

## 2 Conservation Technologies

Soil and Water Conservation (SWC) has been defined as the activities at local or farm level that maintain or enhance the productive capacity of the soil resource in erosion-prone areas and help to prevent or reduce soil erosion, conserve moisture, and maintain or improve soil fertility (WOCAT, 2000). A SWC technology consists of the following one or more measures that control soil degradation and enhance productivity:

- agronomic measures (e.g. intercropping, contour cultivation, mulching),
- vegetative measures (e.g. tree planting, hedge barriers, grass strips etc),
- structural measures (e.g. graded banks or bunds, level bench terrace etc) and
- management measures (e.g. land use change, area closure, rotational grazing etc).

Combinations of these measures are complimentary and thus enhance each other. In accordance with AGENDA 21 of the Earth Summit in Rio de Janeiro in 1992, Sustainable Land Management (SLM) has been defined as the use of land resources, including soils, water, animals and plants, for the production of goods to meet changing human needs, while simultaneously ensuring the long-term productive potential of these resources and the maintenance of their environmental functions. Hill farmers/land users of the CHT have been practicing a wide range of farming technologies, in order to deal with many challenges they face to sustain their livelihoods in this vulnerable hill ecosystem with its complex socio-political setting. They have gathered experience and generated vast knowledge on how to manage the sloping land, improve its fertility and conserve its resources. However, most of their valuable knowledge has not been documented and has remained a local or individual resource, unknown to others who could use it or are interested in this field. A first attempt to document the best hill farming and environmental practices from CHT was made in 2003 by the Chittagong Hill Tracts Development Facility (CHTDF) of UNDP in partnership with FAO and National Environment Management Action Plan (NEMAP). This documentation process followed the criteria set by the Resource Database and Directory (RDD). The idea of the current BANCAT publication, to further document SWC technologies specifically, was developed by one of the participants of this first documentation process.

The WOCAT methodology for documenting SWC technologies is through a questionnaire, which answers the following questions: What are the specifications of the technology, and under which conditions (biophysical and human environment) is it used? This tool consists of three main parts:

- 1) General information (contributing SWC specialist, brief identification of the SWC technology, area information, and state of land degradation of the area where it is applied).
- 2) Specification of SWC Technology ( incl. its description, natural and human environment, land use type in the area, costs, supportive technologies).
- 3) Analysis of SWC Technology ( incl. benefits, advantages, disadvantages, adaptation, acceptance or adoption, concluding statements).

However, due to some limitations, the following cases of SWC technologies could not be structured according to the WOCAT structure outlined above. In this chapter, 30 conservation farming technologies are presented, including examples of good traditional and innovative practices by both indigenous groups and Bangali communities.

### **2.1. Agroforestry Farming: A Potential Technology for Jhum Cultivators**

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Since 2000, innovative farmers from the Chakma community have been transforming their shifting cultivation (jhum) farming system into permanent agroforestry in the form of "mixed fruit gardens" (*Mishra Fal Bagan*) which include fruit as well as forest trees, bamboos. With this innovation, farmers are better able to generate income by responding to market-demands, as compared to subsistence shifting cultivation. The thirteen participating farmers have financed these activities through their Progressive Multipurpose Cooperative Society (*Pragoti Bohumukhi Samabay Samity*).

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