial assistance.

### Bringing Change

Examples from the BGP polders demonstrated continued economic empowerment of women.

- 185 poor women in Satkhira earning BDT 139,880 from bashak leave sales;
- 79 women earning BDT 123,150 from collectively selling vegetables in Satkhira; and
- Women participants (30) of the Women's Empowerment joint workshop (BGP and UP) at end 2019 harvested many vegetables, improving own nutrition and for sales (BDT 800-2000 per woman)

Women also continued contributing to better water management, such as by 1170 women cleaning water hyacinth in several polders in Patuakhali.

New was that women WMG members turned out to be highly effective in **addressing covid-19** by communicating hygiene measures in their communities and identifying families in need of assistance, largely in coordination with the Union Parishads. This confirms the importance of WMGs, including its women members, as a valuable platform in between local government and community members.

Women also seem **more negatively impacted by the covid-19 situation** than men. They take a proportionally larger share in implementing hygiene measures and are more affected by reduced mobility and reduced social contacts, also because they tend to take more responsibility for sticking to the covid-19 guidelines. Like men, also women experienced negative effects on their income due to marketing / transport restrictions. In Bangladesh there is reporting on increased occurrence of gender based violence and early marriage during covid-19. There is hardly such information available yet from the BGP polders, however, a female UP member confirmed a similar violence increase in communities, though not (or less) among WMG members.

### Trends, Challenges, Mitigation Measures and Lessons Learned

- Women's contribution to increased production and income ("economic empowerment") continues increasing. Now that women and men realize that women's engagement in productive work is beneficial, this change seems irreversible, despite crises such as covid-19 creating extra limitations.
- The unique role of women WMG members in covid-19 related activities in reaching out to other women community members confirms the importance of having both men and women represented in WMGs.

- The documentation of lessons learned, including data and case study collection, better manifested that women’s empowerment is not only contributing to more “gender equality”, but also is an important factor in better achieving BGP’s objectives, such as poverty reduction.
- A main challenge and lesson learnt is that improvements in women’s empowerment and gender equality need to be robust engrained in norms and values of men and women. This is important in order to ensure sustainability, ie that women are not relegated back to a less equal position in times of changes or crises. A project’s gender approach therefore needs to be solid and comprehensive, targeting men and women, with mutually reinforcing messages.

### 2.7 Horizontal Learning & Communications

The communications and Horizontal learning team is responsible to develop new content for learning and organizing events to disseminate those among different stakeholders. Under communications, we have developed a series of success stories, one passer, posters, factsheets, news, videos, drama and other learning elements. According to BGP principles, WMOs are the driving force for change. Blue Gold’s Horizontal Learning (HL) program is led by WMGs and supported by the implementing agencies (BWDB and DAE) and LGIs. To spread the success and learning of BGP, horizontal learning method is applied which gives the opportunity to the communities to learn from the person who has practical experience. HL and partnerships are contributing to agricultural and economic development, environmental sustainability and finally to livelihood improvement.

#### Major achievements in regard to horizontal learning and communication:

Now BGP has focused more on WMA capacity building. Considering this, drama shows were organized at the polder level. The main focus was to demonstrate the responsibilities of WMA for the functional water management and benefits of having a water management organization. The total number of demonstrated drama was 35 in 12 polders covering 28 Unions and 10 Upazilas of the BGP area. A large number of audiences enjoyed the drama show in 3 zones. In summary, the total audience was 14260 (female- 4304, male- 7518 and children- 2438).

During this reporting period, several videos have developed on different issues such as success stories, achievements, instructional, and event wise videos which are also considered as visual reporting. Some videos were developed by BGP and some were developed by outside vendors. ‘Big Blue’ developed 2 professional videos for BGP “What Water Management Means to Me” & “BGP ToC”. There is also a process documentary on “Implementation of CAWM” and 6 success stories on CAWM issues in both Bangla and English from AVcom. See Annex C for the video list.

Blue Gold Program created an opportunity for the coastal communities through HL events where participants can learn from the people who have already success on the particular issues. Table 21 shows the detail of different HL events.



**Table 21: List of HL events on different issues.**

Polder	Content	Date	Participants			Total
			Male	Female	UP Chairman	
55/2C	Capacity Building of WMA	17/02/2020	24	12	2	38
47/4	Capacity Building of WMA	20/02/2020	26	6	1	33
30	Organizational management and O&M fund	16/02/2020	22	8	0	30
25	O & M activities by Rudaghora WMG	27/02/2020	17	12	1 (BWDB)	30
25	CAWM demonstration	29/01/2020	19	11	1 (SAAO)	31
2	Community led fisheries water management	09/02/2020	35	7	0	42
2	Mustard cultivation in CAWM area	03/02/2020	33	7	0	40
<b>Total</b>			<b>176</b>	<b>63</b>	<b>4</b>	<b>244</b>

To share our strategy, working approach, achievement, challenges and learning, we participated different national international platforms. During this reporting period we participated 6<sup>th</sup> Gobeshona International Conference on Research into Action in Bangladesh. BGP conducted 4 sessions on 4 BGP related issues, demonstrated a polder replica and a stall on BGP innovation fund activities that highlighted Blue Gold program in front of others.

**Success story: Community led fisheries water management**

Shallay Paschim Para O Beradangi is a WMG under the SSM Sluice WMA in polder 2, Satkhira. They are implementing regularly different O&M activities and following up on other WMG’s good works. This WMG collect savings every month from the members and invest that money in different income-generating activities. Beradangi Village where waterlogged is a common phenomenon from Aman season to Boro season. As a result, local people have only one crop there. The members of the WMG were thinking for a long time how the waterlogged areas can be brought under fish culture. In this situation, on 24th November 2018, the WMG visited the experience sharing and horizontal learning program on CFWM organized by Chellar Beeler Khal WMG.



**Figure 3: CLF members of Shallay Paschim Para & Beradangi WMG**

They learned some new techniques such as how fish can be cultivated by using bamboo, use of net patta within other obstacles in waterlogged lands from that HL event that.

They gained knowledge in detail about the community-led fisheries water management (CFWM) by asking different questions in experience sharing visit. After attending that event they started working on cultivating fish in their area and prepared an implementation-planning schedule on CFWM for the year 2019. In the monthly general meeting, they presented their replication plan of CFWM for creating enthusiasm for WMG members. The president of WMG took lead to implement the community-led water management (CFWM) in Beradangi Village. According to the decision, this WMG implemented the CFWM successfully in 2019 with the technical support of the Blue Gold Program and Fisheries Department of Satkhira. According to their document, this year they have got BDT 82122 as net profit after all the expenditures. They learnt from Chellar Beeler Khal WMG and now on 9th February 2020, the WMG organized a horizontal learning and experience-sharing visit to other 5 (five) WMGs.

### Bringing change

The horizontal learning program creates an opportunity where participants directly learning through demonstration as well as having the questions and answers session. They also come to know how to overcome the challenges and obtain the opportunities, using resources, and building linkages. This event is also working as motivation for the others. After each HL event, when the guest WMOs representatives back to their WMOs, they are likely to take some initiatives what they learnt from the event. The drama is one of the strong tools to reach a large audience. Through the drama, our messages have reached to 14260 people of the coastal communities and from them, this message will reach even further. WMA used this opportunity to aware of the entire community about different aspects of water resource management which makes a very positive impact among the people of BGP areas.

### Challenges, mitigation measures and lessons learned

One of the major challenges was to collect pictures and information on different events. Since the beginning of the Coronavirus pandemic, the field mobility has reduced as a result there are few opportunities to collect footages for developing new success stories and videos. Simultaneously organizing HL events and video screening is stopped. In spite of having a plan to organize a big event like Mela, HL and communication team was not able to organise that.

To mitigate the challenges, HL and communication team is attending monthly zonal coordination meetings and created a Facebook messenger group with all CDFs. Nowadays CDFs are sharing all information, pictures, and videos.

Md. Anwar Hossain is the president of Amtoli khal, WMG polder 47/4. He is a businessman; he lost his everything after a great loss in his business. He became indebted. Later he sold 15 decimals of his land. To overcome this situation, his elder daughter started work at garment and his wife started swing. His wife also a member of FFS school from there she learns the new technologies of poultry rearing.



### 3 Polder Level Progress

#### 3.1 Progress of Water Management

Polder	Polder wise trends of water resource management
<b>22</b>	<ul style="list-style-type: none"> <li>• During Super Cyclone Amphan, 12 WMGs took a lead to repair/construct 5 erosion point (length 100 meter) led by Dihibura Khal WMA with the help of local elites, local UP UZP and BWDB. WMA also collect emergency O&amp;M fund for Kalinagor erosion from local elite and UP. About 2500 self-contributory labour were involved in the process to protect inclusion of saline water and sinking water logging situation after post Amphan situation;</li> <li>• Re-sectioning embankment 0.11 re-tired embankment 0.55 Km, low cost bank protection 0.58 Km, interior dyke 0.17, breach closing 0.12 Km completed</li> <li>• 440m embankment setback had been completed.</li> <li>• 3 WMGs successfully completed field/drainage channel under SSWMI program.</li> <li>• Eight WMGs (245 members) has established 8 cross dams in different sub-catchment areas.</li> </ul>
25	<ul style="list-style-type: none"> <li>• 07 WMGs have jointly participated for constructing and strengthening X dam at Kharnia Sluice Gate area, 7 WMGs paid BDT 2,000 each and supplied necessary logistic support from their O&amp;M fund</li> <li>• 37 WMGs have jointly removed water hyacinth of 28.5 Km Khal by involving 2012 self-contributed labour as total value 416,000/-.</li> <li>• 2 WMGs have excavated 335 ft field channel to drain out rain water by utilizing BDT 10,500 from O&amp;M fund;</li> <li>• Removed silt from Chohera and Keoratola Sluice Gate area by involving 22 WMGs, 3 Union Parishads</li> <li>• Under Blue Gold Program, about 2.10 Km Khal has been re-excavated and 2 Sluice gates have been repaired during reporting period;</li> <li>• 22 SSWMI and 2 CAWM small scale infrastructures works have been completed;</li> </ul>
<b>27/1</b>	<ul style="list-style-type: none"> <li>• 5 WMGs under the leadership of two Catchment O&amp;M Sub-Committees have engaged 103 self-contributory labour for repairing ghoghs and rain cut of embankment whose value was about BDT 36,460/-;</li> <li>• One WMGs have engaged 15 self-contributory labour for removal silt from outfall of Shastitala Sluice/Catchment amounting to value BDT 1500;</li> <li>• 6 WMGs under 3 O&amp;M sub-Committee engaged 176 self-contributory labour for cleaning water hyacinths and removal net-patta from khals amounting to value BDT 21,160;</li> <li>• 9.517 km khal re-excavation has been completed, 4 Sluice Gates were repaired and gates fabricated 4 nos.</li> <li>• 10 WMGs have collected saving 55,160/-8 WMGs O&amp;M fund of 12,030/-</li> </ul>
<b>27/2</b>	<ul style="list-style-type: none"> <li>• 3 WMGs under 3 O&amp;M Sub-Committees' have removed silt from outside of Sluice Gates;</li> </ul>

Polder	Polder wise trends of water resource management
	<ul style="list-style-type: none"> <li>• 4 WMGs under 3 Catchment O&amp;M sub-Committee engaged 52 self-contributory labour for cleaning water hyacinths and removal net-patta from khals amounting to value BDT 3,700;</li> <li>• Ghona-Baradanga WMG has repaired 33 feet embankment by 23 members voluntarily amounting value was 1100/-</li> <li>• One WMG has cleaning water hyacinth of 300 meter by involving 42 members with BDT 2400</li> <li>• 2 WMGs under two catchments have excavated 650-meter field channels involving 77 members whose value was 6720/-</li> <li>• Komolprpur WMG has repaired Komolpur Sluice by involving 6 members with BDT 4700</li> <li>• Maintenance of 3 Sluices by greazing and mobiling by 3 Catchment O&amp;M Sub-committees;</li> </ul>
<b>28/1</b>	<ul style="list-style-type: none"> <li>• 4 WMGs under Kuluti O&amp;M Sub-Committee has cleaned 500-meter water hyacinth from both sided of Kuluti Sluice involving 22 self-contributory labour as a value of BDT 6600/-;</li> <li>• Maintenance of 2 Sluices by greazing and mobiling by 2 O&amp;M Sub-committees;</li> <li>• Line Beel Pabla WMG has cleaned 2 Km Khal by involving 163 self-contributory labour as value of BDT 81,500/-;</li> <li>• 3 SSWMI schemes have successfully completed by 3 WMGs;</li> <li>• 1.2 km Khal has been re-excavated and embankment re-sectioning 3 Km completed;</li> <li>• 5 Sluices have been repaired by Blue Gold and all Gated have been fabricated;</li> <li>• 8 WMGs have collected Saving 31520/- and 2 WMGs have collected O&amp;M fund of BDT 600/-</li> </ul>
<b>28/2</b>	<ul style="list-style-type: none"> <li>• Maintenance of 5 Sluices by greazing and mobiling by 5 O&amp;M Sub-committees;</li> <li>• 3 WMGs' 185 self-contributory labour (members/non-members) have repaired Kachubunia Erosion Point during Amphan as a value of BDT 92,500/-;</li> <li>• Shoilmary WMG has removed silt outer side of Sindurtala Sluice Gate by involving 24 self-contributory labour as value of BDT 7200/-;</li> <li>• Chhoyghoria WMG has excavated 150-meter field channel by self-contributory labour.</li> <li>• 5 SSWMI schemes have successfully completed by 8 WMGs;</li> <li>• 6.785 km Khal has been re-excavated and embankment re-sectioning 1430-meter completed</li> <li>• 3 Sluices have been repaired by Blue Gold and all Gated have been fabricated.</li> </ul>
<b>29</b>	<ul style="list-style-type: none"> <li>• During Amphan, 3 WMGs have engaged 505 self-contributory labour to protect river bank erosion at Baro-Aria where Union Parishad donated BDT 15,000/- in cash for logistic support and self-contributory labour cost values in BDT 237,000/;</li> <li>• Ghoghs &amp; rain cut of embankment were repaired by 150 self-contributory labours f 3 WMGs</li> </ul>

