

## CHAPTER VI

### Agricultural Engineering

#### 1. Introduction

The Agricultural Engineering Department has been constantly engaged in the conservation, development and management of the agricultural land and water resources of the State thereby contributing to the sustainable increase in agricultural production. The main focus of the department is on watershed development, water management and agricultural mechanisation with an aim of achieving the following objectives;

- Conserving soil fertility by controlling soil erosion
- Harvesting every drop of rain water
- Efficient use of available water
- Intensification of farm mechanisation

#### 2. Watershed Management

##### 2.1. Soil and Water Conservation in the catchments of River Valley Project (Scheme shared between Centre and State 90:10)

The river valley project scheme shared between Centre and State, is being implemented in the interstate river valley catchments of Tamil Nadu with the objectives viz., prevention of soil loss from the catchments to reduce siltation of multipurpose reservoirs, prevention of land degradation and watershed management in the catchment areas, improvement of land capability and moisture regime in the watersheds, promotion of land use to match land capability. Under this programme soil conservation measures are taken up on watershed basis in the very high and high priority watersheds identified by the Soil and Land Use Survey of India (SLUSI) and approved by Government of India. During 2007-08, it is programmed to take up soil conservation works under this scheme in south pennaiyar and mettur river valley catchments in Vellore, Tiruvannamalai, Dharmapuri, Krishnagiri and Salem districts in an area of 10,144 hectares at a cost of Rs.1,250.00 lakhs. So far up to February 2008, works have been completed in an area of 8,867 hectares at an expenditure of Rs.1,091.94 lakhs. Further works are under progress. The programme will be continued during 2008-09 to cover 11,000 hectares at a cost of Rs.1,500.00 lakhs.

##### 2.2. Soil Conservation in Tribal Areas (State Scheme)

Development of tribal agricultural lands by adopting suitable soil conservation measures is one of the major objectives under Integrated Tribal Development Programme. The programme is implemented with multi sector approach in the tribal areas of 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). Under this programme, soil conservation measures such as land levelling, construction of contour rubble bunds, contour stone walls and check dams are taken up in the lands of the tribal farmers with 100% assistance from Government. The programme also provides employment to the local people. During 2007-08, it is programmed to take up soil conservation works in an area of 854 hectares of tribal lands at a cost of Rs.138.00 lakhs. So far up to February 2008, works have been completed in an area of 762 hectares at a cost of Rs.110.96 lakhs. Further works are under progress. The programme will be continued during 2008-09 also to treat 720 hectares of tribal areas at a cost of Rs.142.00 lakhs.

### **2.3. Soil and Water Conservation under Hill Area Development Programme (State Scheme)**

Hill Area Development Programme is implemented with an aim of restoring and maintaining the ecology of the Nilgiris District. Soil conservation is one of the major components taken up under this programme through integrated watershed development approach. The Nilgiris district has been delineated into 75 watersheds. Soil conservation works and landslide preventive measures are being taken up in these watersheds on priority basis. The beneficiaries are required to contribute at the rate of 10% of the cost of works taken up in their patta lands and it is 5% in case of SC/ST beneficiaries. For community works, 5% of the cost of works is collected as beneficiary contribution. The balance expenditure is met by the Government. The landslide treatment measures are executed with 100% grant. During 2007-08, it is programmed to take up soil conservation measures to treat 314 hectares and construct 293 structures at a cost of Rs.373.00 lakhs. So far up to February 2008, works have been completed in an area of 240 hectares and 259 structures have been constructed at a total cost of Rs. 228.79 lakhs. Further works are under progress. During 2008-09, the programme will be continued to cover an area of 320 hectares and to construct 300 structures at a total cost of Rs.400.00 lakhs.

### **2.4. Soil and Water Conservation under Western Ghats Development Programme (State Scheme)**

Western Ghats Development Programme is being implemented involving various departments to ensure eco-restoration, eco-development and eco-protection in western ghats areas. Soil conservation is one of the major component taken up under this programme on watershed basis in the western ghats areas of Coimbatore, Erode, Dindigul, Theni, Madurai, Virudhunagar, Tirunelveli and Kanyakumari districts. The beneficiaries are required to contribute 10% of the cost of works taken up in their patta lands and it is 5% in case of SC/ST beneficiaries. For community works, 5% of the cost of works is collected as beneficiary contribution. The balance expenditure is met by the Government. During 2007-08, it is programmed to take up soil conservation works to treat 1,410 hectares and construct 1,634 structures at a cost of Rs.648.29 lakhs. So far up to February 2008, works have been completed in an area of 1,359 hectares and 1,595 structures have been constructed at a cost of Rs.558.29 lakhs. Further works are under progress. During 2008-09, the programme will be continued to cover an area of 1,500 hectares and to construct 1,720 structures at a total cost of Rs.707.10 lakhs.

