



MUNICIPAL ADMINISTRATION AND WATER SUPPLY DEPARTMENT

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GOVERNMENT OF TAMIL NADU
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6. Tamil Nadu Water Supply and Drainage Board

Tamil Nadu Water Supply and Drainage Board was formed as a statutory body on 14.04.1971 with the objective of providing protected water supply to the Rural and Urban population as well as Under Ground Sewerage Schemes to the urban local bodies in Tamil Nadu excluding Chennai Corporation. The Board office at Chennai is headed by the Managing Director supported by Technical, Financial and Administrative Wings. At present, the TWAD Board has four Chief Engineers with Headquarters at Vellore, Thanjavur, Coimbatore and Madurai and one Project Chief Engineer at Dharmapuri.

6.1 Activities of TWAD Board

- a. Planning, Investigation, Design, Implementation and Commissioning of

Water Supply and Sewerage Schemes in Rural and Urban areas.

- b. Operation and Maintenance of Combined Water Supply Schemes.
- c. Water Quality Monitoring and Surveillance Programme.
- d. Sustainability of Drinking Water Sources.
- e. Training Activities.

6.2 Rural Water Supply Programme

The Government of India, considering that 40 lpcd has been the norm over the last 40 years, as an interim measure has enhanced the service level to 55 lpcd for the 12th Five year Plan. By 2017, it is targeted that at least 50% of Rural Population in the Country shall have access to 55 lpcd within their household premises or within 100 metres radius (and within 10 metres elevation in hilly areas) from their households.

Water Supply schemes to Rural Habitations are implemented based on surveys to assess the gap between current supply and the service standard. Rural Water Supply Schemes are being implemented with State Government Funds under the Minimum Needs Programme (MNP) and with the Central Government Funds under the National Rural Drinking Water Programme (NRDWP).

The Rural water supply includes implementation of Individual Power Pump schemes for the prioritized Rural Habitations involving creation of water source (borewell/open well), construction of Service Reservoir and laying of pipe line for transmission and distribution. When the beneficiary is an individual local body, the scheme is handed over to the local body for maintenance on completion of the scheme and when the scheme is meant for more than one

local body, the scheme is maintained by TWAD Board. Besides providing water supply schemes to rural habitations, TWAD Board is also implementing schemes to provide water supply to Government Schools, Anganwadis, Government Hostels and Primary Health Centres in rural areas.

In Tamil Nadu, as on 01.04.2014, there are 1,00,018 rural habitations. Out of this, 85,946 habitations are fully covered with water supply at 40 lpcd and the balance 14,072 habitations are partially covered, including 415 Quality affected habitations. During 2014-15, 4,510 partially covered habitations have been taken up for full coverage with water supply at 55 lpcd including 61 quality affected habitations. 5,815 partially covered habitations (including 354 quality affected habitations) have already been taken up in the ongoing

Combined Water Supply Schemes. It is proposed to cover the remaining 3,747 partially covered habitations during 2015-16.

6.3 Rural Water Supply during 2014-15

During 2014-15, 4,805 partially covered Rural Habitations have been taken up at a cost of ₹831.83 Crore and 4,510 Rural Habitations have so far been covered. The details are given below:-

Sl. No.	Description	Habitations covered
1.	Coverage through Individual Power Pump Schemes	1,449
2.	Coverage of Quality Affected Habitations	61
3.	Coverage through Combined Water Supply Schemes	3,000
Total		4,510

The remaining 295 Quality affected Habitations which are proposed to be covered in Major Combined Water Supply Schemes in Nagapattinam District will be completed during 2015-16.

6.4 Rural Water Supply Programme for 2015-16

During the year 2015-16, **4,500** Rural habitations are proposed to be covered through ongoing Major Combined Water Supply Schemes and other than Major Combined Water Supply Schemes at a cost of **₹1281.32 Crore**.

Sl. No.	Description	Habitations to be covered
1.	Coverage through Combined Water Supply Schemes	663
2.	Coverage through Major Combined Water Supply Schemes	3,837
	Total	4,500

6.5 Source Sustainability

Besides implementation of water supply schemes, TWAD Board has taken measures to augment ground water sources towards source sustainability by creating recharge structures such as check dam, recharge shafts, percolation ponds etc., under Government of India and State Government Assisted Programmes.

During the years 2011-12, 2012-13 and 2013-14, **2,667** Recharge Structures have been constructed at a cost of **₹172.10 Crore**. During the year 2014-15, **681** Recharge Structures were taken up at an estimated cost of **₹56.14 crore** and have been completed.