Polder	Polder wise trends of water resource management
	<ul style="list-style-type: none"> <li>• 12 WMGs have engaged 255 self-contributory labour for removal silt from outfall of 5 Sluices</li> <li>• 13 WMGs engaged 220 self-contributory labour for cleaning water hyacinths and removal net-patta from khals</li> <li>• 14 WMGs have engaged 235 self-contributory labour for establishing cross dam to protect saline water as well as reserve sweet water for cultivating rabi crops.</li> <li>• 6 WMGs excavated 400 feet field channel spending BDT 32,400 as labour cost</li> <li>• Bhulbaria WMG has excavated field channel of 200 ft by utilizing O&amp;M fund BDT 5000</li> <li>• 12 WMGs have removed 12 nos. cross dam by self-contributory labour</li> <li>• 38 WMGs have collected savings amounting to BDT5,72,500/- and 31 WMGs have Collected O&amp;M fund fee BDT 57,500/-17 WMGs have utilised BDT 68,500/- for embankment repairing, establishing cross dams, cleaning of water hyacinths, etc.</li> </ul>
30	<ul style="list-style-type: none"> <li>• 2 WMGs have excavated 300-meter field channel with the help of UP</li> <li>• 10 Sluice Gates have been greezed and provided mobil and One Sluice was painted by Catchment O&amp;M Sub-Committees;</li> <li>• Batiaghata Khal WMA has applied UNO and other Officers for helping WMA to remove, water hyacinth and net-patta from different Khals</li> <li>• 1.85 Khal were re-excavated and 0.034 Km low cost bank protection work done by Blue Gold Program;</li> <li>• Khejutala 3 vent Sluice construction work on-going</li> <li>• 08 WMGs excavated 7.5 km field canal for better crop production by themselves.</li> <li>• 14 WMGs (245 members) has established 8 cross dams in different sub-catchment areas</li> </ul>
31-Part	<ul style="list-style-type: none"> <li>• 5.5 Km field channels have been excavated under 6 SSWMI schemes of 6 WMGs</li> <li>• 4 WMGs' 310 self-contributory labours repaired 150 feet embankment during Amphan</li> <li>• Thandamary Khal WMG made 100-feet ring bandh by involving 70 self-contributory labour</li> <li>• 1.9 km canal re excavation completed and this canal created a positive impact on WM</li> <li>• 6 WMGs (155 members) has established 6 cross dams in different sub-catchment areas</li> </ul>
26	<ul style="list-style-type: none"> <li>• 6 Catchment O&amp;M Sub-committee have removed silt from intake of 6 sluice gates;</li> <li>• 4 WMGs have clean water hyacinth and fishing net from 4 different Khal where length is 2.810 km values BDT 12,000 through labour.</li> <li>• 2 WMGs has excavated 500ft field channel through cash and labour with around BDT 4,500</li> <li>• 3 WMGs engaged 15 self-contributory labour for 20-meter embankment repairing ghoghs and rain cut of embankment which cost BDT 4500</li> <li>• 2 WMGs has excavated 500ft field channel with around BDT 4,500 through cash and labour</li> </ul>

Polder	Polder wise trends of water resource management
	<ul style="list-style-type: none"> <li>● 5 WMGs have collected savings BDT 519620 &amp; 1WMGs have collected O&amp;M fund BDT. 2000</li> </ul> <p><b>Challenge</b></p> <ul style="list-style-type: none"> <li>● There is a conflict between Chairman, Shovna Union Parishad and Chairman, Shakhabai Khal WMA;</li> <li>● Continuous siltation in the river side of Zialtola, Baro beel, Kurir beel and Baluijaki regulator/slucice gates created problem for the free movement of water</li> </ul>
34/2	<ul style="list-style-type: none"> <li>● During Amphan, 495 members and non-members of 5 WMGs and Union Parishad jointly repaired embankment at 3 breaching point with BDT 37,000 from O&amp;M fund and BDT 176,000 as value of self-contributory labour</li> <li>● Re-excavation of Khals 5.92 km, re-sectioning embankment 1.8 km &amp; breach closing 0.79 km</li> <li>● During Ampan 3 WMGs, UPs and WMA have jointly repaired embankment to protect river bank erosion by involving 150 self-contributory labours;</li> <li>● Thakrunbari WMG has excavated field channel of 200 feet with the assistance of UP</li> <li>● 12 SSWMI Schemes have been successfully implemented out of 13 contributing BDT 726,232</li> <li>● 5 WMGs have excavated 270 feet field channels by utilizing 12,000/- from O&amp;M fund and 19,200/- as a value of 96 self-contributory labour for drain out excess water;</li> <li>● 4 WMGs have removed X-dam, net-patta, water hyacinth by BDT BDT 12,000 from O &amp; M fund</li> <li>● Four WMGs have constructed X-dam by utilizing 65 self-contributory labour;</li> <li>● A WMG constructed a wooden box culvert and reducing water logging about 300 acres land</li> </ul>
43/1A	<ul style="list-style-type: none"> <li>● A WMG repaired a damage point at sluice gate by BDT 1000, cleaned water hyacinth from 200m Amtola khal with BDT 3000 that is benefiting 180 acre of land including 130 farmers</li> <li>● Paschim Sonakhali WMG coloured the sluice with BDT 1000 to protect from carbonic damage</li> <li>● Purbo Sakharia WMG repaired an erosion point in embankment costing of BDT 4500</li> <li>● 3 WMGs cleaned water hyacinth from canal costing BDT 23700 that will benefit 570 acre of land including 470 farmers</li> <li>● During the reporting period, a total BDT 6700 has been collected for O &amp; M fund.</li> <li>● A WMG repaired three erosion point made by super-cyclone Amphan costing of BDT 8000</li> <li>● 42 farmers from 14 WMG got 05kg each BRR1 Dhan-48 seed from DAE as demonstration. Besides the DAE provided DAP-20 kg and MoP- 10 kg to each farmer for Aus season.</li> <li>● BADC re-excavated 2 km khal in a WMG area that brought 200 acre of land under cultivation</li> </ul>

Polder	Polder wise trends of water resource management
<b>43/2B</b>	<ul style="list-style-type: none"> <li>• Dakshin Purbo Badura WMG made a dike around 360 ft costing of BDT 11,200 in Akhonbaria canal which reduced water lodging of about 120 acres of land benefitting 90 farmers</li> <li>• 3 WMGs repaired three erosion point costing BDT 4000 of 60 ft embankment.</li> <li>• 3 WMG coloured three sluices to protect from carbonic damage costing of BDT 4400</li> <li>• A total of 15 WMG cleaned water hyacinth around 8km from canal which will create smooth flow of water and total 750 acres of land will get irrigation facilities</li> <li>• 04 WMGs have set awareness raising &amp; cautionary notice board at 04 sluices and also WMG's have applied grease &amp; mobile to their sluice once during the last six months.</li> <li>• 17 WMG setup 175 RCC pipe at different points benefitting 600 farmers with 800 acres land</li> <li>• BDT 36.670 was collected as O&amp;M fund and utilised BDT 33,790</li> </ul>
<b>43/2E</b>	<ul style="list-style-type: none"> <li>• 7 WMGs have removed water hyacinth from 8.5 Km long area of 9 Khals for smooth water flow</li> <li>• 2 WMGs have repaired about 30 meter long "Ghog" of embankment at 4 points by BDT 500 and 30 volunteer labour-days.</li> <li>• 7 WMGs have removed silt from 18 inlet and 1 outlet by their volunteer work</li> <li>• 45 members of a WMG have excavated 350 feet of field channel benefitting about 30 ha land</li> <li>• Purba Joinkati Purba has constructed one box culvert jointly to improve drainage facilities of about 30 acres of lands which has created scope to cultivate HYV crops by about 50 farmers.</li> <li>• Local influential people have been fishing for a long time in mouth of sluice gate and in flowing khal with Vesa Jal, Benti Jal &amp; Jhai. Pataukhali Upazila Fisheries Office burnt 32 nets through the mobile court. At present, there is no net of any kind in Khal of Polder area.</li> </ul>
<b>43/2F</b>	<ul style="list-style-type: none"> <li>• 3 O&amp;M sub-committee and WMA has applied grease &amp; Mobil on the sluice and removed water hyacinth near sluice during the last six months expending BDT1600</li> <li>• During the reporting period, a total of 10,850.00 taka has been collected as O&amp;M fund.</li> <li>• Two WMG repaired two erosion points created by super cyclone Amphan with BDT 8700</li> <li>• Accomplished excavation of 4.84 km long field channel by 06 WMGs</li> <li>• WMGs have collected savings of BDT1,39,785.00 within the reporting period</li> </ul>
<b>47/3</b>	<ul style="list-style-type: none"> <li>• 2 WMGs have removed 2 fishing nets 5 Jhai from main Khals to smoothen the water flow</li> <li>• A WMG has removed silt from 4000 sq.ft sluice adjacent area which has allowed 220 farmers to cultivate HYV crops in 300 acres of lands.</li> <li>• 4 WMGs have painted and lubricated with Grease &amp; Mobil their sluices</li> </ul>

Polder	Polder wise trends of water resource management
	<ul style="list-style-type: none"> <li>All WMGs have mobilized the members for O&amp;M Fund BDT 3,04,200 of which BDT 1,32,500 was mobilized in last 6 months by share from LCS work, mungbean &amp; paddy collection.</li> <li>A WMG and BADC have jointly installed underground irrigation system for 120 acres land</li> <li>6 WMGs, under SSWMI activities, have executed excavation of 22128 ft. long field channel to have better water management scope to the 1200 acres of land of 522 farmers.</li> <li>5 WMGs have executed installation of 12 gated PVC pipe culverts for better water management &amp; improved agricultural practice in 275 acres of land by 475 farmers.</li> <li>Under CAWM activities, Paschim Madhukhali WMG has prepared an internal dyke of 800 meter long along with re-excavation of 3280 ft. long tertiary Khal</li> <li>7 WMGs have mobilized its members to gather savings funds of BDT 6190</li> </ul>
<b>43/2A</b>	<ul style="list-style-type: none"> <li>6 WMGs, O&amp;M Catchment Committee and WMA jointly have cleaned weeds, removed slushy on both sides, srese, paint and plastering of Kazirhat and Matibanga sluices</li> <li>6 WMGs removed fishing net and other illegal obstacles from 5.60km length of 6 different khals values BDT 19500, as a result 420ha of land has been benefited</li> <li>7 WMGs have voluntarily repaired about 500 feet of embankment</li> <li>During Cyclone Amphan, about 20 places of embankment damaged, in collaboration with WMGs, WMA and Union Parishad have temporarily repaired.</li> <li>According to demand of Madhya Matibanga WMG, constructed a gated pipe culvert by Choto Bighai Union Parishad as a result 50ha land has benefited.</li> <li>A WMG and 2 UPs have constructed three box culvert that benefiting about 120 ha of land</li> <li>According to demand of a WMG, LGED has constructed two box culvert, resulting benefit of 110 ha of land.</li> <li>13 WMGs under SSWMI through co-funding have constructed 17 gated PVC Pipe Culvert, and excavated 4271 m field channel</li> <li>A WMG and BGP under CAWM through co-funding have constructed 1 Gated PVC Pipe Culvert, 915m small dyke and excavated 1500m field channel, resulting improved agriculture practice by 90 farmers in 40 ha of land.</li> <li>A WMG constructed a PVC Pipe culvert by using O&amp;M fund with BDT 35,000 As a result, 20 hectares of land convert from one crop to 2 crop lands.</li> <li>7 WMGs have excavated about 2500m field drain to drain out excess water from mung bean field, with an estimated value BDT 42,500 through voluntary labor and benefiting 510 ha land</li> <li>16 WMGs raised BDT 61480 and 345 kg mung bean from farmers O&amp;M.</li> </ul>
<b>43/2D</b>	<ul style="list-style-type: none"> <li>8 WMGs, O&amp;M Catchment Committee and WMA jointly have cleaned weeds, removed slushy on both side and Grease, Paint and plastering of 5 sluices values BDT 12500 through cash and voluntary labor, resulting 1500 ha land has been benefited.</li> </ul>

Polder	Polder wise trends of water resource management
	<ul style="list-style-type: none"> <li>• Abad Hazikhali WMG has removed slushy about 500 meters from Charabunia branch khal, with an estimated value of BDT 35,000 through cash and voluntary labor. Resulting benefited 120 hectare of land.</li> <li>• 30 feet and 10 feet embankment repaired by 3 WMG which are damaged by Cyclone Amphan, with an estimate value BDT 30,000 through cash and voluntary labor, As a result 550 ha of land protect from excess water from Cyclone.</li> <li>• 13 WMGs, 2 WMAs and Union Parishad jointly have cleaned water hyacinth, Fishing nets and other obstacles of 5 different khals length about 5.300km with an estimated value BDT 45,000 through cash and voluntary labor,</li> <li>• WMGs collects seasonal crops/cash from the farmers as O&amp;M fund for proper operation and maintenance of water management infrastructure. 7 WMGs have collected 960 kg Mung bean for O&amp;M fund, its market value is about BDT 57,600. Resulting improving water management capacity of WMOs.</li> <li>• 3 WMGs have collected saving of BDT 17,500</li> <li>• Few local political influential people have been farming fish with cross dams on both sides of Akubia khal for last the five years. Charabunia WMG, Hetatalia-Charabunia Sluice WMA jointly have removed fishing net, bamboo and cross dam on both side of khal. Resulting improve drainage and irrigation system about 300 ha of land.(Challenge)</li> </ul>
47/4	<ul style="list-style-type: none"> <li>• 3 WMGs – Katakhal Kabirar Khal, Madhukhal Khal and Kheker Khal have been removed 3 Cross-Bandh of their area to smooth water flow. These has created improved agricultural practices in about 750 acres of land.</li> <li>• Shanirvor Khal WMG and Pakshia Para Khal WMG have cleaned water hyacinth from 275 m length of Khals.</li> <li>• Katakhal Kabirar Khal WMG has repaired 50 ft long embankment erosion.</li> <li>• Modhukhal Khal WMG has removed fishing net &amp; “Jhai” from 3 spots of Madhukhal sluice Khal and Bddahpara sluice Khal</li> <li>• 10 WMGs have set awareness raising &amp; cautionary notice board at 10 sluices and Madhukhal Khal WMG has applied grease &amp; mobile to their sluice once during the last six months.</li> <li>• Deppar Khal has been re-excavated under SSWMI in current financial year at Varanir Khal WMG.</li> <li>• 18 WMGs of the Polder have mobilized O&amp;M fund of BDT 4,08,260.00 and in the meantime they have utilized BDT2,48,130.00 for regular &amp; routine O&amp;M of their structures</li> <li>• Aiyum Para Khal WMG and Shanibor Khal WMG of Polder 47/4 have made wooden fallboard for Outlet and Baliatli Sluice respectively costing BDT 6500</li> </ul>
55/2A	<ul style="list-style-type: none"> <li>• Ahaibaria-Bahemouz WMG and WMA, jointly Grease, paint and plastering have done of Haskhal Sluice with an estimated value of BDT 4,000 through cash and voluntary labor.</li> <li>• Patabunia WMG at Polder 55/2A, has re-excavated 400 feet field channel with an estimated value of BDT 7,000 through cash and labor.</li> </ul>



