



**Municipal Administration and  
Water Supply Department**

**Policy Note  
2013 - 2014**

**Demand No. 34**

**Thiru. K.P. Munusamy**

Minister for Municipal Administration,  
Rural Development, Law, Courts and Prisons

©

Government of Tamil Nadu  
2013

## **6. Tamil Nadu Water Supply and Drainage Board**

Tamil Nadu Water Supply and Drainage Board (TWAD 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 towns of Tamil Nadu State 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**

- Planning, Investigation, Design, Implementation and Commissioning of Water Supply and Sewerage Schemes in Rural and Urban areas.

- Operation and Maintenance of Combined Water Supply Schemes.
- Water Quality Monitoring and Surveillance Programme.
- Activities on Sustainability of Drinking Water Sources.
- 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 12<sup>th</sup> 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 to Rural Habitations is implemented based on surveys to assess their sufficiency status. Rural Water Supply Schemes are

being implemented with State Government Funds under the Minimum Needs Programme (MNP) and Central Government Funds under the National Rural Drinking Water Programme (NRDWP).

The Rural water supply include implementation of Individual Power Pump schemes for the prioritized Rural Habitation 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 and in situations of more than one local body the scheme is maintained by TWAD Board. Besides providing water supply schemes to rural habitations, TWAD Board is implementing water supply schemes to Government Schools, Anganwadis, Government Hostels and Primary Health centres in rural areas.

### **6.3 Achievements in Rural Water Supply during 2012 – 2013**

During 2012-13, 7,000 partially covered Rural Habitations have been taken up at a cost of ₹781.10 Crore and completed. The details are given below.

Sl. No.	Description	No. of Habitations covered
1	Coverage through Individual Power Pump Schemes	4,222
2	Coverage of Quality Affected Habitations	64
3	Coverage through Combined Water Supply Schemes	74
4	Coverage through revamping works in existing Combined Water Supply Schemes maintained by TWAD Board	2,640
<b>Total</b>		<b>7,000</b>

#### **6.4 Rural Water Supply Programme for 2013-14**

During the year 2013-14, **6,000** Rural habitations are proposed to be covered through Individual Power Pump Schemes and Combined Water Supply Schemes at a cost of **₹1,190.72 Crore**. The details are as below.

Sl. No.	Description	No. of Habitations covered
1	Coverage through Individual Power Pump Schemes	4,417
2	Coverage of Quality Affected Habitations	195
3	Coverage through Combined Water Supply Schemes	1,388
<b>Total</b>		<b>6,000</b>

## 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 the Government of India and State Government Assisted Programmes.

During 2012-13, **859 Recharge Structures** were taken up and completed at a cost of **₹55.42 crore**

During the year 2013-14, it is programmed to take up **1,171 Recharge Structures** at an estimated cost of **₹60.00 crore**.

## **6.6 Combined Water Supply Schemes**

In order to provide more sustainable and potable water supply to the public, the 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 in which the beneficiaries include both urban local bodies and rural habitations in considerably large numbers.

During 2012-13, **36 such schemes** were under implementation at an estimated cost of **₹804.01 crore** to benefit a population of **30.24 lakh** 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).

Out of which, the following **4 Combined Water Supply Schemes**, have been completed at an estimated cost of **₹29.88 crore**, benefiting a total population of **1.54 lakh**.

Sl. No.	Name of scheme	Estimate amount (₹ in crore)	Population benefited
1	CWSS to 73 quality affected habitations in Kumbakonam union in Thanjavur District	9.95	51,599
2	CWSS to 18 quality affected habitations in Kuthalam union in Nagapattinam District.	3.45	14,547
3	CWSS to 54 quality affected habitations and 67 wayside habitations in Kumaratchi and	15.16	67,085



Sl. No.	Name of scheme	Estimate amount (₹ in crore)	Population benefited
	Parangipettai unions and Killai TP in Cuddalore District		
4	Providing CWSS to 40 habitations in Chengam & Pudupalayam unions of Thiruvannamalai District from Chengam, Pudupalayam CWSIS.	1.32	20,314
	<b>Total</b>	<b>29.88</b>	<b>1,53,545</b>

Further, 20 CWSS at a cost of ₹326.58 crore to benefit a population of 15.82 lakh are in progress and the remaining 12 CWSS are under Tender Stage.

