

Tamil Nadu Water Supply and Drainage Board

DEMAND NO. 48

WATER SUPPLY

2001-2002

The Government is firmly committed to the goal of providing safe drinking water and sanitation facilities to the entire population of the State. The Government is equally committed to the objective of ensuring source and system sustainability. Despite the efforts put forth in the past, there is a growing concern over the widening gap between the expectations of the people and the achievements. Paucity of funds, overexploitation of water resources, degradation of water recharge structures, competing demand on the available water resources, depleting water availability due to continuous failure of monsoon are some of the factors that cause concern on the supply front. In addition, on the demand side, factors like growing urbanisation, increase in population, changing life styles, tariff structures which do not reflect the scarcity and economic value of water, inadequate institutional and legislative framework also increase the complexity of the problem. A comprehensive approach is called for to address the issues facing the sector. The Government is determined to initiate all measures that are necessary to steer the sector in the right direction by launching holistic and integrated water management policies. The intervention will cover areas such as water conservation, ground water recharge and augmentation of ground water sources and control of wastage of water etc.

2 Two statutory Boards, namely, (a) Tamilnadu Water Supply and Drainage Board and (b) Chennai Metropolitan Water Supply and Sewerage Board are the major Governmental agencies through which the Government implements schemes to provide drinking water and sanitation facilities to the rural and urban areas of the State.

Tamilnadu Water Supply and Drainage Board

3 The Tamilnadu Water Supply and Drainage Board (TWAD Board), which came into being on 14.04.1971, is vested with the responsibility of investigation, formulation and execution of water supply and sewerage schemes in the entire State of Tamilnadu except Chennai Metropolitan area.

Tamil Nadu Water Supply and Drainage Board (TWAD Board), has over the years, built up its capacity and capability considerably in all sectors ensuring effective implementation of the water supply and sewerage programmes of the Government. Among the resources available with the TWAD Board are -

A work force of 12,000 with 2,200 qualified engineering professionals and 9,800 technical and managerial personnel.

Fleet of 40 drilling rigs engaged in creating drinking water sources and 6 hydrofracturing units deployed for enhancing the yield of new and failed sources.

Hydrogeology wing utilising state-of-the-art technology like remote sensing, aerial mapping, and Geographical Information System (GIS) application for ground water prospecting and management.

A network of 30 water testing laboratories for water quality surveillance.

Computer Aided Design (CAD) facilities for detailed engineering and estimation.

Training Centers at Chennai, Madurai, Trichy and Coimbatore to improve the human resource potential through skill upgradation and technology enhancement training programmes.

4 Norms for providing drinking water

4.1 Rural Water Supply Programme

4.1.1 The following norms are adopted for providing potable drinking water to the rural areas.

40 litres per capita per day (40 lpcd).

Details for 40 litres per capita per day

Purpose	Quantity (lpcd)
Drinking	3
Cooking	5
Bathing	15
Other purposes	17
Total	40

Wherever sources permit, a norm of 55 lpcd is adopted with provision for individual house service connections in such habitations.

4.2 Urban Water Supply Programme

4.2.1 The norms for providing water supply in urban areas are as under:

Corporation 110 Litres per capita per day.

Municipal towns 90 Litres per capita per day.

Town Panchayats 70 Litres per capita per day.

5 Funding Pattern

5.1 Financing Rural Water Supply Programme

5.1.1 Water supply schemes to rural areas are implemented on full grant basis under State aided Minimum Needs Programme (MNP) and Centrally sponsored 'Accelerated Rural Water Supply Programme' (ARWSP).

5.2 Financing Urban Water Supply Programme

5.2.1 Water supply schemes to urban areas are implemented with the following financial support;

Of 611 town panchayats, 244 town panchayats have been classified as rural town panchayats for the purpose of providing drinking water supply and water supply schemes are implemented to these **244 rural town panchayats on 100 % grant basis.**

In respect of other urban towns, generally the urban local bodies are expected to raise the capital outlay out of their own resources including loans from Government or from other financial institutions. The Government however provides subsidy to urban towns wherever the financial resources of urban towns are poor. The quantum of subsidy is decided on a case by case basis and grant is provided to the urban local bodies to the extent required to make the scheme financially viable.

