



Government of Bangladesh



Chars Livelihoods Programme

Homestead Gardens: Improving Household Food Security Results from a One-Year Study



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1 Executive Summary

The Chars Livelihoods Programme (CLP) aims to increase income and assets of the 55,000 poorest households of the five riverine districts of the Northern Jamuna. In addition, CLP aims to improve the nutritional status and health of the households by, for example, providing each core beneficiary household with a homestead garden package of seeds, training and nutrition education. To determine the impacts of the homestead garden initiative, the CLP has undertaken a year-long panel study in 2008 with sample households from CLP phases 1 through 4. Particular attention was paid to household vegetable production and consumption and sale of vegetables produced in the gardens. The same questionnaire was used in four quarterly rounds of data collection.

Key results include:

- 100% of households received CLP homestead garden support;
- Average yearly homestead garden (HG) harvest was valued at a gross Tk. 2,391;
- Average yearly household consumption was valued at Tk.1,545; sales at Tk. 528; and lending/giving to neighbours at Tk.318;
- The average yearly cost of pest control in 2008 was nominal at only Tk.30.5;
- The total average spend on fertilisers was Tk.109;
- Thus the HG produced a net return for the household equivalent to Tk. 2,251 or about one month's average household income;¹
- Households consume produce from their HG that represents an additional 9-10% of their monthly food expenditure;
- Average loans of produce represent about 10% of the harvest and are indicative of a thriving informal food economy among households;
- In the *monga*² month of October, Phase 1-3 households were averaging nearly Tk. 70 through HG sales, whilst consuming Tk. 142 worth of produce, ten-fold and four-fold that of Phase 4 households in the same month;
- Only a maximum of 41% of households use pest control at any one time;
- Over 80% of households state that the produce grown on their homestead garden was "helpful", "very helpful" or "crucial" in supporting their family through *monga* 2008.

2 Background

2.1 The Chars Livelihoods Programme

The purpose of the Chars Livelihoods Programme (CLP) is to improve the livelihood security of poor and vulnerable island chars dwellers within the five riverine districts of the Northern Jamuna.³ During the course of the CLP, 55,000 core beneficiary households have received support in the form of sequenced transfer of substantial assets, cash, training, and infrastructure inputs over an 18-month period. It is envisaged that through this process, extreme poverty in the CLP's working area will be significantly reduced. The CLP's methodology for extreme poverty alleviation is based around the pioneering Asset Transfer Programme (ATP). The CLP aims not only to increase incomes and household assets but also improve nutritional and health status of the households. These goals are directly linked to CLP logframe indicators that require 50% of women and children in CLP core beneficiary households (BHH) having improved nutritional status and 75% of CLP BHH having significant increases in income by End of Programme.

¹ This figure does not include household labour costs.

² *Monga* is a period of seasonal hunger associated with a decline in the rural labour market between the planting and the harvesting of the *aman* rice crop.

³ These districts include: Gaibandha, Jamalpur, Kurigram, Bogra and Sirajganj.

2.2 Homestead Garden Training & Support

Homestead vegetable gardens and fruit tree cultivation are cost-effective approaches that both provide small and regular income streams to char households and support household food security through the increase and diversification of household food stocks. Homestead gardens are not a new approach in promoting livelihoods and enhancing food security of the poor. Each of the CLP BHH is supported with a homestead garden package containing fertiliser, vegetable and spice seeds, bamboos and tree saplings⁴ and the package is supported by training in vegetable, fruit, fodder production, compost production and nutrition education. With these supports, beneficiaries establish four vegetable beds and six pit crops in two seasons (winter and summer). Each beneficiary is also helped to prepare a compost pit. The aim of the package of activities is to provide improved diets and income from vegetable, fruit and bamboo production and, ultimately, to help the household improve their food security.