6.6 Combined Water Supply Schemes

In order to provide sustainable and potable water supply to the public, TWAD Board formulates and implements Combined Water

Supply Schemes in coastal, quality affected and needy areas by combining more than one local body and based on common source of water supply viz., Rivers, Dams and Reservoirs. Combined Water Supply Schemes are implemented by TWAD Board benefitting both urban and rural local bodies.

During 2014-15, **38** such schemes were under implementation at an estimated cost of **₹1078.37 crore** to benefit **35.76 lakh** people with financial assistance from the Minimum Needs Programme (MNP), the National Rural Drinking Water Programme (NRDWP), Jawaharlal Nehru National Urban Renewal Mission (JnNURM), Urban Infrastructure Development Scheme for Small and Medium Towns (UIDSSMT) etc.,

The following **12 Combined Water Supply Schemes**, have been completed at an estimated cost of **₹199.15 crore**, benefiting **8.89 lakh** people:-

Sl. No.	Name of scheme	Estimate amount (₹ in crore)	Population benefitted (in lakh)
1	CWSS to 254 Rural habitations in Vadamadurai and Veda sandur Unions Under Dindigul CWSS in Dindigul District	9.91	0.95
2	CWSS to Koodappalli and 129 habitations of Musiri and Manachanallur Unions in Trichy District	16.16	0.73
3	CWSS to 40 Habitations in Pallapalayam, Andankoil East, and Andankoil West Panchayats in Thanthoni Union of Karur District	6.43	0.29

Sl. No.	Name of scheme	Estimate amount (₹ in crore)	Population benefited (in lakh)
4	CWSS to 23 Habitations in Painkulam Panchayat in Kanyakumari District	0.92	0.26
5	CWSS to 116 Quality affected habitations of Kumbakonam and Thiruvaidaimaruthur Unions in Thanjavur District	17.00	0.69
6	CWSS to 6 Habitations of Keelanatham Panchayat in Tirunelveli District	0.99	0.09
7	CWSS to Uthukuli Town Panchayat and 238 rural habitations in Uthukuli union in Tiruppur District	27.57	0.56
8	CWSS to 130 habitations in Perundurai and Chennimalai Unions in Erode District.	14.94	0.29
9	CWSS to Vedsandur, Palayam, Oddanchatram (now upgraded as Municipality) Kannivadi, Srirampuram Town Panchayats with bulk provision to 739 rural habitations in Dindigul District and 25 rural habitations in Karur District. (Phase -I)	38.01	3.58

Sl. No.	Name of scheme	Estimate amount (₹ in crore)	Population benefitted (in lakh)
10	CWSS to 327 Rural Habitations in Edapadi, Konganapuram and Magudanchavadi Unions of Salem District	46.45	0.91
11	CWSS to 93 Habitations in Erode Union in Erode District	11.30	0.48
12	Improving the existing CWSS to 43 and 45 habs with river Tamiraparani as source to enhance the water supply to the existing beneficiaries and to provide water supply to 1196 Tsunami houses in Mappillaiyoorani Panchayat in Thoothukudi District	9.47	0.06
	Total	199.15	8.89

Further, the following **24 Combined Water Supply Schemes** at a cost of **₹735.31** crore to benefit a population of **23.46 lakh** are in progress:-

Sl. No.	Name of Scheme	Estimate Amount (₹ in Crore)	Population (in Lakh)	Physical progress
1	CWSS to 306 rural habitations in Perambalur, Veppanthattai, and Alathur Unions, Arumbavur and Poolambadi Town Panchayats in Perambalur District	61.11	2.57	93% works completed
2	CWSS to 212 Rural Habitations in Andhanallur, Manikandam and Manapparai Unions in Trichy District	48.67	1.14	93% works completed
3	CWSS to Udangudi TP and 30 Habs in Alwarthirunagari (Part), Thiruchendur (part), Sathankulam (part) and Udangudi (part) Unions in Thoothukudi District	9.19	0.30	80% works completed

Sl. No.	Name of Scheme	Estimate Amount (₹ in Crore)	Population (in Lakh)	Physical progress
4	CWSS to 90 Rural Habitations in Karungulam (Part), Srivaikundam (Part) and Thoothukudi (Part) Unions in Thoothukudi District	17.17	0.48	70% works completed.
5	CWSS to Zamin Uthukuli Town Panchayat and 63 Rural Habitations in Coimbatore District	15.47	0.39	68 % works completed
6	CWSS to 34 Rural Habitations in Manur and Palayamkottai Unions in Tirunelveli District	6.35	0.22	65% works completed.
7	CWSS to 248 rural habitations in Kovilpatti (Part), Kayathar (Part), Ottapidaram (part), Vilathikulam (part) and Pudur (Part) unions in Thoothukudi District.	94.04	1.25	60% works completed.