Polder	Polder wise trends of water resource management
	<ul style="list-style-type: none"> <li>• Akhaubaria Bahermouz WMG, Betagi-Sankipur Radasetaram WMG, WMA and in collaboration with UP removed five Cross dam from branch khal of Akhibaria and Radhar Khal respectively that improved draining of 550 ha land</li> <li>• 5 WMGs, O&amp;M Catchment Committee and WMA jointly have cleaned weeds, removed slushy on both side, Grease, Paint and plastering 5 sluices values BDT 8500 through cash</li> <li>• Akhibaria-Bahermouz WMG installed two RCC pipes values BDT 2700 through cash, benefited 10 ha of land.</li> <li>• Two WMG of Polder 55/2A, Akhibaria Bahermouz WMG excavated 250 feet and Char Maishadi Sluice WMG excavated 415 feet field drain through voluntary work. Benefited about 65 farmers.</li> <li>• Dakshin Darandi Bazar Sluice WMG has re-excavated 200 feet field channel with an estimated value of BDT 4,000 through cash and labor.</li> <li>• Cyclone Amphan damaged about 33m of embankment and 60 members of Bot-O-Char Balikathi WMG instantly repaired the embankment through voluntary labor</li> <li>• Bakulbaria and Nawmala Union Parishads constructed three Box Culvert. As a result, about 130 ha of land will be drained out excess rainwater easily.</li> <li>• 7 WMGs and Blue Gold Program under SSWMI have constructed 10 Gated PVC Pipe Culvert, and excavated 2240m field channel</li> <li>• 2 WMGs Blue Gold Program under CAWM have constructed 6 Gated PVC Pipe Culvert and excavated 150m field channel, resulting improve agriculture practice in 50 ha of land by 120 farmers.</li> </ul>
55/2C	<ul style="list-style-type: none"> <li>• To smoothen the water flow in the Polder area, 9 WMGs have cleaned water hyacinth from parts of their adjacent Khal which was total 5 Km in length.</li> <li>• 2 WMGs – Guabaria Ranuar Khal and Bhadrabariar Khal have removed 4 cross-Bandh from branch Khal allowing 250 farmers improve agriculture in about 230 acres of land.</li> <li>• ,Bhadrabariar Khal WMG, Budaram Khal WMG, Ruhitpura Khal WMG and Ulashir Khal WMG have removed 1 fishing net &amp; “Jhai” from main khal for smooth water flow</li> <li>• As a part of regular maintenance, 12 WMGs have completed Painting &amp; Plastering of 5 Sluices by sharing total cost of BDT12000.00</li> <li>• WMG’s have mobilized total BDT1,34,300.00 of which BDT82,000.00 has been used for different O&amp;M activities.</li> <li>• For smooth operation of sluices, WMAs have received “Chain-Kappa” from BWDB office for all 6 sluices</li> <li>• Bhadrabaria Khal WMG and Kachua Mohishdanga Khal WMG have planned and executed excavation of 1500 ft. long field channel separately in 4 Beels (Crop fields)</li> <li>• 8 WMGs of the Polder have planned and executed to prepare 4000 ft. long irrigation &amp; drainage conduit to cultivate watermelon in 620 acres of lands by 60 farmers</li> </ul>



Polder	Polder wise trends of water resource management
2	<ul style="list-style-type: none"> <li>• Construction works of 2 new regulators already completed</li> <li>• Resectioning of embankment (1.190 km) almost completed (Progress 98%).</li> <li>• 4.250 km khal re-excavation is running and progress is about 80%. Himkhali Khal re-excavation (2.504 km)</li> <li>• Repair of 2 sluices already finished, the other 2 sluices repairing works are running (progress is approximately 75%).</li> <li>• 4 low cost temporary bank protective works with a length of 0.532 km have almost completed (progress is approximately 97%).</li> <li>• Construction of 3 pump sheds already completed (physical and financial progress is about 100%) The other one pump shed construction works are running and progress is about 55%.</li> <li>• Construction of 3 Approach RCC Roads in connection with 3 box culverts completed (physical and financial progress is about 100%).</li> <li>• 499m RCC Drain Pipes construction works already finished, physical and financial progress is 100%.</li> <li>• 3 SSWMIs works already completed in the reporting period; the physical progress is about 100%. 2 WMGs contributed BDT 94,265.51 to implement the 2 SSWMIs works.</li> <li>• 3 CAWM’s infrastructural works already finished out of 3 by 2 WMGs and the progress is 100%. Contribution amount is BDT 198,407.90 by 2 WMGs to implement 3 CAWM’s works in the reporting period.</li> <li>• Savings were collected BDT 1,12,500/- by 20 WMGs, 3 WMGs invested BDT 1,58,500 for IGAs, O&amp;M funds generation is BDT 64,400/- by 43 WMGs , 7 WMGs expensed BDT 7,200/- from O&amp;M Funds for removal of water hyacinth and net-pata in the khals, greasing of sluices and repair of ghogs/rain cut in the embankment. 8 WMGs have done O&amp;M works by voluntarily, the financial value by voluntary work is BDT 32,000/-</li> </ul> <p><b>Challenges:</b></p> <ul style="list-style-type: none"> <li>• <b>The progress is slow down due to</b> i) Frequent rainfall in June 2020 and ii) Cyclone Amphan on 20 May 2020 &amp; iii) COVID-19. Rehabilitation works affected by government lockdown and restriction of movement. At this critical situation, expert labours such as masons returned to their villages. Local people were not interested to work and construction materials (Cement, Sands and MS Rods) were more difficult to collect from the distant markets. But WMGs and WMAs have taken initiatives to overcome these problems and make progress.</li> </ul>

### 3.2 Increased Production & Profitability

Polder	Polder wise trends in agricultural Production and Profitability																											
22	<p><b>Progress of crop cultivation:</b></p> <table border="1"> <thead> <tr> <th>Land area under different crops (three/four main crops)</th> <th>Last year Rabi season (% of land)</th> <th>This year Rabi season (% of land)</th> </tr> </thead> <tbody> <tr> <td>Watermelon</td> <td>60%</td> <td>60%</td> </tr> <tr> <td>Sesame</td> <td>15%</td> <td>16%</td> </tr> <tr> <td>Others (Vegetable)</td> <td>19%</td> <td>19%</td> </tr> <tr> <td>Fellow land</td> <td>6%</td> <td>5%</td> </tr> </tbody> </table> <table border="1"> <thead> <tr> <th>Land area under different crops</th> <th>Last year Kharif-I/Aus season (% of land)</th> <th>This year Kharif-I/ Aus season (% of land)</th> </tr> </thead> <tbody> <tr> <td>Others (pls specify) Vegetables</td> <td>18%</td> <td>19%</td> </tr> <tr> <td>Fellow land</td> <td>82%</td> <td>81%</td> </tr> </tbody> </table> <ul style="list-style-type: none"> <li>• Total 81 members from 5 WMGs were initiated Watermelon seed collective actions of BDT 162000 by establishing business linkage with input &amp; output market actors.</li> <li>• Total 49 farmers from 03 WMGs collectively purchased 300 kg fertilizer of BDT 12000.</li> <li>• 98 members from 7 WMG collectively sold 2.95 ton moringa pods and price was BDT 112100. As a result, they gained BDT 29500 more.</li> <li>• 11 WMG members collectively purchased Vegetables seeds from Seed dealer collectively of BDT 5000.</li> </ul>	Land area under different crops (three/four main crops)	Last year Rabi season (% of land)	This year Rabi season (% of land)	Watermelon	60%	60%	Sesame	15%	16%	Others (Vegetable)	19%	19%	Fellow land	6%	5%	Land area under different crops	Last year Kharif-I/Aus season (% of land)	This year Kharif-I/ Aus season (% of land)	Others (pls specify) Vegetables	18%	19%	Fellow land	82%	81%			
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27/1	<b>Progress of crop cultivation:</b>		
	Land area under different crops (three/four main crops)	Last year Rabi season (% of land)	This year Rabi season (% of land)
	Boro HYV	70%	60%
	Boro Hybrid	0%	10%
	Others (Aquaculture in gher)	20	20
	Others (Vegetable )	8%	8%
	Fellow land	2%	2%
	Land area under different crops	Last year Kharif-I/Aus season (% of land)	This year Kharif-I/ Aus season (% of land)
	Others (Aquaculture in Gher)	55%	55%
	Others (Vegetables)	15%	16%
Fellow land	30%	29%	
	<ul style="list-style-type: none"> <li>82 members of 6 WMG's collectively sold 1.361 ton moringa at BDT 40000. As a result they earn 15000 mora then farm gate.</li> <li>Total 78 members from 6 WMGs were initiated rice seed collective actions of BDT 33820 by establishing business linkage with input &amp; output market actors.</li> <li>Total 74 farmers from 05 WMGs collectively purchased 2525 kg fertilizer of BDT 40400.</li> <li>Hazidanga WMG has invested 15,000/ to 2 members as IGA for small business;</li> </ul>		
27/2	<b>Progress of crop cultivation:</b>		
	Land area under different crops (three/four main crops)	Last year Rabi season (% of land)	This year Rabi season (% of land)
	Boro HYV	68%	60%
	Boro Hybrid	0%	8%
	Others (Aquaculture in gher)	23%	23%
	Others (Vegetable)	7%	7%
	Fellow land	2%	2%
	Land area under different crops	Last year Kharif-I/Aus season (% of land)	This year Kharif-I/ Aus season (% of land)
	Others (Aquaculture in Gher)	52%	52%
	Others (Vegetables)	16%	17%
Fellow land	32%	31%	
	<ul style="list-style-type: none"> <li>27 members of 1 WMG's collectively sold 0.621-ton moringa at BDT 18630 As a result they earn 6200 mora then farm gate.</li> <li>Total 32 farmers from 02 WMGs collectively purchased 750 kg fertilizer of BDT 12000.</li> </ul>		

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28/1	<p><b>Progress of crop cultivation:</b></p> <table border="1"> <thead> <tr> <th>Land area under different crops (three/four main crops)</th> <th>Last year Rabi season (% of land)</th> <th>This year Rabi season (% of land)</th> </tr> </thead> <tbody> <tr> <td>Boro (local variety)</td> <td>3%</td> <td>0%</td> </tr> <tr> <td>Boro HYV</td> <td>60%</td> <td>60%</td> </tr> <tr> <td>Boro Hybrid</td> <td>8%</td> <td>15%</td> </tr> <tr> <td>Others (Vegetable )</td> <td>18%</td> <td>20%</td> </tr> <tr> <td>Fellow land</td> <td>11%</td> <td>5%</td> </tr> </tbody> </table> <table border="1"> <thead> <tr> <th>Land area under different crops</th> <th>Last year Kharif-I/Aus season (% of land)</th> <th>This year Kharif-I/ Aus season (% of land)</th> </tr> </thead> <tbody> <tr> <td>Others (pls specify) Aquaculture in Gher</td> <td>25%</td> <td>28%</td> </tr> <tr> <td>Others (pls specify) Vegetables</td> <td>22%</td> <td>30%</td> </tr> <tr> <td>Fellow land</td> <td>53%</td> <td>42%</td> </tr> </tbody> </table> <ul style="list-style-type: none"> <li>• 0.846-ton moringa collectively sold by 39 members of 03 WMGs. They sold moringa at BDT 34310 and gain BDT 9306 more from the farm gate selling.</li> <li>• 14 members of 01 WMG collectively tillage 5.26 ha land and as a result they saved BDT 20000 then normal market price.</li> <li>• 78 members of 07 WMGs purchased 650 kg Rice seed collectively at BDT 24700.</li> </ul>	Land area under different crops (three/four main crops)	Last year Rabi season (% of land)	This year Rabi season (% of land)	Boro (local variety)	3%	0%	Boro HYV	60%	60%	Boro Hybrid	8%	15%	Others (Vegetable )	18%	20%	Fellow land	11%	5%	Land area under different crops	Last year Kharif-I/Aus season (% of land)	This year Kharif-I/ Aus season (% of land)	Others (pls specify) Aquaculture in Gher	25%	28%	Others (pls specify) Vegetables	22%	30%	Fellow land	53%	42%
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29	<b>Progress of crop cultivation:</b>		
	Land area under different crops (three/four main crops)	Last year Rabi season (% of land)	This year Rabi season (% of land)
	Boro HYV	33%	38%
	Boro Hybrid	32%	34%
	Sesame	5%	6%
	Others (Vegetable)	12%	14%
	Fellow land	18%	8%
	Land area under different crops	Last year Kharif-I/Aus season (% of land)	This year Kharif-I/ Aus season (% of land)
	Others (pls specify) Aquaculture in Gher	15%	15%
	Others (pls specify) Vegetables	8%	12%
Fellow land	77%	73%	
	<ul style="list-style-type: none"> <li>• 2.250-ton moringa collectively sold by 105 members of 8 WMG`s at Whole sell market. They sold at BDT 96750 as a result they earn BDT 20250 more than farm gate.</li> <li>• 2.35-ton Rice seed collectively purchased by 131 farmers of 9 WMG`s at BDT 89300.</li> <li>• 312 members of 19 WMG`s collectively sold 45-ton different vegetables at whole sell market`s both dumuria and Khulna</li> <li>• Hazidanga WMG has invested 15,000/ to 2 members as IGA for small business;</li> </ul>		
30	<b>Progress of crop cultivation:</b>		
	Land area under different crops (three/four main crops)	Last year Rabi season (% of land)	This year Rabi season (% of land)
	Boro HYV	6%	7%
	Boro Hybrid	0%	3%
	Sesame	4%	10%
	Aquaculture in gher	0%	2%
	Vegetable )	25%	32%
	Fellow land	65%	46%
	Land area under different crops	Last year Kharif-I/Aus season (% of land)	This year Kharif-I/ Aus season (% of land)
	Vegetables	14%	20%
Fellow land	86%	80%	
	<ul style="list-style-type: none"> <li>• Total 34 members from 2 WMGs were initiated rice seed collective actions of BDT 19000 by establishing business linkage with input &amp; output market actors.</li> <li>• Total 34 members from 2 WMGs were initiated Watermelon seed collective actions of BDT 100000 by establishing business linkage with input &amp; output market actors</li> <li>• 46 members from 1 WMG collectively sold 0.700-ton moringa pods and price was BDT 30100. As a result they gained BDT 8400.</li> </ul>		