### 6.7 Major Combined Water Supply Schemes

The following 8 Major Combined Water Supply Schemes at a total cost of ₹3,276.62 crore have

been taken up for implementation during 2011-12 and are in progress. These schemes will be completed during 2013-14 & 2014-15.

Name of Scheme	Estimate Cost (₹ in crore)	Population (in lakh)	% of progresses
Combined Water Supply Scheme to Melur and 2 Other Municipalities, 6 Town Panchayats and 1,430 Rural Habitations in 8 Unions of Madurai District and Singampunari Town Panchayat in Sivagangai District with River Cauvery as source	784.00	15.92	50
Augmentation of Water Supply to Palladam Municipality, 23 Town Panchayats and 965 Rural Habitations in 8 Unions of Coimbatore and Tiruppur Districts with Pillur Dam as source	224.92	12.29	35
Combined Water Supply Scheme to 7 Town Panchayats and 395 Rural Habitations in Virudhunagar District, with River Tamiraparani	173.00	4.82	56

SI No	Name of Scheme	Estimate Cost (₹ in crore)	Population (in lakh)	% of progress
	as source, near Mukkudal.			
4	Combined Water Supply Scheme to 755 Rural Habitations in Virudhunagar District with River Tamiraparani as source near Seevalaperi	234.00	6.51	19
5	Combined Water Supply Scheme to 637 Rural Habitations in Virudhunagar District with River Tamiraparani as source near Vallanadu	190.00	4.24	52
6	Combined Water Supply Scheme to 295 Quality affected Habitations and 315 wayside habitations in Sirkali, Kollidam, Sembanarkoil and Mayiladuthurai Unions in Nagapattinam District	105.70	3.70	38
7	Combined Water Supply Scheme to Attur & Narasingapuram Municipalities, 20 Town Panchayats and 1,345	270.00	13.09	47

Name of Scheme	Estimate Cost (₹ in crore)	Population (in lakh)	% of progress
Rural Habitations in 12 Unions of Salem District			
Combined Water Supply Scheme to Vellore corporation, 11 Municipalities, 5 Town Panchayats and 944 Way side Rural Habitations of Vellore District with River Cauvery as source	1,295.00	24.46	21
<b>Total :</b>	<b>3,276.62</b>	<b>85.03</b>	

Further, the following **3 Major Combined Water Supply Schemes** were taken up during 12-13 at an estimated cost of **₹877.74 crore** to benefit a total population of **17.99 lakh** and they are under tender stage.

Sl. No.	Name of Scheme	Estimate Cost (₹ in Crore)	Population (in lakh)
1.	CWSS to Cuddalore Municipality, Bhuvanagiri and Parangipettai Town Panchayats and 812 Rural Habitations in Cuddalore District	260.54	6.10
2.	CWSS to 1,766 Rural Habitations in Pudukottai (Part), Viralimalai (Part), Kunnandarkoil (Part), Annavasal (Part), Ponnamaravathi, Thirumayam and Arimalam Unions in Pudukottai District and 125 habitations in S.Pudur, and Sakkottai Unions of Sivagangai District.	301.50	5.54
3.	CWSS to 1,751 Rural Habitations in Gandarvakottai, Pudukottai(Part), Viralimalai(Part),	315.70	6.35

Sl. No.	Name of Scheme	Estimate Cost (₹ in Crore)	Population (in lakh)
	Kunnandarkoil(Part), Annavasal(Part) Aranthangi, Thiruvankulam, Karambakudi Unions in Pudukottai District and Vallam Town Panchayat in Thanjavur District		
	<b>Total</b>	<b>877.74</b>	<b>17.99</b>

### 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 2012-13, **676 revamping works covering 2,640 Habitations** have been taken up under MNP / NRDWP Assistance at a **cost of ₹91.82 crore and completed.**

The category wise works completed are as below.

