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07 Inclusive Development Approach: Outcomes and Impacts from Homestead Based Production

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Around 30% of the polder households do not have the necessary access to land or family labour to benefit from improved cropping systems - delivered through DAE FFSs and made possible by the rehabilitation of water management structures. These households rely on homestead land for part of their income. For such households, a more inclusive Farmer Field School (FFS) program for homestead production was implemented to improve their food security, nutrition, and their overall living standard. [Chapter 25](#) provides more detailed information on how homestead production was enhanced within the Blue Gold Program through homestead FFSs. Most data in this chapter is from the household survey 2021, which complemented the [2021 WMG survey](#).^[Notes.1]

From 2013 to 2021 fifteen cycles of 1,178 FFS were implemented for 25 farmers per FFS. In total 1,806 modules were delivered, covering homestead gardening (vegetables and fruit), poultry rearing, pond aquaculture, beef fattening and nutrition. From cycle 11 onwards, market orientation was part of the homestead FFS. The male / female ratio in the groups was initially set at a minimum of 50% women but - in practice - varied according to local demand. Overall, 87.6% of the participants were women.

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Homestead vegetables production[[edit](#) | [edit source](#)]

Data from the household survey that was part of the 2021 WMG survey shows that most households (79%) grow homestead vegetables; this proportion has increased slightly since the start of BGP (Table 7.1). Vegetable sales are reported by 27% of households, or 34% of those growing vegetables. Compared to the other land holding groups of the households, landless and marginal landowning households are less likely to grow or sell vegetables, and households from these groups that do grow vegetables, produce and sell smaller volumes. This is not unexpected as they have less homestead land available.

Table 7.1: Homestead vegetables

Land ownership	Grow homestead vegetable		Vegetables	Sell production	Annual value (BDT)	
	2014-15	2020-21			sales	costs
landless	62%	65%	13%	1,892	1,092	213
marginal	76%	78%	28%	3,293	2,484	459

small	86%	87%	32%	4,080	2,790	559
medium	86%	87%	37%	6,128	4,825	1,017
large	94%	94%	32%	7,074	5,752	1,055
total	77%	79%	27%	3,524	2,527	492
Khulna	69%	71%	31%	3,903	2,561	598
Satkhira	84%	89%	27%	2,081	1,460	230
Patuakhali	87%	87%	21%	3,683	3,114	470

Percentage of all households, average value for those households reporting. Source: HH survey 2021

Households in Satkhira more likely to grow vegetables, but if they do, production and sales are relatively low. In contrast, households in Khulna are less likely to grow vegetables, but if they do, production and sales are higher.

Homestead fruit production [[edit](#) | [edit source](#)]

A higher proportion of all households (94%) report producing homestead fruit than homestead vegetables (79%), and the average value of production is 44% higher (Table 7.2). Slightly more households sell fruit (30%) than vegetables (27%) and the average value of fruit sales is 48% higher than the average value of vegetable sales. With limited space landless (and to a lesser extent marginal) land owning households are less likely to grow and sell fruit, and the average value of their production and sales is lower. Slightly fewer households produce fruit in Satkhira, and the average value of production is lower. Fewer households here also sell vegetables, with the average value of sales being lower.

Table 7.2: Homestead fruit

Land ownership	Grow homestead fruit		Sell fruit	Sell production	Annual value (BDT)	
	2013-14	2020-21			sales	costs
Landless	68%	70%	10%	2,061	2,026	201
Marginal	96%	96%	30%	3,991	3,106	399
Small	99%	99%	39%	6,771	4,521	743
Medium	99%	99%	44%	10,400	7,490	1,327
Large	99%	99%	51%	13,903	8,630	1,519
Total	91%	92%	30%	5,078	3,734	550
Khulna	91%	92%	40%	5,579	3,730	642
Satkhira	86%	88%	22%	3,191	2,453	345
Patuakhali	94%	94%	19%	5,103	4,708	478

Percentage of all households, average value for those households reporting. Source: HH survey 2021

Commercial fruit production [[edit](#) | [edit source](#)]

In total, 3.4% of project sample households are commercial (i.e. orchard) fruit growers (Table 7.3). This is almost 10% in Satkhira and almost none in Patuakhali. Commercial mango production is popular on the high land in Satkhira. Although only 2.8% of households in Khulna are commercial fruit growers, the average area and value of fruit grown is larger than in the other zones. As would be expected, these growers are predominantly medium and large land owners.