Apart from the above, Government of India sponsored 'Accelerated Urban Water Supply Programme' is under implementation in urban towns with a population of less than 20,000. Under this programme, 50% of the estimated cost is provided as grant by Government of India, 45 % is provided as grant by the State Government and the remaining 5 % is collected by way of contribution from the beneficiary local body.

6 Status of Water Supply in Tamilnadu

6.1 Status of Rural Water Supply

6.1.1 Periodical surveys are conducted in the rural areas to assess the status of water supply. Based on the levels of supply, rural habitations are classified into four categories as under:

'not-covered', i.e. habitations with no supply.

'no safe source', i.e. habitations affected with quality problems.

'partially covered', i.e. habitations with supply below 40 lpcd.

'fully covered', i.e. habitations provided with 40 lpcd .

6.1.2 The status of rural habitations as on 01.04.2001 is as follows :

Status	No. of Habitations
Not covered	Nil
No safe source	931
Partially covered	4,085
Fully covered	61,615
Total	66,631

6.1.3 The status of water supply is a dynamic concept rather than a static one. As per the current practice, as and when a habitation is provided with full coverage, it is reclassified as fully covered habitation. Any change in the status after the installation of water supply scheme is not taken into account until a new survey is carried out. Thus although 61,615 habitations are classified as fully covered as on 1.4.2001, in reality several of these habitations may get only partial supply because of the following factors -

Increase in population.

Decrease in the performance of the local sources due to over extraction.

Quality degradation.

Deficient recharge of ground water due to monsoon failures.

Failure of system units.

6.1.4 The Government, therefore, has now decided that rural water supply programmes from the year 2002-2003 should be based on a fresh survey to truly reflect the ground reality. The Government has also decided that in addition to the comprehensive surveys, the data base should be updated at least once in a year by devising a system of getting regular feed back from rural habitations.

6.2 Status of Urban Water Supply

6.2.1 In Tamilnadu, there are 718 towns (excluding Chennai Corporation) comprising 5 corporations, 102 municipalities, 367 urban town panchayats and 244 rural town panchayats. Depending upon the present levels of service available, the urban towns are classified into three categories viz., good, average and poor.

(In litres per capita per day)			
Good	Average	Poor	
Corporation	110 & above	70 – 109	Less than 70
Municipality	90 & above	50 – 89	Less than 50
Urban Town Panchayat	70 & above	40 – 69	Less than 40
Rural Town panchayats	70 & above	40 – 69	Less than 40

6.2.2 Based on the above classification, the following is the prevailing status of water supply in the urban towns.

Water Supply Status					
Good	Average	Poor			
1	Corporations	5	-	5	-
2	Municipalities	102	31	37	34
3	Urban town panchayats	367	138	124	105
4	Rural town panchayats	244	79	79	86
	Total	718	248	245	225

7 Programme for the year 2001 – 2002

7.1 Rural Water Supply Programme

7.1.1 The highlights of the programme for 2001-2002 are:

Provision of individual power pump schemes to 4085 rural habitations.

Completion of 51 comprehensive water supply schemes benefitting 1784 rural habitations.

Considering the prevailing scarcity conditions, the Hon'ble Chief Minister has directed that handpumps be provided to 2,500 rural habitations on a war footing basis where the source had gone dry

Hon'ble Chief Minister has also directed that a **new programme should be taken up during the current year to provide mini power pump schemes with ground level reservoirs in place of the existing handpumps to relieve the stress and strain that women face in extracting water from handpumps where water level has gone below 40 metres.** The programme will be implemented enlisting the active cooperation of the local women and the responsibility of operation and maintenance of the programme will also be vested with the local users.

Provision of individual power pump schemes with alternate good quality sources to 900 habitations affected by quality problem.

Installation of **desalination plants based on reverse osmosis technology in 48 locations in Ramanathapuram District benefitting 110 salinity affected rural habitations.**

Installation of **on-site low cost treatment plants in 50 locations on a pilot basis to treat water affected by excess nitrate, iron, hardness etc., as directed by the Hon'ble Chief Minister of Tamilnadu.**

7.1.2 In addition to the above programme, it is proposed to implement water supply schemes to Government schools and Public Health Centres in rural areas as detailed below :

The programme to cover Government schools in rural areas will be speeded up and as against the coverage of about 2500 schools per year, **it is proposed to cover all the balance 9016 Government schools under the programme during the current year itself.**

As a **new initiative, starting from this year, the Government has proposed to provide water supply facility with a 1000 litre capacity elevated water tank in the premises of Primary Health Centres itself**, with a view to provide drinking water to the patients and the public visiting the Primary Health Centres located in rural areas. This programme will be completed over a period of two years.

