



**INFORMATION TECHNOLOGY
DEPARTMENT**

**POLICY NOTE
2016 – 2017**

DEMAND NO. 31

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Minister for Information Technology

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Government of Tamil Nadu
2016

INFORMATION TECHNOLOGY

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CHAPTER – I

INTRODUCTION

Tamil Nadu is a role model for the other States in India as far as Good Governance is concerned. Good Governance is about processes for making and implementing decisions, ensuring delivery of public services in a speedy, reliable and transparent manner.

The Tamil Nadu Vision 2023 document released by Hon'ble Chief Minister states that,

“Tamil Nadu will nurture a culture of responsive and transparent governance that ensures progress, security and equal opportunity to all stakeholders.”

To achieve the above vision, Tamil Nadu has been using the information infrastructure in a dynamic manner, so as to facilitate speedy access to information and deliver various services of the Government in a faster and efficient manner to the citizens.

Information Technology is today driving economies and businesses worldwide. Due to the

revolution in Information Technology and Communications and the fast pace at which changes are happening, the sector has become crucial for all countries which wish to grow and prosper rapidly.

Tamil Nadu continues to be a destination of choice for the IT/ ITES sector in India. It has effectively leveraged the skills of its human resources to achieve this distinction in the Information Technology (IT) and Information Technology Enabled Services (ITES) sectors such as Banking, Financial Services and Insurance (BFSI), Health Systems Management, Computer Aided Designing (CAD) and Computer Aided Engineering (CAE).

The Information Technology Department was set-up with the aim of providing support to the growth of the IT Industry of the State as well as ensuring the development of e-Governance. The Department's role has undergone continuous changes with the addition of several projects, schemes and services including providing Cable TV services, Tamil Computing, IT Training to students, Entrepreneurs etc.

The objectives of the Information Technology Department are to:-

- **Provide Government services, both informational and transactional, to Citizens, at their door steps through Internet;**
- **Bridge the digital rural-urban divide;**
- **Make Tamil Nadu, the Best State in IT enabled Governance;**
- **Substantially increase the software exports of Tamil Nadu;**
- **Provide Cable TV services to all households in Tamil Nadu at reasonable rates;**
- **Provide Tamil Education through the web and take Computing in Tamil to a higher level;**
- **Enhance the quality of life of citizens through Information and Communication Technology.**

CHAPTER – II

ELECTRONICS CORPORATION OF TAMILNADU LIMITED (ELCOT)

Electronics Corporation of Tamil Nadu Limited – has been registered on 21.03.1977 under the Indian Companies Act of 1956, and has been providing services from November 1982. ELCOT has been providing technical assistance to various Departments, Organizations, Boards, etc. of the Government of Tamil Nadu in the area of Information Technology procurement and I.T. Services.

ELCOT is also the optional Nodal Agency for hardware procurement, software development, major turnkey IT projects of the Government of Tamil Nadu and major projects of the Department of Information Technology, Government of India. Tamil Nadu State Wide Area Network (TNSWAN) and Tamil Nadu State Data Centre (TNSDC) have been established by ELCOT.

1. Information Technology Special Economic Zones (ELCOSEZs)

As per Policy initiative of development of IT/ITES in Tamil Nadu, ELCOT established IT/ITES Specific Special Economic Zones ELCOSEZs in 8 places such as Chennai and in Tier-II locations viz. Coimbatore, Madurai (2 places) Tiruchy, Salem, Tirunelveli and Hosur.

1.1 ELCOSEZ-Sholinganallur, Chennai

At Sholinganallur Village in Chennai, ELCOT has established an ELCOSEZ in an extent of 377.08 acres.

An investment of Rs.42 Crores has been made for the completion of infrastructure work and an Administrative Building in an extent of 6358 sq.ft has been constructed by ELCOT at an investment of Rs.126 lakhs in this ELCOSEZ. The total investment made by ELCOT in this ELCOSEZ is Rs.194 Crores.

Lands have been allotted on lease basis to the following IT Companies in this ELCOSEZ viz.

Sl. No	Name of the Company	Extent Allotted (In acres)	Constructed IT Building (in sq.ft.)	Status of operation with No. of employees
1.	M/s WIPRO	80	27 lakhs	19,000
2.	M/s HCL	50	22 lakhs	12,000
3.	M/s Satyam	50	6.25 lakhs (2 lakhs sq.ft. IT Building is under construction).	4200
4.	M/s Sutherland Global Services Ltd.	15	IT Building construction under progress	
5.	M/s Cognizant Technology Solutions Limited	20	28 lakhs	18,000 seating capacity and in operation with 8800 employees.
6.	M/s Ford Motor Private Limited	28	Co-developer approval has been obtained. Facility Design for construction is under progress.	