Table 7.3: Commercial fruit

Land ownership	Producers		Area	Value - BDT per year	
	% of HH	decimals	Income	costs	
landless	0.5%	50	40,000	80,000	
marginal	1.0%	9	5,500	700	
small	4.1%	27	14,000	1,800	
medium	17.2%	54	42,349	10,008	
large	21.6%	96	66,560	11,980	
total	3.4%	27	18,527	17,527	
Khulna	2.8%	22	16,650	18,171	
Satkhira	10.5%	14	7,994	1,246	
Patuakhali	0.2%	7	6,701	543	

Percentage of all households, average value for those households reporting. Source: HH survey 2021

Poultry rearing [[edit](#) | [edit source](#)]

Almost all (94%) households rear poultry (Table 7.4), and there has been a slight increase during the BG period. Most households rear both ducks and chicken. Similar proportions of households in all land ownership categories rear poultry, showing that it is a popular enterprise for those with very little land, and there has been a more significant increase poultry rearing for landless households than for other households.

Table 7.4: Popularity of poultry rearing

Land ownership	Rear chickens		Rear ducks		Rear any poultry	
	2013-14	2020-21	2013-14	2020-21	2013-14	2020-21
landless	78%	91%	74%	82%	85%	91%
marginal	84%	89%	84%	89%	91%	93%
small	96%	93%	92%	89%	98%	95%
medium	94%	94%	88%	89%	94%	94%
large	91%	89%	94%	89%	94%	92%
total	90%	91%	87%	89%	93%	94%
Khulna	78%	76%	76%	80%	84%	86%
Satkhira	79%	72%	78%	78%	88%	86%
Patuakhali	90%	91%	87%	89%	93%	94%

Percentage of all households; Source: HH survey 2021

Although the number of households keeping poultry has only increased very slightly, there has been a significant increase in the average number of birds kept by each household – which has gone up by 39% from 15 to 24 – although landless and marginal landowning households do not have as many (Table 7.5). Households in Satkhira now have the largest flocks, with double the number of birds (and over three times as many chickens) as in 2013-14.

Table 7.5: Number of poultry birds

Land ownership	Number of chicken		Number of ducks		Number of birds	
	2013-14	2020-21	2013-14	2020-21	2013-14	2020-21
landless	7.8	9.9	7.3	9.5	13.9	17.8
marginal	8.4	12.6	7.7	9.4	14.8	20.2
small	8.4	13.9	8.6	12.1	15.7	24.0
medium	10.6	13.4	10.7	14.3	19.9	25.9
large	12.6	13.6	11.3	14.7	23.2	26.5
total	8.5	12.5	8.2	10.7	15.4	21.4
Khulna	10.2	12.5	9.2	12.0	17.9	22.2
Satkhira	6.4	21.7	6.4	6.3	11.5	24.7
Patuakhali	7.0	9.0	7.4	10.4	13.6	18.6

Average number for those households owning each type of bird; Source: HH survey 2021

Table 7.6 shows that virtually all households that keep poultry produce and consume eggs and also consume birds. About two-thirds of households sell eggs and slightly fewer sell birds. Although they have fewer birds, a higher proportion of households owning less land sell eggs and birds. More household in Khulna sell eggs and birds compared with the other two zones.

Table 7.6: Households selling eggs and birds

Land ownership	Eggs		Birds		
	produce	consume	sell	Sell	consume
landless	99%	99%	73%	73%	96%
marginal	100%	99%	71%	65%	96%
small	99%	99%	66%	62%	97%
medium	99%	99%	65%	56%	99%
large	100%	98%	59%	54%	99%
total	100%	99%	67%	62%	97%
Khulna	100%	100%	78%	76%	98%
Satkhira	99%	98%	67%	52%	98%
Patuakhali	99%	99%	52%	48%	97%

Percentage of households with poultry; Source: HH survey 2021

Data in Table 7.7 on poultry production and sales shows that households with larger land holdings (and with larger flocks) tend to produce, consume and sell more eggs and birds. Landless households consume a slightly smaller share of their egg production – possibly because they need income from sales, although this is not so apparent for birds. Households in Satkhira have higher sales of birds, but lower sales of eggs. Taking eggs and birds together, households in Khulna have higher sales.