Sl. No.	Name of Scheme	Estimate Amount (₹ in Crore)	Population (in Lakh)	Physical progress
8	CWSS to 158 Rural Habitations in Gudimangalam and Udumalaipettai Unions in Tiruppur District	54.14	1.23	60% work completed
9	CWSS to Vellakoil, Kangayem Municipalities and 528 Rural habitations in Erode and Tiruppur Districts.	91.40	4.72	58% works completed.
10	Augmentation of Water supply to 147 Rural Habitations of Alangulam-Sankarankoil Unions in Tirunelveli District	31.32	1.56	50% works completed.
11	Augmentation of water supply to 185 habitations in 9 village panchayats of Karamadai union in Coimbatore District	42.94	0.81	45 % works completed
12	CWSS to Keelapavoor Town Panchayat (Part) and 163 Rural Habitations in Pappakudi (Part), Kadayam and Keelapavoor Unions in Tirunelveli District	46.55	1.55	43% works completed.

Sl. No.	Name of Scheme	Estimate Amount (₹ in Crore)	Population (in Lakh)	Physical progress
13	CWSS to 170 Rural Habitations in Manur union (Part) and Palayamkottai Union(Part) in Tirunelveli District	32.40	1.13	37% works completed.
14	CWSS to Mulligur and 54 rural habitations in Mulligur, Italar and Nanjanadu Village Panchayats in Udhagamandalam union in Nilgiris District	25.85	0.30	10% works completed
15	CWSS to 60 quality affected and 59 wayside habitations in Kattumannarkoil Union and Lalpettai Town Panchayat in Cuddalore District	18.16	0.60	8% works completed.
16	CWSS to Koodankulam and 12 other Village Panchayats (100 Habitations) of Radhapuram and Valliyoor Unions situated around Koodankulam Nuclear Power Plant	68.10	0.88	8% works completed.

Sl. No.	Name of Scheme	Estimate Amount (₹ in Crore)	Population (in Lakh)	Physical progress
17	CWSIS to 88 habitations in Karapadi and 5 other Village Panchayats, in Bhavanisagar and Nambiyur Unions.	11.72	0.19	5% works completed.
18	CWSS to Athangaraipatty and 14 Habitations in Kadamalaikundu - Mayiladumparai Unions	2.65	0.07	Work order issued on 07.08.15 & work commenced
19	CWSS to 101 rural habitations in Thoppampatti Union (under Veda sandur CWSS in Dindigul District)	4.11	0.43	Works restarted on 07.10.2014. Water reached Navagani sump from where trial run under progress & water supply effected to 3 Habitations

Sl. No.	Name of Scheme	Estimate Amount (₹ in Crore)	Population (in Lakh)	Physical progress
20	CWSS to 235 habitations in Gujiliamparai, Vendasandur and Oddanchatram Unions in Dindigul District (under Vendasandur CWSS in Dindigul District)	5.50	0.73	Works restarted on 17.10.2014. Trial run under progress & water supply effected to 180 Habitations
21	CWSS to 93 habitations in Oddanchatram union (under Vendasandur CWSS in Dindigul District)	9.37	0.37	Works restarted on 16.10.2014. Trial run under progress & water supply effected to 87 Habitations

Sl. No.	Name of Scheme	Estimate Amount (₹ in Crore)	Population (in Lakh)	Physical progress
22	CWSS to 109 rural habitations in Oddanchatram Union (under Veda sandur CWSS in Dindigul District)	4.08	0.59	Works restarted on 10.10.2014. Trial run under progress & water supply effected to 36 Habitations
23	CWSS to 201 rural habitations in Reddiarchatram Union (under Veda sandur CWSS in Dindigul District)	8.96	0.86	Works restarted on 13.10.2014. Trial run under progress & water supply effected to 58 Habitations

Sl. No.	Name of Scheme	Estimate Amount (₹ in Crore)	Population (in Lakh)	Physical progress
24	CWSS to 281 rural habitations of Jeyankondam Union in Ariyalur District	26.06	1.09	Works restarted on 09.12.2014 & 34% works completed
	Total	735.31	23.46	

The following **2 Combined Water Supply Schemes** at a cost of **₹143.91 crore** to benefit a population of **3.41 lakh** are under Tender Stage:-