Sl. No.	Category	No. of works	Estimate cost (₹ in crore)
1	Source Improvement	68	9.55
2	Booster Pumping Stations	30	3.83
3	Sumps	37	2.61
4	Replacement of aged Pumpsets	132	3.51
5	Air Valves	75	5.69
6	Replacement of dilapidated Over Head Tanks	31	1.60
7	Replacement of Pipelines Damaged due to Road widening	251	46.61
8	Providing Separate Power Feeder Mains/4 <sup>th</sup> Wire	46	18.19
9	Providing Surge Protection System	6	0.23
	<b>Total</b>	<b>676</b>	<b>91.82</b>

During 2013-14, **626 revamping works** will be taken up under MNP / NRDWP Assistance at a **cost of ₹58.44 crore**

## **6.9 Special Programme**

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 2012-13 is as mentioned below:

- Water supply to **2,927 Government Schools.**
- Water supply to **5,211 Anganwadis.**
- Water supply to **25 Government Hostels in Rural Areas.**
- Water supply to **60 Primary Health Centres in Rural Areas.**

Further under the Special Programme in the year 2013-14, it has been proposed to provide Water Supply to **2,887 Anganwadis.**



## **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 divisional 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, Chennai is graded as an ISO 9001:2008 certified Laboratory. This laboratory has been recognized as the State Referral Institute for Tamil Nadu by the Government of India.

**2.46 lakh** Rural drinking water sources have been tested during 2012-13 at an annual cost of **₹11.87 crore** under the NRDWP and the water quality data has been updated in the Integrated Management Information System (IMIS), DDWS, GOI.

### **6.11 Urban Water Supply Programme**

Urban local bodies are provided with drinking water supply with financial assistance from the Government of India under the Jawaharlal Nehru National Urban Renewal Mission (JnNURM), the Urban Infrastructure Development Scheme for Small and Medium Towns (UIDSSMT), the World Bank assisted TNUDP-III, KfW, JICA, State Government grants under MNP/ IUDM and Urban local body share.

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 pipe line 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 Urban Water Supply Improvement Schemes under implementation**

In the year 2012-2013, Water Supply Improvement Schemes were under implementation

in **50 Urban local bodies** covering **18 Municipalities** and **32 Town Panchayats**, to benefit a population of **16.77 lakh**, at a total cost of **₹541.83 crore**.

Out of which, the following Water Supply Improvement Schemes (WSIS) benefiting a population of **1.88 lakh** in **7 Towns** (Villupuram Municipality and 6 Town Panchayats) at an estimated cost of **₹15.77 crore** have been completed.

Sl. No.	Name of Town	District	Estimate cost (₹ in Lakh)	Population
<b>I.</b>	<b>Municipality</b>			
1.	Villupuram	Villupuram	955.00	95,455
<b>II.</b>	<b>Town Panchayats</b>			
1	Samathur	Coimbatore	49.22	5,812
2	Acharapakkam	Kancheepuram	122.50	9,023

in **50 Urban local bodies** covering **18 Municipalities** and **32 Town Panchayats**, to benefit a population of **16.77 lakh**, at a total cost of **₹541.83 crore**.

Out of which, the following Water Supply Improvement Schemes (WSIS) benefiting a population of **1.88 lakh** in **7 Towns** (Villupuram Municipality and 6 Town Panchayats) at an estimated cost of **₹15.77 crore** have been completed.

Sl. No.	Name of Town	District	Estimate cost (₹ in Lakh)	Population
<b>I.</b>	<b>Municipality</b>			
1.	Villupuram	Villupuram	955.00	95,455
<b>II.</b>	<b>Town Panchayats</b>			
1	Samathur	Coimbatore	49.22	5,812
2	Acharapakkam	Kancheepuram	122.50	9,023

Sl. No.	Name of Town	District	Estimate cost (₹ in Lakh)	Population
3	Punjaipugalur	Karur	200.70	20,309
4	Kattumannarkoil	Cuddalore	130.50	22,426
5	Unnamalaikadai	Kanyakumari	54.83	20,666
6	Kaveripattinam	Krishnagiri	64.00	14,378
<b>Total</b>			<b>1,576.75</b>	<b>1,88,069</b>

Water Supply Improvement Schemes in the remaining **43** Urban local bodies to benefit a population of **14.89 lakh** at a cost of **₹526.06 crore** are in various stages of progress.

### **6.13 Hogenakkal Water Supply and Fluorosis Mitigation Project**

#### **6.13.1 Water Supply Component**

The Hogenakkal Water Supply and Fluorosis Mitigation Project is being implemented by the Government of Tamil Nadu with the aim of supplying safe and potable drinking water to the people of Dharmapuri and Krishnagiri Districts. This project covers 3 Municipalities, 17 Town Panchayats

and 6,755 Rural habitations in 18 Panchayat Unions in both the Districts at an estimated cost of ₹1,928.80 Crore. The population to be benefited is 29.80 Lakh.

