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## Improving drainage is crucial for cropping intensification in the poldered coastal zones of Bangladesh

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### Key Message

For large scale adoption of cropping intensity enhancing technologies, infrastructure investments and capacity building in community water governance are needed to improve (i) drainage during the rainy season, and (ii) intake of fresh water from the upstream end during the dry season. The polders should be considered as water management units, serving the agricultural production systems, rather than simply structural units for protection from salinity and inundation at high tides



Photographed by E.Humphreys, Khulna, Bangladesh, August 2011

High field water level constrains the use of short duration modern varieties in the *aman* season: seedling nursery almost submerged (left photo). Drainage can be enhanced by proper management of sluice gates (right photo) and with more intensive networks of internal canals.

## Summary

Land productivity in the brackish-water coastal zone of the Ganges is very low due to drought and salinity intrusion during the dry season. Farmers are limited to one rice crop (*aman*) during the rainy season. Projects PN7 and PN10 of CPWF-Phase 1, together with our initial assessments carried under the Ganges BDC and limited demonstrations by BRAC, showed that the coastal zones of Khulna and Barisal have high potential for double or triple rice-based cropping systems. This can be possible by combining optimal seeding dates, short duration varieties, and proper on-farm water management. However, forced by deep water during July–October, most farmers use late planted, 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 and the latter to damaging rains during the latter part of the season. Long duration also creates difficulties in fitting a pre-*aman* (*aus*) rice crop into the rainy season. Improving drainage capacity of the polders and using germplasm with improved water stagnation tolerance are critical for the deployment of improved, short duration *aman* varieties. 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. Each polder should be managed as one hydraulic unit, sluices at upstream and downstream positions can be opened and closed at different time depending on tidal and salinity situations to maximize the drainage capacity of the polder during the rainy season, to prevent salinity intrusion, and to intake fresh water to supply water for the polder during the dry season.