Sl. No.	Name of Scheme	District	Estimate amount (₹ in crore)	Population (in lakh)
1	CWSS to 253 rural habitations in Kulithalai and Thogamalai Unions	Karur	52.75	0.69
2	CWSS to 1262 Habitations in Vellakoil, Mulanur, Dharapuram, Kundadam. Kangayam Unions in Tiruppur District and Chennimalai Union in Erode District - Phase - II	Tiruppur and Erode	91.16	2.72
	Total		143.91	3.41

6.7 Major Combined Water Supply Schemes

During 2014-15, 17 major combined water supply schemes were under implementation at an estimated cost of **₹5825.18 crore** to benefit **135.21 lakh** people with financial assistance from the Minimum Needs Programme (MNP), the National Rural Drinking Water Programme (NRDWP), Jawaharlal Nehru National Urban Renewal Mission (JnNURM), Urban Infrastructure Development Scheme for Small and Medium Towns (UIDSSMT), Integrated Urban Development Mission, KfW and HUDCO loan assistance.

The following **3 Major Combined Water Supply Schemes**, have been completed at an estimated cost of **₹633 crore**, benefiting **22.15 lakh** people:-

Sl. No.	Name of Scheme	Estimate Cost (₹ in crore)	Population (in Lakh)	Physical progress
1	Combined Water Supply Scheme to Attur & Narasingapuram Municipalities, 20 Town Panchayats and 1345 Rural Habitations in Salem District.	270.00	13.09	Scheme completed and inaugurated by the Hon'ble Chief Minister on 29.05.2015
2	Combined Water Supply Scheme to 7 Town Panchayats and 395 Rural Habitations in Virudhunagar District.	173.00	4.82	
3	Combined Water Supply Scheme to 637 Rural Habitations in Virudhunagar District	190.00	4.24	
	Sub Total - I	633.00	22.15	

The following **8 Major Combined Water Supply Schemes** at a cost of **₹3783.06** crore to benefit a population of **85.40 lakh** are in progress and it is programmed to complete in 2015-16:-

Sl. No.	Name of Scheme	Estimate Cost (₹ in crore)	Population (in Lakh)	Physical progress
	Schemes to be completed during 2015-16			
1	Combined Water Supply Scheme to Melur, 2 Municipalities, 6 Town Panchayats and 1430 Rural Habitations in Madurai District and Singampunari Town Panchayat in Sivagangai District	784.00	15.92	97% works completed and under Trial run

Sl. No.	Name of Scheme	Estimate Cost (₹ in crore)	Population (in Lakh)	Physical progress
2	Combined Water Supply Scheme to Vellore Corporation, 11 Municipalities, 5 Town Panchayats and 944 Wayside Rural Habitations in Vellore District.	1295.00	24.46	96% works completed and under Trial run
3	Augmentation of Water Supply to Palladam Municipality, 23 Town Panchayats and 965 Rural Habitations in Coimbatore and Tiruppur Districts	224.92	12.29	95% works completed and under Trial run
4	CWSS to 1751 Rural Habitations in Pudukottai District and Vallam Town Panchayat in Thanjavur District	315.70	7.63	81% works completed.
5	CWSS to 1766 Rural Habitations in Pudukottai District and 125 Habitations in Sivagangai District.	301.50	6.65	73% works completed.

Sl. No.	Name of Scheme	Estimate Cost (₹ in crore)	Population (in Lakh)	Physical progress
6	CWSS to Cuddalore Municipality, Bhuvanagiri and Parangipettai Town Panchayats and 812 Rural Habitations in Cuddalore District	260.54	7.75	69% works completed.
7	Combined Water Supply Scheme to 295 Quality affected Habitations and 315 wayside Habitations in Nagapattinam District	105.70	3.70	56% works completed.
8	CWSS to 1153 Rural Habitations and Peravurani, Adhiramapattinam and Perumagalur Town Panchayats in Thanjavur District	495.70	7.00	38% works completed.
	Sub Total - II	3783.06	85.40	

Further, the following **6 Major Combined Water Supply Schemes** at a cost of **₹1409.12** crore to benefit a population of **27.66 lakh** are in progress and it is programmed to complete in 2016-17:-

Sl. No.	Name of Scheme	Estimate Cost (₹ in crore)	Population (in Lakh)	Physical progress in Percentage
Schemes to be completed during 2016-17				
1	Combined Water Supply Scheme to 755 Rural Habitations in Virudhunagar District	234.00	6.51	33% works completed.
2	CWSS to Natham, 2 Town Panchayats & 1276 Rural Habitations with bulk provision to 2 Town Panchayats & 354 Rural Habitations in Dindigul District & 135 Rural	636.00	10.94	Works commenced

