

## 7. TAMIL NADU WATERSHED DEVELOPMENT AGENCY

Irrigation is a powerful tool which ensures food security by offering protection against adverse seasonal conditions, sustained livelihood with stable farm income and greater opportunity for multiple cropping and crop diversification. Water and land are the two essential inputs for agriculture. Tamil Nadu is a water scarce state. Per capita (annual) water availability is only about 900 cubic meters as against the all-India average of 2200 cubic meters. The surface irrigation potential has been virtually exhausted while groundwater irrigation has increased due to rural electrification, the availability of affordable irrigation pump sets and free electricity provided by the state Government for agriculture use. Strengthening the irrigation infrastructure is the most important pre-requisite to the Sustainable growth of the Agriculture sector. With the focus on enhancing the productivity and increasing the income level of small and marginal farmers, Tamil Nadu Watershed Development Agency was established in 2002.

The primary objective is land development through prevention of soil erosion, water conservation and plantation activities. The watershed development programmes seek to promote economic development of village community, which is directly or indirectly dependent on watershed through optimum utilization of natural resources to mitigate drought and ecological degradation and generation of employment opportunities.

In tune with the State's attempt to promote water saving techniques, following watershed development programmes are implemented by Tamil Nadu Watershed Development Agency.

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Rs.31,361.86 Lakhs have been spent by the District Rural Development Agency and District Watershed Development Agency of 17 districts and a total area of 5.760 L.Ha. have been treated. In the last seven years, no new projects were sanctioned by Government of India. The Government of India have released the funds upto December 2013 and release of funds are stopped. All the Projects are now under Completion Stage and Impact Evaluation of the completed projects are in progress.

The Blockwise programme under implementation is given in Table.

### 2. Integrated Wasteland Development Programme (IWDP)

This scheme is implemented with an objective to harvest the rainwater and to bring the degraded lands into productive use under non-forest wasteland area. This programme is being implemented in 96 blocks of 24 districts.

On project basis, the watersheds are sanctioned by Government of India. Government of India have sanctioned 910 watersheds in 80 projects at a total cost of Rs.26,220 Lakhs to treat a total area of 4.576 L.Ha.

A total area of 4.161 L.Ha. have been treated in 24 districts utilizing the Government of India and State Government released amount of Rs.24,169.69 Lakhs of which Rs.23,882.99 Lakhs have been spent by District Rural Development Agencies and District Watershed Development Agencies.

In the last seven years, no new projects were sanctioned by Government of India. The Projects are under

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- Drought Prone Areas Programme (DPAP)
- Integrated Wasteland Development Programme (IWDP)
- National Watershed Development Project for Rainfed Areas (NWDPPRA)
- Integrated Watershed Management Programme (IWMP)
- Watershed Development Fund (WDF)
- Western Ghats Development Programme (WGDP)

In addition, the following schemes funded by Central Government are also implemented for which TAWDEVA is the Nodal Agency to Agriculture Department.

- National Agriculture Development Programme (NADP)
- National Food Security Mission (NFSM)
- Agriculture Technology Management Agency (ATMA)
- Agriculture Resource Information Systems and Networking (AGRISNET)
- National Project on Management of Soil Health & Fertility

Moreover, it will be the Nodal Agency for National Mission for Sustainable Agriculture from 2014-15.

### 1. Drought Prone Areas Programme (DPAP)

This scheme is being implemented from 1972-73 onwards in 80 notified blocks of 17 districts identified in Tamil Nadu, to mitigate the adverse effects of drought on the production of crops, productivity of land, water and human resources.

1,222 watersheds in 7 batches were sanctioned at a total project cost of Rs.33,670 Lakhs for treating a total area of 6.141 L.Ha. The Government of India and State Government have released Rs.31,696.45 Lakhs of which

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Completion Stage and Impact Evaluation of the completed projects are in progress. The list of blocks is given in Table.

### 3. National Watershed Development Project for Rainfed Areas (NWDPPRA)

National Watershed Development Project for Rainfed Areas (NWDPPRA) aimed at augmentation and stabilization of production and productivity, minimizing ecological degradation, reduction in regional disparity, opening up of greater opportunities for employment of rural poor in the rainfed areas is being implemented in Tamil Nadu from VIII Five Year Plan onwards. The expenditure is shared between Centre and State on 90:10 basis.