The Project has been split up into five packages for prompt implementation. The progress under each package is given below.

<b>Pack- age No.</b>	<b>Description of works</b>	<b>progress in percentage</b>
I	Head Works, Water Treatment Plant, Raw Water and Clear Water Transmission Main and Master Balancing Reservoir (MBR) at Madam	94
II	Trunk Main from MBR and Feeder Mains-2,387 Km. covering 1,653 Habitations of 5 Unions, 2 Town Panchayats and Dharmapuri Municipality in Dharmapuri and Krishnagiri Districts.	94

Pack- age No.	Description of works	progress in percentage
III	Branch Trunk Main 1,572 Km. covering 1083 Habitations in 3 unions and 5 Town Panchayats in Dharmapuri District	87
IV	Pumping Main from Moongilpatti-3107 Km. covering 1,720 Habitations in 5 unions, 3 Town Panchayats and Hosur Municipality in Krishnagiri District	91
V	Trunk Main from MBR to Bargur and Feeder Main - 2,950 Km. covering 2,299 Habitations in 5 unions, 7 Town Panchayats and Krishnagiri Municipality in Dharmapuri and Krishnagiri Districts.	92

The overall physical achievement made is 93 percentage and an expenditure of **₹1,257.69 Crore** has been incurred so far. The trial run of this scheme has commenced from 3rd December 2012 and will be put into beneficial use of the public shortly. For the year 2013-14 an allocation of ₹500.00 crore is made.

### 6.13.2 Fluorosis Mitigation Component

Fluorosis Mitigation Component is implemented on comprehensive three-pronged 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 in few cases.

All Government Doctors in both the Districts were trained to diagnose the fluorosis among the patients and to prescribe preventive measures. School teachers were also trained. The prevalence of dental fluorosis among 3,79,873 students have been assessed and it was identified that 3% were severe and 10% were moderate. Remedial action has been taken now through the local Government Doctors to counsel and treat if required.



100% household health survey of the present population of 30 lakh in both Dharmapuri and Krishnagiri districts was completed by engaging the Village Health Nurses and Village Voluntary members from NGOs. Data Entry Analysis and assessment of health status regarding the prevalence of dental, skeletal and non-skeletal fluorosis is under progress. Counseling to the affected households and mass awareness communication program will be undertaken.

#### **6.14 Operation and Maintenance of Combined Water Supply Schemes**

The Combined Water Supply Schemes covering more than one local body is being maintained by TWAD Board as per G.O. (Ms) No.84, Municipal Administration and Water Supply Department, dated 10.03.1994. At present, 538 Combined Water Supply Schemes covering 6 Corporations, 58 Municipalities, 288 Town Panchayats, 28,156 Rural habitations and 406 Industries/Institutions, benefiting a population of 2.82 crore are maintained by the TWAD Board. The

number of CWSS is added every year on its completion.

At present, **1,394 MLD** of water is supplied through the above **538 Combined Water Supply Schemes**. The expenditure for the Operation & Maintenance during the year 2012-13 is **₹320.58 crore**. The Revenue collected through water charges is **₹196.02 crore**.

#### **6.15 Providing Telemetry System of monitoring (SCADA) for Combined Water Supply Schemes**

To have an effective monitoring and supervisory control of all the components of CWSS which have more number of pumping stations and distribution networks, from a remote location, the Supervisory Control and Data Acquisition (SCADA) Telemetry System is being installed.

During 2011-12 Telemetry system have been completed in the following Combined Water Supply Schemes at a total cost of ₹3.00 Crore under Part-II scheme.

1) CWSS to Kadayampatty and 920 wayside habitations in Salem district at a cost of ₹1.50 Crore.

2) CWSS to Irupali and 1,066 wayside habitations in Salem district at a cost of ₹1.50 Crore.

### **Impact of providing SCADA on the above schemes**

- After installing SCADA in the above schemes, manual maintenance of log book at all pumping stations is not required.
- The wastage of water due to overflow in sumps and OHTs is now avoided.
- The time and manpower required in locating the leakage portion of pipeline is considerably reduced.

During 2012-13 the Telemetry System is being installed in the following Combined Water Supply Schemes at a cost of ` 3.00 crore under Part-II scheme.

1. Combined Water Supply Scheme to Tiruppur Corporation and 417 Wayside Habitations in Tiruppur and Coimbatore District
2. Combined Water Supply Scheme to 893 Habitations in Nagapattinam District.