Sl. No.	Name of Scheme	Estimate Cost (₹ in crore)	Population (in Lakh)	Physical progress in Percentage
	Habitations in Trichy District			
3	CWSS to Thondamuthur, 6 Town Panchayats and 134 Rural Habitations in Coimbatore District	130.46	1.83	Tender finalised and work order issued
4	CWSS to Azhagiypandipuram, 8 Town Panchayats and 246 Rural Habitations in Kanyakumari District	109.80	2.96	Tender finalised and work order issued

Sl. No.	Name of Scheme	Estimate Cost (₹ in crore)	Population (in Lakh)	Physical progress in Percentage
5	CWSS to 698 Rural Habitations in Nangavalli and Mecheri unions with bulk provision to 6 Town Panchayats in Salem District	158.64	3.93	Tender finalised and work order issued
6	CWSS to 293 rural Habitations in Thathaiyangarpettai, Thuraiyur and Uppiliyapuram Unions of Trichy District.	140.22	1.49	Tender Stage
	Sub Total - III	1409.12	27.66	
	Grand Total	5825.18	135.21	

6.8 Revamping of Combined Water Supply Schemes

Revamping works are taken up in the age-old Combined Water Supply Schemes maintained by TWAD Board in which a reduction in yield of sources or a decrease in the efficiency of pumpsets and damages in pipe lines, valves due to road widening etc., are encountered. These revamping works are carried out to make the CWSS fully functional and to enhance the supply to the designed level to the beneficiaries. During 2014-15, **₹55.12 crore** has been allotted for **746 revamping works** under NRDWP / SMS and the works were completed.

The category wise works are as below:-

Sl. No.	Category	No. of works taken up	Estimate cost (₹ in crore)
1	Source Improvement	32	4.17
2	Booster Pumping Stations	6	0.67
3	Sumps	8	0.57
4	Replacement of aged Pumpsets	138	5.57
5	Valves	163	3.19
6	Replacement of dilapidated Over Head Tanks	6	0.35
7	Replacement of Pipelines damaged due to road widening	322	34.96
8	Providing Separate Power Feeder Mains/ 4 th Wire	7	3.43
9	Providing Surge Protection System	2	0.10
10	Providing Water Meter	55	1.66
11	Revamping works of Water Treatment Plants, providing compound wall at Booster Stations.	7	0.45
	Total	746	55.12

6.9 Special Programmes

Provision of safe drinking water to Government Schools, Anganwadis, Government Hostels and Primary Health Centres is the avowed policy of the Government. The achievement under this programme during 2014-15 is as mentioned below:-

- Water supply to 578 Anganwadis.
- Water Supply to 287 Government Schools in Rural Areas.
- Water supply to 13 Primary Health Centres in Rural Areas.
- Water supply to 5 Government Hostels in Rural Areas.

It is proposed to take up new schemes during 2015-16 as and when the requirement arises for the concerned Departments.

6.10 Water Quality Surveillance and Monitoring

In order to achieve the objective of ensuring safe water supply to the public, TWAD Board has established one State level, 31 District level and 51 sub division level laboratories. These laboratories have facilities for testing all the basic chemical and bacteriological water quality parameters and for effective surveillance and monitoring of water supply sources in both Rural and Urban areas. It is pertinent to note that the State Level Laboratory is graded as an ISO 9001: 2008 certified Laboratory. This laboratory has been recognized as State Referral Institute for Tamil Nadu by the Government of India.

During the year 2014-15, 75,000 water samples have been tested in state and district laboratories with State funds. In

addition 2.46 lakh water samples have been tested in the sub-division laboratories under NRDWP. 12,524 Field water testing kits were supplied to the Panchayats. 15,000 grass root level workers were trained for using Field water testing kits.

During 2015-16, it is proposed to test nearly 75,000 water samples in state and district laboratories with State funds. It is also proposed to test 2.46 lakh water samples in the sub-division laboratories under NRDWP. 12,524 Field water testing kits will be supplied to panchayats. It is proposed to give training for 15,000 grass root level functionaries for using Field water testing kits.

6.11 Drinking water Safety Week Campaign

Considering the safety of human life by ensuring quality of drinking water, the

Government of Tamil Nadu have decided to conduct a week long campaign on water quality every year.

During 2014-15, Drinking Water Safety Week Campaign was conducted from 16.03.2015 to 22.03.2015. 31 District rallies, 385 Block rallies, 12,524 Panchayat rallies/meetings took part in the campaign for creating water quality awareness. 13,524 Field water testing kits were given free of cost to all panchayats. 26,374 teachers were trained for water testing and 26,374 pump operators / Anganwadi workers were trained for water sample collection. Nearly 5 lakh water samples were collected and tested.