Polder	Polder wise trends in agricultural Production and Profitability			
<b>31-Part</b>	<b>Progress of crop cultivation:</b>			
	Land area under different crops (three/four main crops)	Last year Rabi season (% of land)	This year Rabi season (% of land)	
	Boro HYV	27%	27%	
	Boro Hybrid	12%	12%	
	Sesame	0%	5%	
	Aquaculture in gher	5%	5%	
	Vegetable	10%	14%	
	Watermelon	20%	25%	
	Fellow land	26%	12%	
		Land area under different crops	Last year Kharif-I/Aus season (% of land)	This year Kharif-I/ Aus season (% of land)
	Aus HYV	0	1%	
	Others (Vegetables	19%	20%	
	Fellow land	81%	79%	
	<ul style="list-style-type: none"> <li>Total 79 members from 3 WMGs were initiated 7.5 kg Watermelon seed collective actions of BDT 15000 by establishing business linkage with input &amp; output market actors.</li> <li>139 members from 5 WMGs collectively purchased 2-ton rice seeds collectively from Seed dealer and seed price was BDT 76000.</li> <li>87 members from 8 WMG collectively sold 3.1-ton moringa pods and price was BDT 111600. As a result, they gained BDT 28000 more.</li> </ul>			
<b>26</b>	<b>Progress of crop cultivation:</b>			
	Land area under different crops (three/four main crops)	Last year Rabi season (% of land)	This year Rabi season (% of land)	
	Boro HYV	50%	50%	
	Boro Hybrid	20%	18%	
	Others (Vegetable )	28%	30%	
	Fellow land	2%	2%	
		Land area under different crops	Last year Kharif-I/Aus season (% of land)	This year Kharif-I/ Aus season (% of land)
		Others (pls specify ) Vegetables	20%	25%
		Fellow land	80%	75%
		<ul style="list-style-type: none"> <li>5 members of one WMG spend BDT 11900 to purchase collectively 700 gm Watermelon seed.</li> </ul>		

Polder	Polder wise trends in agricultural Production and Profitability		
34/2	<b>Progress of crop cultivation:</b>		
	Land area under different crops (three/four main crops)	Last year Rabi season (% of land)	This year Rabi season (% of land)
	Boro HYV	47%	66%
	Boro Hybrid	2%	05%
	Sesame	1%	4%
	Others (Vegetable )	3%	6%
	Fellow land	47%	19%
	Land area under different crops	Last year Kharif-I/Aus season (% of land)	This year Kharif-I/ Aus season (% of land)
	Others (Vegetables)	3%	6%
	Fellow land	97%	94%
	<ul style="list-style-type: none"> <li>• Total 108 members from 3 WMGs were initiated 1.150 ton rice seed collective actions of BDT 43700 by establishing business linkage with input &amp; output market actors.</li> <li>• 0.966 ton moringa collectively sold by 46 members of 2 WMGs and price was BDT 38640. By selling collectively at whole sell market they gain BDT 8694 more.</li> <li>• 8 ton vegetables collectively sold at Sonadanga whole sell arot by 51 members of 2 WMG`s.</li> </ul>		
43/1A	<b>Progress of crop cultivation:</b>		
	Land area under different crops (three/four main crops)	Last year Rabi season (% of land)	This year Rabi season (% of land)
	Mungbean	40	50
	Grass pea	2	2
	Watermelon	35	20
	Groundnut	9	12
	Chilli	5	5
	Vegetables	5	8
	Sweet potato, potato	1	3
	Fellow land	3	0
Land area under different crops	Last year Kharif-I/Aus season (% of land)	This year Kharif-I/ Aus season (% of land)	
Aus (local variety)	5	5	
Aus HYV	45	45	
Fellow land	50	50	
	<ul style="list-style-type: none"> <li>▪ One WMGs have collected savings of BDT7600.00 within the reporting period on the other hand one WMG invested BDT45000.00 as IGA (small loan).</li> <li>▪ A total of 105 farmers from 03 WMG jointly sold 26 mound rice amounting of taka.31200.00. As a result, they got additional benefit (excluding transport, toll and time) amount of Tk5200.00</li> <li>▪ A total of 70 farmers from 04 WMG jointly sold 42 mound mungbean amounting of taka.142800.00. As a result, they got additional benefit (excluding transport, toll and time) amount of BDT 4200.00</li> <li>▪ A total of 30 farmers from 03 WMG jointly sold 20 mound groundnuts amounting of taka.34000.00. As a result, they got additional benefit (excluding transport, toll and time) amount of BDT 2000.00</li> </ul>		

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43/2F	<b>Progress of crop cultivation:</b>		
	Land area under different crops (three/four main crops)	Last year Rabi season (% of land)	This year Rabi season (% of land)
	Mungbean	55	63
	Grass pea	8	5
	Groundnut	10	10
	Chilli	10	10
	Vegetables	5	8
	Sunflower	10	3
	Fellow land	2	1
	Land area under different crops	Last year Kharif-I/Aus season (% of land)	This year Kharif-I/ Aus season (% of land)
Aus (local variety)	12	12	
Aus HYV	25	28	
Others (Vegetables)	5	10	
Fellow land	58	50	
<ul style="list-style-type: none"> <li>A total of 115 farmers from 04 WMG jointly sold 800 mound sunflower seed amounting of BDT17,12,000.00. As a result, they got additional benefit (excluding transport, toll and time) amount of BDT48000.00.</li> <li>A total of 121 farmers from 04 WMG jointly sold 840 mound mungbean amounting of BDT23,60,400.00. As a result, they got additional benefit (excluding transport, toll and time) amount of BDT25200.00.</li> <li>A total of 37 farmers from 03 WMG jointly sold 102 mound groundnuts amounting of BDT2,60,100.00. As a result, they got additional benefit (excluding transport, toll and time) amount of BDT7140.00.</li> <li>WMG's have invested BDT 8,92,500.00 as IGA and also collected profit of amounting of BDT1,18,580.00.</li> </ul>			
47/3	<b>Progress of crop cultivation:</b>		
	Land area under different crops (three/four main crops)	Last year Rabi season (% of land)	This year Rabi season (% of land)
	Mungbean	3	10
	Others	3	7
	Fellow land	94	84
	Land area under different crops	Last year Kharif-I/Aus season (% of land)	This year Kharif-I/ Aus season (% of land)
	Aus HYV	0.5	3
	Others (Vegetables )	1	3
	Fellow land	98.5	94
	<ul style="list-style-type: none"> <li>3 WMGs have organized farmers for collectively tillage &amp; preparation of 19 acres of land which has allowed them to save BDT3800.00 compare to individual contract for land preparation.</li> <li>10 farmers from 2 WMGs have sold out 720 Mnd. paddy collectively and could earn BDT7200.00 more than the individual sale out.</li> </ul>		

- During the reporting period, 35 improved Hazel, 2 new improved poultry shed and one improved Cow-shed were prepared by WMG members of the Polder

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55/2C	<b>Progress of crop cultivation:</b>			
	Land area under different crops (three/four main crops)		Last year Rabi season (% of land)	This year Rabi season (% of land)
	Mungbean		80	75
	Boro rice		1	1
	Watermelon		2	5
	Groundnut		9	9
	Chilli		4	5
	Vegetables		2	3
	Grass pea, Maize, Felon, Sweet Potao etc.		1	1
	Fellow land		1	1
2	<b>Progress of crop cultivation:</b>			
	Land area under different crops		Last year Kharif-I/Aus season (% of land)	This year Kharif-I/ Aus season (% of land)
	Aus HYV		4	5
	Others (Vegetables )		6	7
	Fellow land		90	88
	<ul style="list-style-type: none"> <li>155 farmers from 5 WMGs area and 360 farmers from 3 WMGs areas have purchased <b>Collectively</b> 750 Kg Mung bean seeds and 710 pieces of Voliam Flexi (Insecticide) respectively, which allowed them to make safe of BDT 3750 and BDT 14200 respectively.</li> <li>Besides this, 200 farmers of 10 WMGs have sold out their 300 Mnd. Mung bean collectively which allowed them to make profit of BDT 60,000 more than the individual sale prices</li> </ul>			
	Land area under different crops		Last year Rabi season (% of land)	This year Rabi season (% of land)
	Boro HYV		77	74
	Boro Hybrid		19	22
	Vegetables		3	3
Fallow Land		1	1	
<ul style="list-style-type: none"> <li>345 members (Female 268 and Male 77) from 290 HHs engaged with Bashak Value Chain. They are earning average BDT 2200- 2500 /month/member and their total income is BDT 9, 86,580 in the reporting period. WMGs purchased vegetables seed at a cost of BDT 8,000/- by 18 female &amp; 5 male and selling price of Moringa is BDT 70,000/-by 8 female &amp; 30 male, vegetables selling price is BDT 1,20,000/- by 10 female &amp; 50 male, Selling Price of 60 metric ton Boro Rice is BDT 13,50,000/- by 4 female 4 &amp; 80 male. WMGs purchased fertilizer at a cost of BDT 2, 25,000/- by 40 male for boro paddy cultivation in the reporting period.</li> <li>As a part of upscaling summer tomato and summer bean, 15 farmers cultivated summer tomato and 20 farmers cultivated summer bean, which introduced in this year. BGP provided only technical support for both the crops. Demonstration session is running under 2 CAWM by involving 189 farmers for cultivating 40 ha land. Lal Teer Seed Company with the support from Blue Gold Program have already established 2-demonstration session on Ladies Finger and Bitter Guard in 1 WMG areas.</li> </ul>				

## 4 Monitoring, Reflection & Learning

### Major Achievements

- Data concerning the water management organizations (WMOs) have until recently been collected and compiled by BGP TA staff and assembled in an MIS database; the data included output level data, collected through WMG Tracker, and outcome level data, collected through participatory monitoring at WMG and WMA levels. Data collection through WMG Tracker was done up to June 2019 and participatory monitoring data were last collected in October 2019. These data have been supporting evidence-based decision making by the Project and by the OCWM with regard to WMOs.

As the WMOs are the key players for water management in the polders, it is strongly felt that information on the status of WMOs should be available even beyond Blue Gold Program. The data that would continue to be collected after project completion should help the WMAs, the organizations responsible for water management of polder areas through management, operation and (minor) maintenance of infrastructures, in taking management decisions. However, it is commonly realized that the data collection should be minimal, and yet enough to signal the performance level of the WMAs and their constituent WMGs. It is from this consideration that an attempt has been taken during this reporting period to develop a web-based monitoring system.

The IT solution provider, mPower, has been engaged to develop an ICT-based data collection and reporting system whereby WMAs can assess their own relative performance, as well as that of the WMGs they represent, against some simple indicators of legality, legitimacy and functionality. It is envisaged that the WMGs and WMAs will monitor their own progress and performance – they themselves will collect data about their activities, status and progress, and submit these data into a simple form for processing into a concise dashboard which will tell the WMAs at a glance what the health status of their organizations –including their constituent WMGs– is; the system will support WMAs with management information in the post-project situation.

This system will be operated as an ‘App’ on the mobile phones of WMO representatives and will not have to rely on intervention by an external administrator. The mobile App will enable the WMGs and WMAs to keep track of their organizational status and also to compare their performance at a glance with that of their peers. The development work of the App is near completion.

- **Follow-up interviews of WMG survey 2019:** WMG survey-2019 raised a number of issues. Data showed a significant increase in the area of fish/shrimp ghers in the Khulna and Satkhira zones. In Patuakhali there had been a considerable expansion of mung bean, which had largely replaced keshari as well as being grown on land that was preciously fallow. Pest and diseases were reported to be a major problem, second only to the sharp fall in the market price of paddy, but it was not clear how farmers were responding to this and the use they were making of learning from FFS. Informal follow-up interviews were conducted in January-February 2020 to investigate these issues. These covered eight WMGs in each of the Khulna and Patuakhali zones and four in Satkhira – a total of 20. Based on the findings a small report

has been prepared that will be included with the technical report 26. The MRL team also has the plan to carry out another WMG survey in 2021.

- **Impact assessment survey-2020 of BGP:** The impact survey is to measure changes in the lives and livelihoods of the coastal communities of BGP polders. The Impact assessment study entails collecting primary data from BGP polders locations and analyzing them in compare to the benchmark/baseline 1 and 2 surveys carried out in 2014 and 2017 to measure the outcomes of BGP and its impacts on the livelihood of coastal communities of Bangladesh. It is planned that 9 polders will be covered in impact assessment survey from the 17 polders that were surveyed in of baseline-1 &2. The impact survey is using a panel sample, interviewing the same households as those in the baseline survey. The impact survey cover 92 villages and mouzas from nine polders, with a target number of 4,111 sample households and a required minimum of 3,719 sample households. Along with this, 20 qualitative interviews will be collected from 9 polders (2 interviews from each polder, except 4 in the polder 2 and 2 ext.) for in-depth understanding of the quantitative findings.

A multi-module questionnaire for the quantitative survey and a checklist for the qualitative interviews have been developed. The data will be collected in a digital questionnaire format that has been developed through Open Data Kit (ODK) and supported to input the data in the system by using Tab during data collection. A consultancy firm has been selected in accordance with Blue Gold procurement procedures to carry out the data collection of Impact assessment survey. It was planned that data collection will carry out in April-June 2020. Due to the pandemic Covid-19 the data collection has been postponed. When the situation will be normal, data collection will be started. The data will be analyzed and the report will be written by a third-party consultant.