Table 7.7: Poultry production and sales

Land ownership	Number of eggs per month		Egg sales BDT/month	Birds sold No./year	Consumed No./year	Bird sales BDT/year	Cost BDT/month
	produced	consumed					
landless	79	30	642	9	6	3155	162
marginal	75	36	538	15	7	4726	226

Small	85	41	655	17	8	5416	241
medium	108	51	852	17	10	5244	224
Large	117	58	975	13	11	4586	202
Total	82	37	624	15	7	4664	217
Khulna	104	35	838	14	7	4502	228
Satkhira	38	21	224	29	5	7530	346
Patuakhali	69	47	409	10	9	3348	148

Average number for those households reporting; Source: HH survey 2021

In total 5% of households reported to have ceased poultry production during BGP – less than for goats and cattle. Medium and large land owners are slightly less likely to have ceased keeping poultry. The main reason to stop rearing poultry was reported to be pests and diseases, followed by lack of space. Lack of space was reported by a higher proportion of landless and small land owners, while households with more land tended to cite lack of labour or time, poor economics and problems in getting inputs.

Goats [\[edit\]](#) | [edit source](#)

Overall, 30% of the surveyed households rear goats and/or sheep (but mainly goats), which is an increase from 24% since the start of BGP (Table 7.8). Increases are reported for all land-owning categories and in all three zones. The average number of animals per flock has fallen slightly, more so for landless households that own fewer animals. The average number of animals per household has increased in Patuakhali. Over the last 12 months, 16% of households (= 53% of goat rearers) sold an average of 3.1 animals, with fewer sales being made by those owning less land. Households in Satkhira now keep fewer goats, but fewer sell goats in Patuakhali. The value of sales is highest in Khulna.

Table 7.8: Goat rearing

Land ownership	Goat rearing HH*		Number of goats		In last 12 months			
	2013-14	2020-21	2013-14	2020-21	selling HH*	no. sell	income BDT	cost BDT
Landless	21%	25%	4.5	3.9	14%	2.5	13,107	3,027
Marginal	24%	30%	4.1	4.2	14%	3.5	18,883	2,429
Small	24%	32%	4.0	4.2	17%	2.6	14,865	2,869
Medium	26%	33%	5.3	5.2	20%	3.5	20,461	4,498
Large	27%	29%	5.7	5.8	18%	3.3	17,240	4,739
Total	24%	30%	4.7	4.6	16%	3.1	17,298	3,495
Khulna	23%	30%	5.3	5.0	18%	3.3	17,706	3,370
Satkhira	35%	41%	3.7	3.0	18%	1.7	10,180	2,403
Patuakhali	20%	26%	2.9	3.8	12%	2.8	17,775	2,222

* % of all households. Average number / value is average for reporting households; Source: HH survey 2021

Data also shows that overall, 7% of all households reported ceasing keeping goats during the BGP period, but the proportion is higher for landless households (especially in Khulna and Satkhira), and for the Satkhira zone as a whole. Overall, the main reason to quit is lack of space, especially for landless and marginal land owners, followed by availability of inputs (this being the main reason in

Khulna). Lack of labour was cited by most medium land owners and was the main reason in Patuakhali.

Cattle and buffalo [\[edit | edit source\]](#)

Almost two-thirds (64%) of households own bovines (cattle and buffalo – mainly cattle), this having increased from 61% since the start of BGP (Table 7.9). Households with larger areas of land more often own animals. Since the start of BGP an increased number of households in all land ownership categories (except medium) now own animals, but fewer now own animals in Satkhira. The average number of animals for owning households has increased from 3.2 to 3.4 – but numbers have fallen in Satkhira. Again, households with more land own more animals. Half of all households have milking cows – with these being less widely owned by landless and marginal land owners. Households that have milk cows, own, on average, 1.5 animals.

