

Hanging vegetable gardens

Kazi Zaved Khalid Joy describes how hanging vegetable gardens provide an innovative adaptation strategy to cope with waterlogging in coastal Bangladesh

The southwest coastal areas of Bangladesh already suffer from land degradation, salt water intrusion and waterlogging as well as disasters such as cyclones, storm surges and floods. Climate change is likely to exacerbate these problems. People here also depend heavily on climate-sensitive sectors and natural resources such as agriculture, fishing, water, grazing and timber and non-timber forest products such as food, medicine, tools, fuel, fodder and construction materials.

Floods in Satkhira District have destroyed livelihoods and prevented farmers from planting aman paddy rice because by the time the water has receded it is too late to plant. Erratic rainfall patterns and temperature changes are hampering crop production. Permanent waterlogging has greatly reduced the agricultural potential of the land and there are no alternative sources of livelihood. Some homesteads remain submersed pre-

venting any sort of cultivation and stopping children from going to school. Stagnant water inhibits the disposal of human and other wastes causing pollution and proliferation of water-borne diseases. Over 1.2 million people have been adversely affected by waterlogging, which has forced people to migrate leading to problems elsewhere such as overcrowding in urban slums. The negative effects of increas-

MAIN POINTS

- **The author explains** how south-west coastal parts of Bangladesh suffer from climate-related problems such as waterlogging.
 - **With agricultural practices compromised**, people are migrating or looking for alternative livelihoods
- and their health is deteriorating.
- **Hanging vegetable gardens** help produce vegetables for family needs, allow people to sell excess vegetables for income, preserve local seed varieties and support local climate change adaptation.

ing salinity also have important implications for the natural environment, such as the functioning of the Sundarbans (mangrove forest) ecosystem.

Projects such as the Coastal Embankment Project and Khulna Jessore Drainage Rehabilitation Project have worsened the waterlogging problem and affected nearly 200,000



Hanging vegetable gardens in Bangladesh

Photo: © Sumon Biswas



Hanging vegetable gardens provide food and income for families in waterlogged areas

Photo: © Sumon Biswas

families in the area over the past two decades. The problem is growing and suffering is gradually increasing. Cultivation of amon (a local variety of fine rice) has been abandoned in some areas due to waterlogging. Cultivation of borrow rice is left as the primary crop

but is also slowly being reduced, and the production of rabby crops (horticulture) is now at highly unsatisfactory levels.

In Satkhira District, many people have changed their occupation from farming to fishing (culturing shrimp) due to waterlog-

ging and salinity increases. In coastal areas like Sowndip, people have left for Dhaka and elsewhere in search of work due to sea-level rise. In the Bagerhat area, Cyclone Sidr forced farmers into day labour and to migrate to cities in search of work.

Many villagers are suffering from malnutrition and ill-health. This is because of increases in the salinity of water used for domestic purposes - good drinking water is increasingly scarce - but also because of a reduction in food sources that used to meet a large proportion of people's nutritional needs. Lower job availability, unemployment, rising poverty levels and damaged livelihoods have also dramatically reduced food intake. Waterlogging and the expansion of shrimp farming have reduced the availability of fodder and grazing land. This in turn has reduced livestock numbers and thus deprived people of animal protein. Poor women, children and people in the margins of society suffer most.

Adaptation strategies

Climate change-related disasters and increasing climate variability are forcing people to adapt. Farmers in Bangladesh are growing salt-resistant crops and also adapting high-yielding varieties of rice to cope with waterlogged areas. In areas where increases in salinity and waterlogging have meant that vegetable production has become scarce, hanging vegetable gardens have been introduced.



Women grow vegetables near their homesteads

Photo: © Sumon Biswas

Hanging vegetable gardens

The introduction of hanging vegetable gardens involves placing large clay pots (nada) on bamboo stands outside people's homesteads. One such project has been implemented in four villages (Bagdanga, Manahar nagar, Pathorghata Monoharnagar and Sarutia) of Panjia Union of Keshabpur Upazila of Jessore District in Bangladesh. This project aims to produce enough vegetables for family needs and to allow people to sell the excess to generate income. It aims to preserve local seed varieties, encourage replica-

tion of these practices in other communities and help families cope with climate change.

Big earthen clay pots were secured on strongly supported bamboo platforms. Pots were then filled with soil and organic fertilizer to provide a highly fertile substrate for cultivation. Gardeners were then supported – primarily the women – in terms of the provision of local seed varieties and instructions on how to store seeds for future use. Vegetables cultivated include bottle-gourd, cucumber, pumpkin, green chilly, creeper vegetable, cucurbitaceous plants and beans.

Local knowledge and participation in planning was used throughout. Locals wanted seeds to germinate elsewhere before planting in the clay pots. Farmers also knew that vegetables such as creepers, kitchen vegetables and cucurbitaceous plants should not be grown in the same pot as gourds or sweet gourds as they would not survive.

Establishing a hanging vegetable garden costs 350 to 400 taka per clay pot and bam-

ANIMA SARKER'S STORY

Anima Sarker is a housewife in the Bagdanga village in Jessore District in Bangladesh. Her family has 84 decimals of land but has been unable to grow any crops on this land for the past four years due to waterlogging resulting from the unplanned water management projects implemented in the area. She has had to change her profession to support her family and now relies on fishing. Before waterlogging, her family earned 24,000 taka per year but when the cultivable land, including her homestead and yard, went under water for eight to nine months every year, she could not grow anything in her fields, including any vegetables to meet her families nutritional needs. She was, therefore, very interested in hanging vegetable gardens. In comparison with natural cultivation, production was less, but the gardens proved cost effective. They have allowed her to provide for her family's daily nutritional needs and she earns additional income from selling surplus vegetables at the local market.



Vegetables are grown in large clay pots known as nada

Photo: © Sumon Biswas

boo stand. Changing the soil allows farmers to cultivate seasonal vegetables three times each year earning them 600 to 700 taka from selling excess vegetables at the market once their families' nutritional needs have been met. Cultivation in this way provides more production and far less expenditure than traditional agriculture.

It is primarily the women – especially widows, disabled women and comparatively poor women – who are engaged with hanging vegetable gardens. Women's indigenous

knowledge on food production and sustainable agriculture has been promoted and their rights regarding seed and food sovereignty have been enhanced.

Upscaling and replication

Hanging vegetable gardens in these four villages were enormously popular and have been taken up by other organizations in similar waterlogged areas. Their potential is considerable as waterlogging increases. They provide an effective coping mechanism for small farmers and, in addition to floating vegetable gardens (which involve cultivating vegetables on floating beds of water hyacinth - a weed that grows prolifically on ponds and rivers), they could provide an alternative livelihood for fisher folk. The government fisheries department bans fishermen from catching fish for three or four months in the rainy season and fisher folk could use this time to grow vegetables as there are few other livelihood options available to them.

Initiative for Right View, with support from Action Aid, is conducting participatory action research on hanging vegetable gardens in water-imprisoned communities in the southwest coastal region of Bangladesh. The techniques have yet to be adapted to the specific conditions of different areas but show considerable potential and have been very popular in the beneficiary area to date. ■

ABOUT THE AUTHOR



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FURTHER INFORMATION

● **On the Web:** You can learn more about the implementation of hanging vegetable gardens in an account published by Coastal Development Partnership at tinyurl.com/y47or4s.