2.2.1 Household Food Security

Poverty is tightly linked to malnutrition, with the highest levels of malnutrition occurring in areas of extreme poverty. Malnourished people are more prone to disease and malnourished mothers are likely to give birth to low weight babies, who in turn often show poor growth and development and develop into short adults with reduced cognitive and productive abilities. Such lowered productivity leads to loss of earnings, and feeds back into intergenerational poverty transmission (Mascie-Taylor & Goto 2008). Within Bangladesh, char families are considered to be the most vulnerable to food insecurity, with households utilising the majority of their income on food expenditure (WFP 2002). Thus, food insecurity, peaking in the *monga* months, is a regular phenomenon for char dwellers.

3 Methodology

Understanding the impact of CLP at the household level is critical to evaluating results and progress towards achieving the programme's ambitions. To determine whether homestead garden activities are producing their desired effects, the CLP undertook a year-long panel survey of BHH, in which changes in HG production and consumption and sales of vegetables were monitored. The same questionnaire was used in all four rounds of data collection throughout the year.

The first series of data collection was a full census of all Phase 1-3 BHH. The second round took a 10% sample of Phase 1-3 BHH (about 3,000 BHH). In the third round of data collection, Phase 4 BHH had just entered the CLP, and so 529 pre-entry Phase 4 BHH were included, with the further 2,493 households coming from those sampled in the second round. With a small amount of attrition from round 3, the same households were re-surveyed in round 4 (Table 1).

⁴ The full package given to beneficiaries includes: eight types each of winter and summer season vegetable seeds sufficient for planting a 25m² vegetable garden; eight types of winter and summer season pit crops and climbing vegetables sufficient to plant six pits each season; two plants each of elephant foot and potato yam, ½ kg of ginger and 1 kg of turmeric tubers; one grafted mango, guava, jujube and lemon sapling; 10 papaya seedlings; one neem sapling; one drum stick cutting; one bamboo cutting; 200 slips each of napier and vetiver grass; 10g Sesbania seed and 1.5 kg each of triple super phosphate, murate of potash and 3 kg of urea.

Table 1: Sample Size of each Survey Round

	Round One March 2008	Round Two June 2008	Round Three October 2008	Round Four December 2008
Phase 1	3,104	340	286	273
Phase 2	8,103	801	642	618
Phase 3	17,746	1,871	1,565	1,524
Phase 4			529	514
Total	28,953	3,012	3,022	2,929

4 Results

4.1 Background Household Demographic Characteristics

On entry to CLP, each BHH provides information in a baseline survey that determines demographic characteristics, income and asset levels. These surveys have confirmed that CLP pre-entry households comprise the extreme poor.⁵ Briefly reviewing pre-CLP household conditions, it is important to note that even small increases in income or consumption can have a very positive impact on households that constitute the extreme poor (Table 2).

Table 2: Household Size and Average Per Capita Income upon Entry into the CLP for each Phase

	Average Household Size	Average Per Capita Income Pre-entry (Tk.)
Phase One	4.68	8
Phase Two	3.67	13
Phase Three	3.71	18
Phase Four	3.72	17.5

4.2 Growing, Harvesting, Consuming & Selling

In March 2008 over 95% of BHH had received HG support from the CLP. This increased to 100% by the fourth survey round in December 2008. Over 84% of households were growing vegetables in March, 77% in June, 61% in October and 77% in December. The drop in percentages in October can be attributed to the entry of Phase 4 households into the survey who had only just received HG inputs.

BHH who were growing vegetables were also harvesting them (Table 3). Encouragingly, at least 58% of these households in each survey round were also consuming HG grown vegetables and between 39% and 70% of the same households were also selling produce. Although the percentage of BHH consuming and selling HG grown produce is similar in the June and December, far fewer households sold produce in March and October. Certainly, in the *monga* of October it is expected that households would not be selling so much produce, as they would consume household food stocks instead.

⁵ See Publications on the CLP website www.clp-bangladesh.org for all four BHH registration reports.