### Reflection and Learning

- During the Gobeshona conference in January 2020 a successful session was prepared and conducted titled “outcomes of an integrated water management intervention – rethinking the community’s role?”, to share its experience on participatory water management through BGP and the outcomes of BGP interventions.
- Based on the result of TR -26 the development of communication materials is ongoing, these materials will be used to show the impact of BGP to the wider audiences including respective ministries, public departments and development partners.

### Challenges, Mitigation Measures and Lessons Learned

- The crisis situation created by the pandemic COVID-19 has disrupted the progress of development of WMO health dashboard App.
- After the initial shocks and disruptions, the technical experts of IT solution provider started working from home.
- Whenever clarifications and additional information were required, they were furnished through online communications (skype and email) and through phone calls.
- Due to the pandemic Covid-19, the data collection of Impact assessment survey has been postponed considering health and safety of participants and enumerators. Once the situation improves, data collection will be started.

## 5 Innovation Fund Progress

### Introduction

The BGIF is nearing the end; only one project, KU implemented water hyacinth product development initiative, will continue up to October 2020 to enable the time loss due to Covid 19 pandemic. CIMMYT implemented project to improve climate, production and market information using ICT for Mung farmers, was very active during this period. Two online workshops organized with relevant national and international participants to share information and experience of Mung project. Later, in another workshop, ideas related with 'pathways of business model' involving private sectors to achieve sustainability of cell phone based app to promote Mung related services was shared among potential partners. During this period, WBC III project, implemented by UP came to successful end. For the summary of on-going BGIF projects, please Table 22

### Success stories

**1. CIMMYT, Leveraging decision making science to sustain climate- and market-smart mung bean advisories in Patuakhali's polder communities** – CIMMYT developed two innovations, including an interactive voice response system to provide alerts to mungbean farmers in coastal Bangladesh at least five days prior to forecasted heavy rainfall events. In partnership with the Bangladesh Meteorological Department and Bangladesh Institute for ICT in Development, forecasted rainfall is categorized into light, heavy, or very heavy events. Rainfall forecasts are generated on a 3 hourly basis and analyzed by an algorithm. This generates customized voice telephone messages that are sent to farmers alerting them of weather risks and advising timely harvesting to avoid crop damage. The IVR system also supplied market price information and advice on mungbean agronomy to farmers. The project also developed called Mangdhal Sheba, an app providing more detailed weather, market and agronomic information. Using these systems, surveys suggest that 48-52% of the mungbean grown by cooperating farmers in 2019 was saved from heavy rainfall damage, saving farmers EUR 158 – 511 ha<sup>-1</sup> by avoiding losses from damage. In just one-year, averaged estimates indicate that these innovations saved approximately 1,000 cooperating farmers EUR 108,621 – 82% of the overall value of the Innovation Fund award. The same systems have been expanded to 3,000 farmers in 2020, with analysis of impacts underway.

**2. Khulna University, Development of value- added products from water hyacinth to support alternative livelihoods and ecological resilience** – Khulna University has successfully developed the prototypes of craft paper from stems and nutrient rich fertilizer from the leaves and roots of WH. Later, to test the feasibility of producing these valuable products from an otherwise considered nuisance species in field context, a pilot project was implemented in a participatory way involving members of Water Management Group (WMG) under Polder 25 in Dumuria, Khulna. The WMG members successfully produced both handmade papers and compost by themselves and have become confident of bringing these products into market. However, WMG requested the KU researcher to help establish market linkage and servicing capabilities for such community based products for high-end niche markets, primarily in Bangladesh with a potential for further value addition for entry into international markets. In response, KU developed an extension proposal and an addendum has been signed to undertake some additional activities on



three major aspects including awareness building among specific consumers, capacity building of the community and penetration into existing market for WH based products.

### Challenges, lessons learnt and mitigation measures

The challenge had been whether the craft papers prepared by the farmers could be easily sold, as domestic consumers may not be aware of the product and international buyers already have established supply chains with other craft paper producers. To address this challenge KU undertakes a market feasibility study that resulted in identification of actors in existing and potential value chains. Unfortunately, the additional activities that were supposed to be completed by June 2020 could not start due to unprecedented COVID-19 situation. With recent ease of lockdown, the research team came up with contingency plan to resume activities. Moreover, the realisation is, it will take more time to find enthusiastic private sector partner to fund ICT based solution like Mungdal Sheba app. However, there is growing realization about the potential of ICT based solution to production and market constraints.

**Table 22: The summary of on-going BGIF projects**

Sl. No	Name of the Project	Implementing Organization	Other partner	Update
01.	Leveraging decision making science to sustain climate & market-smart mung bean advisories in Patuakhali’s polders.	CIMMYT	DAE & WMOs	See section success stories, above.
02.	Sustaining Sack Farming Practices through Agro-met Services in Coastal Polder Areas of Bangladesh.	Practical Action, Bangladesh	DAE & WMOs	Seed distribution and sowing of the rabi season was completed with meteorological advisories through voice call being disseminated to the beneficiaries on how to keep the plants healthy during the dry and cold weather. PA continued to see replication in the field of sack farming beyond project beneficiaries. The project was concluded with a Learning & Sharing workshop which was attended by Agriculture Officer, Upazila Chairman along with others key stakeholder. DAE officials acknowledged the importance of such technology and has shown a promising food & income generating option in coastal areas.
03.	Development of value-added products from water hyacinth to support alternative livelihoods & ecological resilience	Khulna University	DAE & WMOs	See section success stories, above.

Sl. No	Name of the Project	Implementing Organization	Other partner	Update
04.	Women’s Business Centre in waterlogging areas of Southwest Bangladesh	United Purpose	LGIs & WMOs	UP project officer facilitated discussions for each WBCs on continues use of the business plan implementation tool. UP facilitated meetings as part of conducting profit-loss analysis and financial management exercises with WBCs. Representative from WBC attended WMG meeting to strengthen linkages.

## 6 Financial Report

**Table 23: Financial report of Blue Gold Program (January- June 2020)**

Budget Line	Original Budget converted to new budget set-up	Revised Budget 4th contract amendment converted to new budget set-up	Revised Budget Jan18 (new budget set-up)	Revised Budget Jan19	Total claimed (30/12/19)*	Claimed Q1 2020	Claimed Q2 2020	Total cumulative	% Spent	Balance Remaining
TA contract										
TA team	14,808,453	17,286,204	17,301,465	17,638,451	16,306,895	569,169	420,642	17,296,706	100%	341,745
Durable goods (D)	1,169,053	997,713	996,176	836,176	745,978	8,030	110	754,118	76%	82,058
Training (T)	2,456,500	1,892,890	1,892,890	1,892,890	1,536,468	67,631	48,758	1,652,857	87%	240,033
Operational cost (O)	1,272,600	2,864,929	3,467,607	3,627,607	3,187,437	98,954	69,529	3,355,920	97%	271,687
Contracted Services	7,542,000	6,826,845	6,225,704	5,905,703	3,887,166	226,305	254,817	4,368,288	70%	1,537,415
Water Management Innovation Fund	2,400,000	1,400,000	1,400,000	1,400,000	1,293,238	55,444	4,528	1,353,210	97%	46,790
Productive Sectors Innovation Fund	1,900,000	1,050,000	1,050,000	1,050,000	859,730	36,287	14,459	910,476	87%	139,524
Annex B	0	877,058	861,796	844,810	844,133	-	-	844,133	98%	677
<b>SUBTOTAL TA contract</b>	<b>31,548,606</b>	<b>33,195,639</b>	<b>33,195,639</b>	<b>33,195,637</b>	<b>28,661,045</b>	<b>1,061,820</b>	<b>812,843</b>	<b>30,535,708</b>	<b>92%</b>	<b>2,659,930</b>
GoN Contribution to BWDB	15,750,000	27,320,000	27,320,000	27,320,000	16,567,950		3,000,000	19,567,950	72%	7,752,050
GoN Contribution to DAE	995,000	1,495,000	1,495,000	1,495,000	1,479,755			1,479,755	99%	15,245
<b>Total GoN contribution</b>	<b>48,293,606</b>	<b>62,010,639</b>	<b>62,010,639</b>	<b>62,010,637</b>	<b>46,708,750</b>	<b>1,061,820</b>	<b>3,812,843</b>	<b>51,583,413</b>	<b>83%</b>	<b>10,427,225</b>
* In Q1 BWDB and DAE have not received any fund.										
* In Q2 DAE have not received any fund but in 9th July 20 DAE have received Euro 14,945.										

## 7 Project Management

### 7.1 Focus activities for zonal and polder teams

Phasing out process is continuing with gradually reduced man power following its streamlined ToR with a major focus on capacity development of WMOs under the unified approach. The BGP Team is engaged to provide services and implement program activities with an emphasis on (i) in-polder water management through developing catchment level O&M plans & formation of committees involving WMGs/WMAs and (ii) scaling up the successful initiatives involving the LGIs & partner agencies of Blue Gold program in the field.

During the last reporting period (January to June 2020), following the phase out plan, Zonal and polder team expert/staff continued in developing the In-polder water management and O&M plans engaging the WMOs at catchment level. Based on the experience of developing catchment O&M plan for in-polder water management in 2019, WMOs reviewed their total nos. of 202 earlier delineated catchments in 22 polders and adjusted them in 191 catchments. By end of June 2020, 190 nos. of O&M sub-committees are formed with representation of WMGs/WMAs and in the same period O&M plans at all 190 catchments have also been developed in all 22 polders. Now these catchments are the basis for WMOs to select sites for SSWMI/CAWM and seeking support for small infrastructures and in-polder water management from the LGIs (UPs and UZ Parishads), BADC, LGED, etc.

During the same reporting period BGP continued its support to the WMAs for signing of O&M agreements. By end of 2019 O&M agreements has been signed for 16 polders; 10 polders in Patuakhali/Barguna, 5 polders in Khulna and 1 in Satkhira represented by 30 WMAs. Remaining O&M agreements for 6 polders in Khulna with 5 WMAs have also been completed in February 2020. Annex C shows the phasing out plan/schedule and present status of WMAs in 22 polders under BGP. Considering the roles and responsibilities of WMAs as described in the agreement, capacity development of WMAs is necessary in effectuating the O&M agreement.

In consideration of the time frame and situation of BGP, it emphasized and initiated capacity development of WMAs engaging themselves in developing towards functional WMAs, initiating in in-polder water management and developing catchment O&M plans/activities in 22 polders. The Zonal teams are also continuing in pursuing the WMOs to establish cooperation with LGIs and offices of the concerned departments, especially with Union and Upazila Parishads in order to get support in developing in-polder water management and increased services from the concerned line departments. In a number of cases WMAs are in regular contact with above mentioned LGIs and receiving positive responses in conflict resolution on water management issues, direct/indirect contribution for O&M activities and the services from the line agencies available under their jurisdictions. In addition, WMO members in some polders are gradually getting involved individually in the mainstream activities of Union Parishad and especially at the relevant standing committees.

BGP is now extending support in preparing the WMOs to present the summary of their Polder level O&M plan and its activities at Union/Upazila Parishads in presences of the officials based at UP/ UZ level with the objectives (i) to inform the situational updates on in-polder water management (ii) to seek cooperation and support/contribution in implementing O&M plan and activities i.e., periodic/emergency maintenance and implementation of small infrastructures for

in-polder water management for higher crop production (iii) to extend support for introduction of modern agricultural technologies and market facilities.

Presentation of O&M plan/activities by WMOs started in early 2019 at Union Parishads level and such presentations are made in 24 Unions out of total 55 Union Parishads under all BGP polders by end of June 2020. BGP also inspired the WMOs to present their O&M plans and their activities at Upazila and District levels and the 1<sup>st</sup> presentation was made in October 2019 in presence of Upazila and District level officials in Satkhira for polder 2. During the last reporting period 2 more presentation were made by WMOs; one in Amtali for two polders (Polder 43/1A and 43/2F) under phase - I polders and another one in Batiaghata for 1 polder (Polder 30) under Phase -II polders.

The Zonal teams are also engaged in exploring the possibilities of WMOs to get involved at Upazila and District level water management committees while the polder teams are exploring the possibilities at Union Parishad (UP) level following provisions indicated in the *Bangladesh Water Rules – August 2018 and Integrated Water Resource Management Guide lines - January 2019 for District, Upazila and Union Parishad*. It appears from the field information that the *Bangladesh Water Rules – August 2018* is not very appropriate for the WMOs registered under BWDB while it looks much more suitable for the WMOs registered under the Department of Co-operatives. The Zonal and Polder teams continued their efforts to develop linkages and networking with public and private sectors in the polders with the support from senior technical experts at central level. Linkages and partnerships related with agriculture and market development activities were established in between public-private sector agencies (BADC, BRRI, BARI and a number of seed producing/marketing companies) and WMOs in different BGP polders.

BGP initiated 'Polder Health Check' in 2018 using a simple checklist with some support from experts from central TA team. Such Health Check at polder level is continuing in all BGP polder areas. This exercise appeared as a useful tool for better management of field level activities; it is supportive in readjusting the field activities using the reduced resources through assessing the concentration of activities and effectiveness of TA FFSs, initiation of collective actions, horizontal learning, capacity development of WMAs and relocation of CDFs. This effort of Health Check will continue in all polders during the remaining period of BGP.

## 7.2 Reduction & relocation of staff

During the last reporting period, three experts left from the BGP zonal offices and a few numbers of national consultant at central level have been adjusted with reduced inputs following the field level activities under Phasing Out situation.

In addition, a number of CDFs were also discontinued following the phasing out plan; up to June 2019 about 107 CDFs were engaged in all 22 polders under BGP. In July 2019 a number of CDFs were reduced and total 86 CDFs were engaged to continue to December 2019 in same 22 polders. Number of CDFs were further reduced to 64 in January 2020 to address the extended focus on in-polder water management for higher production/income from agriculture, guide the WMOs towards becoming functional WMAs and enabling them for O&M activities. Again, it is proposed to reduce the number CDFs to only 46 from July 2020 and the CDFs were identified through their performance assessment to continue up to December 2020.

For the best use of the CDFs, BGP management is relocating the CDFs based on the maturity of WMOs - lower concentration of CDFs will be in 1<sup>st</sup> and 2<sup>nd</sup> phase polders while higher

concentration will be ensured for the comparatively new (3<sup>rd</sup> phase) polders. The CDFs are planned to be engaged in extending support to the WMOs in the process of collective actions and horizontal learning of BGP activities. In addition, they are also planned to be engaged in extending support for developing catchment O&M plan and activities.

