

## 2.4. Soil and Water Conservation

Land and water are the natural resources that are essential for the existence of life. They are under tremendous stress due to the ever-increasing biotic pressure. Land degradation is mainly due to soil erosion caused by natural and man made causes such as deforestation, overgrazing, reckless mining and general mismanagement. To help reduce the pace of degradation and accelerate the process of development and conservation of land, water and vegetation in an integrated manner - the watershed approach has been considered the most appropriate in recent times.

'Watershed Management' and 'Water Management' are the two major strategies of the state contributing to the sustainable increase in agricultural production. With the average annual rainfall of 930.7 mm forming the major source of water, in the absence of any perennial source of water and in the backdrop of having exhausted almost all irrigation potential in the State, the strategies available for sustainable soil and water management are:

- Conserving soil fertility by controlling soil erosion
- Harvesting every drop of water by construction of farm ponds and check dams for ground water recharge
- Efficient use of available water. Scientific use of water in Canal irrigated areas and reduction of water loss
- Intensification of farm mechanisation
- Rehabilitation of Water Bodies
- Introduction of water saving irrigation methods like Drip and Sprinkler Irrigation on a large scale

The major soil and water conservation programmes implemented by different departments are outlined below:

### **Agricultural Engineering Department**

#### ***1. National Agriculture Development Programme (NADP)***

The National Agriculture Development Programme is implemented in Tamil Nadu from the year 2007-08 as a State Scheme with the funds provided as Additional Central assistance by the Government of India. The major components are:

*i) Agricultural Mechanisation*

Much importance is being given to increase the pace of agricultural mechanisation in the State under NADP. Under this programme, the Government have given approval for providing 50% subsidy assistance to the farmers for purchasing newly developed agricultural machinery / implements. Also subsidy assistance is provided to the farmers for purchasing conventional machinery / implements. Government have sanctioned a sum of Rs.772.98 lakh during 2007-08 out of which a subsidy amount of Rs.117.29 lakh was provided to the farmers during 2007-08 and the balance amount is being provided to the farmers during 2008-09. In addition to this , a sum of Rs.25.60 crore is expected to be sanctioned during 2008-09 towards subsidy assistance to farmers under this component. The programme will be continued during 2009-10 also.

*ii) Dry Land Development*

In order to increase the production and productivity under dry land crops such as millets, pulses, oilseeds etc., the Government have sanctioned a sum of Rs.996.00 lakh during 2007-08 under NADP which includes an amount of Rs.630.00 lakh to Agricultural Engineering Department towards execution of Moisture conservation works such as Plastic Lined Farm Pond, Unlined Farm Pond and Compartmental Bunding. Presently the programme is being implemented in 10 districts. During 2007-08, 9 nos. of unlined farm ponds were constructed at a cost of Rs.4.05 lakh. The balance works are nearing completion during 2008-09. In addition to this, it is proposed to implement this programme at a cost of Rs.262.65 lakh during 2008-09 in 30 blocks of Sivaganga, Pudukkottai, Virudunagar, Theni, Thirunelveli, Cuddalore, Vellore, Trichy and Erode districts. The programme will be continued during 2009-10 also.

*iii) Digitisation of Village Maps*

Government have approved the programme of Establishment of Land resource Inventory and GIS database for Farm Level Planning in Tamil Nadu under NADP. This programme envisages detailed soil survey by creating digital base map and creation of data base including all spatial variability characteristics of soils in GIS format. The technical programme includes creation of base maps

integrating cadastral maps and topo sheets and satellite data and to create data base for individual farm holdings. This programme is implemented in 10 potential crop growing villages in 10 focused districts viz. Ariyalur, Coimbatore, Dharmapuri, Dindigul, Krishnagiri, Namakkal, Perambalur, Ramanathapuram, Salem and Villupuram. The Government have sanctioned a total of Rs.360.00 lakh during 2007-08 towards this programme out of which an amount of Rs.19.14 lakh is earmarked to Agricultural Engineering Department towards procurement of village maps and digitisation of village maps. During 2007-08, an amount of Rs.0.72 lakh have been incurred and the balance expenditure is incurred during 2008-09 towards procurement and digitisation of village maps for 512 villages. The programme will be continued during 2009-10 also.

## ***2. Rain Water Harvesting and Run-off Management Programme***

The increased exploitation of ground water has resulted in lowering of the water table. Modern technologies are adopted to harvest rainwater for ground water recharge in the well-irrigated areas. Rainwater harvesting and runoff management works on watershed basis is being implemented in such a way that the moisture regime of the watershed is improved for increased land use. During 2008-09, the Government have sanctioned a sum of Rs.1657.67 lakh towards implementation of rainwater harvesting and run off management works. During 2009-10, it is proposed to continue this programme with an outlay of Rs.8.23 crore.

