

CHAPTER - VII

AGRICULTURAL ENGINEERING

1. Introduction

The Government of Tamil Nadu, with a vision to increase agricultural production, has launched a number of projects and programmes with improved technologies for conservation, development and management of land and water resources. The mission is being accomplished through “Watershed Management and Water Management” strategies with appropriate action plans. Also, efforts are being taken to increase the pace of agricultural mechanisation in the state besides providing necessary services to farmers under conventional Land development and Minor Irrigation activities.

2. Water Management

Command Area Development and Water Management Programme is being implemented with farmers participation in various commands in the state with an aim of improving the water use efficiency and ensuring rotational equitable distribution of water among the farmers.

3. Watershed Management

Watershed development programmes are given due importance for making effective contributions to the prevention of erosion hazards besides promoting sustainable dry land agriculture in the watersheds of Tamil Nadu. The watershed programmes are being implemented in river valley catchments, hill areas of Nilgiris, tribal areas, Western Ghats and dry lands with an aim of preventing soil erosion besides harvesting rain water.

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 so as to supplement the available farm power, to meet out the shortage of agricultural labourers, to ensure timeliness in carrying out various farm operations and to increase agricultural production. Also, 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. In order to increase productivity, production income of the farmers, trainings on new technology components are imparted to the various levels of man power engaged in the field of Agricultural Mechanisation. Also subsidy assistance is provided to farmers for replacing their old inefficient pumpsets with new pumpsets with an aim of saving electricity and improving pumping efficiency.

5. State Plan schemes

5.1. Rain Water Harvesting and Run-off Management Programme

Due to increased exploitation of ground water, Rainwater harvesting programmes are being implemented for recharging the ground water. 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. Under this programme, the beneficiaries are required to contribute 10% towards the maintenance of the works 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 2008-09, 2807 Nos. of rain water harvesting structures such as farm ponds (1136 Nos), rejuvenation of unused wells (282 Nos), percolation ponds (82 Nos), check dams (1005 Nos), recharge shafts (237 Nos) etc., village tanks (182 Nos) have been completed at a cost of Rs.1,656.59 lakhs. It is proposed to continue this programme with the outlay of Rs.500 lakhs to construct 626 rainwater harvesting structures during 2009-2010.

5.2. Soil Conservation in Tribal Areas

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 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% grant from Government. The programme also provides employment to the local tribal people. During 2008-2009, soil conservation works have been completed in an area of 796 hectares at a cost of Rs.142 lakhs. It is proposed to continue the scheme during 2009-10 also to treat 768 hectares of tribal agricultural lands at a cost of Rs.156.20 lakhs.

5.3. Hill Area Development Programme

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. Soil conservation works and landslide preventive measures are being taken up in the priority watersheds in Nilgiris district. 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 2008-09, soil conservation and landslide preventive works have been completed in an area of 130 hectares at a total cost of Rs.418.72 lakhs. During 2009-10, it is proposed to continue the programme in an area of 270 hectares at a total cost of Rs.549.68 lakhs.

5.4 .Western Ghats Development Programme

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 components taken up under this programme on watershed development 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 2008-09, soil conservation works have been completed in an area of 1,599 hectares at a cost of Rs.756.70 lakhs. During 2009-10, it is proposed to continue the programme to cover an area of 1,777 hectares at a total cost of Rs.747 lakhs.

5.5. Replacement of Old Pumpsets 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 2008-09, subsidy assistance of Rs.999.56 lakhs was provided to farmers for replacing 16,992 old pumpsets with new energy efficient pumpsets. It is proposed to continue the scheme during 2009-10 to provide Rs.1,000 lakhs as subsidy to farmers for replacing 16,420 pumpsets.

5.6. 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. During this period, it is programmed to implement the project in 63 sub-basins. During 2008-09, the programmes such as micro irrigation, farm ponds, farm mechanisation, pipe laying works, information, education, communication and capacity building works have been completed in 25 sub-basins at a cost of Rs.1,243.90 lakhs. During 2009-10, the programme will be continued in 55 sub basins at a total cost of Rs.2,818.05 lakhs.

5.7. National Agriculture Development Programme (NADP)

The National Agriculture Development Programme is implemented in Tamil Nadu from the year 2007-08 with financial assistance from Government of India. The objective of the programme is to achieve 4% annual growth in the agriculture sector during Eleventh Plan period by ensuring a holistic development of agriculture by the allied sector. Agricultural Engineering Department is implementing the following components under this scheme.

5.7.1. Agricultural mechanisation

The following components are implemented for promoting agricultural mechanisation in the State under NADP.

- distribution of agricultural machinery / implements at 33% subsidy subject to maximum ceiling limit of Rs.4.00 lakhs to the Agricultural Machinery Service Centre to be functioned at each block .
- providing 50% subsidy assistance to farmers for purchasing newly developed agricultural machinery / implements.
- providing 33% subsidy assistance to farmers subject to the maximum ceiling limit of Rs.4.00 lakhs whichever is less, for purchasing high cost machinery / implements under this programme.
- providing 50% subsidy assistance to farmers for purchasing Gender friendly equipments .

During 2008-2009, subsidy assistance to the tune of Rs.270.72 lakhs was provided to farmers for purchasing farm machinery and implements under this programme. The programme will be continued during 2009-10 also.