### **2.5. Rainwater Harvesting and Run-off Management Programme (State Scheme)**

Ground water table has come down due to increased exploitation of ground water. Rainwater harvesting programmes are being implemented with much importance for improving the ground water level. Rain water harvesting and runoff management programmes on watershed basis have been organised in such a way that the modern technologies are adopted for improving the moisture regime of the watershed for increased land use. During 2007-08, it is programmed to construct 3,149 rainwater harvesting structures at a cost of Rs.1,654.00 lakhs. So far up to February 2008, construction of 2,532 rain water harvesting structures have been completed at a cost of Rs.1,258.00 lakhs. Further works are under progress. During 2008-09, it is proposed to continue this programme with the outlay of Rs.1,800.00 lakhs.

### **2.6. NABARD assisted Rain Water Harvesting Programme (State Scheme)**

In order to improve the moisture regime of the watersheds by harvesting rainwater, Government have accorded administrative sanction for the implementation of the rain water harvesting programme for groundwater recharge with the assistance from NABARD in 249 watersheds of 19 districts at a total outlay of Rs.4,781.00 lakhs .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 checkdams are taken up with 100% grant. So far up to February 2008, construction of 3,094 rain water harvesting structures have been completed at a cost of Rs.1,566.00 lakhs. The remaining programme is under progress. It is proposed to continue the programme during 2008-09 also.

### **3. Water Management**

#### **3.1. Command Area Development and Water Management Programme (Scheme shared between Centre and State 50:50)**

Command area development and water management programme is being implemented in the State with an aim of improving the water use efficiency and increase the productivity in command areas. At present, the programme is implemented with financial assistance from both centre and state in Cauvery Command, Tambirabarani River Basin Project, Gadana Ramanadhi Irrigation System, Nambiyar River Basin System, Patchaiyar River Basin System and Manimuthar Irrigation System. During 2007-08, it is programmed to take up on farm development works in the above project areas at a total cost of Rs.5,131.32 lakhs which includes construction of field channel in an area of 20,915 hectare, construction of field drain in an area of 44,300 hectare and rotational water supply in an area of 38,917 hectare besides management subsidy to the farmers associations. So far up to February 2008, works have been completed at a total cost of Rs.4,052.99 lakhs. Further works are under progress. Management subsidy at the rate of Rs.600 (State Government share of Rs.270, Central Government share of Rs.270 and Farmers share of Rs.60 ) per hectare is given to farmers council for the maintenance of the OFD works including field channels. The programme is nearing completion in the projects viz., Gadana Ramanadhi Irrigation System, Nambiyar River Basin System, Patchaiyar River Basin System, Manimuthar Irrigation System and Tambirabarani River Basin Project. During 2008-09, it is proposed to implement the programme in six new commands viz., Wellington Reservoir Project, Thirukoilur Anicut Project , Kodiveri Anicut Project, Vaniyar Reservoir Project, Ichambadi Anaicut Project, Gundar Chittar Karuppanadhi / Gomukhi Reservoir Project in addition to the ongoing Cauvery Command with a total outlay of Rs.4,734.00 lakhs.

#### **3.2. Minor Irrigation (State Scheme)**

Minor irrigation machinery viz., rotary drill, mini drill, percussion drill, hand boring sets, rock blasting units and long hole equipment are provided to farmers on hire basis as per the Government approved hire charges to take up minor irrigation activities. Besides, the services of resistivity meters and electrical loggers are provided to farmers for locating well sites and aquifers. The programme will be continued during 2008-09 also.

### **4. Agricultural Mechanisation**

#### **4.1. Popularisation of Agricultural Machinery (Scheme shared between Centre and State 90:10)**

The Agricultural Mechanisation programme is being implemented in the State with an aim of popularising the Agricultural machinery among the farmers. Under this programme,

assistance is provided to farmers for procuring farm equipments so as to supplement the available farm power, to reduce the drudgery of agricultural labourers, to ensure timeliness in carrying out various farm operations and to increase agricultural production. Under this scheme,

25% of the cost or the ceiling limit prescribed by Government of India, whichever is less is provided to the farmers as subsidy to procure agricultural machinery and equipments like power tillers, tractors, transplanter, reapers, etc. as per the norms of Government of India.

During

2007-08, it is programmed to provide subsidy assistance to the tune of Rs.900.00 lakhs to the farmers for procuring 315 tractors, 2320 power tillers and 692 agricultural implements under this programme. So far up to February 2008, subsidy assistance to the tune of Rs.562.00 lakhs have been given to farmers for procuring 243 Nos of tractors, 1428 Nos of power tillers and 561 Nos of agricultural implements. The remaining programme is under progress. During 2008-09, it is proposed to continue the programme to provide subsidy assistance to the tune of Rs.1,500.00 lakhs to farmers for procuring 329 tractors, 2500 power tillers and 3927 agricultural implements under this programme.