6.12 Urban Water Supply Programme

The Urban water supply include implementation of stand-alone water supply

scheme to the urban local bodies involving creation of water source, construction of Service Reservoirs, laying of pipeline for transmission and distribution according to the population. The maintenance of the urban water supply scheme is decided depending upon the number of beneficiary local bodies.

6.12.1 Urban stand alone Water Supply Improvement Schemes under Implementation

In the year 2014-2015, Water Supply Improvement Schemes were under implementation in **41** Urban local bodies covering **18** Municipalities and **23** Town Panchayats, to benefit a population of **16.14 lakh**, at a total cost of **₹579.77 crore**. So far, **21** Water Supply Improvement Schemes benefiting a population of **4.89 lakh** in **4** Municipalities and **17** Town Panchayats at an

estimated cost of **₹129.96 crore** have been completed. Balance, **20 Urban** Stand alone Water Supply Improvement Schemes to benefit a population of **11.25 lakh** in **14** Municipalities and **6** Town Panchayats at a cost of **₹449.81 crore** are in various stages of progress.

In addition, Water Supply Improvement Scheme to Kodaikanal Municipality to benefit a population of 36,501 at an estimate cost of ₹46.31 crore has been taken up and is under tender stage.

6.13 Hogenakkal Water Supply and Fluorosis Mitigation Project

6.13.1 Water Supply Component

The successful Completion of the Hogenakkal Water Supply and Fluorosis Mitigation Project is a major achievement

and a boon to the people living in the fluoride affected areas of Dharmapuri and Krishnagiri Districts. This project is meant to cover **3 Municipalities, 17 Town Panchayats** and **6,755 Rural habitations** in **18 Panchayat Unions** in both the Districts to benefit a population of **33.87 Lakh** (Census-2011) at an estimated cost of **₹1,928.80 Crore**. Subsequently, 961 **new rural habitations** have been added to this Project and the total rural beneficiary will now be **7,716 habitations**.

This project has been inaugurated by the Hon'ble Chief Minister on 29.5.2013. Presently water supply is being provided to **3 Municipalities, 17 Town Panchayats** and **6,675 Rural habitations** benefiting a population of **32 lakh**. On an average 120 Million litres of water is being supplied every

day under this project. For **184 habitations** in Thally and Kelamangalam forest areas, works are under progress and water supply will be effected by October 2015. The works pertaining to supply of water to **960** habitations in Bargur Union which was delayed due to widening of National Highway will be completed by October 2015.

6.13.2 Fluorosis Mitigation Component

Fluorosis Mitigation Component is implemented on a comprehensive three-pronged strategy i.e., Hospitals, Schools and Community based approaches in coordination with Medical and Education Departments along with the District Administration to assess the level of incidence of Dental, Skeletal and Non-Skeletal fluorosis among the public in both Dharmapuri and Krishnagiri

districts and to undertake mitigation measures through awareness and life style modification, nutritional supplementation and medical treatment.

All 840 Government Doctors in both the Districts have been trained to diagnose the fluorosis among the patients and to prescribe preventive measures. 3,785 trained School teachers conducted survey on the prevalence of dental fluorosis among 4,24,713 students. 100% household health survey on prevalence of fluorosis in 6,54,551 households covering the present population of 33 lakh in both Dharmapuri and Krishnagiri districts was completed by engaging 418 trained Village Health Nurses and 1,887 trained Village Voluntary members from NGOs.

Micro nutrient tablets of 106 lakh numbers procured at a cost of ₹11.52 lakhs have been supplied to the Public Health Centres and are now being distributed to the Fluorosis affected persons. 6 Ion meters and chemicals to test urine and serum have been distributed to the 4 Government Hospitals in Dharmapuri and Krishnagiri Districts at a cost of ₹32.50 lakh.

It has also been planned to procure Medical Equipments through Tamil Nadu Medical Services Corporation at an estimated cost of ₹2.40 crore so as to distribute the same to the Government Hospitals and Primary Health Centres functioning in these two districts. Nearly 124 Nos. of equipments are required for Dental and Ortho Surgery, such as Dental Arm Chair, Fully Automated Analyser, Dental Oral Imaging system,

Dental X-Ray Unit, Digital X-ray Unit, Auto
clave, Ultrasonic equipment and other related
equipments. At present, 14 Dental Arm
Chairs have been procured and issued to the
concerned hospitals. The balance equipments
will be distributed before October 2015.