5.7.2. Dry land development

In order to increase the production and productivity under dry land crops such as millets, fodder crops including fodder pulses under NADP in 30 blocks covering Sivaganga, Pudukottai, Virudunagar, Theni, Thirunelveli, Cuddalore, Vellore, Trichy, and Erode districts,

compartmental bunding works have been completed in an area of 918 ha. and 31 nos. of farm ponds have been constructed at a total cost of Rs.38.53 lakhs during 2008-2009. The programme will be continued during 2009-10 also.

5.8. Scheme for Artificial recharge to Ground water

A major scheme for constructing 48,500 recharge structures like check dams and percolation ponds across the rivers, rivulets and streams all over the State in three years has been launched by Government of Tamil Nadu. This scheme with an estimated cost of Rs.550 crores is being implemented from the year 2008-09 through Water Resources Department, Agricultural Engineering Department, Forest Department and Tamil Nadu Water Supply and Sewerage Board. During 2008-09, 3388 Nos of Rain water harvesting structures such as Check dams (1283 Nos), Percolation Ponds (166 Nos), Farm Ponds (1169 Nos), Village Ponds (182 Nos) and Ground water recharge shafts (588 Nos) have been completed at a cost of Rs.2,496.05 lakhs. During 2009-10, it is proposed to continue this programme with the outlay of Rs.6,600 lakhs to construct 8,588 Nos of rainwater harvesting structures.

6. Schemes shared between Centre and State

6.1. Agricultural Mechanisation Programme

The Agricultural Mechanisation programme is being implemented in the State with an aim of popularising the Agricultural machinery among the farmers. This scheme is implemented under Macro Management of Agriculture with the funding pattern shared between Centre and State on 90:10 basis. 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 purchase agricultural machinery and equipments like power tillers, tractors, rotavators etc. as per the norms of Government of India. During 2008-09, subsidy assistance to the tune of Rs.99.63 lakhs have been given to farmers for procuring 147 Nos of tractors, 116 Nos of power tillers and 483 Nos of agricultural implements. During 2009-10, it is proposed to continue the programme to provide subsidy assistance to the tune of Rs.200 lakhs to farmers for procuring 80 tractors, 145 rotavators and 300 power tillers under this programme.

6.2. Soil and water conservation in the catchments of River Valley Project

The river valley project scheme 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 watersheds identified 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 funding pattern shared between Centre and State on 90:10 basis. Under this programme, soil conservation measures in community lands 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 2008-2009, soil conservation works have been completed in an area of 8,967 hectares and 1,563 structures have been constructed at an expenditure of Rs.1,064.12 lakhs in South Pennaiyar and Mettur River valley Catchments in Vellore, Tiruvannamalai, Villupuram, Dharmapuri, Krishnagiri and Salem districts. The programme will be continued during 2009-2010 to execute soil conservation works in an area of 9,300 hectares and to construct 1,850 structures at a cost of Rs.1,114 lakhs.

6.3. Command Area Development and Water Management Programme

Command Area Development and Water Management Programme has been implemented in various commands of the State. The scheme is implemented as a shared scheme with the funding pattern of 50:50 shared between Centre and State. During 2008-09, the programme was implemented in ongoing Cauvery Command in Thanjavur, Tiruvarur, Nagappattinam, Trichy and Cuddalore districts and in six new commands namely, Wellington Reservoir Project, Thirukoilur Anicut Project, Kodiveri Anicut Project, Vaniyar Reservoir Project, Ichambadi Anaicut Project, Gundar Chittar Karuppanadhi Project. One time functional grant 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. During 2008-09, a sum of Rs.303.65 lakhs has been given as one time functional grant to 151 Nos of farmers' council. During 2008-09, on farm development works were taken up in the above project areas at a total cost of Rs.5,301.75 lakhs which includes construction of field channel in an area of 20,798 hectare, construction of field drain in an area of 70,242 hectare and rotational water supply in an area of 29,752 hectare and the one time functional grant . The programme will be continued in the above six new commands during 2009-10 at an outlay of Rs.4,127.25 lakhs.

7. Central Sector Schemes

7.1. Central sector scheme for Demonstration of newly developed agricultural equipments and machinery

With a view to popularise improved Agricultural Machinery among the farming community, demonstrations of newly developed agricultural equipments and machinery is taken up in the farmer's fields. During 2008-09, 1,671 Nos. of demonstrations have been conducted at a cost of Rs.31.49 lakhs and 27 farm implements were purchased at a cost of Rs.18.12 lakhs for the purpose of conducting demonstrations. During 2009-10, it is programmed to conduct 809 demonstrations at a cost of Rs.19.50 lakhs and to purchase 28 farm implements at a cost of Rs.80.50 lakhs for the purpose of conducting demonstrations.

7.2. Central sector scheme for conducting training programme to farmers in the field of Agricultural Mechanisation.

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. During 2008-09, 60 Nos. of training programme to farmers have been conducted at a cost of Rs.14.89 lakhs. During 2009-10, it is proposed to conduct 200 training programmes to farmers at a cost of Rs.50 lakhs.

8. Machinery Hiring Programmes to farmers

8.1. Minor Irrigation Scheme

The department is having 30 Rotary Drills, 13 Percussion Drills, 24 Mini Drills, 97 Hand Boring Sets, 7 Long Hole Equipments and 47 RB units for hiring out to the farmers as per Government approved economic hire charges for taking up minor irrigation activities in their fields. Besides, the services of 18 A.C.Resistivity Meters and 3 Electrical Loggers are provided to farmers for locating well sites and aquifers. The programme will be continued during 2009-10 also.

8.2. Land Development programme

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, 85 bull dozers, 165 tractors and 28 combine harvesters are available in the Agricultural Engineering Department. The programme will be continued during 2009-10 also.