Table 3: Percentage of BHH Growing Vegetables in their HG who Harvested, Consumed or Sold Produce in the Previous Month

	Harvested	Consumed	Sold
March 08	99%	65%	39%
June 08	100%	70%	70%
October 08	100%	64%	42%
December 08	100%	58%	61%

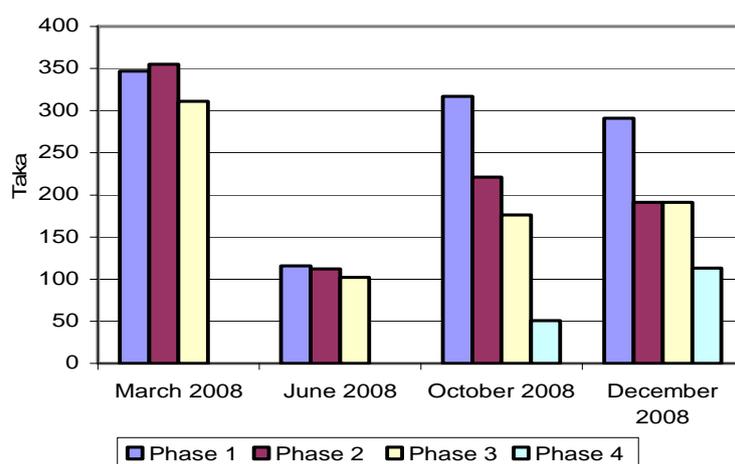
Each household receives 200 slips of napier grass as part of the HG package. This grass helps to stabilise the edges of the homestead plinth whilst providing graze for livestock. From a low of 14% of BHH growing napier in March 2008, between 40-50% of all households were growing the grass in the rest of the year.

4.2.1 Increasing Household Food Stocks & Consumption

Over all four survey periods, BHH were asked how much produce in the previous month they had harvested, consumed and sold. Results show that BHH have not only significantly increased the amounts of HG produce that they are consuming, but have also established small income streams from the sale of surplus.

In the first two rounds of data collection, BHH from Phases 1-3 harvested roughly the same amounts from their HG, with a seasonal dip during the second data collection period (Figure 1). By the third round of data collection in October 2008, Phase 4 BHH started to enter the programme but had yet to develop their gardens. Using the Phase 4 average harvest as an approximate baseline, it is evident that the harvests from the average Phase 1-3 BHH are at least treble those of Phase 4 households. Positively, by December, Phase 4 households were clearly demonstrating improved harvest levels.

Figure 1: Average HG harvest (Tk.), Disaggregated by CLP Phase Across All Four Survey Rounds



Extrapolating the figures, the mean annual household harvest for 2008 was Tk. 2,391 or about one month's income: a significant contribution to household finances for extreme poor families. Excluding data from the second quarter of 2008, sales from these harvests represent 20%-30% of the harvest each quarter. Only in the second quarter did sales drop to a low of 11% of the harvest. This period though saw changing household food patterns, with a sharp decline in the amount that households were harvesting from their HG and therefore an increase in the proportion they were

consuming from their harvest. In total, average sale of HG produce for 2008 was Tk. 528. Average loans of produce represent about 10% of the harvest and are indicative of a thriving informal food economy among households (Table 4).

Table 4: Average Household Quarterly HG Harvest & Sales (Tk. and Tk. equivalent)

	1 st Quarter	2 nd Quarter	3 rd Quarter	4 th Quarter
Mean HH Harvest	984	318	531	558
Mean Sales	186	36	144	162
Mean Consumption	627	246	324	348
Mean Loans	111	36	60	57

About two-thirds of the average quarterly harvest is consumed by households, representing an average annual household consumption of HG produce of approximately Tk.1,545. The significance of this contribution to household food security is clear. Table 3 outlines the average monthly household expenditure on food of BHH from Phases 1-3 and the average monthly consumption of HG produce. Significantly, households are consuming produce from their HG that represents an additional 9-10% of their monthly food expenditure.

Table 5: Mean Monthly Food Expenditure & Consumption of HG Produce (Tk.) by Phase 1-3 BHH

	Mean HH monthly food expenditure during 2008 (Tk.) ⁶	Mean HH monthly consumption of HG produce (Tk.)
Phase 1	1,678	165
Phase 2	1,452	131
Phase 3	1,426	131

Increase in food production and consumption is particularly significant during *monga*. In the *monga* month of October, Phase 1-3 BHH averaged almost Tk. 70 through HG sales and consumed Tk. 142 worth of produce, ten-fold and four-fold that of Phase 4 households in the same month.