### **6.16 Investigation and Preparation of Detailed Project Reports (DPRs) for Water Supply Schemes**

TWAD Board has prepared DPRs for **71 Schemes** during 2012-13 at a cost of **₹6,064.75 Crore**, benefiting a total population of 92.06 Lakh. Out of the above 71 Schemes, **36 Water Supply Schemes**, covering **4 Municipalities, 24 Town Panchayats and 6,451 Rural Habitations**, benefiting a population of **35.22 Lakh** were sanctioned at a total cost of **₹1,460.79 Crore**.

### **6.17 Under Ground Sewerage Schemes**

TWAD Board is implementing Under Ground Sewerage Schemes in selected District Head quarters and other than District Head quarter towns

with financial aid from TNUDP-III/ KfW/ UIDSSMT/ TUDM. 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 **₹20,820.00 Crore** to provide UGSS to **3 Corporations, 117 Municipalities and 516 Town panchayats.**

#### **6.18 Status of the Underground Sewerage Schemes under implementation by TWAD Board**

- **Underground Sewerage Scheme**, to Namakkal Municipality, to benefit a population of **53,055** at an estimated cost of **₹22.23 Crore** has been completed.
- **Underground Sewerage Schemes** to Ramanathapuram, Thiruvannamalai, Dharmapuri, and Perambalur Municipalities to benefit a population of **2,94,744** at an estimated cost of **₹123.72 Crore** are physically completed and commissioning works are under progress.

- **16 Underground Sewerage Schemes** to benefit a population of **14.93 lakh** at an estimated cost of **₹704.15 Crore** are under various stages of progress as shown below.

Sl. No.	Name of UGSS	Estimate Cost (₹ in crore)	Population benefited (in lakh)	% of achievement	
				Collection System (CS)	Sewage Treatment Plant (STP)
1.	Cuddalore Municipality	65.14	1.59	97	96
2.	Pudukottai Municipality	48.16	1.14	99	75
3.	Sivagangai Municipality	23.40	0.40	95	Tenders to be called for
4.	Virudhunagar Municipality	27.85	0.72	94	95
5.	Thiruvarur Municipality	53.07	0.56	100	85
6.	Thoothukudi Corporation	95.00	2.89	89	Tenders called for
7.	Nagapatinam Municipality	79.31	0.93	78	STP-I - 25 STP-II - 45
8.	Krishnagiri Municipality	37.32	0.65	70	77
9.	Theni Municipality	42.09	0.85	75	75

Sl. No.	Name of UGSS	Estimate Cost (₹ in crore)	Population benefited (in lakh)	% of achievement	
				Collection System (CS)	Sewage Treatment Plant (STP)
10.	Thiruvallur Municipality	54.79	0.46	88	Works to be commenced
11.	Villupuram Municipality	35.67	1.16	98	86
12.	Ariyalur Municipality	27.50	0.28	74	5
13.	Mamallapuram Town Panchayat	6.08	0.12	98	20
14.	Thiruchendur Town Panchayat	14.48	0.29	50	Works commenced
15.	Nagercoil Municipality	76.04	2.79	Works commenced	
16.	Orathanadu Town Panchayat	18.25	0.10	Works commenced	
	<b>Total :</b>	<b>704.15</b>	<b>14.93</b>		

- **Under Ground Sewerage scheme to Udumalpet Municipality** under UIDSSMT at an estimated cost of **₹56.07 Crore**, to benefit a population of **59,668** and **UGSS to Ariyalur Municipality** (omitted areas) under

IUDM at an estimated cost of ₹3.43 crore are under tender stage.

### **6.19 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 with the financial assistance from Government of India has been taken up as District-wise ATLAS for Tamil Nadu and completed. Further, the District wise Groundwater Quality Maps are under preparation and will be completed during the year 2013-14.



## **6.20 Management Information System**

The Tamil Nadu Water Supply and Drainage Board has implemented TWAD Board integrated E-Governance System (TWADNEST) 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 successfully in TWAD Board. CAD Software for the design of water distribution network and sewer network design 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 hardware required is also well maintained and upgraded. This makes better coordination and effective monitoring of all the activities of the TWAD Board.

N.T.P. SUPPLIED BY THE DEPARTMENT  
PRINTED AT GOVERNMENT CENTRAL PRESS, CHENNAI - 600 079.