

7. AGRICULTURAL ENGINEERING

1. Introduction

To achieve the vision of increasing the Agricultural Production, the land and water resources of the State are to be conserved and developed effectively. Programmes for Water Management, Soil and Water Conservation are being implemented by the Agricultural Engineering Department to ensure sustainable increase in agricultural production. Agricultural mechanisation programmes are being implemented in a big way to increase the agricultural production and to popularise the agricultural machinery among the farmers. Custom hiring of agricultural machinery to farmers at nominal hire charges are also being carried out by this Department.

2. Soil and Water Conservation Programmes

Effective soil and water conservation improves productivity in agriculture. Soil and water conservation prevent soil erosion and improves soil moisture for sustainability in agriculture. Agricultural production can also be increased through construction of rain water harvesting structures in dry lands.

2.1. Rain Water Harvesting and Run off Management Programme

Rain water harvesting and runoff management works such as checkdams, percolation ponds, farm ponds, new village tanks, ooranies and recharge shafts are taken up to improve the moisture regime of the watershed for increased land use. Under this programme, the beneficiaries are required to contribute 10% of the cost of works executed in community lands (it is 5% in case of SC/ST) in cash which will be deposited in the name of the Village Development Association / Watershed Association and the accrued

interest will be utilised for the maintenance of assets created in community lands. Works in patta lands are taken up with 90% grant and the remaining 10% is collected as beneficiary share (it is 5% in case of SC/ST) in the form of Cash / labour / material. During 2011-2012, it is programmed to construct 2097 rainwater harvesting structures at an outlay of ` 1885.50 lakhs.

2.2. Scheme for Artificial Recharge of Ground Water

Artificial ground water recharge structures such as check dams, new village tanks, ooranies, percolation ponds with recharge shaft are constructed to harvest rain water to augment the ground water aquifer for improving the ground water table. The programme is taken up with 100% assistance from the Government. During 2011-2012, it is programmed to construct 2459 recharge structures at a cost of ` 4000 lakhs.

2.3. Soil and Water Conservation in Tribal Areas under Integrated Tribal Development Programme

Development of tribal agricultural lands by adopting suitable soil and water conservation measures is the objective of this programme. The programme is implemented in the tribal areas of Jawadhu hills (Vellore and Tiruvannamalai district), Kalrayan hills (Salem and Villupuram districts), Shervaroy hills and Arunuthu hills (Salem District), Sitheri hills (Dharmapuri district), Kolli hills (Namakkal district) and Pachamalai (Salem and Tiruchirapalli district). Soil and water conservation measures such as land shaping, pipe laying, construction of contour rubble bunds, contour stone walls and check dams are taken up by the department in the lands of the tribal farmers with 100% assistance from the Government. During 2011-2012, it is proposed to take up soil and water conservation works in an area of 1393 hectares of tribal lands at a cost of ` 344.73 lakhs.

2.4. Western Ghats Development Programme

Western Ghats Development Programme is being implemented to ensure eco-restoration, eco-development and eco-protection in western ghats areas of Coimbatore, Tiruppur, Dindigul, Theni, Madurai, Virudhunagar, Tirunelveli and Kanyakumari districts. Soil and water conservation measures such as contour rubble bunds, gabion structures, check dams, drainage line treatment works, water harvesting structures, farm ponds, percolation ponds, village ponds, land shaping are taken up under this programme. The beneficiaries contribution is 10% of the cost of works if 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. During 2011-2012, it is programmed to take up Soil and Water Conservation works in an area of 1227 hectares at a cost of ` 976.06 lakhs.

2.5. Hill Area Development Programme

Hill Area Development Programme is implemented with the aim of restoring and maintaining the ecology of the Nilgiris District. Soil and water conservation works such as stream training works, bench terracing, drainage line treatment works, collection wells, water harvesting structures, terrace support works, silt detention tanks and landslide preventive measures are being taken up in The Nilgiris district. The beneficiaries contribution is 10% of the cost of works if 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 landslide treatment measures are executed with 100% grant. During 2011-2012, it is programmed to take up soil and water conservation works and landslide preventive measures at a cost of ` 501.44 lakhs.

2.6. Soil and Water Conservation in River Valley Project Catchments

The River Valley Project is being implemented in the interstate river valley catchments of Tamil Nadu with the objectives viz., prevention of soil loss to reduce siltation of multipurpose reservoirs, prevention of land degradation, improvement of land capability, improvement of soil moisture regime and promotion of land use to match land capability. Soil and water conservation measures such as silt detention structures, contour bunding, farm ponds, water harvesting structures, drainage line treatments, horticultural plantations, agro forestry are taken up in the catchment area approved by the Soil and Land Use Survey of India (SLUSI) and approved by Government of India. This scheme is implemented under Macro Management of Agriculture with the financial assistance from the Centre and State Governments on 90:10 basis. Under this programme, soil and water conservation measures are taken up with 100% grant. However, works to individual farmer such as land levelling, farm ponds etc., are executed with 25% farmer's contribution. During 2011-2012, it is programmed to take up soil and water conservation works in South Pennaiyar and Mettur river valley catchments of Dharmapuri, Krishnagiri and Villupuram districts in an area of 13400 hectares at a cost of ` 1242.42 lakhs.