Clearly, HG produce have seasonal growing patterns. However, vegetables rather than fruits or spices were the most popular crops grown in 2008, with sweet, bottle or ash gourds being in the top five most popular crops grown throughout the year. Indian spinach also featured highly from the second quarter onwards. Gourds, though, are a particularly important crop for increasing household food stocks, as they can be stored for prolonged periods of time without spoiling.

4.2.2 Homestead Garden – Input Costs

Although minimal, there are input costs associated with a HG. To determine the levels of these costs, each BHH was asked what pest control (if any) was used and the cost. Although encouraged to use pest control, no more than 41% of BHH were using any form of pest control during each of the survey rounds. The most common form of pest control utilised was ash from cooking fires. Thus, costs for

⁶ These figures are based on average monthly household food expenditure figures reported by Phase 1-3 households taken during monthly income and expenditure monitoring.

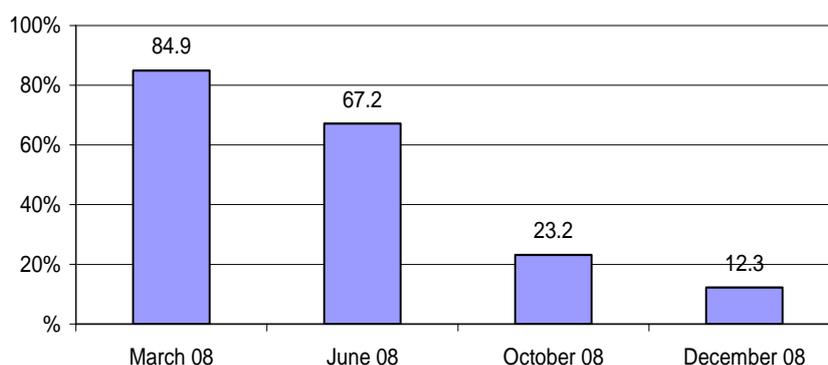
pest control are low, with an average spending of a few Tk per month (Table 6) and an average annual spend of Tk. 30.5.

Table 6: Percentage of BHH Using Pest Control and the Mean Associated Monthly Cost (Tk)

	March '08	June '08	October '08	December '08
% of all HH using some form of Pest Control	41	20	34	20
Mean Total Pest Control Cost in Previous Month	3.49	3.15	1.34	2.18

Households were also encouraged to increase vegetable production by using compost, with training provided in compost production. Over 70% of BHH produced their own compost in the first half of the year, with this dropping to about 50% in the second half of the year. The drop in compost production in the third and fourth round of data collection is considered to be due to the entry of Phase 4 BHH to the CLP, who were yet to receive inputs and training (Figure 2).

Figure 2: Percentage of BHH Using Fertiliser on At Least One of their Crops



The mean quarterly cost of fertiliser ranges from a high of Tk. 67 for the first quarter of the year to a low of Tk. 5 in the third quarter of the year. The total average spent on fertilisers in 2008 by BHH was Tk. 109.

4.2.3 Household Returns

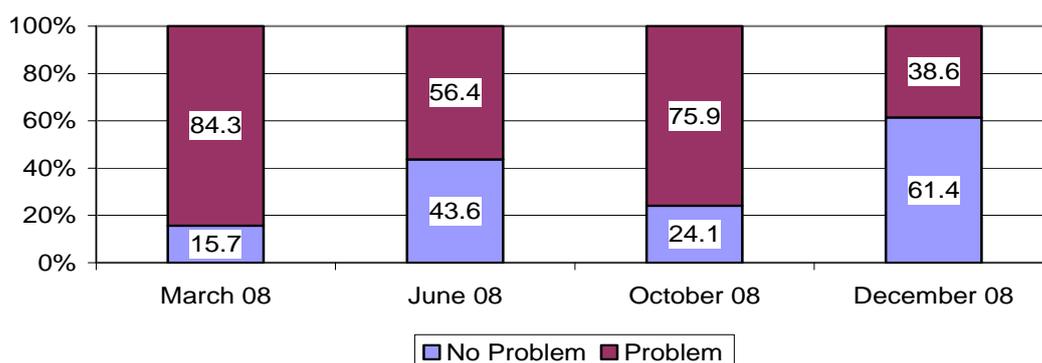
BHH with gardens receive sound returns on their investment. Mean annual harvest is Tk. 2,390, less input costs of Tk. 140, providing a net return for the household of Tk. 2,250.⁷