With a view to promulgate the twin concepts of Integrated Watershed Management and sustainable farming system further, an area of 1.156 L.Ha. covering 200 watersheds in 18 districts was proposed to be treated under NWDPPRA, during the 11<sup>th</sup> Five Year Plan. The estimated cost for this five year plan was Rs.6,936 Lakhs. Out of the total amount of Rs.4,408 Lakhs released upto 2012-13 to treat an area of 0.734 L.Ha., Rs.935.00 Lakhs was available as balance on 01.04.2013. With this amount, an area of 15,600 Ha. is planned to be treated. An expenditure of Rs.757.360 Lakhs has been incurred by way of treating 12,623 Ha. till March 2014.

During 2014-15, consolidation work with respect to XI Plan NWDPPRA will be taken up. The List of blocks wherein this programme is under implementation is given in Table.

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#### 4. Integrated Watershed Management Programme (IWMP)

The Integrated Watershed Management Programme (IWMP) is under implementation during the last five years by Integrating Drought Prone Area Programme, Integrated Wasteland Development Programme & National Watershed Development Project for Rainfed Areas schemes. The Drought Prone Areas Programme, Integrated Wasteland Development Programme and National Watershed Development Project for Rainfed Areas are nearing completion.

The Integrated Watershed Management Programme is implemented in accordance with the common Guidelines given by Government of India. The key features of Common Guidelines include innovativeness in the approach, delegating powers to different stakeholders, strengthening dedicated institutions with multi-disciplinary professionals at the State, District and Panchayat level. Social, gender and economic equity in sharing enhanced productivity and livelihood has been emphasized. Multi-tier ridge to valley system approach, community participation are the important features.

During last five years, this scheme is being implemented in 24 districts covering 2,413 watersheds. The scheme expenditure is shared by the Central and State Governments in the ratio of 90:10.

From inception, the Government of India have sanctioned a project cost of Rs.1,45,156.68 Lakhs over a project period of 5 - 7 years for treating 12.096 L.Ha.

#### The Process

User Groups are formed by the District Watershed Development Agency (DWDA) in the watersheds and the works are implemented through them. The Watershed Committee is empowered to select the required Development works for the watershed and get the approval of the Grama Sabha and Administrative sanction from the District Collector / Chairman.

The watershed committee consists of 10 members of which 5 members are nominated one each from User Group, Self Help Group, SC / ST, Landless women, Watershed Development Team Member and the committee needs to be registered under the Tamil Nadu Registration Act 1975. While the Secretary is nominated by the committee, the Grama Shaba is empowered to select or elect the Chairman of the committee.

The various activities taken up under the Integrated Watershed Management Programme, Drought Prone Areas Programme, Integrated Wasteland Development Programme and National Watershed Development Project for Rainfed Areas Programme are as follows:-

#### Entry Point Activities

For getting the confidence of the villagers and ensure their participation in the implementation process, entry point activities like Augmentation of drinking water, maintaining natural resources, ground water recharge, construction of drying yard, thrashing floor and small and minor bridges are being taken up.

#### Objectives

- Watershed Approach for efficient watershed management and balanced use of natural resources and livelihood by mobilizing social capital.
- Harnessing, conserving and developing natural resources to restore ecological balance.
- Resource development usage to promote farming and allied activities, to promote local livelihood, to ensure resource conservation and regeneration.
- Conserving water in watershed areas by following multi-tier approach to create sustainable water resources and to have sustainable source of income for the rural community.
- Planning, monitoring and evaluation of the programmes by utilizing the Information Technology and remote sensing inputs
- Promoting overall development in rural areas.

#### The Basis

The Government of India have issued specific guidelines for the implementation of watershed programmes based on which the watershed programmes are being implemented in a participatory mode throughout the project period of 5 - 7 years. The action plan for the watershed activities are being prepared by the Village Panchayat / Watershed Committee and after getting the approval of the District Collector as Chairman of the watershed, the scheme is implemented. The directions given by the State Government are also adhered to.