7.2 Urban Water Supply Programme

7.2.1 Presently, 150 schemes covering 2 Corporations, 33 Municipalities and 169 town panchayats are under implementation at a total estimated cost of Rs.641.47 crores. It is programmed to complete 55 schemes this year covering 2 Corporations, 8 Municipalities and 53 town panchayats, at a total estimated cost of Rs. 163.61 crores benefitting a population of 20 lakhs.

7.2.2 Under the centrally sponsored Accelerated Urban Water Supply Programme, the Government of India have so far sanctioned water supply schemes to 34 towns at an estimated cost of Rs. 54.46 crore. Water supply schemes to 18 towns have been completed and commissioned so far. Out of the remaining 16 towns where the schemes are under progress, the works in 6 towns will be completed during 2001-2002.

8 Special Programmes

8.1 Sector Reform Projects in Rural Water Supply Sector

8.1.1 From the financial year 1999-2000 onwards, the Government of India is providing incentives to the States which initiate steps for institutionalising community participation in the rural water supply programme in the form of additional funds over and above the funds allotted under ARWSP. To avail the incentives, the State Governments are required to implement Sector Reform Process broadly consisting of the following elements.

Adoption of a demand driven approach based on empowerment of villagers to ensure their full participation in the project through a decision making role in the choice of scheme design and management arrangement

Focus on village level capacity building (Village Water and Sanitation Committees).

Ensure an integrated service delivery mechanism by streamlining the functions of the agencies involved in project implementation.

10 % minimum capital cost sharing by users. The contribution can be in the form of cash or kind (labour, land or material).

Taking up conservation measures for sustained supply of water through rainwater harvesting and ground water recharge structures.

8.1.2 This programme is under implementation in the following four districts in the State.

Coimbatore

Vellore

Cuddalore

Perambalur (composite)

8.1.3 The Govt. of India has sanctioned Rs. 40.00 crores for each district and released Rs. 11.22 crores for each district as first installment for the implementation of the programme.

8.1.4 The performance on the implementation of the sector reform projects in the pilot districts for the year 2000-2001 and the programme for the year 2001-2002 are as follows:

Progress for the year 2000-2001 and Programme for 2001-2002

Progress during 2000-2001		Programme for the year 2001-2002		
Schemes taken up	Estimate cost (Rs. In crores)	Budget (Rs. In crores)		
1	Coimbatore	96	5.18	7.50
2	Vellore	363	2.82	7.50
3	Cuddalore	20	0.76	7.50
4	Perambalur	32	1.93	7.50
TOTAL		511	10.69	30.00

8.2 Project for Sustainability of Drinking Water Sources

8.2.1 A project for ensuring sustainability of drinking water sources in rural areas is proposed to be undertaken commencing from this year under the Centrally Sponsored programme (PMGY) with assistance from the Government of India. Schemes will be taken up this year for implementation through construction of recharge structures across small streams/ rivers in rural areas.

8.3 "Save Water" Integrated Management Programme for Urban Towns (SWIM)

8.3.1 While the Government accords high priority for installing new water supply schemes for augmenting water supply to the urban towns, the Government also recognises the need to maintain the water supply system already created in an optimum condition and derive full benefit of such assets. The water supply systems in many of the urban towns are in a degraded state resulting in avoidable water shortages. Although the operation and maintenance of water supply schemes is the responsibility of the urban local bodies and the urban local bodies are often aware of the degradation of the water supply schemes maintained by them, they are unable to rectify the situation due to financial constraints. The Government, therefore, intends to launch "Save Water Integrated Management" Programme,

commencing from 2001-2002, to tone up the existing water supply systems in urban towns. The programme will be implemented as a six-point package with financial assistance from the Tamilnadu Urban Development Fund (TNUDF).

