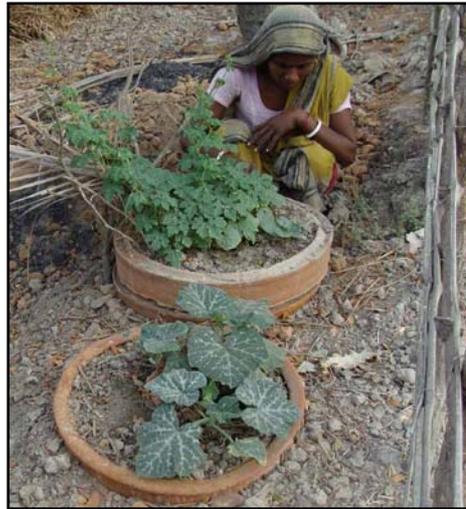


SOIL DESALINATION FOR VEGETABLE CULTIVATION

A SMALL-SCALE APPROACH FROM BANGLADESH

Bangladesh is prone to natural hazards due to its geographic location, low lying lands, and the networks of rivers channelling through it to the Bay of Bengal. Many changes, both natural and human, have been observed in coastal areas over recent years such as an increased rate of sea water incursion into cultivated land, increased impact of cyclones, crop fields being converted into shrimp farming, and livestock rearing decreasing drastically because of shortage of forage.

Saline water incursion into crop lands is increasing leading to many farmers becoming effectively “landless” even though they have land. Meanwhile, statistics show that the total saline affected area at Satkhira has increased to 131,000 ha from 125,000 ha from 2000 to 2009¹. These effects are further exacerbated by climate change and predicted to get worse during the 21st century.



Atulia union under Shyamnagar upazila of Satkhira district is the most saline affected area. The devastating cyclone *Aila*, which occurred in 25 May 2009, completely inundated the area, making it very vulnerable with high soil salinity. Due to the high existing salinity levels both in surface and ground water the coastal communities are no longer cultivating vegetables sufficiently to meet local demand and people now depend on vegetables from external sources.



Practical Action Bangladesh found that food security and income were the top priority issues raised by local people in the area. Therefore Practical Action Bangladesh vegetable cultivation in Atulia as part of a climate change action research project. Thirty households took part in a soil desalination experiment. This has successfully completed its first phase. They produced 727 Kg of vegetables such as bitter gourd and sweet gourd.

The experimental soil desalinization process is done during the dry season. It is very easy

¹ Salinity survey - 2009, Prothom Alo, 22 March 2010 (source: SRDI).

to desalinate soil during monsoon as rain water is available everywhere but the monsoon is very short in Bangladesh lasting for only 4 months.

In the dry season, though it is difficult to access fresh water, the soil can be desalinated by collecting water in containers from fresh water ponds or tube well close to the area by vehicle, usually a load carrying tricycle similar to a rickshaw. This method of growing in pots enables people to cultivate without large amounts of water.

Firstly, the required saline soil is placed in a container. The containers used were large ceramic pots some of which were one metre wide and one metre deep although any container could be used and the size of the container is not critical.



Secondly, fresh water is poured into the container and the water is retained by the container. This is allowed to dry to the optimum level for cultivation. Vegetables seeds are sown with the addition of manure. Finally, the plant is kept in these containers so that it would not be affected by further salinity.

Alternatively, soil which is desalinated during the monsoon using rainwater can be kept in a heap to be used during the dry season.

Salinity is the biggest challenge to people living in coastal communities in Bangladesh preventing them from cultivating crops and achieving food security.

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technical brief