Table 7.9: Ownership of cattle and buffalo

Land ownership	Have bovine*		Have milk cow*		Number of bovines		Number of milk cow	
	2013-14	2020-21	2013-14	2020-21	2013-14	2013-14	2013-14	2020-21
landless	42%	47%	26%	33%	2.4	2.8	1.4	1.3
marginal	60%	62%	45%	45%	3.1	3.2	1.5	1.6
small	74%	75%	67%	64%	3.6	3.9	1.5	1.5
medium	71%	69%	66%	60%	4.2	4.4	1.7	1.7
large	76%	71%	67%	68%	4.9	5.3	1.9	1.8
total	61%	64%	50%	50%	3.2	3.4	1.5	1.5
Khulna	68%	70%	53%	55%	3.4	3.6	1.6	1.6
Satkhira	58%	51%	50%	35%	2.3	1.8	1.6	1.3
Patuakhali	56%	60%	47%	48%	3.4	3.8	1.2	1.5

* % of all households. Average number / value is average for reporting households; Source: HH survey 2021

Almost half (48%) of all households consume some of their milk (which amounts to almost all households with milking animals, and three-quarters of households than own bovines (Table 7.10). 24% of all households sell milk. Over one third (36%) of all households sold animals in the last year (=56% of bovine owners).

Table 7.10: Utilisation of milk and sales of animals

Land ownership	Consume milk		Sell milk		Sale of animals in last year			Costs
	% HH*	BDT/year	% HH*	BDT/year	% HH*	no. sold	BDT/year	BDT/year
landless	30%	10,157	14%	15,320	22%	1.4	58,349	18,543
marginal	43%	11,690	20%	17,416	34%	1.3	60,313	24,371
small	63%	13,079	33%	28,052	46%	1.7	76,931	37,463
medium	59%	13,209	30%	37,817	44%	2.0	98,234	37,895
large	67%	15,185	29%	40,546	47%	1.9	95,239	38,915
total	48%	11,972	24%	22,105	36%	1.5	68,351	28,421

Khulna	55%	10,845	30%	22,775	41%	1.4	66,396	33,889
Satkhira	29%	22,105	24%	29,577	28%	1.7	84,688	28,996
Patuakhali	47%	11,941	14%	8,439	33%	1.7	67,690	17,613

* % of all households. Average number / value is average for reporting households; Source: HH survey 2021

Although average sales of milk are about double the average value of milk consumed at home, twice as many households consume milk as sell milk, so the overall value of milk produced is more or less evenly split between home consumption and sales (but only 17% of milk is consumed in Patuakhali). Of the total value of bovine production, sales of animals make up 69%, home consumed milk 16% and milk sales 15%. However the value of animal sales may over-state the output of this sub-sector as animals tend to be bought and sold a number of times over their life-cycles.

During the BG period 10% of all households report that they ceased to keep bovines. With little use now being made of draught animals, there is no longer a need to keep animals to cultivate land, but they are still useful to produce milk, manure and as animals to sell. The main reason cited to cease keeping bovines was lack of labour or time, followed by lack of space. Landless households said lack of space was the main reason, while marginal households placed lack of space equal with lack of labour.

Pond fisheries[[edit](#) | [edit source](#)]

Overall 44% of households have fish ponds and 31% operate ghers (Table 7.11). Almost no landless households have fish ponds, but 18% operate ghers using rented land (all of them are in Khulna). There has been very little change in the number of fish pond households since the start of BGP, but more households now operate fish ghers- especially landless and marginal households in Khulna and medium land owning households in Satkhira. Almost two thirds (64%) of the households are involved in a forms of aquaculture, either operating ponds (see Table 7.11) or ghers (as discussed in chapter 6).

Table 7.11: Fish ponds

Land ownership	Pond operators*		Pond area decimals	
	2013-14	2021	2013-14	2021
Landless	1%	2%	1.5	6.3
Marginal	39%	40%	6.9	7.0
Small	66%	65%	12.1	12.2
Medium	81%	84%	19.1	19.3
Large	91%	91%	32.9	34.4
Total	44%	44%	18.5	19.7
Khulna	35%	36%	17.5	17.6
Satkhira	24%	24%	19.4	19.7
Patuakhali	67%	68%	19.4	22.2

* % of all households Average for households with ponds ; Source: HH survey 2021

As would be expected, households owning more land have larger pond and gher areas. There has been a tiny increase in the average size of pond and small increase in size of gher since the start of BGP. All pond operators consume some or all of the fish they produce (Table 7.12). This table also shows that 5% of the surveyed households produce vegetables on the sides of fish ponds.