8.3.2 The six-point package (TWEAKS) will cover the following aspects.

Toning up the existing water supply system. This will include addressing unaccounted for water (UFW) issues, repairs to pipelines, renovation of reservoirs, etc.

Waste water management. This will include improving/installing appropriate sullage and sewage disposal systems, covering reuse/recycle aspects.

Energy audit. Optimisation of the performance of electrical installations, replacement of underperforming pumps, etc.

Accounting improvements. This will include separation of water supply accounts from the general accounts, computerisation of billing, book-keeping and monitoring, etc.

Knowledge upgradation. This will cover water literacy, water conservation awareness and Human Resource Development (HRD) aspects.

Sustainability. This will address 'source sustainability' issues like prevention of pollution of water sources, protection of water sheds, rainwater harvesting and groundwater recharge, etc., as also 'system sustainability' issues like appropriate pricing policies, standardisation of O&M procedures, annual inspection by TWAD Board, and periodical water quality testing.

8.3.3 The programme will be introduced in select towns in the current year and will be extended to more number of towns in the ensuing years.

8.4 Special programmes for Drinking Water Scarce Areas

8.4.1 The Honourable Chief Minister has directed that special schemes to benefit drinking water scarce areas should be formulated and implemented. With a view to avail external assistance to such major water supply projects, a token provision of Rs.10 crores has been made in the current year's budget.

8.4.1.1 Hogenakkal Water Supply and Sanitation Project

Hogenakkal Water Supply and Sanitation project with River Cauvery as source has been formulated to benefit the entire Dharmapuri District. This project is estimated to cost Rs.1008 crores and the scheme is proposed to be implemented with external financial assistance.

8.4.1.2 Ramanathapuram Combined Water Supply Project

Ramanathapuram Combined Water Supply Project will be formulated with River Cauvery as source, specially to benefit the drought prone Ramanathapuram District. The project, estimated to cost around Rs.850 crores, will benefit 3 Municipalities, 9 Town Panchayats and 2100 Rural Habitations in Ramanathapuram, Sivagangai and Pudukkottai Districts. This project will also be implemented with external financial assistance.

8.4.1.3 Sedapatti – Andipatti CWSS

A Combined Water Supply Scheme to benefit Sedapatti, Usilampatti, Andipatti and T. Kallupatti areas of Madurai District will be formulated with River Vaigai as source. The project, estimated to cost around Rs.100 crores, will benefit Usilampatti Municipality, 4 Town Panchayats and 447 Rural Habitations in Sedapatti, Andipatti and Usilampatti Unions.

8.4.1.4 Avinashi - Athikadavu Water Recharge Project

A project to recharge the ground water sources by diversion and storage of surplus water from River Bhavani in select tanks and ponds located in Nambiyur, Uthukuli, Chennimalai, Perundururai and Bhavanisagar Panchayat unions of Erode District and Annur, Avinashi, Karamadai, Sulur and Sarkarsamakulam Panchayat Unions of Coimbatore District has been mooted. A feasibility report has been prepared through a consultant and the report is under consideration of the Government for taking appropriate further action.

9 Maintenance of Comprehensive Water Supply Schemes

9.1 At present, TWAD Board is maintaining 457 combined water supply schemes benefitting 4 Corporation, 22 Municipalities, 60 Urban Town Panchayats, 129 Rural Town Panchayats, 6825 rural habitations in 2017 village panchayats and 279 other organisations/ industries benefitting a population of 1.40 crores. During the year 51 combined schemes under implementation will be completed and taken up for maintenance by TWAD Board. An expenditure of around Rs.65.00 crores is being incurred on the maintenance of these schemes.

9.2 Operation and Maintenance of Individual Rural Water Supply Schemes

9.2.1 A new concept to entrust the maintenance responsibility of Individual rural water supply schemes to the village water and sanitation committee (VWSC) of the village will be developed by the Government so that the rural community maintains its own water supply assets as per its need in a more efficient way. The VWSC will be empowered on the following:

Operation and maintenance of water systems with local skilled personnel including supply of spares, chemicals, periodical cleaning of water tanks, disinfection etc.

Rehabilitation and renovation of existing system units to improve process efficiency.

Augmentation measures/addition of sources for enhancement of service levels.