However, low progress in implementation of physical works under BWDB has affected the Phasing Out schedule. Taking into consideration to the ARM recommendations and the status of physical works, request was made for allocation of additional resources under Technical Assistance during extend time as indicated in RDPP.

### Challenges

Challenges are still there for BGP to complete all the planned physical infrastructures of the project during the extended period by June 2020 maintaining the sequence of phase-out schedule; (i) low progress in implementation of physical infrastructures under BWDB while some items of works will remain incomplete or will not be implemented (ii) low capacity and lack of human resources of the OCWM to facilitate the WMOs to be functional (iii) low integration in adaptation of new technologies of agricultural production and market facilities, etc.

Delayed approval of RDPP has already affected the phasing out schedule especially for the 1st and 2nd phase polders. The maturity of WMOs in new polders will also remain as a question. Low progress of physical works/incomplete works in the polders affected the in-polder water management and limited the O&M trials by the Catchment O&M sub-committees. Considering the situation, the proposed phasing out plan/schedule demands extended time and resources for hands on exercise on catchment basis O&M/trials by the WMOs.

Challenges are also there in maintaining the reduced staffing in regular strength in BGP, especially the last reporting period a number of trained CDFs, technical staff and senior/mid-level experts left the project and few more are also trying for new jobs. The staffing situation is deteriorating and further reduction of CDFs will effectuate from 1st July 2020. Such environment of staff reduction is not conducive in keeping up the motivation of field staff for regular activities. However, the challenges became much more critical due to the effect of COVID-19 during the last reporting period (starting from 8<sup>th</sup> March 2020) and devastation by cyclone “Amphan” on 21<sup>st</sup> May 2020.

### 7.3 DPP Revision subsequent situation

Mid Term Review Mission recommended for revision of DPP in 2015. Revision of DPP was initiated in May 2016 with an inclusion of an additional fund and extended time up to December 2020 for completion of project activities. After a long process/formality, it was approved by ECNEC in June 2018 with a meeting minute in July 2018. This long delay of RDPP, reduced the period of work execution – from 3 working season to 2 working seasons; low progress in implementation of physical infrastructure, delayed the O&M agreements and affected seriously in phasing out plan/schedule of BGP polders.

A Joint Annual Review Mission (ARM) reviewed of BGP activities and its progress in November 2018. They appreciated the results of integrated approach of participatory water management (PWM) in BGP polders and at the same time they also identified the challenges for BGP in completing of all remaining planned physical works by June 2020. Among many

recommendations, ARM recommended to engage a joint Monitoring Team (JMT) to foresee the implementation progress of all physical works and to recommend next course of action to complete all physical works as included in the RDPP. Later, as part of a regular process, 4th IMSC meeting was held on 12<sup>th</sup> December 2018 with following decisions: (a) All concerned should expedite the implementation process. b) Second revision will be initiated considering the status/progress by end of June 2019. Following the decisions of 4th IMSC, all field divisions were active and made a remarkable progress, however, a number of design/drawings could not be completed during the mentioned period as per approved work items in the RDPP. Such items of work are the integral part of in-polder water management and such incomplete situation of infrastructures delayed the functionality of polders.

It appeared that the fund for excavation/re-excavation of Khals under BGP is almost exhausted but it did not cover the full length as indicated in PDPs and RDPP, while a huge amount of fund will remain unspent under a number of work items, which will not be possible to take up or remain incomplete. In such situation, it is important to complete all the works as per RDPP, especially the remaining khals those are indicated in the PDPs and RDPP under the scope of Inter-item cost adjustment and extended time of Project up to December 2021.

Finally, considering the progress of physical works and with agreement of EKN, IMSC recommended at their 5<sup>th</sup> meeting on 3<sup>rd</sup> December 2019 for Inter-item cost adjustment with budget neutral one-year extension for BGP to complete the works to make the polders functional. Based on this decisions BWDB submitted the proposal for Inter-item cost adjustment to the MoWR in February 2020 indicating some reduction in quantity. The proposal was assessed by the Departmental Project Examination/Verification Committee (DPEC) on 26<sup>th</sup> February 2020 at the Ministry of Water Resources (MoWR) and suggested to re-submit the proposal indicating the inter-item cost adjustment without reducing the any quantity. Incorporating their suggestion, BWDB submitted the revised proposal in March 2020 and the decisions is delayed due to the situation of Corona virus in the country.



# Annex A

## Annex A: Achievements of BGP in water management and agriculture from January-June 2020 (Non-cumulative)

### I. WATER

Ref		Jan-June 2020 (Non-cumulative)	
	<b>Result</b>		
I.R1	Number of people benefitting from improved water security and water safety in the project area	159,262	
	<b>Outcome</b>		
I.OC1	Number of people supported in flood protection activities	8,133	
I.OC2	Number of people supported on improving drainage and water availability/irrigation	11,189	
I.OC3	Number of people supported for improved water shed/polder protection	8,133	
I.OC4	Number of WMA and of WMO supported	WMG	WMA
	Note: No new WMG or WMA has been registered during reporting period (all WMGs and WMAs have got the registration).	0	0
I.OC5	Number of professionals trained in water management	69	
I.OC6	Number of people benefitting from operational plans for IWRM		
I.OC7	Number of ha with operational plans for IWRM	76924	

### II. AGRICULTURE

#### A. Productivity and Income

Ref		Jan-June 2020 (Non-cumulative)	
	<b>Result</b>		
IIA.R1	Number of family farms that doubled their productivity and/or income	NA	
	<b>Outcome</b>		
IIA.OC1	Number of family farms that increased productivity or income (by male/female headed and age %<35)	14403	
	Total(direct)	4801	
	Total (Indirect)	9602	
	Total (direct + indirect) HHs	14403	
IIA.OC2	Number of family farms with improved access to input and/or output markets (by male/female headed and age %<35)	9797	
IIA.OC3	Number of family farms whose farming enterprise became more resilient to shocks (by male/female headed and age %<35)	4801	

Ref		Jan-June 2020 (Non-cumulative)
	<b>Output</b>	
IIA.OP1	Number of family farms directly reached by the project (by male/female headed and age %<35) <i>Note: No new WMG has been registered during reporting period(all WMGs have got the registration). However, 8 new members have been enrolled in WMGs from 8 HHs.</i>	0
IIA.OP2	Number of family farms indirectly reached by the project (by male/female headed and age %<35)	800

## B. Sustainable farming and land use

Ref		Jan-June 2020 (Non-cumulative)
	<b>Result</b>	
IIB.R1	Number of hectares converted to sustainable farming and land use (including pastures & fishing grounds)	3251.93
	<b>Outcome</b>	
IIB.OC1	Number of hectares of farmland used eco-friendlier (including pastures & fishing grounds)	3251.93
IIB.OC2	Number of hectares of farmland that became part of improved watershed/polder management (including pastures & fishing grounds)	39819
IIB.OC3	Number of hectares of farmland that agro-ecologically become more resilient to shocks (including pastures & fishing grounds)	39819
	<b>Output</b>	
IIB.OP1	Numbers of hectares of farmland directly reached (including pastures & fishing grounds)	3251.93
IIB.OP2	Number of hectares of farmland indirectly reached (including pastures & fishing grounds)	39819

## C. Knowledge technology and innovation

Ref		Jan-June 2020 (Non-cumulative)
	<b>Outcome</b>	
IIC.OC1	Number of farmers that adopted research results/ knowledge/ new technologies (by male/female headed and age %<35 as well as Dutch origin or not)	4801

## D. Food- and agribusiness

Ref		Jan-June 2020 (Non-cumulative)
	<b>Outcome</b>	
IID.OC1	Number of jobs supported in agricultural value chains (by male/female headed and age %<35)	331
IID.OC2	Number of value chains performing better	08 (Watermelon, Rice, Vegetables, Mungbean, Mustard, Moringa, Poultry, Basok etc.)
IID.OC3	Number of businesses co-investing in food & nutrition agribusiness activities (by Dutch/non-Dutch)	NA

## E. Gender

Ref		Jan-June 2020 (Non-cumulative)
	<b>Outcome</b>	
IIE.OC1	Number of women empowered on food security /agriculture/ nutrition	15058
	<b>Output</b>	
IIE.OP1	Number of women that benefitted from FNS interventions	15058

# Annex B

## Annex B: Building Organisations

Status of WMOs (From starting to June, 2020)

Polder No.	WMG		WMA		Collection of Savings	O&M Fund				Catchment		AGM		updated WAP		O&M Agreement signed with WMAs
	Formation	Registration	Formation	Registration		Collection		Utilisation		Committee formation	Updated O&M Plan	WMG	WMA	WMG	WMA	
						WMG	Amount (BDT)	WMG	Amount (BDT)							
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
22	12	12	1	1	1606485	12	36930	0	0	3	9	60	2	70	3	1
26	15	15	1	1	239455	13	49530	0	0	6	18	57	2	69	3	1
29	56	56	2	2	9677864	56	481345	31	250800	11	25	240	4	290	6	2
30	40	40	1	1	6474511	40	118950	14	34827	10	30	200	5	227	6	1
31 (Part)	12	12	1	1	321525	12	80230	0	0	7	14	48	2	58	3	1
25	61	61	2	2	9,52,405	61	427480	35	96335	10	20	104	3	149	4	2
27_1	6	6	1	1	139360	15	113860	1	8000	5	10	29	1	40	2	1
27_2	15	15			127740	6	36380	0	0	3	6	12		18		
28_1	12	12	1	1	3,69,040	12	35360	2	6180	5	10	22	1	33	2	1
28_2	12	12			10,83,208	12	38205	3	9200	5	10	20		36		
34/2 Part	19	19	1	1	221820	19	424790	6	246250	12	24	38	1	57	2	1
<b>Sub-total: Khulna</b>	<b>260</b>	<b>260</b>	<b>11</b>	<b>11</b>	<b>18808760</b>	<b>258</b>	<b>1843060</b>	<b>92</b>	<b>651592</b>	<b>77</b>	<b>176</b>	<b>830</b>	<b>21</b>	<b>1047</b>	<b>31</b>	<b>11</b>

# Blue Gold Program



Polder No.	WMG		WMA		Collection of Savings	O&M Fund				Catchment		AGM		updated WAP		O&M Agreement signed with WMAs
	Formation	Registration	Formation	Registration		Collection		Utilisation		Committee formation	Updated O&M Plan	WMG	WMA	WMG	WMA	
						WMG	Amount (BDT)	WMG	Amount (BDT)							
43/1A	14	14	2	2	701,685	14	119,835	14	49,220	5	15	68	8	82	10	2
43/2A	22	21	2	1	1,220,265	22	545,500	22	351,330	6	18	101	6	121	7	1
43/2B	28	28	3	3	2,770,270	28	655,435	28	387,730	6	18	140	12	168	15	3
43/2D	28	27	5	5	1,515,014	27	608,254	27	518,752	17	51	135	20	162	25	5
43/2E	12	12	2	2	517,330	12	177,370	12	166,910	7	21	60	8	72	10	2
43/2F	27	27	3	3	3,059,268	25	155,093	25	100,920	16	48	135	12	162	15	3
55/2A	14	14	1	1	230,760	14	268,940	13	104,570	12	36	26	2	39	3	1
55/2C	16	16	2	2	282,920	16	794,509	16	560,254	7	21	64	6	80	8	2
47/3	8	8	1	1	131,990	8	171,700	8	58,340	7	21	16	1	24	2	1
47/4	18	18	1	1	450,440	18	408,260	18	248,130	18	54	36	1	54	2	1
<b>Sub-total: Patuakhali</b>	<b>187</b>	<b>185</b>	<b>22</b>	<b>21</b>	<b>10,879,942</b>	<b>184</b>	<b>3,904,896</b>	<b>183</b>	<b>2,546,156</b>	<b>101</b>	<b>303</b>	<b>781</b>	<b>76</b>	<b>964</b>	<b>97</b>	<b>21</b>
2 & Ext.	64	64	3	3	1,218,400	64	412,290	55	215100	12	36	237	6	265	9	3
<b>Sub-total: Satkhira</b>	<b>64</b>	<b>64</b>	<b>3</b>	<b>3</b>	<b>1,218,400</b>	<b>64</b>	<b>412,290</b>	<b>55</b>	<b>215100</b>	<b>12</b>	<b>36</b>	<b>237</b>	<b>6</b>	<b>265</b>	<b>9</b>	<b>3</b>
<b>Total: All Zones</b>	<b>511</b>	<b>509</b>	<b>36</b>	<b>35</b>	<b>30907102</b>	<b>506</b>	<b>6160246</b>	<b>330</b>	<b>3412848</b>	<b>190</b>	<b>515</b>	<b>1848</b>	<b>103</b>	<b>2276</b>	<b>137</b>	<b>35</b>



# Annex C

## Annex C: Reports and videos

No	Name	Date
<b>Agro Insight Report</b>		
AIR	BGP Communication interventions and extensions method	Mar, 2018
<b>Inception Report</b>		
IR 01	Blue Gold Inception Report, November 2013	November 2013
<b>Annual Work Plan</b>		
APR 01	Annual Plan 2014	06 Feb, 2014
APR 02	Annual Plan 2015	29 Apr, 2015
APR 03	Annual Work Plan 2015 - 2016	14 Jul, 2015
APR 04	Annual Work Plan 2018 - 2019	16 Jun, 2018
APR 05	Annual Work Plan 2019 - 2020	25 June, 2019
<b>Progress Reports</b>		
QPR 01, 2013	Progress Report 2013, Q2+Q3 (April – September 2013)	10 Dec, 2013
QPR 02-03, 2013	Progress Report 2013, Q4 (October – December 2013)	26 Feb, 2014
QPR 01, 2014	Progress Report 2014, Q1 (January – March 2014)	15 May, 2014
QPR 02, 2014	Progress Report 2014, Q2 (April – June 2014)	04 Aug, 2014
QPR 03, 2014	Progress Report 2014, Q3 (July – September 2014)	17 Nov, 2014
QPR 04,2014	Progress Report 2014, Q4 (October – December 2014)	15 Feb, 2015
QPR 01, 2015	Progress Report January-March 2015	Apr, 2015
QPR 02, 2015	Progress Report April-June 2015	Jul, 2015
HYPR 01, 2015	Progress Report July – December 2015	Mar, 2016
HYPR 01, 2016	Progress Report January - June 2016	Sep, 2016
HYPR 02, 2016	Progress Report July – December 2016	Apr, 2017
HYPR 01, 2017	Progress Report January – June 2017	Aug, 2017
HYPR 02, 2017	Progress Report July – December 2017	Feb, 2018
HYPR 01, 2018	Progress Report January – June 2018	July, 2018
HYPR 02, 2018	Progress Report July – December 2018	Jan, 2019
HYPR 01, 2019	Progress Report January – June 2019	July, 2019
QPR 04, 2018	Water Management and Productive Sectors Innovation Funds, Oct–Dec, 2018	15 Feb, 2019