4.2.4 Homestead Garden Issues & Problems

Each BHH was asked if they had encountered any problems with their HG production. In the March and October data rounds, over 75% said that they faced one or more problems, with 56% facing issues in June, and less than 40% in December (Figure 3).

⁷ This figure exclude household labour costs / time spent maintaining the garden.

Figure 3: BHH (%) facing problems with their homestead gardens across survey rounds



Most problems relate to water. BHHs experience seasonal shortages in March/June due to low rainfall and flooding / oversupply in October (Table 7). Insects also caused significant problems. Most BHH reported no issues with their HG in December. Those that did were affected by lack of water and/or insect problems. Recalling that less than 41% of households stated they used pest control, CLP should motivate BHH either to purchase pest control or use organic (and cost free) ashes from their cooking fires for this purpose. In the future, CLP must consider how to address water shortages during seasonal drought.

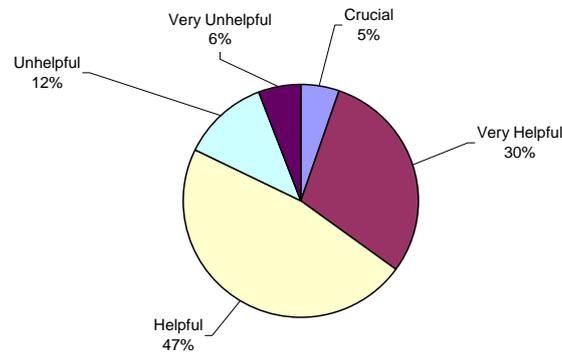
Table 7: Main HG Production Problems Faced by Households During Each Survey Round

	Main Problems
March 2008	<ul style="list-style-type: none"> • Low Rainfall • Lack of Irrigation Water
June 2008	<ul style="list-style-type: none"> • Low Rainfall • Lack of Irrigation Water
October 2008	<ul style="list-style-type: none"> • High Rainfall • Flooding
December 2008	<ul style="list-style-type: none"> • Lack of Irrigation Water • Insect Problems

4.2.5 Monga

In the final round of December 2008, over 80% of BHH reported that both their village and household had been moderately or mildly affected by *monga*. Over 80% of BHH stated that the produce grown in their HG was either “helpful”, “very helpful” or “crucial” in supporting their family through *monga* 2008. This is a highly significant result that supports the earlier HG harvest and consumption figures.

Figure 4: BHH (%) response to: “How helpful was the produce grown on your homestead garden in supporting your household during *monga* this year?”



5 Conclusion

The results of this year-long panel survey demonstrate the positive impact that the homestead garden training and support programme is having on both income and food security of beneficiary households.

Homestead gardens are being utilised both for household consumption and income generation, through sale of produce. Data for loans of produce also reveal a thriving informal food economy amongst households.

Increase in food consumption and production is particularly significant during the *monga* period, when, as expected, food sales are lower as families are consuming more of their own produce. Indeed, over 80% of households state that the produce grown on their homestead garden was “helpful”, “very helpful” or “crucial” in supporting their family through *monga* 2008.

Whilst there are some input costs associated with HGs, these are minimal and net annual returns are high, being equal to approximately one month’s average household income.

However the survey also reveals that beneficiaries are facing two key challenges with respect to their HGs: water issues (seasonal shortages were experienced in March/June whilst flooding/oversupply was a problem in October) and insect problems. In dealing with the latter, CLP should motivate BHHs either to purchase pest control or use organic (and cost free) ashes from their cooking fires for this purpose, whilst the programme needs to consider how best to address the former issue.

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