

# NATURAL RESOURCE MANAGEMENT

In India, an estimated area of 146.82 million hectares suffers from various kinds of land degradation due to water and wind erosion and other complex problems like alkalinity/salinity, water logging soil acidity. Droughts and floods are also a common feature in many parts of the country. The category-wise extent of various kinds of land degradation are:

## Total Degraded Area (Million Ha.)

<u>Category</u>	<u>Extent</u>
◆ Water Erosion	93.68
◆ Wind Erosion	9.48
◆ Water Logging	14.30
◆ Salinity/ Alkalinity	5.94
◆ Soil Acidity	16.03
◆ Complex Problem	7.38
Total Degraded Area	146.82

15.2 Land degradation is a dynamic process. In order to prevent the further degradation of land, the Government of India has launched various programmes for sustainable agricultural production and increasing the productivity of degraded lands. The main features of the various Schemes/Programmes launched for the purpose are:

15.3 **All India Soil and Land-use Survey:** The following major tasks have been assigned under this scheme:

- Rapid Reconnaissance Survey (RRS) of watersheds in the catchments of river valley projects and flood-prone rivers.
- Detailed Soil Survey (DSS) of the 'very high' and 'high' priority sub-watersheds to provide a sound database for the execution of soil conservation measures as well as for scientific land-use planning.
- District based Land Degradation Mapping (LDM).
- Soil Resource Mapping (SRM).
- Development of GIS-based web server.
- Organising short training courses on soil surveys and data uses for planning of watershed management for user departments
- Consultancy projects in soil mapping.

15.4 During 2006-07, 0.32 lakh hectare under DSS; 127.00 lakh hectares under RRS; 32.00 lakh hectares under LDM; and 65.00 lakh hectares under SRM is envisaged to be

covered at an expenditure of Rs 110.00 crore. The organisation of two short-term training courses is also envisaged.

**15.5 Soil Conservation Training Centre, Damoder Valley Corporation, Hazaribagh, Jharkhand:** This Training Centre organises medium and short duration training courses every year for field functionaries and project officers of State Governments engaged in the implementation of soil and water conservation programmes. During 2006-07, an amount of Rs 0.40 crore has been allocated for the Centre.

**15.6 Soil Conservation for Enhancing Productivity of Degraded Watershed in the Catchment of River Valley Projects/ Flood-prone Rivers:** This Programme was launched in the Third Five-Year Plan period. It has since been subsumed under the Macro Management of Agriculture Scheme and is currently being implemented in 53 catchments spread over 27 States. The total area to be treated under this programme is estimated to be 275.00 lakh hectares. An area of 62.65 lakh hectares has been treated upto March 2006. During 2006-07, an area of about 2.50 lakh hectares is envisaged to be treated at an expenditure of Rs 205.89 crore. Against this target, an area of 1.50 lakh hectares was reported to have been treated upto 31 December 2006.

**15.7 Eco-restoration Project of Degraded Land in the Catchment of Jhelum, Chenab and Shivalik (Jammu and Kashmir):** This Programme aims at enhancement of productivity of degraded land; reduction of run-off from the catchments to reduce peak flow; prevention of soil loss from catchment areas; improvement of land capability and moisture regime; and optimisation of resources for socio-economic upliftment. Under this programme, an area of 390300 hectares was treated till March 2006 at an expenditure of Rs 324.94 crore. During 2006-07, an amount of Rs 344.79 crore has been provided for treatment of an area of about 34090 hectares.

**15.8 Reclamation of Alkali Soil:** The Scheme for Reclamation of Alkali Soil is being implemented in the States of Haryana, Punjab, Uttar Pradesh, Gujarat, Rajasthan, Karnataka, Andhra Pradesh and Tamil Nadu and has been subsumed under the Macro Management of Agriculture Scheme. The Programme aims at improving the physical condition and productivity status of alkali soils for restoring optimum crop production. The major components are providing assured irrigation water and on-farm development works like land leveling, bunding and ploughing, community drainage system, application of soil amendment and organic manures.

15.9 The total area required to be treated under the scheme is estimated to be 35.81 lakh hectares, out of which only 6.87 lakh hectares were reclaimed upto March 2006. During 2006-07, an area of 0.24 lakh hectares has been targeted to be reclaimed at an expenditure of Rs 157.88 crore.

**15.10 Watershed Development Project for Shifting Cultivation Areas:** Under this Programme, 100 per cent special Central Assistance is provided to the North-Eastern States, namely, Arunachal Pradesh, Assam, Manipur, Meghalaya, Mizoram, Nagaland and Tripura in their respective State Plans for:

- Protecting the hill slopes of jhum areas through different soil and water conservation measures on watershed basis and reducing further land degradation.
- Encouraging the relocation of jhumia families by providing developed productive land improved cultivation packages.
- Improving the socio-economic status of jhumia families through household/land-based activities.
- Mitigating the ill effects of shifting cultivation by introducing appropriate land use as per capability and improved technologies.

15.11 The total treatable area under the scheme is estimated to be 14.66 lakh hectares, out of which an area of about 3.53 lakh hectares was treated till March 2006. During 2006-07, an area of nearly 0.40 lakh hectares is targeted to be treated at a cost of Rs 40.00 crore. Against this target, an area of 0.22 lakh hectares was treated upto 31 December 2006.

**15.12 Uttar Pradesh Sodic Land Reclamation Project with World Bank Assistance:** The World Bank-assisted project for large-scale reclamation of sodic soil was launched in Uttar Pradesh in the year 1993-94 with an objective to treat 1.72 lakh hectares at an outlay of Rs 1469.46 crore. Phase II of this project began during 1999-2000 and so far, an area of 1.90 lakh hectares has been treated at an expenditure of Rs 1092.54 crore.

**15.13 Impact Evaluation of Watersheds:** Impact evaluation studies conducted by different external agencies of treated catchments/watersheds reveal that, generally, there has been (i) recharge of ground water aquifers as evidenced by an increase in water levels and rise in number of wells; (ii) reduction in soil erosion; (iii) increase in cropping intensity; (iv) change in cropping pattern leading to higher value crops; (v) increase in crop productivity; (vi) reduction in rural and urban migration; and (vii) rise in overall biomass in the watershed; (viii) increase in employment generation, etc.

**15.14 Programmes for North-Eastern States:** The details are given in **Annexure-15.1**