

The Char Lands: A New Hope for Bangladesh Agriculture

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Introduction

Bangladesh holds the largest delta in the world. The mighty rivers Brahmaputra–Jamuna, the Padma (Ganges) and the Meghna and more than 500 rivers and tributaries carry about 2.5 billion tons of sediment from the Himalayan Mountains, of which one third is deposited in the river flood-plains and formed the char lands. While the good agricultural land is decreasing at an annual rate of 0.73% due to infrastructural development, the overall land area is increasing by 4% mostly due to reclamation of char lands. The chars in the northern regions are mostly composed of sand, while those in the middle regions are of mostly silt, and those in the downward coastal areas are of clays. An estimated 5 to 10 million poor char dwellers live mostly on agriculture. The soils are deficient of most the plant nutrients, with very low organic matter contents and minimum moisture holding capacity. Flood is very common and the crops and cropping in the chars depend on the vulnerability to flood, soil characteristics and accessibility of the farmers to the technologies and the market. This study was conducted to reflect the information on diversity of crops and cropping, and the agricultural problems exist therein and to suggest probable mitigation measures to improve the crop productivity in the char lands of Bangladesh.

Descriptions of the selected char lands and methods of information collection

Chars of ten Upazillas (sub-District) such as the chars of Nageshwari (Kurigram District) and Dewanganj (Jamalpur District) representing chars of the Brahmaputra river, Aditmari (Lalmonirhat District) representing the Tista river, Bhuapur (Tangail) and Daultapur (Manikganj) of the Jamuna river, Ishwardi (Pabna) and Goalnanda (Rajbari) of the Padma river, Vedorganj (Sariatpur), Subarnachar (Noakhali) and Lalmohon (Bhola) chars of the Meghna river were selected. Subarna and Lalmohon chars are near the coastal area. Information was collected using structured questionnaires through Focus Group Discussion (FGD) with 300 farmers in 30 FGDs and Key Informant Interview (KII) with the concerned 50 experts, and by holding two consultation workshops in 2015.

Results and discussion

Except the two coastal chars, Subornochars and Lalmohon, all the chars had medium high, medium low and low lands; some had also very low land. The pH of Brahmaputra chars ranged from 7.35 – 8.25, Jamuna chars 5.64 – 7.80, Padma chars 6.55 – 8.40 and that of Meghna from 6.68 – 8.21. The organic matter contents of all the chars were rather low, 0.48 – 2.7%. Nutrient contents of Ca, Mg, N, P, S, B and Zn were also rather low. The chars of the Tista, the Brahmaputra and the Jamuna were affected by flood from mid-June to September, while the chars of the Padma and Meghna flooded from mid-July to September. The two coastal chars were not affected by flood, though these chars are sometimes affected by tropical cyclones during October-December and April-May. The coastal chars have salinity problem during February-June. Due to flood, mostly transplanted aman (T. aman) rice/aman rice and sometimes late sown aus rice were also flooded. The flood damaged stored seeds, animal feed and houses of some chars. Despite a risk of flood damage, farmers cultivated T. aman as it doesn't require irrigation in summer. Boro rice in dry period was also common. A practice of growing aus and aman rice together

was found in the chars of Goalnanda and Vedorganj. Aus was harvested early (June), while aman was remaining in the field till November-December. Wheat was also popularly grown in every char except coastal chars. Hybrid maize was cultivated in the upper and mid regions char of Bangladesh. Jute (tossa type) was also popularly grown in most of the chars. Tobacco was a special crop in the north Bengal char. Sweet gourd was popularly grown in the chars of north and mid regions. Sesame was grown in pre-monsoon (Kharif I) season in many chars. Onion, chilli, and mustard were grown in rabi season (dry season; November-March) in most of the chars, except coastal chars. In the chars of Vedorganj, the spices like chili, black cumin, coriander and linseed were found to grow extensively. In the coastal chars of Subornachar and Lalmohon, grasspea, cowpea, soybean and watermelon were grown popularly. There is no electricity in the char areas and the farmers have to use gasoline for irrigation pump. Several cropping patterns existed in every char. However, most of the patterns had at least one fallow season, though in a few patterns three crops were also found. Number of crops in rabi season was much higher than that in kharif I (April-June) or Kharif II (July-October).

The eight major constraints and their consequences on economic crop production were identified during FGD and KII (Table 1). The char farmers were lack behind of the mainland farmers in getting timely information and training on the newly developed varieties and technologies. Nonetheless, due to difficult communication system the farmers had to spend more for input collection from the mainland market but get less margin of their produces due to high transportation cost. The lack of electricity increased the irrigation cost as the farmers had to use diesel for running their irrigation pump. Furthermore, due to lack of credit supply and organized marketing system the farmers failed to collect proper inputs timely and were often deprived of getting fair price. The agricultural productivity in the char lands was envisaged to increase substantially if those problems could be minimized.

Conclusions

The contribution of char lands to national agricultural productivity is envisaged to increase with the increase in the char land areas and crop productivity with the age of chars, in a situation when agricultural land in the mainland is decreasing alarmingly. However, the basic problems related with the technology transfer, input and credit availability, storage facility, irrigation facility, organized marketing system, etc. should be minimized.

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Table 1. The main constraints for crop production in the char lands of Bangladesh

Root problems	Causal problems
Slow technology transfer	Farmers are not updated on high yielding varieties and technologies.
Quality seeds not readily available	Farmers are lacking of adequate knowledge for production and preservation of quality seeds; poor farmers can't buy expensive seeds; adulteration of seeds of local market is found.
Fertilizers not readily available	No dealers are found in the char; no storage facility; high transportation cost; micronutrients are rarely used; adulteration is common.
Inadequate irrigation support	There is no electricity in the chars and the cost of fuel for running irrigation pump is high; in the coastal area the irrigation water contains salinity.
Lack of quality pesticides	No dealers are found in the char; high transportation cost; adulteration is common; service providers are not available locally when needed.
Lack of storage facility	Lack of proper skills on effective storage; farmers are bound to sell their crops during harvesting period at a lower price.
Limited marketing facility	Lack of proper communication and transportation between chars and markets in the main lands; high transportation cost; farmers are deprived of getting fair price.
Lack of credit facility	Lack of institutional credit support; farmers do not have enough money to buy inputs timely.