## ***3. Soil and Water Conservation in the Catchments of River Valley Project***

With a view to reduce siltation of the reservoirs, various soil conservation measures are taken up in the interstate River Valley Catchments of Tamil Nadu. This scheme is implemented under Macro Management Mode of Agriculture with the funding pattern shared between Centre and State on 90:10 basis. The Government have sanctioned a sum of Rs.1064.12 lakh, out of which the State share is Rs.106.412 lakh, towards implementation of soil and water conservation works in South Pennaiyar and Mettur River valley Catchments in Vellore, Tiruvannamalai, Villupuram, Dharmapuri, Krishnagiri and Salem districts to cover 7723 hectares during 2008-2009. During 2009-10, it is proposed to continue the

programme in South Pennaiyar and Mettur river valley catchments with a total outlay of Rs.1500 lakh, which includes the State share of Rs.150 lakh.

#### ***4. NABARD assisted Rain Water Harvesting Programme***

In order to improve the moisture regime of the watersheds by harvesting rainwater, the Government have accorded sanction towards implementation of the rain water harvesting programme for ground water recharge in 249 watersheds of 19 districts from the year 2006-07 at a total outlay of Rs.4781.00 lakh. Under this programme, 25% of the cost of works is collected as farmers' contribution for works such as construction of farm ponds and rejuvenation of wells. The community works such as construction of percolation ponds and check dams are taken up with 100% grant. So far up to March 2008, construction of 4553 rainwater-harvesting structures has been completed at a cost of Rs.2503.50 lakh. During 2008-09, it is programmed to construct 2961 rainwater-harvesting structures at a cost of Rs.1185.24 lakh. The programme will be completed by March 2009.

#### ***5. Soil Conservation in Tribal Areas***

The objective of the scheme is to improve the economic status of the tribal farmers through integrated development of tribal areas in Jawadhu hills (Vellore and Tiruvannamalai district), Kalrayan hills (Salem and Villupuram districts), Shevaroy hills (Salem district), Sitheri hills (Dharmapuri district), Kolli hills (Namakkal district) and Pachamalai (Trichy district). Soil conservation measures such as land levelling, construction of contour rubble bunds with vegetative hedges and check dams are taken up in tribal areas. This provides employment to the local people and also helps them to bring the treated areas under cultivation. During 2007-08, the Government have sanctioned a sum of Rs.134 lakh towards implementation of this programme. During 2008-09, it is proposed to implement this programme with an outlay of Rs.142 lakh to cover an area of 720 ha. The programme will be continued in the year 2009-10 also.

#### ***6. Hill Area Development Programme***

The objective of the scheme is to restore and maintain the ecology of The Nilgiris District through integrated watershed development approach. The Nilgiris

district has been delineated into 75 watersheds. Among these watersheds, highly degraded watersheds are taken up for treatment. Soil conservation works are being taken up in these watersheds. Besides soil conservation works, landslide preventive measures are also taken up. During 2007-08, the Government have sanctioned a sum of Rs.361 lakh towards implementation of this programme. During 2008-09, it is proposed to continue this programme in The Nilgiris district with an outlay of Rs. 400 lakh to cover an area of 320 ha. The programme will be continued in the year 2009-10 also.

### ***7. Western Ghat Development Programme***

Soil and water conservation works on watershed basis is taken up in the Western Ghat areas covering the districts of Coimbatore, Erode, Dindigul, Theni, Madurai, Virudhunagar, Tirunelveli and Kanyakumari. During 2007-08, the Government have sanctioned a sum of Rs. 5.61 crore towards implementation of this programme in the above eight districts. During 2008-09, it is proposed to continue this programme at a total cost of Rs. 6.31 crore to cover an area of 1500 ha.

### ***8. World Bank aided Tamil Nadu Irrigated Agriculture Modernization and Water Bodies Restoration and Management (IAMWARM) Project***

This Project is being implemented in Tamil Nadu for 6 years (2007-08 to 2012-13). An amount of 75.40 Million US Dollars (equivalent to Rs.360 crore) has been earmarked for Agricultural Engineering Department to implement the works in 63 sub-basins over the entire implementation period. During 2008-09, Government have sanctioned a sum of Rs.3253.05 lakh to Agricultural Engineering Department for implementation of the components such as Micro Irrigation, Farm Ponds, Water Harvesting Structures, Farm Mechanisation and PVC pipe laying works besides information, education, communication and capacity building in 25 sub basins under the project. In addition to this, a sum of Rs.1564.80 lakh being the spill over amount of 2007-08 is expected to be reappropriated by the Government shortly for utilisation during 2008-09. It is proposed to continue this programme in 63 sub basins during 2009-10 with a total outlay of Rs. 5871.82 lakh.