#### **4.2. Machinery support to farmers (State Scheme)**

The Agricultural Engineering Department hires out bull dozers, tractors and combine harvesters to the farmers as per Government approved economic hire charges and execute Land Development works. Besides, Agricultural Engineering Department is engaged in reclamation of waste lands to make them fit for cultivation. At present, 91 bull dozers, 121 tractors and 4 combine harvesters are available in the Agricultural Engineering Department.

50 tractors with trailer and implements viz., cultivator, disc plough, cage wheel, rotavator and 25 tractor driven combine harvesters have been purchased newly at a cost of Rs.590.75 lakhs during 2007-08 and dedicated to agricultural activities by the **Hon'ble Chief Minister of Tamil Nadu** on 31.01.2008. The programme of machinery support to farmers will be continued during 2008-09 also.

#### **4.3. Demonstration of agricultural machinery and implements (Central Sector Scheme)**

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. During 2007-08, it is programmed to conduct 1001 demonstrations at a cost of Rs.24.56 lakhs and to purchase farm implements at a cost of Rs.19.51 lakhs for the purpose of conducting demonstrations. So far up to February 2008, 242 demonstrations have been conducted and further demonstrations are under progress. The programme will be continued at a cost of Rs.90.00 lakhs during 2008-09.

#### **4.4. Training to farmers in handling and maintenance of Agricultural Machinery / Implements (Central Sector Scheme)**

Various levels of manpower engaged in agriculture are imparted training on new technology components of agricultural machinery and implements to increase productivity, production and income of the farmers. It is programmed to conduct 90 training programmes to farmers in the field of agricultural mechanisation at a cost of Rs.22.50 lakhs during 2007-08. So far up to February 2008, 71 training programme to farmers have been conducted at a

cost of Rs.17.03 lakhs and further training programmes to farmers are under progress. During 2008-09, it is proposed to conduct 180 training programmes to farmers at a cost of Rs.45.00 lakhs.

## **5. Special Programmes**

### **5.1. Scheme for replacing old pumpsets with new pumpsets (State Scheme)**

With an aim of saving electricity, subsidy assistance is provided to farmers for replacing their old inefficient pump sets with new pumpsets and also for renewal of electrical accessories. Under this scheme, for replacing old pumpsets below 5 HP, subsidy of Rs.3500/- or 50% of the cost of the new pumpset whichever is less is given to SC/ST farmers and Rs.2500/- or 25% of the cost of the new pumpset whichever is less is given to other farmers. For replacing old pumpsets with 5 HP and above, subsidy of Rs.6000/- or 50% of the cost of the new pumpset whichever is less is given to SC/ST farmers and Rs.5000/- or 25% of the cost of the new pumpset whichever is less is given to other farmers. For renewal of electrical accessories and cost of panel, subsidy of Rs.1500/- or 50% of the cost of the installation whichever is less is given to all farmers. During 2007-08, it is programmed to provide subsidy assistance of Rs.1,000.00 lakhs to farmers for replacing 16,615 old pumpsets. So far up to February 2008, 15,616 old inefficient pumpsets have been replaced with new energy efficient pumpsets at a cost of Rs. 892.20 lakhs. The remaining programme is under progress. It is proposed to continue the scheme during 2008-09 to provide Rs. 1,000.00 lakhs as subsidy for benefiting 16,350 farmers.

### **5.2. World Bank aided Tamil Nadu IAMWARM project**

The World Bank aided Tamil Nadu Irrigated Agriculture Modernization and Water bodies Restoration and Management (TN IAMWARM) project is being implemented in Tamil Nadu. The project has been commenced during 2007-08 and to be completed by 2012-13. Under this project, a sum of 75.40 Million US Dollars (equivalent to Rs.360 crores) has been earmarked for Agricultural Engineering Department to implement the programme in 63 sub-basins. During 2007-08, Government have sanctioned a sum of Rs.2,244.98 lakhs 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 9 sub basins under the project. Works are under progress. It is proposed to continue this programme in 25 sub basins during 2008-09 with a total outlay of Rs.4,669.35 lakhs.

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

The National Agriculture Development Programme is implemented with 100% Central assistance to achieve 4% annual growth in the agriculture sector during eleventh plan period. Under this programme, an amount of Rs.1422.12 lakhs have been sanctioned to Agricultural Engineering Department towards active implementation of agricultural mechnisation, dry land development and digitisation of cadastral maps of potential crop growing villages during 2007-08 and works are under progress. The programme will be continued during 2008-09 also.