Collection of nominal water charges from households and commercial establishments towards revenue generation for meeting maintenance expenses.

10 Sewerage Schemes

10.1 Status

10.1.1 At present, partial underground sewerage schemes are in operation only in 16 towns in Tamilnadu.

10.2 Schemes under implementation

10.2.1 National River Conservation Project

10.2.1 During this year, it is proposed to take up New Underground Sewerage schemes in the following towns under the centrally sponsored National River Conservation Programme (NRCP).

Tirunelveli Corporation

Trichy Corporation

Thanjavur Municipality

Myladuthurai Municipality

Karur Municipality

Inam Karur Town Panchayat

Rameswaram Town Panchayat

Tiruchendur Town Panchayat

10.2.1.2 The above works will be undertaken at an estimated cost of Rs.355.00 crores with financial assistance from the Central and State Governments. Under this programme, the Government of India extends grants ranging from 38 to 58%.

10.2.1.3 In addition CMWSS Board will also undertake sewerage schemes in Madurai Corporation and Kumbakonam Municipality areas at an estimated cost of Rs.216.00 crores under NRCP.

10.2.2 National River Action Plan

10.2.2.1 Under the National River Action Plan, works are undertaken for interception, diversion and treatment of sewage flowing into River Cauvery in Trichy, Erode, Bhavani, Pallipalayam and Komarapalaym stretches. The works are carried out at an estimated cost of Rs.30.41 crores with assistance from Government of India.

10.3 Master Plan for Urban Towns

10.3.1 The Government recognises the need to provide underground sewerage systems in large towns. A Master Plan to cover the urban towns with underground sewerage schemes will be prepared. The master plan will also provide for exploring the possibilities of adopting alternative technology options for the safe disposal and recycling of wastewater. An Action Plan for providing sewerage schemes for all the municipal towns will be drawn up and implemented in a phased manner.

11 Ground Water Recharge and Rainwater Harvesting (RWH)

11.1 Ground water is the major source for most of the drinking water supply schemes. As much as 90 % of the rural population and 70 % of urban population get their drinking water supplies from the ground water sources. In recent years, the ground water level is depleting at an alarming rate. Several factors like continuous failure of monsoon, overexploitation by various users and deforestation have contributed to this situation. In Tamilnadu, as many as 52 blocks have been classified as overexploited blocks where the ground water extraction has exceeded the recharge level, 37 blocks have been classified as dark area blocks where the ground water extraction is more than 85 % of the estimated recharge and 86 blocks have been classified as grey areas where the exploitation is between 65 % to 85 %.

11.2 Recharge is a slow process. Ground water recharge particularly is a slow and arduous process in Tamilnadu, where 73 % of the geographical area is covered with hard crystalline formation and where the annual rainfall occurs during a short spell of few days. Rainfall is the only source of recharge for replenishing the ground water sources. Moreover, recharge through natural process accounts only for 10 to 25 % of the total recharge that occurs in the State. Most of the recharge is helped through the vast network of tanks, ooranis, eris and kanmais that have been built in the past. The declining levels of ground water indicates that many of the rain water catchments are in degraded state and their holding capacities have been reduced considerably due to factors like siltation, encroachments, conversion of rain water holding structures for other uses, etc. It is therefore necessary that this dangerous trend of degeneration is halted and immediate remedial measures are undertaken.

The Government considers this as a major thrust area and proposes to initiate a massive programme for Rainwater Harvesting and Groundwater Recharge.

11.3 TWAD Board in association with UNICEF launched a pilot project during the year 1994 to study the effectiveness of rain water harvesting structures constructed in a micro water shed. An evaluation conducted recently indicates that the rainwater harvesting structures contributed considerably to the ground water regime enhancing both quality and quantity parameters. It has been found that all the target wells in the project area became sustainable after the intervention of the project.

11.4 TWAD Board in association with the Anna University undertook an exercise to identify optimum locations for the construction of rainwater harvesting structures throughout the State, using Remote Sensing Technology. The study has identified 13,357 structures that need to be constructed/improved. The details of these structures are given below:

Desilting of tanks 5266

Check dams 6055

Percolation ponds 1201

Recharge pits 684

Subsurface dykes 82

Nalabunds 69

11.5 It is estimated that Rs. 263 crores would be required to undertake the above project. The Government has proposed to implement the project in a phased manner.