#### Institutional and Capacity Building

To various levels of stake holders like State / District level officers, Project Implementing Agency, Members of Watershed Development Team, Watershed Committee, Self Help Group, User Group, Watershed Secretaries and Watershed beneficiaries, need based training is provided for which 5% of the total project cost is allotted.

#### Development Activities

The following development activities are carried out in private land.

S. No.	Activity	Components
1	Land Development	Land leveling, Contour Bunding, Silt Application, Stone Bunding, Retaining Wall, Summer Ploughing, Vegetative Bunding and Continuous Trenching.
2	Water Resources Development	Percolation pond, Formation of New Tank / Oorani, Farm Pond, Desilting of Existing Tanks and Supply Channels.
3	Plantation Activities	Horticulture Plantation, Socio-Agro Forestry, Fodder Development, Crop Demonstration and Homestead Garden.
4	Common Property Development	Check dam, Cattle pond, Supply channels, Desilting of Ooranis, Desilting of tanks and ponds, Community nursery formation and Agro forestry plantation are carried out in common land.

## Farm Production System and Micro Enterprises

To encourage individual or Group a grant to the maximum of Rs.24,000/- is provided to carry out the value added activities in Agriculture and Horticulture produce, seed production and processing, vermi-compost, mushroom cultivation, dairy farming and poultry, brick making, terracotta and pottery making, custom hiring of farm implements, palm crafts, Agarbathi making, mat weaving and event management for which 10% funds have been allocated.

## Self Help Group and Livelihood interventions for Landless Farmers

Revolving funds are provided for promotion of Group Activities like planting, watering, watch & ward of plantations and other assets, community nurseries, fodder development, fodder banking, storage godown, seed processing, groundnut shelling unit, custom hiring of harvester, draught animals, dairy farming management, live stock and backyard poultry and Emu & Japan Quails or other activities for which Landless Farmers Group, Self Help Group and User Group are formed in the watershed area. The revolving fund is given at free of interest needs to be repaid for providing revolving funds to other Groups on rotation basis.

The Year Wise Projects Sanctioned by Government of India under IWMP is given below.

Sl. No	Batch - Year	No. of projects	No. of Micro watersheds	Project Area (L.Ha.)	Project Cost (Rs. in Lakhs)	Fund Released so far (Rs. in Lakhs)	Expenditure (Rs. in Lakhs)	Area Treated (L.Ha.)
1	2009-10	50	517	2.600	31,207.00	19,840.22	17,378.063	1.45
2	2010-11	62	632	3.110	37,319.00	18,668.20	15,466.375	1.29
3	2011-12	56	483	2.711	32,531.00	10,822.61	8,642.251	0.72
4	2012-13	32	361	1.715	20,584.00	3,236.703	1,932.895	0.16
5	2013-14	39	420	1.959	23,515.68	1,203.744	658.834	0.06
	<b>Total</b>	<b>239</b>	<b>2,413</b>	<b>12.095</b>	<b>1,45,156.68</b>	<b>53,771.48</b>	<b>44,082.382</b>	<b>3.68</b>

So far an expenditure of Rs.44,082.382 Lakhs has been incurred towards preliminary and developmental activities and an area of 3.68 L.Ha. has been treated.

For the year 2014-15, it is planned to cover 1.596 L.Ha. of watershed area under new projects in 19 districts with a total cost of Rs.191.62 Lakhs in 5 years.

List of blocks wherein this programme is under implementation is given in Table.

### Success in Integrated Watershed Management Programme

A humble rainfed farmer of Thandarai Pudukchery Watershed in Acharapakkam block of Kancheepuram district by creation of farm pond of size 30m x 30m x 1.20m at a cost of Rs.50,000/- through IWMP scheme have harvested

rain water to provide critical irrigation to his groundnut crop to get additional yield. Through the guidance offered by the DWDA officials, he has grown fish in his farm pond. He could harvest 550 kgs of fish and prawn and earned an additional profit of Rs.90,000/- in just 6 months apart from the excess profit of Rs.20,000/- that he earned through increased groundnut yields by giving critical irrigation.