Table 7.12: Fish pond production

Land ownership	Percent of all households			Fish produce	Fish consume	Fish sold	Vegetables	Costs
	Produce	Sell	Prod veg	Kg/year	BDT/year	BDT/year	BDT/year	BDT/year
Landless	2%	1%	0%	84	7,160	15,000	-	3,667
marginal	40%	10%	3%	90	8,355	12,945	5,267	3,082
Small	66%	26%	7%	141	11,180	15,233	2,688	4,470
Medium	84%	36%	13%	183	13,606	20,425	3,188	6,398
Large	91%	50%	19%	293	18,225	38,377	3,781	12,642
Total	44%	16%	5%	114	9,510	14,955	3,269	3,999
Khulna	36%	13%	6%	90	7,256	13,576	4,203	3,160
Satkhira	24%	9%	0%	64	5,018	6,980	95	2,254
Patuakhali	68%	23%	4%	131	11,204	14,118	1,876	4,277

Average for households reporting production and/or sales; Source: HH survey 2021

Performance parameters in Table 7.13, calculated from data in Table 7.12, show that over one third (35%) of fishpond owners sell fish - with a higher proportion for larger land owners - as they have bigger ponds and so produce more fish. Vegetables are grown on the sides of ponds by 10% of pond operators - again this is more common with larger land owners. The yield of fish per unit area of pond increases as land owning gets less - suggesting that smaller ponds are managed more intensively. However, the very high yield for landless households should be disregarded as there was only one landless household with a pond. Just over 60% of fish produced (by value) is sold, and marginal (and landless) pond owners obtain a higher average price per kg. A higher proportion of fish is sold in Khulna where prices are also higher.

Table 7.13: Fish pond performance

Land ownership	% of pond operators		yield	% sold	Fish price	Costs
	sell fish	grow veg	kg/dec	by value	Tk/kg	Tk/dec
landless	33%	0%	56.0	68%	264	44
marginal	25%	7%	13.1	61%	238	34
small	40%	11%	11.6	58%	187	32
medium	42%	15%	9.6	60%	186	35
large	54%	20%	8.9	68%	193	43
total	35%	10%	13.1	61%	215	35
Khulna	37%	16%	10.7	65%	232	35
Satkhira	39%	1%	11.5	58%	188	35
Patuakhali	33%	7%	12.9	56%	193	33

Fish price includes fish consumed at home; Source: HH survey 2021

Feedback from FGDs on homestead production[[edit](#) | [edit source](#)]

The information from informal interviews and anecdotal feedback from field staff suggested homestead production became both more widespread and had increased during the BG period. Data

from the household survey in 2021 shows that 79% of the households produce homestead vegetables (an increase from 71%) and 92% homestead fruit (up from 91%). This data is supported by information from FGDs which indicated that homestead vegetables were grown by 50% to 90% of households in Khulna, 50% to 80% in Satkhira and 80% to 100% in Patuakhali. FGDs reported that homestead fruit was grown by 50% to 100% of households in Khulna, 80% to 20% in Satkhira, and 70% to 100% in Patuakhali. The lower figures from Satkhira refer to an area of saline gher, which is not typical of the zone (polder 2&2E) as a whole. FGDs reported that production of homestead vegetables had increased by between 30% and 65% in Khulna, zero to 80% in Satkhira and 40% to 90% in Patuakhali. For fruit the increases were 30% to 70% in Khulna, zero to 40% in Satkhira and 30% to 70% in Patuakhali. These increases were attributed to improved production methods learned in the Blue Gold homestead Farmer Field Schools as well as more households now being involved in agriculture; increases could be constrained in some locations by unfavourable water management conditions.

The household survey 2021 reported that there has been a marginal increase (90% to 91%) in the number of households keeping poultry. This is supported by the FGDs which indicated that poultry are reared by 80% to 100% of households in Khulna, 90% to 100% in Satkhira and 50% to 100% in Patuakhali. The survey shows growth in average flock size (15 to 21 birds in this WMG survey). FGDs reported increased poultry production (20%-70% in Khulna, 20% in Satkhira and 30% to 70% in Patuakhali) due to the provision of know-how and inputs as incentives by BGP.

