

3. Repairing physical infrastructure

Irrigation and drainage infrastructure

The tsunami deposited debris and sediment over farming land and destroyed irrigation and drainage canals, aquaculture ponds and pumps, sheds and other equipment. In Aceh it was evident that successful agricultural restoration could not occur before physical infrastructure was repaired and restored. This included removal of debris and sediment, restoration of roads and tracks, replacement of fences and agricultural machinery such as hand tractors, ploughs, rice milling equipment, pumps and building such as milling and storage sheds, and field shelters and latrines.

The debris left by the tsunami on agricultural land was substantial and included building materials from destroyed houses, trees and vegetation, and dead animals. In hindsight, the vegetation would have provided excellent material to build up agricultural soils, as the force of the tsunami stripped the sandy coastal soils of valuable organic matter. It could be useful to separate the organic materials and compost them for later use on agricultural land.



Figure 5a: Drainage and irrigation infrastructure was severely affected by physical damage



Figure 5b: Deposits of sediments and rubbish (FAO 2005)

Soil testing facilities

The 2004 tsunami destroyed BPTP sole soil laboratory in Banda Aceh, so restoring the laboratory was a high priority to enable rapid testing of tsunami soils for salinity and nutrient levels. Tests needed include pH, electrical conductivity, chloride, and the major nutrients nitrogen, phosphorus and potassium. Rebuilding technical & quality assurance capacity was also crucial to ensure reliable testing and results. Partnering with an established Quality Assured (QA) laboratory to analyse replicate samples enables data checking and builds confidence in the restored laboratory.

Basic equipment needed for the Banda Aceh laboratory included:

- end over end shaker for preparing soil extracts
- glassware
- chemicals for soil and plant analysis methods
- distilled water for preparing samples
- computer and printer
- power supply regulator.