Floating Gardens - Climate smart agriculture production system in Bangladesh

Introduction:

Evidence of climate change in Bangladesh can be seen in an accumulation of heavy rains, frequent storms and rising sea levels that result in severe flooding. Due to continuous water-logged conditions, crops are often lost and land for agriculture has become scarce. The low-lying areas of the southern coastal – and south central – districts of Bangladesh remain submerged for 6–8 month periods every year, especially during the monsoon season. As a result, crop cultivation is not possible on land.

Intervention:

A 2015 FAO study in Bangladesh revealed an innovative location-specific adaptation to climate change for improving the food security of the nation's vulnerable people. In the low-lands of Bangladesh, some farmers have converted the prolonged flooding season into an opportunity: "floating gardens". These are floating plots made from local organic material on which diversified vegetables are grown or seedlings are raised for marketing.

In this system, farmers prepare the rectangular-shaped beds during June and July and sow/transplant seeds eight to ten days after the last stacking to the garden bed. Around 30 species of vegetables, spices and other crops or seedlings are grown in this water-based production system. The major vegetable crops are okra, ribbed gourd, Indian spinach, brinjal, cucumber, red amaranth, stem amaranth, wax gourd and (in winter) turnip, papaya, cabbage, cauliflower, tomato and red amaranth. The spices, turmeric and chili are also grown. Mixed intercropping is the most prevalent system.

Recycling is an important component of this production system. Garden beds are made from local organic material (plants) that are almost free, recyclable and do not pollute. When the floodwater recedes, decomposed beds are used as compost on the ground to grow winter crops.

Impact:

The FAO study found that farmers operating the floating gardens system received an average gross return of USD 265 and a net return of USD 134 per season. In comparison, when cropping on plain land, farmers received an average gross return of USD 31 and a net return of USD 10. The floating gardens production system clearly increases the farmers' incomes and is more profitable than vegetable cultivation on plain land.

The floating gardens led to a reduction of vulnerability to income of farmers in areas with heavy rainfall.

Source: FAO, Climate-Smart agriculture Case Studies 2018: Successful approaches from different regions