No	Name	Date
<b>Technical Reports</b>		
TR 01	Proceedings of the Workshop on Blue Gold Draft Inception Report Presentation, 26 June 2013	Sep, 2013
TR 02	Health & Safety Measures	18 Dec, 2013
TR 03	WMO Functionality Assessment in four polders	12 Dec, 2013
TR 04	Introduction to the M&E Manual	17 Dec, 2013
TR 05	Geo information for Blue Gold: Inventory of needs, data collection and roadmap for implementation	01 Dec, 2013
TR 06	Household Survey Report – Polder 22, 30, 43/2D and 43/2F	31 Mar, 2013
TR 07	Field Trip Reports 2013	31 Mar, 2014
TR 08	Operational Manual for Output and Outcome Monitoring	Apr, 2014
TR 09	Water Management Organizations - Comparative Analysis	Apr, 2014
TR 10	Outcome of WMO functionality assessment, Volume 2	02 Sep, 2014
TR 11	Training Plan 2013-2019	15 Jan, 2015
TR 12	Partnership Strategy 2014-2019 of the Blue Gold Program	12 Jan, 2015
TR 13	Engaging Local Government Institutions in Water Management – DRAFT Sourcebook	19 Mar, 2015
TR 14	Baseline Survey Report	31 Mar, 2015
TR 15	Communication Strategy	05 May, 2015
TR16 (A &B)	Field Trip Reports of 2014	09 Jun, 2015
TR 17	Semi Annual Outcome Monitoring Report TR 17. A - Second OUTCOME Monitoring Report up to September 2015	05 May, 2015 September 2015
TR 18	Farm Level WM - Pilot CWM P30_FINAL.PM.08092016	July, 2016
TR 19	Improved water management levels (Community Water Management Pilot Polder 30, Batiaghata, Khulna)	July, 2016
TR 20	TR 20 Strategic Plan for Community Water Management TR20A: BGP Strategic Plan CAWM 2018-2019	July, 2016 September, 2018
TR 21	Field Trip Reports of 2015	July, 2016
TR 22	Agricultural Changes in Blue Gold Polders from 2012 - 13 to 2016 - 17	Mar, 2018
TR 23	Agro- Economic Baseline Survey Report	May 2018
TR 25	Improving Productivity of land in Bangladesh: The Outcomes for Blue Gold Interventions 2013-2018	29 Oct, 2018

No	Name	Date
TR 26	Improving Productivity of land in Bangladesh: The Outcomes for Blue Gold Interventions 2013-2019	Oct, 2019
<b>Technical Notes</b>		
TN 01	Use of ODK software in FFS Cycle 3 FFS	May, 2015
TN 02	Tilapia Value Chain Analysis	July, 2015
TN 03	Benchmark Report on Mung Bean	Sep, 2015
TN 04	Local Poultry Value Chain Analysis	Sep, 2015
TN 05	Mung bean Value Chain Analysis	Sep, 2015
TN 06	Moringa oleifera Cuttings	Dec, 2015
TN 07	FFS Cycle 4 Benchmark and End Data	Dec, 2015
TN 08	Nursery Management in Khulna and Patuakhali	Jan, 2016
TN 09	Trial ponds of fish FFS 2015	Mar, 2016
TN 10	Nursery Management training	Jun, 2016
TN 11	FFS Cycle 5	Jun, 2016
TN 12	FFS Cycle 6	Sep, 2016
TN 13	Water melon cultivation & fish culture in mini pond, polder 22	Oct, 2016
TN 14	Trail ponds 2017	May, 2017
TN 15	Report data FFS Cycle 7	May, 2017
TN 16	Report data FFS Cycle 8	May, 2017
TN 17	Market Oriented Farmer Field Schools (MFS): Impact Assessment report	Nov, 2017
TN 18	TN 18A: Report data FFS Cycle 9	Nov, 2017
	TN 18B: Comparing benchmark & end data FFS Cycle 9	Nov, 2017
	TN 18C: Cycle 9 FFS report	Mar, 2018
TN 20	Cycle 9 FFS	4 April, 2018
TN 21	Report on 10th Cycle FFS	25 Sep, 2018
<b>Workshop &amp; Training Report</b>		
<b>Training Module Developed and compiled</b>		
TM 01	Module on Organizational Management Training for WMGs	2014 (revised 2016)
TM 02	Module on LCS Works Management	2014 (revised 2016)
TM 03	Module on Management of Agricultural Machineries Training for WMGs	2015

No	Name	Date
TM 04	Module on Saving and Credit Management Training for WMGs	2015
TM 05	Module on Accounts Keeping and Audit System training for WMGs	2015 (revised 2016)
TM 06	Module on Gender and Leadership Development Training for WMGs	2016
TM 07	Outline for Training on Construction Monitoring & Quality Control for WMAs	2014
TM 08	Outline on BGP Orientation for Union Parshad	2015
TM 09	Module on Community Agriculture Water Management Farmers Field School (CAWM-FFS) (Part-1: T Aman)	2017
TM 10	FFS Training Module: Homestead Fruit Farming & Market Linkage Development.	December, 2018
TM 11	FFS Training Module: Beef Fattening & Market Linkage Development	December, 2018
TM 12	FFS Training Module: Homestead Vegetable Gardening & Market Linkage Development.	November, 2018
TM 13	FFS Training Module: Poultry Farming & Market Linkage Development.	October, 2018
TM 14	FFS Training Module: Fish Culture & Market Linkage Development	April, 2019
<b>Training Technical Note</b>		
TTN 01	TNA Report on Gender Training for WMG	2015
TTN 02	Report on Training Need Assessment (TNA) for IGA Management Training for WMGs members	Dec, 2015
TTN 03	Report on Training Performance Evaluation of Organizational Management (OM) for WMG	May, 2016
TTN 04	Workload assessment of CDF	May, 2016
TTN 05	Concept Note: Refocusing Training	Jan, 2018
<b>PDP Reports</b>		
PDP 22	Polder Development Plan for Polder 22	Apr, 2015
PDP 43-2F	Polder Development Plan for Polder 43-2F	15 Jun, 2015
PDP 43-2D	Polder Development Plan for Polder 43-2D	30 Sep, 2015
PDP 22-29-30	Polder Development Plan for Polder 22-29-30	10 Nov, 2015
PDP 2	Polder Development Plan for Polder 2	15 Dec, 2016
PDP 43/1B	Polder Development Plan for Polder 43/2B	28 Nov, 2016
PDP 27/1	Polder Development Plan for Polder 27/1	10 Apr, 2017

No	Name	Date
PDP 28/1	Polder Development Plan for Polder 28/1	10 Apr, 2017
PDP 25	Polder Development Plan for Polder 25	10 Apr, 2017
PDP 22	Polder Development Plan for Polder 22 v2	Dec, 2017
PDP 26	Polder Development Plan for Polder 26	Dec, 2017
PDP 29	Polder Development Plan for Polder 29	Dec, 2017
PDP 30	Polder Development Plan for Polder 30	Dec, 2017
PDP 31 Part	Polder Development Plan for Polder 31 part	Dec, 2017
PDP 2	Polder Development Plan for Polder 2	Dec, 2017
PDP 43/1A	Polder Development Plan for Polder 43/1A	Dec, 2017
PDP 43/2A	Polder Development Plan for Polder 43/2A	Dec, 2017
PDP 43/2E	Polder Development Plan for Polder 43/2E	Dec, 2017
PDP 43/2F	Polder Development Plan for Polder 43/2F v2	Dec, 2017
PDP 43/2D	Polder Development Plan for Polder 43/2D v2	Dec, 2017
PDP 43/1B	Polder Development Plan for Polder 43/1B	Dec, 2017
<b>Working Paper</b>		
BGP - WP1	Theory of Change	30 Nov, 2015
BGP - WP2A	Exit Strategy v2	Feb, 2016
BGP - WP3	Building organization	2 Jun, 2016
BGP - WP4	Vocational Training	23 Aug, 2016
BGP - WP5	Theory of Change rev 2	25 May, 2016
BGP - WP6	MRL Plan	31 Aug, 2016
BGP - WP7	Polder Growth & Business Development	31 Aug, 2016
BGP - WP8 Participatory Monitoring Report	WP8A: Participatory Monitoring Oct-Nov 2016 WP8B: Participatory Monitoring April-May 2017 WP8C: Participatory Monitoring Oct-Nov 2017 WP8D: Report on Participatory Monitoring WP8E: Report on Participatory Monitoring WP8F: Report on Participatory Monitoring 2019_v1 WP8G: Report on Participatory Monitoring WP10B: Report on Participatory Monitoring, WMA	Feb, 2017 Oct, 2017 5 Apr, 2018 Apr-May 2018 26 Jan, 2019 April, 2019 December 2019 December 2019
BGP – WP9 WMG Tracker Report	WP9A: June 2017 WP9B: WMG Tracker Report - December 2017 WP9C: WMG Tracker Report to MARCH 2018	22 Nov, 2017 Apr, 2018 20 June, 2018

No	Name	Date
	WP9D: WMG Tracker Report up to JUNE 2018	27 Aug, 2018
	WP9E: WMG Tracker Report up to SEPT 2018	26 Jan, 2019
	WP9F: WMG Tracker Report up to DEC 2018	18 Feb, 2019
	WP9G: WMG Tracker Report up to MARCH 2019	16 May, 2019
	WP9H: WMG Tracker Report up to June 2019	June, 2019
<b>Retreat Report</b>		
RR 01	Retreat Report - 2014	16-17 March, 2014
RR 02	Retreat Report - 2015	04 Aug, 2015
RR 03	Retreat Report - 2016	April, 16
RR 04	Retreat Report - 2017	April, 2017
<b>Annual Review Mission Action Plan</b>		
ARM 01	Action Plan 2014	5th August, 2015
ARM 02	Action Plan 2015	26 November, 2015
ARM 03	Blue Gold Draft Report 2016	24 October, 2016
ARM 04	Aide Memoire – Annual Review Mission 2017	26 Feb, 2018
ARM 05	Aide Memoire – Annual Review Mission 2018	11 Jan, 2019
<b>Development Project Performance</b>		
DPP 01	Blue Gold Program (BWDB component): Program for Integrated Sustainable Economic Development by Improving the Water and Productive Sectors in Selected Polders	March 2013
DPP 02	Blue Gold Program (BWDB component): Program for Integrated Sustainable Economic Development by Improving the Water and Productive Sectors in Selected Polders.	May 2013
DPP 03	Development Project Proposal (DPP) for Transfer of Technology for Agriculture Production under Blue Gold program (DAE Component).	May 2013
<b>Innovation Fund</b>		
IF 01	Long Term Perspectives for WMOs/Cooperatives	
IF 02	Community Based Water Management (CWM)	Jan, 2014
IF 03	Feasibility study for Action Research Pumped Drainage in Polder 2	Dec, 2014
IF 04	Pearl cultivation study	Jan, 2015
IF 05	MIS & GIS portal	Sept, 2015
IF 06	Opportunities for Moringa sector development in Bangladesh	July, 2015
IF 07	Feasibility Study on Renewable Energy Supply	Dec, 2015Feb



No	Name	Date
IF 08	Small Pond Fish Productivity, Diversity and Resilience	Feb, 2016
IF 09	Aquifer recharge for agriculture	Feb, 2015
IF 10	The Study of River Bank Erosion Management in Polder 29, Khulna, low cost river bank protection.	April, 2016
IF 11	Kawra pig-rearing	Dec, 2016
IF 12	Feasibility study Water App	2017
IF 13	Roads for Water Management and Flood Protection	
IF 14	Study to promote natural cold storage	2017
IF 15	Community Based Integrated Water Management	Sept, 2017
IF 16	Increasing the quality in Mungbean production of small farmers	Dec, 2017
IF 17	Feasibility Study on Insects for Fish Feed	
IF 18	Web Campaign "Ondernemen in Bangladesh"	Dec, 2017
IF 19	Cage Aquageoponics System	
IF 20	Ecopond and Empowerment of Women (Ecopond II)	
IF 21	Relevant Actors for Sustainable Intensification of Tilapia Culture	Sept, 2017
IF 22	Feasibility Study on Women's Business Centers (WBC)	Oct, 2017
IF 23	Piloting	March, 2019
IF 24	Blue Gold Innovation Challenge	
IF 25	Market Study for Moringa Business	
IF 26	Feasibility study Agricultural services	Feb, 2018
IF 27	Feasibility Study of Sustainable Water Management through Indigenous Finance and Technology Research (SWIFT)	April, 2018
IF 28	Piloting	Feb, 2019
IF 29	Aquaculture Intervention in Seasonal Waterlogged Areas in Southwest Region of Bangladesh	March, 2018
IF 30	Breed Identification and Digital Registry of Cattle	Nov, 2019
IF 31	Accelerating Horizontal Learning in Bangladesh Polders ICT as Force Multiplier	December 2019
IF 32	Sustaining Sack Farming Practices through Agro-met Services in Coastal Polder Areas of Bangladesh	March 2020
<b>M&amp;E Report</b>		
M&E 01	Blue Gold Baseline Survey Technical Proposal	April 2014