It has been programmed to conduct 36
Medical camps in 18 Panchayats Unions in
Dharmapuri and Krishnagiri Districts to carry
out screening of 1,76,253 Dental Fluorosis
and 22,056 Skeletal Fluorosis affected person
identified under the completed Health Survey
for treatment through surgical interventions.
So far 8 camps completed and core
committee have identified 45 skeletal
Fluorosis affected patients. The balance
medical camps is planned to be completed by
October 2015. Necessary fund allocation has

been made for the treatment to the affected persons.

The Core Committee of Specialist Doctors formed have identified Indian Dental Academy, Hyderabad, to provide special training to the field level Doctors on treatment for dental fluorosis. Specialized Training to cover 30 Dentists in both Dharmapuri and Krishnagiri Districts has been started from July 2015 onwards. So far 10 Doctors have been trained and the balance 20 Doctors will be provided training before December 2015.

Rehabilitation measures and surgical interventions for the identified dental and skeletal fluorosis cases in the planned medical camps in both districts are proposed to be completed by March 2016.

6.14 Operation and Maintenance of

CWSS

The CWSS covering more than one local body are being maintained by TWAD Board as per G.O. (Ms) No.84, Municipal Administration and Water Supply Department, dated 10.03.1994. As on 01.04.2014, **545** Combined Water Supply Schemes were under the maintenance of TWAD Board. At present, taking into account of 7 schemes which were handed over to local body, 8 schemes which were merged with other CWSS and 2 schemes which were taken over for maintenance on completion, **532** Combined Water Supply Schemes are under maintenance. At present 200 MLD for **7 Corporations**, 172 MLD for **52 Municipalities**, 241 MLD for **281 Town**

Panchayats, 797 MLD for **32920 Rural habitations** and 90 MLD for **532 Industries/Institutions** totally 1,520 MLD water is supplied daily through 532 CWSS benefitting a polulation of benefiting a population of **3.42 crore**.

The expenditure for the Operation & Maintenance during the year 2014-15 is **₹466.79 crore**. The Revenue collected through water charges is **₹220.38 crore**.

6.15 Investigation and Preparation of Detailed Project Reports for Water Supply Schemes

6.15.1 Combined Water Supply Schemes

TWAD Board has taken up investigation for providing 42 Water Supply Schemes during 2014-15 at an estimated cost of

₹7563.29 crore to benefit a total population of 82.07 Lakh.

Out of 42 Schemes, tenders are to be called for, for 5 Water Supply Schemes covering 2 Municipalities, 16 Town Panchayats and 1,479 Rural Habitations, to benefit a population of 12.08 Lakh, sanctioned at a total cost of ₹905.01 crore. 15 Schemes covering 8 Municipalities, 18 Town Panchayats and 2489 Rural Habitations to benefit a population of 18.63 Lakh at an estimated cost of ₹1982.21 crore are in various stages of sanction. Detailed Project Report for 22 Water Supply Schemes to cover 2 Corporations, 6 Municipalities, 19 Town Panchayats and 5,500 Rural Habitations to benefit a population of 51.36 Lakh are under preparation at a tentative cost of ₹4676.07 crore.

6.15.2 Desalination Plants

Considering the existing scenario of non sustainable supply and the prevailing drinking water quality problems in Ramanathapuram and Thoothukudi Districts and with an objective of providing permanent measure to provide enhanced supply of 55 lpcd in Rural Habitations and 135 lpcd in Urban areas, in all seasons, it was announced to install Desalination Plants in these Districts.

Administrative Sanction has been accorded for **₹1355 crore**, for setting up of Desalination Plants of **60 mld** capacity each at Kuthiraimozhi in Ramanathapuram District and at Alanthalai in Thoothukudi District, benefiting a population of **3.20 Lakh** in Ramanathapuram District and **8.05 Lakh** in Thoothukudi District.

6.15.3 Formation of Water Supply Grid between Chennai & Bangalore exclusively for Industrial needs

To meet out the industrial Water Supply needs and to encourage setting up of new industries along Chennai-Bangalore Industrial Corridor, TWAD Board had carried out detailed investigation. In all, 10,881 industries have been identified between Chennai and Hosur and grouped into 46 industrial clusters. To cater to the Water Supply needs of these industrial clusters, a Pre-Feasibility Report has been prepared.

As directed by the Tamil Nadu Infrastructure Development Board (TNIDB), Detailed Project Report for Ponneri and Hosur Industrial nodes are under preparation, as Phase-I.

6.16 Under Ground Sewerage Schemes

TWAD Board is implementing Under Ground Sewerage Schemes in selected District Head quareters and other than District Head quareter towns.