## **Central Sector Schemes (Schemes Fully Funded by the Government of India)**

### ***1. Scheme for Demonstration of newly developed agricultural equipments and machinery***

With a view to popularise improved Agricultural Machinery among the farming community, demonstration of newly developed agricultural equipments and machinery is taken up in the farmer's fields. The Government of India have released a sum of Rs.49.80 lakh towards implementation of this programme during 2008-09. During 2009-10, it is proposed to implement this programme with full central assistance of Rs.100.00 lakh to conduct demonstration of newly developed agricultural implements / machinery in the farmers' fields.

### ***2. Scheme for conducting Training programme to Farmers in the Field of Agricultural Mechanisation***

In order to streamline the process of Farm Mechanization to increase productivity, production and income of the farmers, it is considered necessary that the various levels of manpower engaged in the area of Agricultural Mechanisation is imparted training and also exposed to refresher trainings for new technology components. Accordingly training programmes are conducted to farmers in the field of Agricultural mechanisation since the year 2004-05. The Government of India have released a sum of Rs.15.00 lakh for conducting training programmes to the farmers during 2008-09. It is proposed to continue the programme with full central assistance of Rs.50.00 lakh during the year 2009-10 for conducting training programmes to the farmers.

## **Horticulture Department**

### ***Precision Farming***

The Tamil Nadu Precision Farming project was implemented in Vellore, Erode, Madurai, Theni, Tirunelveli, Kancheepuram and Thiruvallur districts involving 90% subsidy for which an amount of Rs.993 lakh was allotted. Under this scheme, annual fruits, vegetables and flowers were cultivated in an area of 735 ha adopting precision farming techniques. The programme will be expanded to other districts also.

## **Tamil Nadu Watershed Development Agency**

### ***1. Distribution of two acres of Government Wasteland each to Land less Agricultural Labourer Families***

The Government of Tamil Nadu has launched a massive programme called “Distribution of 2 acres of Government Poramboke Wasteland each to the land less poor Agricultural labourer families free of cost” from the year 2006-07. The major objective of the scheme is to identify the government wasteland and develop those lands for profitable and sustainable agricultural operation and distribute the land to landless agricultural labourers’ families.

The lands to be covered under this scheme are categorised into 3 types:

Category I	Government Poramboke wastelands without any encroachment;
Category II	Government Poramboke wastelands under encroachment by the small and marginal farmers;
Category III	Private waste lands of small and marginal farmers;

The scheme contemplates that about 191320 acres will be reclaimed and made worthy of cultivation and in turn, will be distributed to landless poor agriculture families not exceeding 2 acres per family. 69217 acres of Government Poramboke lands under occupation by small and marginal farmers will be regularized. If required, these lands will also be upgraded for sustainable cultivation. In respect of 6,84,411 acres of wastelands owned by small and marginal farmers, land development works will be carried out if the land owners volunteer to come forward to form clusters for taking such assistance. During 2006-07, 16886 acres of land have been reclaimed and during 2007-08, 23294 acres of land were developed. The scheme will be continued during 2009-10 also.

### ***2. Watershed Project under Watershed Development Fund***

The Watershed Development Fund in Tamil Nadu has been created to treat 100 watershed projects at a cost of Rs.6000 lakh. The scheme is being operated for a period of 6 years from 2004-05. The scheme will be continued with a major objective to spread the message of Participatory Watershed

Development Fund with an active participation of all the stakeholders. As against the target of 8437 ha for 2007-08, only 2986 ha of land were treated. An area of 5625 acres is likely to be treated during 2007-08. An area of 1875 acre is proposed to be treated during 2009-10.

### ***3. National Watershed Development Programme for Rainfed Areas (NWDPR)***

Under Restructured NWDPR for the Eleventh Five Year Plan period (2007-2012), it is proposed to take up 500 watersheds in 22 districts, where the area has less than 30% assured means of irrigation in arable lands and having slopes less than 8%. The pattern of assistance is in the ratio of 90:10 for the Centre and State respectively. The minimum area for a watershed is 500 ha. During the Tenth Plan period, the scheme was implemented in Tamil Nadu with community approach in 755 watersheds in 155 blocks of 23 districts. During the Eleventh Plan period, the scheme will be implemented in 22 districts excluding Coimbatore district which has been saturated and as there is no new watershed available for treatment. The scheme is implemented under the Chairmanship of the Collector through District Watershed Development Agency at District level and through Watershed committees / Associations at Village level.

#### **Plan Outlay for 2009-10**

An amount of Rs.95.36 crore is approved for Soil and Water Conservation for the year 2009-10.