### Details of various watershed programmes being implemented by TAWDEVA

Sl. No	Details	DPAP	IWDP	NWDPR	IWMP
1	Share between Centre and State (Ratio)	75:25	11:1	90:10	90:10
2	Districts covered (No)	17	24	18	24
3	Blocks covered (No)	80	96	45	147
4	Sanctioned projects (No)	7	80	200	200
5	Watersheds (No)	1,222	910	200	2,413
6	Area to be treated (in L.Ha.)	6.141	4.576	1.156	12.095 (7 years)
7	Area actually treated (in L.Ha.)	5.760	4.161	0.734	3.680
8	Project duration (Year)	5	5	5	5 - 7
9	Per unit cost / Ha (Rs.)	6,000	6,000	6,000	12,000
10	Contribution by beneficiary General (%)	10	10	10	10
	SC/ST & Common Land (%)	5	5	5	5

### 5. Watershed Development Fund (WDF) assisted by NABARD:

With the assistance of NABARD, 100 watershed projects at a cost of Rs.6,000 Lakhs are under treatment through Tamil Nadu Watershed Development Agency.

#### Objectives

- ❖ Watershed areas where the concentration of SC/ST population and rainfed farming is maximum are to be treated under the scheme.
- ❖ To treat watersheds where the irrigated area is below 30%.
- ❖ To treat the watersheds where Water scarcity and Soil erosion are high.
- ❖ To implement the project through NGOs, the Project Facilitating Agency.
- ❖ To create the awareness on the importance of the Watershed Development Fund Project.
- ❖ To select a work through Participatory Rural Appraisal by the Constitution of Village Watershed Committee, User Groups and Self-helps Groups and develop the watersheds.

#### Project Details

The project is under implementation in 3 phases as per the new guidelines. The unit cost per Hectare is Rs.12,000/- of which 70% of the cost is apportioned for physical treatment, 10% for Administrative overheads, 7.5% for Livelihood support for landless farmer & women and 12.5% for Community Organization & Training programmes.

**Phase I & II :** By involving Non - Government organization (NGO) and Village Watershed Committee, capacity building

is being done during the first 18 months and feasibility study is being done in the next 6 months with the full grant by NABARD.

**Phase III :** The first 50% of the works will be done by Tamil Nadu Watershed Development Agency and the rest 50% works will be done on grant basis by NABARD, after getting approval of the Project Sanctioning Committee for full Implementation Phase. The rate of interest is 4.5% for the loan amount received from NABARD and the repayment period 9 years ie.,3 years after availing Loan.

At present for implementing the projects, NABARD granted fully for 12 watersheds and assisted on loan basis to 142 watersheds. In addition, 3 watersheds are under grant basis by Corporate Social Responsibility. Out of 142 watersheds, 97 are in full implementation phase funded by TAWDEVA. To treat an area of 0.430 L.Ha. an amount of Rs.2,022.296 Lakhs has been spent.

Sl. No.	Details	WDF
1	State Share (Ratio)	50 % State 50% NABARD
2	Districts covered (No)	24
3	Blocks covered (No)	78
4	Sanctioned projects (No)	162
5	Watersheds (No)	162
6	Area to be treated (in L.Ha.)	2.074
7	Area actually treated (in L.Ha.)	0.430
8	Project duration (Year)	5 – 7
9	Unit cost / Ha (Rs.)	12000
10	Contribution by beneficiary General (%) SC/ST & Common Land (%)	16 Shramadhan

List of blocks wherein this programme is under implementation is given in Table

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Development and Special Initiatives Department. In the district level, the scheme is being implemented through District Watershed Development Agency. The District Collector as the Chairman of the DWDA is closely monitoring the programme. An amount of Rs.2,284 Lakhs has been sanctioned during 2013-14 for the implementation of Development Works and Rs.2,284 Lakhs has been utilized. This programme will be implemented during 2014-15 with an allocation of Rs.2,284 Lakhs.

#### 7. Watershed Greening Project

Watershed Greening project is being implemented from 2012-13 to uplift and Integrate the Village level economy with reference to the Soil and Water Conservation structures created. The activities are mainly based on seed to sale by involving beneficiaries on cluster mode in the watershed areas and also integrating all schemes implemented by Agriculture and line departments. At present the project is being successfully launched by dovetailing the NADP funds at Natarpatti Watershed in Trichy district and Thumberi Watershed in Vellore district only. So far Rs.103 Lakhs has been spent for the development of clusters.