11.6 Apart from the above project prepared from the point of view of recharging drinking water sources, it is also necessary to draw up a larger plan to improve the recharge capacity in the entire State in general. The Government proposes to initiate measures to prepare a master plan for this purpose covering all potential water sheds and geological formations in the State based on the data available with different government departments on hydrogeological factors. Based on such a master plan, a major project for rainwater harvesting/ground water recharge will be formulated by the Government in a scientific and systematic manner. The project when undertaken will have enormous significance in improving the sub surface ground water position, the overall environment and ensuring sustainability in providing for the growing needs of rural/urban drinking water requirements.

11.7 The Government proposes to enlist the participation of the Public and Non Governmental Organisations (NGOs) in propagating and installing rainwater harvesting structures. Every single household can construct and benefit from rainwater harvesting. Every rooftop and any open space is a potential catchment area for rainwater harvesting. A significant portion of demand for water is still met from private wells owned by individual households in urban areas and rainwater harvesting can both sustain and augment these wells. Even the households which do not have wells can harness rainwater and use it to meet their requirements directly. Appropriate regulatory and legislative measures will also be considered for enforcement.

12 The importance of water supply and sanitation sector can not be overemphasised. It is no longer seen as a mere provider of the basic needs. The health, environment and empowerment spin-offs are equally significant. For example, provision of safe water and sanitation facilities considerably reduces health costs, both for individuals and the community as a whole. Reduced morbidity rate improves the productivity of human resource. Ready access to drinking water supply frees women's and girl children's time on finding and hauling water day after day, which can be spent on productive uses like employment and education. For all these reasons, investment in water supply and sanitation sector is considered as an investment towards improving the quality of life of the people, which ultimately is the purpose of all Government programmes.

FINANCIAL OUTLAY

Under Demand No.48 - Water Supply - the total outlay for Water Supply is 159.10 Crores of which Rs.37.71 Crores are provided for Plan Schemes. A sum of Rs.534.91 Crores are provided as Capital Outlay for Water Supply under Plan Schemes.

REVISED BUDGET ESTIMATE 2001-2002

TABLE - I

DEMAND - 48

	HEAD OF ACCOUNT	PLAN	NON PLAN	TOTAL (Rs. in lakhs)
2215	Maintenance of Ground Water Supply	--	68.48	68.48
	Grants to CMWSS Board for supply of water to Cancer Institute at concessional rate	--	7.60	7.60

	Maintenance and Repairs of City Water Supply Sources	--	17.00	17.00
	Rural Water Supply Programme	--	5.05	5.05

	HEAD OF ACCOUNT	PLAN	NON PLAN	TOTAL (Rs. in lakhs)
	Assistance to TWAD Board for the repayment of Loan and Interest to LIC for Rural Water Supply Scheme	--	8924.75	8924.75
	Assistance to TWAD Board for the repayment of Loan and Interest to HUDCO for Rural Water Supply	--	3115.92	3115.92
	Grants to CMWSS Board for upgradation of Water Supply Distribution under Second Chennai Water Supply project	2710.00	--	2710.00
	Grants to TWAD Board for the execution of accelerated Urban Water Supply Programme	1060.61	--	1060.61

2215	Grants to NTADCL for contribution to Water Shortage Fund	1.00	--	1.00 (Token)
	GRAND TOTAL	3771.61	--	15910.41

TABLE-II

DEMAND - 48/60 - WATER SUPPLY

	HEAD OF ACCOUNT	PLAN	NON PLAN	TOTAL (Rs. in lakhs)
4215	Capital Grants to Urban Local Bodies for Water Supply Scheme	7150.00	--	7150.00
	Rural Water Supply under Minimum Needs Programme	27400.00	--	27400.00
4215	RWS under Minimum Needs Programme – special component plan for Schedule Casts.	13700.00	--	13700.00
	World Bank Aided Tamil Nadu Water Supply under Sanitation Project	1000.00	--	1000.00
4215	Capital grants to Urban Local Bodies for Sewerage Scheme	4240.99	--	4240.99
	GRAND TOTAL			53490.99