The household survey 2021 reported a larger proportion of households with goats (30%), this having increased from 24% since the start of BGP, with average flock size slightly declining from 4.7 to 4.6 animals. The FGDs reported that between 2% and 80% of households keep goats in Khulna, 30% to 80% in Satkhira, and 5% to 80% in Patuakhali. In Khulna five FGDs reported an increase in goats of between 10% and 55%, and six FGD reported a decrease of 20% to 70%. In Satkhira one FGD reported a 20% increase, and the other a 10% decrease. In Patuakhali five FGDs reported increases of 15% to 100%, and five reported decreases of 10% to 30%. The reasons for increases were the profitability, adoption of improved methods for livestock (with training and support from BGP and/or NGOs), as well as availability of grazing. Decreases were caused by problems with keeping goats out of crops and homestead gardens - as crop areas are increasing.

The household survey 2021 found that a larger and increasing proportion of households kept cattle (64%, increasing from 61% before BGP) with herd size increasing from 3.2 to 3.4 animals. The FGDs in Khulna found that between 10% and 100% of households kept bovines, in Satkhira this was 30% to 70%, and in Patuakhali 50% to 100%. All 23 FGDs said bovine numbers had increased, except for one in Khulna (decrease of 25%), one in Satkhira (down 20%) and three in Patuakhali (down 10% to 30%). Increases ranged from 10% to 80%. The reasons for decreasing the numbers of bovines were the move away from the use of animals in ploughing land, lack of grazing, and the cost, time and effort needed for their care. Increasing bovine numbers were attributed to training and support from BGP.

The household survey data 2021 showed that the number of ponds owners has been static since the start of BGP. The FGDs in Khulna reported that up to 90% of the households had ponds, and production had increased by 10% to 60% due to training and support from BGP. However, at two locations the number of ponds were decreasing - in polder 28/2 ponds are being filled in to build houses, and in polder 25 they are being replaced by fish gher. In Satkhira at one location all households have ponds and production is increasing. At the other location, only 20% have ponds and fish production is decreasing due to salt contamination (due to saline water fish gher). In Patuakhali, between 50% and 100% of households have ponds and production increased by between 30% and 80% due to support from BGP.

Problems of agricultural and homestead production [\[edit | edit source\]](#)

Sample households were asked to identify the problems they face in production of crops, poultry, livestock and fish. These problems have been grouped into five categories (i) pests and diseases, including damage by birds and animals; (ii) water and weather-related problems, including waterlogging/poor drainage heavy rain/hail, flooding, drought, lack of irrigation water and salinity; (iii) input problems including lack of fertilisers, pesticides, medicines, feeds, seeds, plants, fish fry etc, high and rising cost of inputs, low quality of inputs (including adulteration), labour shortages and high wages; (iv) finance problems including lack of capital for investment and difficulty in getting loans; and (v) other problems including lack of technical services and lack of technical knowledge and skills.

The data in Table 7.14 is reported as a percentage of all households, so the proportion of households reporting problems partly depends on the numbers of households involved in different sub-sectors. Almost three-quarters (74%) of households reported a major problem for poultry, but these are reared by 94% of all households, so 79% of the poultry rearers reported a problem. Almost two-thirds (64%) of households are involved in aquaculture, and 31% reported a main problem, which is 48% of aquaculture households. Most (79%) households grew homestead vegetables, and a small number also grew field vegetables. Main problems for vegetables were reported by 62% of households so most vegetable growers had problems. Land was cultivated by 88% of the households – almost all of whom grew paddy and main problems for paddy were reported by 74% of all households. A quarter (24%) of households reported main problems in non-rice crops, but fewer households grew non-rice crops. Some households specifically said that they have no major problems. This is as much of 32% of all households for fish (=50% of fish producers), and 29% for vegetables (=37% of vegetable growers), but only 7% for paddy (=8% of crop cultivators).

Table 7.14: Production problems

Sub-sector	problem	pests and diseases	water and weather	inputs	finance	other	no problem
Paddy	main	54%	20%	0%	0%	0%	7%
	other	9%	23%	1%	0%	0%	0%
Vegetables	main	60%	1%	1%	0%	0%	29%
	other	5%	2%	1%	0%	0%	1%
Other crops	main	11%	14%	0%	0%	0%	6%
	other	5%	2%	0%	0%	0%	0%
Fish	main	20%	1%	9%	0%	1%	32%
	other	2%	1%	2%	5%	0%	0%
Poultry	main	74%	0%	0%	0%	0%	15%
	other	7%	0%	4%	0%	0%	0%
Livestock	main	39%	0%	0%	2%	3%	27%
	other	0%	0%	0%	5%	1%	0%