#### 8. National Agriculture Development Programme (NADP)

National Agriculture Development Programme / Rashtriya Krishi Vikas Yojana was launched with an aim to achieve an annual growth rate of 4% in agriculture sector. The scheme is being implemented in the State with funds received as Additional Central Assistance from Government of India since its inception.

Tamil Nadu Watershed Development Agency (TAWDEVA) acts as the Nodal Agency for NADP for

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#### 6. Western Ghats Development Programme (WGDP)

To ensure eco-restoration, eco-development and eco-protection, Western Ghats Development Programme is under implementation. Maintenance of the ecological balance, Preservation of genetic diversity, Restoration of ecological system damaged by human interaction, Creation of awareness among the people and educating them on the far-reaching implications of ecological degradation and securing their active participation in the eco-development schemes, Preservation, Restoration and Stabilization of the Natural Resources, Protection of Soil Erosion and Improvement of Rain Water Harvesting, improving the Livelihood standards of the Tribals and Adi Dravidars, Development of Agriculture and Horticulture, Income generation activities through Animal Husbandry and Khadi Village Industries, Creation of Capacity Building and Infrastructure activities to the Watershed people are the objectives of the programme.

Tamil Nadu Watershed Development Agency is implementing this programme through watershed approach initially in Dindigul, Madurai and Theni districts and subsequently from 2012-13 onwards in Virudhunagar & Tirunelveli districts, further extended to Coimbatore, Tiruppur & Kanyakumari districts from 2013-14. The entire Western Ghats districts in Tamil Nadu are being covered by Tamil Nadu Watershed Development Agency.

The programme is implemented on participatory mode with the Line Departments like Forest and Environment, Agricultural Engineering, Agriculture, Horticulture, Tribal and Adi Dravidar Welfare Department, Animal Husbandry, DRDA, Fisheries, Tourism, Town Panchayat, Renewable Energy, and Khadi village industries. The funding for implementation of the project is received from Union Planning Commission by the State Planning,

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coordinating with the Government of India and all Implementing Departments in the State.

#### Objectives

- ❖ To promote participation of farmers in cluster mode in agriculture.
- ❖ To provide flexibility in the process of planning.
- ❖ To ensure that the local needs / crops / priorities are better reflected in the agricultural plan.
- ❖ Reducing yield gap in key crops through focused interventions.
- ❖ To maximize returns to the farmers.
- ❖ Bringing quantifiable changes in the production and productivity of agriculture and allied sectors.

As prescribed in the RKVY Operational Guidelines issued for the 12<sup>th</sup> Five Year Plan, the District Agriculture Plans, State Agriculture Plan and State Agriculture Infrastructure Development Programme are being prepared by the Tamil Nadu Agricultural University based on the State's priorities set for the 12<sup>th</sup> Five Year Plan and in line with the Vision 2023 phase II document.

Agriculture oriented schemes of Departments of Agriculture, Horticulture, Agricultural Engineering, Tamil Nadu Agricultural University, Seed Certification, Agricultural Marketing, Animal Husbandry, Dairy Development & Milk Production, Fisheries, Tamil Nadu Veterinary & Animal Sciences University, Tamil Nadu Fisheries University, Tamil Nadu Civil Supplies Corporation, Co-operation Department and Public Works Department are being implemented under this programme.

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The State Level Sanctioning Committee (SLSC) has been constituted with the Chief Secretary to Government as Chairman and the Agricultural Production Commissioner and Secretary to Government as Vice Chairman & Member Secretary with GOI officials, Secretaries and HoDs of various State Departments as members. SLSC is the apex body which sanctions the project proposals, monitors and reviews the implementation of NADP in the State. The project proposals received from agriculture and allied departments based on Government of India allocation are placed before the State Level Sanctioning Committee (SLSC), for discussion and approval. State Government issues Government order for the SLSC approved projects and the funds are released to the implementing departments accordingly.