In line with the objective of the Tamil Nadu Government to provide Under Ground Sewerage Scheme to all the Urban Local Bodies, TWAD Board has prepared **636** Detailed Project Reports at an estimated cost of **₹20,820 Crore** to provide UGSS to **3 Corporations, 117 Municipalities** and **516 Town Panchayats**.

6.16.1 New UGSS for Corporations and Municipality

During 2014-15 Detailed Project Reports for providing Under Ground Sewerage Schemes in **2 Corporations**

benefiting a population of **6.77 lakh** have been prepared at a total cost of **₹972.32 Crore** and action is now being taken to finalise the fund tie-up.

Sl. No	Name of Town	DPR Cost (₹ in Crore)	Population (in Lakh)	Present Stage
1	Thoothukudi Corporation (Added area)	284.92	1.47	Fund tie-up to be made
2	Coimbatore Corporation			
	a. Omitted areas	216.40	2.15	
	b. Kurichi and Kuniyamuthur added area	471.00	3.15	
	Total	972.32	6.77	

DPR for providing UGSS to the balance 9 added areas of Coimbatore Corporation, benefiting a population of 2.98 lakhs is under preparation. The tentative cost of the project is ₹700.00 crores.

6.17 Status of the Underground Sewerage Schemes under implementation by TWAD Board

- **During the year 2014-15, Underground Sewerage Schemes to Thiruvarur and Villupuram Municipalities** benefiting a population of **1.72 lakh** at an estimated cost of **₹102.43 Crore** have been completed.
- **During the year 2015-16, Underground Sewerage Schemes to Theni-Allinagaram Municipality and Mamallapuram, Tiruchendur and Orathanadu Town Panchayats** benefiting a population of 1.37 lakh at an estimated cost of **₹83.54 Crore** have been completed.
- **During the year 2015-16, Underground Sewerage Scheme to Cuddalore Municipality** benefiting a population of 1.59 lakh at an estimated cost of **₹65.14 Crore** have been completed and under trial run.
- **Currently, 26 Underground Sewerage Schemes** benefiting a population of **19.18 lakh** at an estimated cost of **₹1455.70 Crore** are in various stages of progress.

6.18 Hydrogeological Activities

Scientific Source Finding Activities are carried out for identification of sources for providing Water Supply to the various schemes taken up and implemented by TWAD Board. The State of Art of Technology – Remote Sensing and GIS (Geographical Information Systems) are extensively utilized in Scientific Source Finding Activities and identification of suitable locations for Recharge Structures to be taken up under Sustainability Component.

The Project on Ground Water Prospect Maps sanctioned by the Ministry of Drinking Water and Sanitation, Government of India has been taken up and District-wise ATLAS for Tamil Nadu was completed. Further, the District wise Groundwater Quality Maps are

under preparation and will be completed before October 2015.

During the year 2014-2015, TWAD Board has taken up a Research and Development project for Tamiraparani River Basin falling part of Tirunelveli and Thoothukudi Districts for the Sustainability of Drinking water sources for future requirement. This project will be implemented at a cost of ₹2.75 Crore over a period of 3 years under GOI Funds.

Also, during the year 2014-2015, TWAD Board has taken up a feasibility study to utilize the defunct Quarry as rain water harvesting cum water supply pond in Tamil Nadu. This project will be implemented at a cost of ₹48.20 lakh over a period of 18 months. The project is funded by Government of Tamil Nadu.

6.19 Management Information System

The Tamil Nadu Water Supply and Drainage Board has implemented TWAD Board integrated E-Governance System (TWAD NEST) to manage data flow relating to all its schemes, Project Management, Financial Accounting, Human Resource, Billing etc. Online information is provided for physical and financial progress and performance of all water supply and sewerage, maintenance schemes, recharge structures etc. The daily pumping quantity, from the Head works of various water supply schemes maintained by TWAD Board is also uploaded and monitored through online.

Online e-tenders submission is being implemented in TWAD Board. CAD Software for the design of water supply distribution network, sewer network design and analysis,

Structural Analysis, etc. are used for the purpose of optimum planning and design.

The TWADNEST is enhanced from time to time based on the current requirement of the Board. Further the existing hardware and software are maintained and upgraded.

TWAD Board, Head office and five Chief Engineer's offices in Vellore, Madurai, Thanjavur, Coimbatore, Dharmapuri and four Superintending Engineers offices in Cuddalore, Trichy, Salem, Tirunelveli are interconnected through Video Conference (VC) System for effective review of works executed by TWAD Board all over the state. This makes better coordination and effective monitoring of all the activities of the TWAD Board.

Mobile based online inspection monitoring system is implemented for effective monitoring of scheme progress. A web based online monitoring system has been implemented for effective monitoring of material quality testing in regional laboratories.