* % of all households; Source: HH survey 2021

Problems reported by sample households mainly relate to pests and diseases (which also include losses due to damage by animal and birds – but this is much less widespread). This is followed by water and weather-related problems, mainly flooding and also drought. Water and weather-related

problems are placed slightly higher than pests and diseases for non-rice crops. In all other sub-sectors, pests and diseases were the main problem. Relatively few households reported other problems. Input problems for fish (mainly lack of good quality fingerlings) were reported as a major or secondary problems by 11% of households (=17% of fish producers). Lack of finance was an issue for some livestock and fish producers.

FGDs also identified pests and diseases as major problems in crops (and virus diseases for fish), and some groups mentioned that farmers lacked knowledge on this problem and on how to use pesticides. Weather related disasters including heavy rainfall and drought were also problems, and a number of FGDs mentioned problems in water management, including lack of control over the infrastructure. Input quality (especially seed) along with high prices were also often mentioned. In a few locations, FGDs said there were clashes over water management between different crops such as local aman and boro. In one place grazing cattle was damaging crops. Lack of labour and high wages were another problem.

COVID-19 was still said to be a significant problem in 20 out of the 23 FGDs. Limitations on movement made marketing difficult and there were shortages of labour with rising wages. Prices of perishable commodities were lower and inputs could be difficult to get. In discussing problems, economic issues dominated the FGDs in the 2019 WMG survey - the falling price of farm products (especially paddy) and the increasing cost of labour and farm inputs. This has now changed, although some of the 2021 FGDs did feel they were not getting fair prices for their crops and markets could be manipulated by middlemen. Farmers were now much more positive about paddy production, but less enthusiastic about expanding fish.

Notes[[edit](#) | [edit source](#)]

1. [↑](#) Section B Introduction and Summary provides an overview of the studies conducted through the Blue Gold Program, and the studies and reports which were the main sources of information for Section B.

See more[[edit](#) | [edit source](#)]

Previous chapter:

[Chapter 06: Outcomes and Impact from Agricultural Development](#)

[Blue Gold Lessons Learnt Wiki](#)
[Section B: Development Outcomes](#)

Next chapter:

[Chapter 08: The Outcomes and Impact on the Livelihoods of Women](#)

[Section B: Development Outcomes](#)

<p><u>Chapter 05: Outcomes and Impact from Participatory Water Management</u></p>	<p><u>Chapter 06: Outcomes and Impact from Agricultural Development</u></p>	<p>Chapter 07: Inclusive Development Approach: Outcomes and Impacts from Homestead Based Production</p>
<p>1. <u>Increased resilience against climatic variability: outcomes and impact of rehabilitation work on water management</u> 2. <u>Organised coastal communities: outcomes and impact of institutional development</u></p>	<p>1. <u>Changes in crop agricultural production</u> 2. <u>Change in cropping pattern and crop types</u> 3. <u>Increase in Cropping intensity</u> 4. <u>Increase in Crop yields</u> 5. <u>Increase in employment through agricultural development</u> 6. <u>Economic return of improved agriculture production</u></p>	<p>1. <u>Homestead vegetables production</u> 2. <u>Homestead fruit production</u> 3. <u>Commercial fruit production</u> 4. <u>Poultry rearing</u> 5. <u>Goats</u> 6. <u>Cattle and buffalo</u> 7. <u>Pond fisheries</u> 8. <u>Feedback from FGDs on homestead production</u> 9. <u>Problems of agricultural and homestead production</u></p>
<p><u>Chapter 08: The Outcomes and Impact on the Livelihoods of Women</u></p>	<p><u>Chapter 09: The Overall Outcomes and Impacts on the Livelihoods of Coastal Communities in Blue Gold Polders</u></p>	
<p>1. <u>Women's role in economic activities</u> 2. <u>Main Occupation of women</u> 3. <u>Equality in food consumption</u> 4. <u>Decision making regarding assets and land</u> 5. <u>Mobility and participation</u> 6. <u>Overall empowerment of women</u></p>	<p>1. <u>General features of coastal households</u> 2. <u>Land ownership and land tenure</u> 3. <u>Improvement in household income and asset</u> 4. <u>Enterprise development</u> 5. <u>Improvements in Living Standards</u></p>	
<p>Blue Gold Wiki</p>		