**Year wise Government of India release and expenditure details**

(Rs. in Lakhs)

Sl. No.	Year	GOI Release	Expenditure
1	2007-08	15,360	18,312*
2	2008-09	14,038	14,475*
3	2009-10	12,790	12,790
4	2010-11	25,003	25,003
5	2011-12	33,306	33,174
6	2012-13	61,327	63,485*
7	2013-14	26,996	27,735*
	<b>Total</b>	<b>1,88,820</b>	<b>1,94,974</b>

\* The excess expenditure incurred over and above the GOI release with respect to the fund sanctioned in State Level Sanctioning Committee (SLSC) has been met out from the State fund.

**XII Five Year Plan objective**

The total geographical area of Tamil Nadu State has been delineated into 18,568 micro watersheds covering an area of 130.27 L.Ha. The treatable micro watersheds in the state is 11,116 Nos. covering an area of 60.85 L.Ha. Out of the treatable micro watersheds, so far during the XII FYP, 781 Nos. of watersheds were covered to treat an area of 3.674 L.Ha. under Rural Development Ministry of Government of India with the sharing of State Government. For the year 2014-15, an area of 1.596 L.Ha. will be sanctioned by Government of India under IWMP. It is proposed to include the remaining watersheds to be treated in the XII Five Year Plan period.

**State Level Data Centre**

For efficient management and scientific planning of watersheds, a State Level Data Centre (SLDC) with core GIS facilities with spatial and non-spatial data have been established at TAWDEVA and augmented with satellite imagery data and Global Positioning System.

In the last five years, 239 IWMP projects are implemented in 2,413 watersheds sanctioned by GOI. The watersheds are digitized and Cadastral Maps are incorporated in the watershed boundary by using GIS. The details like Latitude and Longitude, Survey number etc., of all developmental works carried out under IWMP are collected and verified with available satellite imagery of IRS and Google Earth at SLDC. Using GIS Applications the watershed works are checked with accuracy and overlapping of watersheds with other watershed schemes are avoided. The Thematic maps like Soil, Topography, Land Capability, Slope, Drainage, Land use etc., are prepared for every watershed. The SLDC conducted GIS and GPS training to field level functionaries at district level.

**GIS functionality in nutshell at SLDC includes:**

- ❖ Creation of Polygon to avoid overlapping through marking of watershed boundaries.
- ❖ For evaluation through satellite remote sensing images and Global Positioning System consistent monitoring the execution of developmental works in the watersheds are carried out.
- ❖ Various important thematic maps vital for watershed planning and archived systematically at SLDC are made available through Internet for the benefit of District Watershed Development Agencies, other line departments and common public.

**8. AGRICULTURAL EDUCATION, RESEARCH AND EXTENSION EDUCATION**

Tamil Nadu is one of the water starved States, where the per capita availability of water resources is 900 cubic meters per year as compared to all India average of 2,200 cubic meters. The Gross Cropped Area (GCA) which was 62.26 L.Ha (including area under Horticulture crops) during 2001-02 has come down to 57.53 L.Ha during 2010-11. Of this, 33.48 L.Ha (58%) are under irrigated condition and 24.05 L.Ha (42%) are rainfed. Tamil Nadu contributes approximately, three per cent of the food grain production, 12 per cent of fruit production and 24 per cent of flower production in India. Tamil Nadu state, which is surging ahead in all fronts, has created a history in the annals of agriculture of the state by obtaining the highest food grain production of 101.52 L.MT during 2011-12. As per the fourth advance estimate for 2013-14, the food grain production is 110.65 L.MT. It is now incumbent on all the institutions to sustain this peak and improve further to attain the goal of five per cent rate of growth envisaged under the Hon'ble Chief Minister's Tamil Nadu Vision 2023.

Tamil Nadu Agricultural University is focusing its activities in six major domains such as Agricultural Education, Agricultural Research, Agricultural Extension Education, Agri Business Development, Agricultural Policy Support and Open and Distance Learning to enable youth to develop their skills in farming, farming related activities and farm business ventures, to meet the global challenges of food production.

The major initiatives are production and supply of quality seeds, promoting System of Rice Intensification(SRI), Sustainable Sugarcane Initiative(SSI),