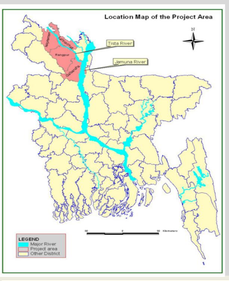
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Bangladesh-Transforming lands, transforming lives
Innovation to Combat Food Insecurity, Hunger and Malnourishment

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Bangladesh is a deltaic country located within the floodplains of the three great rivers the Ganges, Brahmaputra and Meghna These rivers drain a total catchment area of 1.72 million Sq. Km of which only 7% lies within the country, and has an estimated 2709 Sq.Km of newly accreted lands/sandbars (IWM and Practical Action 2017), locally known as *charland (transitional sandbar)* along the banks of these river system in the North and along the southern Central districts of the country. These *charlands* in the inland river systems are composed of coarse sands and by definition these belong to the government, but in reality these are occupied, accessed or used by settlers in the vicinity of these chars for sandbar cropping of food crops. The poor farmers, who are displaced due to recurrent river erosion, produce food crops such as pumpkins, squash and other vegetables and raise livestock on these 'transitional barren sandbars'. Accessing to these barren transitional sandbars provides alternative livelihood opportunities, food and nutritional security for thousands of landless families and greatly helping to escape from extreme poverty and to combat natural shocks and lean seasons by adopting alternative climate smart agriculture practice.

Materials and methods

The season for sandbar cropping normally starts in October-November.

The sandbars that emerge each year as the rivers recede are not stable enough to support natural vegetative growth and remain as a barren sand area until the river rises again. By digging small pits and lining these pits with compost, the innovation has demonstrated that these areas can be made productive. Large scale irrigation is not necessary and watering is done by hands, water can harvest easily from underground as the layer is very close to the surface. Generally, no pesticides or huge application of inorganic inputs are necessary.

Land negotiation and technology demonstration process

Step-1: Identification of sandbars end of monsoon.

Step-2: *S*urveys and data collection on land use status, pre-selection of sandbar spots, listing the landless farmers and collecting information about claimant land owners.

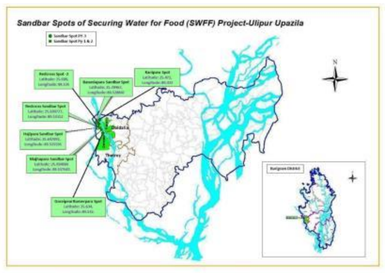
Step-3: Formal sharing with govt. administration, line departments, local govt. & elites. When everyone agrees, a no objection resolution is developed and signed by all participants.

Step-4: Technology demonstration:

Finally, these step by step process has been undertaken to run the demonstration on the ground i.e. community group formation, participatory planning, conduct training, Seed sowing, inter-cultural management, irrigation, partial harvest and sell, final harvest, storage and marketing at local, regional, national and international markets

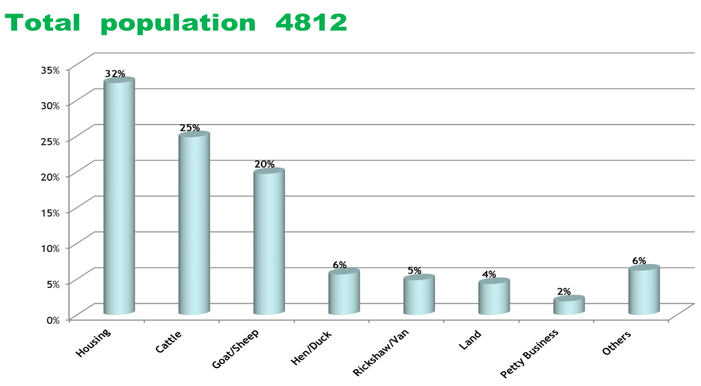
Step-5: Monitoring and Evaluation:

A very systematic monitoring and evaluation process have been adopted for day to day follow up, progress measurement and trouble shooting as and when necessary, measure production performance and marketing. Additionally, GPS system also introduced to capture information and updating knowledge and management information System.



Results: The innovation helps thousands of displaced, landless families surviving on the edge of mighty rivers to escape from poverty, hunger and malnourishment. Since its inception in 2005 it has reached to 22131 households, who have got operational access to **4156.39 ha**. of transitional sandbar and have produced **128308 MT** of Pumpkin & squash worth **£12-15 m**. Additionally, has saved **1064 Million Litre** of water by adopting improved irrigation technique. The return on investment in a season ranges from **1:5 to 1:7**. The evaluation assessed that 90% of extreme poor has graduated from the extreme poverty, where income raised from **$1.25 to $ 3.50 per day**

Impacts on Livelihoods:



Chronological features of the cropping system


Figure 1: Reappearing land after flood


Figure 2: Land negotiation meeting


Figure 3: Gathered for training


Figure 4: Digging pits


Figure 5: Seed germination stage


Figure 6: Flowering and fruiting


Figure 7: Water efficient irrigation


Figure 8: Day to day nursing


Figure 9: Ripening stage


Figure 10: Happy harvest


Figure 11: Storage for lean season sell


Figure 12: Nationwide and international marketing

Conclusions

The innovative technology can be applied in other dry areas and could even become an important coping strategy in some areas adversely affected by climate change. Sandbar cropping has brought food security, nutritional security and livelihoods for the extreme poor in NW Bangladesh as well as useful knowledge for future programming of extreme poverty reduction strategy. Identifying new technological innovations involving the extreme poor presents immense potential for graduating them from extreme poverty situation.

However, this action research shows sandbar cropping has impending challenges i.e. increased competition and bargaining for such lands, and long term support for technology, access to credit and institutional linkage. Ensuring continued access of the extreme poor to sandbars should be a policy priority of the government and donors in line with its on-going poverty reduction programs.

These initiatives call for development support, collaboration with govt. ministries & departments, research institutions & private sectors for wider replication of the technology both at home and abroad to combat food insecurity, hunger and malnourishment. Collective bargaining strengths and capacity building of the poor, diversified cropping on sandbars, and developing a sustainable commercial model through a market based approach need to be prioritized.

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