3. Water Management Programmes

Water Management Programmes are taken up to optimise water use efficiency in Command Areas, to create new irrigation facilities by harnessing ground water for sustainable irrigation and to promote drip and sprinkler irrigation systems to increase area under irrigated agriculture.

3.1. Command Area Development and Water Management Programme

To improve water use efficiency in canal irrigated areas, On-farm development works are taken up under this programme with farmers participation. The programme is implemented with the financial assistance from the Centre and State Governments on 50:50 basis. On-farm development works such as construction of field channels, rotational water supply and construction of field drains are taken up in the command areas. One time functional grant at the rate of ` 1000/- (State share of ` 450/-, Central share of ` 450/- and Farmers share of ` 100/-) per hectare is given to farmers council for the maintenance of the works. During 2011-2012, the scheme will be implemented in Wellington Reservoir Project (Cuddalore district), Thirukoilur Anicut Project (Villupuram district), Kodiveri Anicut Project (Erode district), Gundar Chittar Karuppanadhi Project (Tirunelveli district), Vaigai Command area (Sivagangai, Ramanathapuram and Madurai districts) and Kudaganar Reservoir Project (Dindigul and Karur districts) in a total area of 27000 hectares with the total outlay of ` 7361 lakhs.

3.2. World Bank Aided Tamil Nadu IAMWARM Project

The World Bank aided Tamil Nadu Irrigated Agriculture Modernization and Waterbodies Restoration and Management (TN IAMWARM) Project is being implemented in Tamil Nadu to increase productivity in irrigated agriculture by promoting micro irrigation scheme. The project is phased over a period of six years from 2007-2008 to 2012-2013. The outlay earmarked for Agricultural Engineering Department under this project is ` 159.58 crores. It is programmed to implement various programmes such as micro irrigation, farm ponds, water harvesting structures, farm mechanisation, improved water conveyance through pipes for command areas, information, education,

communication and capacity building programmes in 60 sub-basins of Tamil Nadu. During 2011-2012, it is programmed to implement the programmes in 50 sub-basins at a total cost of ` 9179.06 lakhs.

4. Agricultural Mechanisation Programme

The Agricultural Mechanisation Programme is being implemented in the State with an aim of popularising the agricultural machinery among the farmers in order to overcome the difficulties that arise due to the shortage of agricultural labourers, to supplement the available farm power, to ensure timeliness in carrying out various farm operations and to increase agricultural production.

4.1. Agricultural Mechanisation Programme under National Agriculture Development Programme (NADP)

The Agricultural Mechanisation Programme under NADP is implemented with the aim of popularising agricultural machinery / implements among the farmers in the state. Subsidy assistance is provided to the farmers for purchasing agricultural machinery / implement as detailed below:-

- Providing 50% subsidy assistance to farmers for the purchase of agricultural machinery / implements subject to the ceiling limit prescribed for each implement.
- providing 50% subsidy assistance subject to a maximum ceiling limit of ` 4 lakhs to farmers for the purchase of High Cost Farm Machinery.
- providing 50% subsidy assistance to farmers for the purchase of Gender friendly equipments limited to ` 5000/- for each implement.

During 2011-2012 this programme will be implemented at an outlay of ` 7230 lakhs.

4.2. Demonstration of Newly Developed Agricultural Equipments and Machinery

Demonstration of newly developed agricultural equipments and machinery is taken up in the farmers fields with 100% financial assistance from Central Government. It is programmed to conduct 450 demonstrations at an outlay of ` 34 lakhs during 2011-2012.

4.3. Training Programme to Farmers in the Field of Agricultural Mechanisation.

Training programmes on new technology in the field of agricultural mechanisation are conducted to farmers with 100% financial assistance from the Central Government. During 2011-2012, it is proposed to conduct 120 training programmes to farmers with an outlay of ` 36.60 lakhs.

5. Machinery Hiring Programmes to Farmers

5.1. Minor Irrigation Machinery

The department is having a fleet of minor irrigation machinery viz., 26 Rotary Drills, 13 Percussion Drills, 21 Mini Drills, 79 Hand Boring Sets, 7 Long Hole Equipments and 37 Rock Blasting Units for hiring out to the farmers for minor irrigation activities such as sinking of new Borewells / Tubewells and revitalisation of dried up wells. Also, the services of 18 A.C.Resistivity Meters and 3 Electrical Loggers are provided to farmers for locating well sites and aquifers.

5.2. Land Development Machinery

Land Development Machinery viz. 94 Bull Dozers, 165 Tractors, 31 Combine Harvesters and 2 Hydraulic Excavators are available in the Agricultural Engineering Department for hiring out to farmers at nominal hire charges for taking up works such as land levelling, land shaping, ploughing and paddy harvesting. The machinery are also used for relief work at the time of flood and natural calamities.