

# New way to farm in Bangladesh's salty soil

By Scientific American, adapted by Newsela staff on 02.09.15

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Bangladeshi women work at an agriculture field in Rangpur, 248 kilometers (155 miles), north of Dhaka, Bangladesh, Feb. 11, 2009. Photo: AP Photo/Pavel Rahman

KHULNA, Bangladesh — When floods pour through Chandipur, it makes farming almost impossible.

Chandipur is a village in southwestern Bangladesh. It is a country in Asia that is surrounded by rivers. Storms can cause the water in these rivers to rise. As a result, salty water often floods the flat land. The salt soaks into the soil. Salty soil does not support crops, so it becomes hard for farmers to produce enough food.

Things got much worse in Chandipur after the huge storm Cyclone Aila hit in 2009. It sent salt water surging onto farmlands in Chandipur. Afterward, farms produced a lot less food than usual. Some crops failed completely.

## **Gardens Are Looking Up**

For the past three years, however, hundreds of villagers have found a new way to farm. They have built "vertical gardens." These are gardens that are built up, instead of spreading out across flat land. Farmers fill small containers with soil and vegetables. Vertical gardens let farmers grow crops without taking up much space. Also, they protect the plants from flooding.

The containers are raised above the ground to protect soil and plants from floodwater. This way, the gardens can make it through a storm without being destroyed.

Shakuri Rani Debnath, who lives in Chandipur, says her vertical gardens produced more than 400 pounds of vegetables this summer. Her fruits and vegetables included pumpkins, squash, cauliflower, tomatoes, spinach and chili peppers.

## **Flooding Is Not New**

Flooding has always been a problem in Bangladesh. The country is located where three of Asia's largest rivers meet, and the land around the rivers is low and flat. Meanwhile, the weather in Bangladesh is very stormy. When storms bring rain and rising tides, water floods onto the low, flat land.

The problem has only gotten worse due to climate change. Climate change is the name scientists have given to the way weather and average temperatures have been changing. Recently, the average temperature on Earth has risen, melting ice and snow in colder parts of the planet. It has led sea levels to rise, which has caused more flooding in Bangladesh.

Flooding brings salty water onto dry land. Salt then soaks into the soil, making it difficult for crops to grow. The situation has been particularly bad in coastal areas of Bangladesh, next to rivers.

## **Lots Of People To Feed**

The loss of usable land is a huge problem. Bangladesh is one of the world's most densely populated countries. There are 156 million people in Bangladesh today — almost half the number of people in the United States. All of them live in an area about the size of Iowa. Growing enough food for all of those people is already a challenge. The loss of land due to flooding makes things even harder.

It is why farmers in Bangladesh have started using vertical gardens. They hope that vertical gardens can increase the country's food supply.

Vertical gardens were brought to villages like Chandipur by WorldFish. It is a group that helps people around the world make sure they have enough food. WorldFish showed about 200 villagers in southwestern Bangladesh how to make vertical gardens. It plans to train up to 5,000 more people over the next two years.

Growing a vertical garden is easy. Villagers harvest soil around November. There is a lot of rain from July to October, which washes salt out of the soil. So by November, the soil tends to be less salty. Villagers then keep the soil safe in their vertical gardens until planting season.

Vertical gardens protect soil from more salt. They can also produce a lot of vegetables in very little space.

## **A Garden Success**

Shobitha Debna, a 35-year-old mother in Chandipur, has a vertical garden. It is in a small corner of her dirt yard. Nevertheless, each season it produces hundreds of pounds of pumpkins, gourds, green beans, eggplant, beets, carrots, cauliflower, coriander, cabbage, green chili peppers and spinach. Another garden on her roof is growing gourds.

Vertical gardens like Debna's produce a lot of extra food. It goes a long way for poor villagers in Bangladesh, who live on a just few dollars a day.

## Quiz

- 1 Which selection from the introduction [paragraphs 1-3] explains why salt is such a big problem for Bangladesh?
  - (A) As a result, salty water often floods the flat land. The salt soaks into the soil.
  - (B) It is a country in Asia that is surrounded by rivers. Storms can cause the water in these rivers to rise.
  - (C) Salty soil does not support crops, so it becomes hard for farmers to produce enough food.
  - (D) Things got much worse in Chandipur after the huge storm Cyclone Aila hit in 2009.
  
- 2 Select the paragraph from the section "Lots Of People To Feed" that explains why the vertical gardens are so important in Bangladesh.
  
- 3 How does the first paragraph of the section "Gardens Are Looking Up" contribute to the development of ideas in the article?
  - (A) it identifies a solution to the problem described in the introduction [paragraphs 1-3]
  - (B) it compares a new problem to the problem described in the introduction [paragraphs 1-3]
  - (C) it identifies the cause of a problem described in the introduction [paragraphs 1-3]
  - (D) it compares the two important problems described in the introduction [paragraphs 1-3]
  
- 4 Read the concluding paragraph of the article.

*Vertical gardens like Debna's produce a lot of extra food. It goes a long way for poor villagers in Bangladesh, who live on a just few dollars a day.*

How does the conclusion contribute to the development of ideas in the article?

- (A) it summarizes a story about the technology featured in the article
- (B) it compares the significance of the technologies featured in the article
- (C) it identifies the importance of the technology featured in the article
- (D) it explains the difference between technologies featured in the article



## Answer Key

- 1 Which selection from the introduction [paragraphs 1-3] explains why salt is such a big problem for Bangladesh?

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- (C) Salty soil does not support crops, so it becomes hard for farmers to produce enough food.**
- (D) Things got much worse in Chandipur after the huge storm Cyclone Aila hit in 2009.

- 2 Select the paragraph from the section "Lots Of People To Feed" that explains why the vertical gardens are so important in Bangladesh.

**Paragraph 9:**

**The loss of usable land is a huge problem. Bangladesh is one of the world's most densely populated countries. There are 156 million people in Bangladesh today — almost half the number of people in the United States. All of them live in an area about the size of Iowa. Growing enough food for all of those people is already a challenge. The loss of land due to flooding makes things even harder.**

- 3 How does the first paragraph of the section "Gardens Are Looking Up" contribute to the development of ideas in the article?

- (A) it identifies a solution to the problem described in the introduction [paragraphs 1-3]**
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- (D) it explains the difference between technologies featured in the article