No	Name	Date
M&E 02	Manual for Outcome monitoring Data Collection: Guideline for collecting information by using tablet through ODK system.	
M&E 03	Operational Manual for Output and Outcome Monitoring: Mission report 11 March – 13 April 2014	April 2014
M&E 04	Proceedings of the Internal Meeting on Lessons Learned on ODK Usage of Blue Gold Baseline Survey (BGBS)	12 June 2014
M&E 05	Report on Sharing results of Outcome Mapping WMG	9-11 March 2015
M&E 06	Mid-term Report EO for M&E of Blue Gold Intervention	28 Sep, 2018
<b>Journal</b>		
J 01	Impact on Production and Consumption of Orange Sweet Potato Varieties in Homestead Vegetable Production System of Poor Farming Households in Bangladesh	1 June 2016
J 02	Effect of sugar beet silage on milk production of dairy cows in Bangladesh	31 August 2016
J 03	Development of year-round vegetable farming technologies on brackish water shrimp Gher dykes in southern Bangladesh	2016
<b>Mid-term Review Mission Report</b>		
MTR 01	Aide Memoire Annual Review Mission Blue Gold Program	Sep, 2014
MTR 02	Aide Memoire: Mid Term Review Blue Gold Program	Oct, 2015
<b>News Letter</b>		
NL 01	BGP Barta Issue - 1	June 2015
NL 02	BGP Barta Issue - 2	Sep, 2015
NL 03	BGP Barta Issue - 3	Dec, 2015
NL 04	Polder Tidings	May, 2016
NL 05	New Age - Blue Gold Innovation Challenge	25 Dec, 2016
NL 06	SIAGI project brief	
NL 07	Dynamics of rural growth in Bangladesh sustaining poverty reduction	
NL 08	BGP Barta Issue - 4	March 2016
NL 09	BGP Barta Issue - 5	June 2016
NL 10	BGP Barta Issue - 6	Sep, 2016
NL 11	BGP Barta Issue - 7	Dec, 2016
NL 12	BGP Barta Issue - 8	June, 2017
NL 13	BGP Barta Issue - 9	Sep, 2017

No	Name	Date
NL 14	BGP Barta Issue -10	Dec, 2017
NL 15	BGP Barta Issue -11	March, 2018
NL 16	BGP Barta Issue - 12	8 Aug, 2018
NL 17	BGP Barta Issue - 13	17 Oct, 2018
NL 18	BGP Barta Issue - 14	20 Jan, 2019
NL 19	BGP Barta Issue - 15	12 June, 2019
<b>Value Chain Analysis Report</b>		
VCAR	Mustard Value Chain Analysis Report	20 Feb, 2017

## Video Materials Published by Blue Gold Program

Sl No.	Title	Video in brief	Date of publishing	Location
<b>General</b>				
1.	A short video overview of the BGP	Inception BGP	09/01/2014	<a href="https://www.facebook.com/bluegoldprogram/videos/648147021898302/">https://www.facebook.com/bluegoldprogram/videos/648147021898302/</a>
2.	Blue Gold Program orientation	BGP orientation	21/01/2015	<a href="https://www.facebook.com/pg/bluegoldprogram/videos/">https://www.facebook.com/pg/bluegoldprogram/videos/</a>
3.	Dutch Minister Visiting BGP	Special visit	11/07/2015	<a href="https://www.youtube.com/watch?v=QLDSovOmApU&amp;feature=youtu.be">https://www.youtube.com/watch?v=QLDSovOmApU&amp;feature=youtu.be</a>
4.	Popular Theatre on Blue Gold business messages	Drama Nil Sona	12/05/2016	<a href="https://www.facebook.com/bluegoldprogram/videos/1063282707051396/">https://www.facebook.com/bluegoldprogram/videos/1063282707051396/</a> <a href="https://youtu.be/ieb8rFwaSfE">https://youtu.be/ieb8rFwaSfE</a>
5.	There is no religion except work	Music video	21/08/2016	<a href="https://youtu.be/wODsHm6gWk">https://youtu.be/wODsHm6gWk</a>
6.	EKN visit Khulna 2017	Special visit	20/12/2017	<a href="https://youtu.be/kt9BhAWTgpU">https://youtu.be/kt9BhAWTgpU</a> <a href="https://www.facebook.com/bluegoldprogram/videos/1593758870670441/">https://www.facebook.com/bluegoldprogram/videos/1593758870670441/</a>
7.	ToF course for CDF at Kustiya 1 <sup>st</sup> batch	Capacity Development	26/02/2018	<a href="https://youtu.be/l-Aqsib3VKE">https://youtu.be/l-Aqsib3VKE</a> <a href="https://www.facebook.com/bluegoldprogram/videos/1661988843847443/">https://www.facebook.com/bluegoldprogram/videos/1661988843847443/</a>
8.	Women empowerment	HL session	04/03/2018	<a href="https://www.youtube.com/watch?v=-PnuR30-GNc&amp;t=50s">https://www.youtube.com/watch?v=-PnuR30-GNc&amp;t=50s</a>
9.	International Women's day	Empowerment	08/03/2018	<a href="https://www.youtube.com/watch?v=TQo3YzL0lug&amp;t=48s">https://www.youtube.com/watch?v=TQo3YzL0lug&amp;t=48s</a>
10.	Visit of Doug Wilson, Khulna	Special visit	16/05/2018	<a href="https://www.youtube.com/watch?v=IbUNAutERiO">https://www.youtube.com/watch?v=IbUNAutERiO</a>
11.	World Environment Day 2018	Environment	11/06/2018	<a href="https://www.youtube.com/watch?v=Z2afnlzjs8o">https://www.youtube.com/watch?v=Z2afnlzjs8o</a>
12.	Planning workshop of CAWM	Workshop	14/07/2018	<a href="https://www.youtube.com/watch?v=0iSFOOCGLfg">https://www.youtube.com/watch?v=0iSFOOCGLfg</a>
<b>WRM</b>				
13.	Earthwork technique	Animated video	26/08/2015	<a href="https://www.facebook.com/bluegoldprogram/videos/927276007318734/">https://www.facebook.com/bluegoldprogram/videos/927276007318734/</a>

Sl No.	Title	Video in brief	Date of publishing	Location
14.	Destruction by river erosion	River erosion	19/01/2015	<a href="https://www.facebook.com/bluegoldprogram/videos/826375310742138/">https://www.facebook.com/bluegoldprogram/videos/826375310742138/</a>
15.	Water Infrastructure, Blue Gold	O&M	05/02/2017	<a href="https://www.facebook.com/bluegoldprogram/videos/1292243807488617/">https://www.facebook.com/bluegoldprogram/videos/1292243807488617/</a>
16.	In polder water management	WMG initiatives	26/03/2018	<a href="https://youtu.be/pH-DZQ_OuM0">https://youtu.be/pH-DZQ_OuM0</a>
<b>WMO</b>				
17.	Paschim Choto Bighai WMG Elec.	WMG election	03/11/2014	<a href="https://www.facebook.com/bluegoldprogram/videos/784432451603091/">https://www.facebook.com/bluegoldprogram/videos/784432451603091/</a>
18.	Nandipara Madarbumia WMG	Organizational	06/01/2015	<a href="https://www.facebook.com/bluegoldprogram/videos/820267171352952/">https://www.facebook.com/bluegoldprogram/videos/820267171352952/</a>
19.	Blue Gold Mela (fair) 2015	Organizational	09/03/2015	<a href="https://www.facebook.com/bluegoldprogram/videos/847578588621810/">https://www.facebook.com/bluegoldprogram/videos/847578588621810/</a>
20.	WMG exchange visit	Horizontal Learning	17/01/2016	<a href="https://www.facebook.com/bluegoldprogram/videos/992210057491995/">https://www.facebook.com/bluegoldprogram/videos/992210057491995/</a> <a href="https://youtu.be/GFH73r3q1-k">https://youtu.be/GFH73r3q1-k</a>
<b>Agriculture &amp; Economical</b>				
21.	Crop Cutting Festival 2017,	CAWM	06/12/2017	<a href="https://youtu.be/iA2pI6TvpZ8">https://youtu.be/iA2pI6TvpZ8</a>
22.	12 months agricultural activities	Folk Song	24/04/2016	<a href="https://www.facebook.com/bluegoldprogram/videos/1052306724815661/">https://www.facebook.com/bluegoldprogram/videos/1052306724815661/</a>
23.	Business Development, Blue Gold	Pictorial video	05/02/2017	<a href="https://www.facebook.com/bluegoldprogram/videos/1292247077488290/">https://www.facebook.com/bluegoldprogram/videos/1292247077488290/</a>
24.	Crop cutting festival 2017, Khulna	CAWM	10/12/2017	<a href="https://youtu.be/7zfv0IJA_8">https://youtu.be/7zfv0IJA_8</a>
25.	Blue Gold DAE Fair 2017, Khulna	Agriculture	20/12/2017	<a href="https://youtu.be/PcckWSmtnoM">https://youtu.be/PcckWSmtnoM</a>
26.	Summer tomato, Satkhira	Agri. business	06/01/2019	<a href="https://youtu.be/JAMfIS3Wy5w">https://youtu.be/JAMfIS3Wy5w</a>
27.	Hajol making process	Agriculture	03.01.2019	<a href="https://youtu.be/R5e9ucBELD4">https://youtu.be/R5e9ucBELD4</a>
28.	Jyostna Begum, Success story	Poultry rearing	09/01/2019	<a href="https://youtu.be/cGJfspouoHE">https://youtu.be/cGJfspouoHE</a>

Sl No.	Title	Video in brief	Date of publishing	Location
29.	Aman rice production, Satkhira		09/01.2019	<a href="https://youtu.be/L6m4ha2Cofo">https://youtu.be/L6m4ha2Cofo</a>
30.	Umme Hani a successful woman	CAWM	15/06/2019	<a href="https://youtu.be/ebO-qfaZ0TY">https://youtu.be/ebO-qfaZ0TY</a>
<b>Television news</b>				
31.	Semi intensive fish culture	FFS, BTV	27/09/2015	<a href="https://www.youtube.com/watch?v=PxWUYhdzoA4&amp;feature=youtu.be">https://www.youtube.com/watch?v=PxWUYhdzoA4&amp;feature=youtu.be</a>
32.	Local poultry production	FFS, BTV	27/09/2015	<a href="https://www.youtube.com/watch?v=mJ0xuEehCyU&amp;feature=youtu.be">https://www.youtube.com/watch?v=mJ0xuEehCyU&amp;feature=youtu.be</a>
33.	Watermelon at polder 22	FFS, BTV	07/06/2015	<a href="https://www.youtube.com/watch?v=Kw3-v20Yr-s&amp;t=460s">https://www.youtube.com/watch?v=Kw3-v20Yr-s&amp;t=460s</a>
34.	Increase Cropping Intensity	Boishakhi TV	14/08/2017	<a href="https://www.facebook.com/bluegoldprogram/videos/1478873002159029/">https://www.facebook.com/bluegoldprogram/videos/1478873002159029/</a>
35.	Re-excavation of Amodkhali khal,	WRM, news 24	09/11/2017	<a href="https://youtu.be/-P2X1LHiEbE">https://youtu.be/-P2X1LHiEbE</a>
36.	Amodkhali Khal re-excavated at	WRM, DBC	15/11/2017	<a href="https://www.facebook.com/bluegoldprogram/videos/1558865664159762/">https://www.facebook.com/bluegoldprogram/videos/1558865664159762/</a>
37.	Pen culture, Satkhira	Channel 9	08/12/2017	<a href="https://youtu.be/Vp-2qhcZgV4">https://youtu.be/Vp-2qhcZgV4</a>
38.	Crop cutting festival	Boishakhi TV	20/01/2018	<a href="https://www.youtube.com/watch?v=TY4EMivFs7I">https://www.youtube.com/watch?v=TY4EMivFs7I</a>
39.	Poltry rearing, BGP, Patuakhali	"BTV news"		<a href="https://youtu.be/ttRxhABIZfE">https://youtu.be/ttRxhABIZfE</a>
40.	Bashok leaf	Bangla vision	08/10/2018	<a href="https://youtu.be/jqNFsgGURho">https://youtu.be/jqNFsgGURho</a>
41.	CII	Business	31/07/2019	<a href="https://youtu.be/IQIxVSxX2TM">https://youtu.be/IQIxVSxX2TM</a>
<b>Videos from Innovation Fund</b>				
42.	Integrated farming		July, 2019	<a href="https://vimeo.com/showcase/5998174/video/336863657">https://vimeo.com/showcase/5998174/video/336863657</a>
43.	Beef fattening.		Sep, 2019	<a href="https://vimeo.com/showcase/6286124/video/357265743">https://vimeo.com/showcase/6286124/video/357265743</a>

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Sl No.	Title	Video in brief	Date of publishing	Location
44.	Polder replica focusing business			<a href="https://www.youtube.com/watch?v=EzL6yDSSlhc&amp;t=60s">https://www.youtube.com/watch?v=EzL6yDSSlhc&amp;t=60s</a>
45.	Community Led Agriculture Water Management (CAWM) English version		Feb 24, 2020	<a href="https://www.youtube.com/watch?v=TCCRWjllX58">https://www.youtube.com/watch?v=TCCRWjllX58</a>
46.	What water management means to me		Feb 24, 2020	<a href="https://www.youtube.com/watch?v=5-ZIHcP6afU&amp;t=75s">https://www.youtube.com/watch?v=5-ZIHcP6afU&amp;t=75s</a>
47.	Infrastructure related activities at BGP Polder area during 16 to 30 April, 2020		May 7, 2020	<a href="https://www.youtube.com/watch?v=dev79CkY-DU&amp;t=199s">https://www.youtube.com/watch?v=dev79CkY-DU&amp;t=199s</a>
48.	Presentation on Blue Gold Program Fisheries Development Activities		March 3, 2020	<a href="https://www.youtube.com/watch?v=fQ3FV1D-IHI">https://www.youtube.com/watch?v=fQ3FV1D-IHI</a>
49.	WMO activities, April, 2020		May, 2020	<a href="https://www.youtube.com/watch?v=yuben3XOI7g">https://www.youtube.com/watch?v=yuben3XOI7g</a>
50.	Video on Gobeshona6 Conference		February, 2020	<a href="https://www.youtube.com/watch?v=0Vc8nc7nLhQ&amp;t=33s">https://www.youtube.com/watch?v=0Vc8nc7nLhQ&amp;t=33s</a>
51.	International Women's Day 2020		March, 2020	<a href="https://www.youtube.com/watch?v=fXP3cq3IICg&amp;t=20s">https://www.youtube.com/watch?v=fXP3cq3IICg&amp;t=20s</a>
52.	Moringa selling Collectively		June, 2020	<a href="https://www.youtube.com/watch?v=0PJm2s0Jq20">https://www.youtube.com/watch?v=0PJm2s0Jq20</a>