

## A case study on Homestead Plinth Raise: An Effective Means of Adaptation to Climate Change

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**Context:** This case study was conducted at the village of Modhya Charbozra which is located in Bozra union of Ulipur upazila under Kurigram district. Five years ago the village was emerged in the Tista river through silt and sand deposition. The char land is inundated in almost every monsoon. As a result, homesteads, crop fields etc. go under water. It damages crops, livestock and other resources and worsen the health situation of char dwellers. The women and children used to become the most vulnerable to this catastrophe. The social structure of the country is such that the woman has to complete day-to-day household works including

cooking food, looking after children & aged, livestock and other household resources. The most important but risky work that woman has to do is collecting safe drinking water from distant area using vessel made by banana tree instead of wooden boat because boat is not available to the poor char dwellers. As a result, they face severe risk to various diseases, even to death. Besides, during flood, possibility of death to children increases in many folds.



**Figure 1: Women and children are the most vulnerable due to flood**

PKSF has been implementing Community Climate Change Project (CCCP) since 2012 to reduce the vulnerability of the affected community to climate change and associated disasters. The project is being implemented in 36 upazilas under 15 districts of the country. Different types of adaptation interventions have been implemented in three different risk zones i.e. flood, drought and salinity. The interventions have been selected in participation with the affected community. Development of climate resilient homestead particularly raising plinths of homesteads in low lying char coastal areas is one of the major interventions of CCCP. The case study focuses on flood 2014 situation and effectiveness of raised plinths at Ulipur upazila in Kurigram district. The case study also tried to understand whether plinth raise is an adaptation intervention or disaster risk reduction or normal development intervention.

**The flood situation and its relation to climate change in the project area:** Flood in August, 2014 affected almost every village of Ulipur upazila in Kurigram district. Field observation showed that depth of flood water was 3-5 ft. The affected community informed that water had been logging for more than 15 days. Water started to recede 17-20 days later on occurring the flood as observed by the affected people. They informed that they did not observe such a long logging of flood water in this area before. Earlier, flood water stagnation lasted for maximum 7-10 days. The main cause of this flood was faster melting of ice in the Himalayan. Because, the rainfall of Kurigram in 2014 was almost three times less than that of annual average of the district. Annual average rainfall is 2,931 mm (BBS, 2014) where as the total rainfall in 2014 is 1004 mm. So, change in characteristics of flood may be related to global warming and consequently ice melting.

*Aman*, the main crop of char lands has completely been damaged. People took shelter in schools, roads & embankments, flood shelters and relative's home. Many people sold their cattle at very low price due



to lack of shelter. Some of the farmers of the flood prone areas lost their poultry and livestock. In spite of food storage at house, many people had to live having meal only once. Cooking place and fuel is another problem for flood affected people. Different types of water borne diseases had broken out immediate after the flood water receded. After all, sufferings of flood affected people are enormous, long and multi-dimensional.

**Effectiveness of Plinth Raise:** During flood in August 2014, Project Management Unit (PMU) of CCCP visited the village Modhya Charbozra of Bozra union under

Ulipur upzaila in Kurigram district. Homesteads of 55 households in 11 clusters were raised above flood level. It was observed that each of the clusters was 2-2.5 ft above flood level.

A meeting was held on a raised cluster of five households with flood affected people. The total members of the five household are twenty two. They informed that they are permanent resident in this area. Fiver years ago, they had been living in khas land (government owned land) on the embankment adjacent to mainland. They faced seasonal flood over the last five years. Before this flood, they were affected once in 2012. During last flood, their homesteads were submerged as it was at the same level of plain land. They had to live in wet and unhealthy environment. As a result, their hands and legs were affected with various types of skin diseases, diarrhea, dysentery and other types of water borne diseases. Besides, livestock were affected with disease and even caused death.



**Figure 3: Raised plinth stands high above flood water**



Figure 4: Leading normal life at the time of flood

This year, their homesteads are raised under CCCP. They are very happy and feel comfortable now. Their homesteads have not been submerged by flood water. They are living as usual with their family members with all the household resources. It was informed during field visit that 2.5 to 3 ft depth flood water stagnation observed for around 13 days. During that period, they continued their household works as usual and living on dry places. They could cook food two times a day as they used to do it in normal situation. Furthermore, another flood affected 8 households having 28 members with their household resources took shelter on this cluster. Among them, children and women are majority (12 children, 9 women and 7 men). There are 7 cows in the cluster during normal time but during that flood 27 cows

took shelter. This means sheltered cows are about four times than that of normal time. Similarly, the five households have 14 goats and sheep but during flood, we found 25 more. The following table shows a comparative scenario during normal situation and the situation of flood:

Description	During normal situation	Took shelter during flood	Total number during flood
Human	22	28	50
Cows	7	27	34
Goat and sheep	14	25	39

The above information confirms that more than double of the cluster people with their livestock and household resources took shelter on the raised cluster. But the people raised some problems such as lack of safe drinking water, lack of sanitary latrines and poor road and water communication system. The first two problems are planned in sub-projects under CCCP. But in the case of communication, there is the only way communication through boat and vessel made by banana tree.



Figure 5: Livestock of surrounding areas take shelter on raised plinth



Figure 6: Boat is the only transport for this community during flood

**Is “Plinth Raise” an adaptation option:** If we look into the definition of adaptation to climate change provided by the Intergovernmental Panel on Climate Change (IPCC), we find that Adaptation is a process or processes of adjustment in ecological, social or economic systems in response to actual or expected climatic stimuli or their effects which moderates harm or exploits beneficial opportunities. The two important aspects of the definition are “moderate harm” and “exploits beneficial opportunities.” The above discussions and photographs clearly states that in addition to permanent members of the raised

cluster, other flood affected people from surrounding areas with their resources took shelter meaning it works as flood shelter which is an opportunity of the intervention. In addition, some people catch fish and meet their daily nutrition. Thus this intervention fully matches with the definition of adaptation provided by the IPCC.

**Limitations of the adaptation intervention:** The limitations can be viewed in two aspects. One is technical and the other is social. These are as follows:

**Technical aspect:**

- 1) The height of the plinth is determined based on past highest flood level plus 2 ft but could not address future climate change including due to lack of information.
- 2) Sustainability of plinths particularly in river char areas is uncertain. Because, rivers of Bangladesh are very dynamic and thus erosion is a regular phenomena in the country. Science or early warning systems are not helping too much in that respect.

**Social aspect:**

- 1) Most of the low lying char dwellers are landless and they usually live on other's land. So, sometimes it is very difficult to include them in this activity.
- 2) Char dwellers do not agree to make the plinth level high enough because they think that if it is high enough then the raised household may be vulnerable by storm.
- 3) The char dwellers have the tendency to move from place to place to get the better opportunity

**Lessons learned from flood 2014 and plinth raise activity:**

- 1) People on the raised cluster were continuing their household activities as usual
- 2) People's tendency to get relief is reduced and by that way they intend to be self reliant in future
- 3) By their self motivation they prepared rice seedling beds and cultivated vegetables on the raised plinth during flood.