Executive summary: A Call for Action

<u>Section A: Background and context</u>	<u>Section B: Development Outcomes</u>	<u>Section C: Water Infrastructure</u>
<p><u>Summary</u></p> <ul style="list-style-type: none"> • Chapter 01: Overview, Purpose and Structure of Report • Chapter 02: Institutional Setting • Chapter 03: Social, Physical and Environmental Context • Chapter 04: Policy framework, history of interventions and project definition 	<p><u>Summary and Introduction</u></p> <ul style="list-style-type: none"> • Chapter 05: Outcomes and Impact from Participatory Water Management • Chapter 06: Outcomes and Impact from Agricultural Development • Chapter 07: Inclusive Development Approach: Outcomes and Impacts from Homestead Based Production • Chapter 08: The Outcomes and Impact on the Livelihoods of Women • Chapter 09: The Overall Outcomes and Impacts on the Livelihoods of Coastal Communities in Blue Gold Polders 	<p><u>Summary</u></p> <ul style="list-style-type: none"> • Chapter 10: Coastal Infrastructure • Chapter 11: Investments for Polder Safety and Water Management • Chapter 12: Survey, Design and Procurement • Chapter 13: Construction: Progress, Modalities and Lessons Learnt
<u>Section D: BGP Interventions: Participatory Water Management</u>	<u>Section E: Agricultural Development</u>	<u>Section F: Responsible Development: Inclusion and Sustainability</u>
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<u>Section G: Project Management</u>	<u>Section H: Innovation Fund</u>	<u>Files and others</u>
<p><u>Summary</u></p> <ul style="list-style-type: none"> • Chapter 28: Project Management Arrangements • Chapter 29: Technical Assistance: Context, Scope, Contractual Arrangements and External Service Contracts • Chapter 30: Evolution of TA Organisational Arrangements • Chapter 31: Capacity Building • Chapter 32: Agricultural Extension Methods and Communication • Chapter 33: Horizontal Learning • Chapter 34: Monitoring and evaluation • Chapter 35: Management Information System • Chapter 36: Environmental Due Diligence 	<p><u>Summary</u></p> <ul style="list-style-type: none"> • Chapter 37: Purpose, fund evolution and management • Chapter 38: Overview of BGIF Projects • Chapter 39: BGIF Lessons Learnt 	<ul style="list-style-type: none"> • <u>File Library</u> • <u>Glossary and acronyms</u> • <u>Frequently Asked Questions</u>

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

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

Farmer Field School - A group-based learning process through which farmers carry out experiential learning activities that help them to understand the ecology of their fields, based on simple experiments, regular field observations and group analysis. The knowledge gained from these activities enables participants to make their own locally specific decisions about crop management practices. This approach represents a radical departure from earlier agricultural extension programmes, in which farmers were expected to adopt generalized recommendations that are formulated by specialists from outside the community.

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Within BGP this refers to enhancing insights of especially FFS participants in how markets work, how to collect market information, facilitating linkages with market actors and increasing negotiation capacities

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

Blue Gold Program

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

Bangladesh Taka

Household

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

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Focus Group Discussions - in which a group of participants from similar backgrounds or experiences gather to discuss a specific topic of interest, guided by a group facilitator who introduces the topics for discussion and helps the group to participate in a lively and natural discussion amongst themselves

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Soil is regarded as waterlogged when it is nearly saturated with water much of the time such that its air phase is restricted and anaerobic conditions prevail. In agriculture, various crops need air (specifically, oxygen) to a greater or lesser depth in the soil. Waterlogging of the soil stops air getting in. How near the water table must be to the surface for the ground to be classed as waterlogged, varies with the purpose in view. A crop's demand for freedom from waterlogging may vary between seasons of the year.

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

a rice crop usually planted in March/April under dryland conditions, but in areas liable to deep flooding. Also known as deepwater rice. Harvested from October to December. All varieties are highly sensitive to daylength.

A rice crop planted under irrigation during the dry season from December to March and harvested

between April and June. Local boro varieties are more tolerant of cool temperatures and are usually planted in areas which are subject to early flooding. Improved varieties, less tolerant of cool conditions, are usually transplanted from February onwards. All varieties are insensitive to daylength.

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Variants

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Blue Gold Program Wiki

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

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