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Productive, Profitable and Resilient Agriculture and Aquaculture Systems

TP TUONG¹, M MONDAL², SANJIDA RITU³, AKM SHARIFULLAH¹ AND
ELIZABETH HUMPHREYS¹

¹International Rice Research Institute (IRRI), Philippines

²BRAC, Bangladesh

³Bangladesh Rice Research Institute

T.Tuong@cgiar.org

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Key Message

Food security and rural livelihoods in the coastal zone of Bangladesh can be greatly enhanced by combining improved on-farm water management and cropping system intensification using new varieties with short duration and enhanced salinity, submergence and deep water tolerance. For large scale adoption, the on-farm interventions require improved community and regional water management. Infrastructure investments and capacity building in community water governance are needed to achieve this. The polders should be considered as water management units, serving the agricultural production systems, rather than simply structural units for protection from inundation at high tide.

Summary

The brackish water coastal zone of the Ganges is home to some of the world's poorest, most food insecure, and most vulnerable people. Land productivity is very low due to drought and salinity intrusion during the dry season and farmers are limited to one rice crop (aman) during the rainy season. Projects PN7 and PN10 of CPWF-Phase 1 showed that, with optimal seeding date (first week of November), up to 40% of the poldered land area in Khulna can grow a dry season (boro) rice after the

aman crop provided that the canal networks within the polders are dredged to increase their storage capacity for irrigation water when the river water becomes too saline (from mid-February). The project also showed that with proper selection of short duration varieties and seeding dates, a rice crop (aus) can be established at the onset of the monsoon, and harvested early enough to be followed by aman rice. The coastal zone of Khulna thus has high potential for double or triple cropping of rice, or for one or two rice crops followed by an upland (rabi) crop in the dry season. Our initial assessments, supported by limited demonstrations by BRAC, indicate that most of Barishal district also has potential for triple cropping (aus–aman–boro or aus–aman–upland), provided that short duration varieties are grown. However, forced by poor drainage and deep water from July to October, most farmers use long duration/local aman varieties. Their late harvest leads to late establishment of boro rice and rabi upland crops, exposing the former to salinity stress during the latter part of the season, and the latter to damaging rains during the latter part of the season. Long duration also creates difficulties in fitting aus–aman into the rainy season. The deployment of newly developed short duration varieties with submergence tolerance will help farmers to shorten the aman period, and the use of varieties with enhanced salinity tolerance will increase the success of boro rice. Furthermore, investment is needed to improve the management and infrastructure of water resources. Drainage capacity of the polders can be greatly enhanced by creating more intensive networks of field canals plus operation of the sluices according to the tide cycles so that water can be drained at low tide. During the dry season, each polder should be managed as one hydraulic unit: while the sluices at the downstream ends have to be closed to prevent salinity intrusion, the upstream ones can remain open to take in fresh water to supply water the polder.