1.2 ELCOSEZ-Vilankurichi, Coimbatore

At Vilankurichi Village in Coimbatore, ELCOT has established an ELCOSEZ in 62 acres of land. All necessary common infrastructure facilities have been

created at an investment of Rs.19 crores. The total investment of ELCOT in this ELCOSEZ is Rs.70 crores.

Lands have been allotted to the following IT Companies on lease basis in this ELCOSEZ, viz.

Sl. No.	Name of the Company	Extent Allotted (In acres)	Constructed IT Building (in sq.ft.)	Status of operation with No. of employees
1	WIPRO	9.5	3.5 lakhs	2000
2	TIDEL Park Coimbatore Limited	9.5	17 lakhs	9.14 lakhs sq.ft. has been used as space for IT companies. Presently 8.39 lakhs sq.ft. has been occupied by 45 IT/ITES Companies and in operation with more than 8500 employees. In the balance space, a 950 seater Development Centre has been set up in 70,000 sq.ft. out of which 800 seats have been allotted to 22 IT/ITES Companies.

1.3 ELCOSEZ-Ilandhaikulam, Madurai

At Ilandhaikulam Village in Madurai, ELCOT has established an ELCOSEZ in 28.91 acres of land and has achieved 100% land allotment, on lease basis.

Necessary Common Infrastructure facilities have been created by ELCOT at an investment of Rs. 7 crores. Also 50,000 sq.ft IT building has been constructed at an investment of Rs. 17 crores. The total investment made by ELCOT in Ilandhaikulam ELCOSEZ is Rs.34.41 crores.

Lands have been allotted to the following IT Companies on lease basis in this ELCOSEZ, viz.

Sl. No.	Name of the Company	Extent Allotted (In acres)	Constructed Building (in sq.ft.)	Status of operation with No. of employees
1.	M/s Honeywell Technologies Limited	11.25	50,000	600
2.	M/s. Chella Software Private Limited	2.25	To commence operation	
3.	M/s HCL Infosystems Ltd	6.75	5 lakhs sq.ft.	Construction commenced

ELCOT in its 50,000 sq.ft. IT building has allotted space to the following IT/ITES companies on lease basis and has achieved 100% occupancy in this IT Building:-

Sl. No.	Name of the Company	Extent Allotted (In sq.ft.)	Status of operation with No. of employees
1.	M/s. Galaxy Infotech	2508	30
2.	M/s. AMBC Technologies Pvt. Limited	3277	15
3.	M/s. Sai BPO Services Limited	15181	310
4.	M/s Neeyamo Enterprises Solutions Private Limited	30120	250
5.	M/s CVIAC Consulting	9136	To commence operations.

1.4 ELCOSEZ - Vadapalanji, Madurai

At Vadapalanji Village in Madurai, ELCOT has established an ELCOSEZ in 245.17 acres of land. Government of India has accorded SEZ approval for 213 acres of land in this ELCOSEZ. In this ELCOSEZ, the investment made by ELCOT for the creation of Common Infrastructure Facilities is Rs.14.99 Crores. The total investment of ELCOT in this ELCOSEZ is Rs.45 Crores.

Lands have been allotted to the following IT Companies on lease basis in this ELCOSEZ, viz.

Sl.No.	Name of the Company	Extent Allotted (In acres)
1.	M/s. HCL	60
2.	M/s. SATYAM	50
3.	M/s. Sutherland Global Services Ltd.	5
4.	M/s. Chain-Sys. Software Exports (P) Ltd.	20
5.	M/s Health Plan Systems (India) Pvt. Ltd.	2
6.	M/s Caliber Point	5
7.	M/s Empire Photovoltaic Systems Pvt. Ltd.,	25 (Non SEZ area)

1.5 ELCOSEZ-Navalpattu, Tiruchy

At Navalpattu village in Tiruchy, ELCOT has established an ELCOSEZ in 147.61 acres. Government of India has accorded SEZ approval for 123.23 acres of land in this ELCOSEZ.

All the necessary Common Infrastructure facilities and 50,000 sq.ft. IT Building have been created at an investment of Rs.33.21 crores. ELCOT has made a total investment of Rs. 60 crores in this ELCOSEZ.

Lands have been allotted to the following IT Companies on lease basis in this ELCOSEZ, viz.

Sl.No.	Name of the Company	Extent Allotted (In acres)
1.	M/s. WNS Global Services Pvt. Ltd.	5
2.	M/s iLink Multitech Solutions Pvt. Ltd.	2
3.	M/s HCL Infosystems	2 (Non SEZ area)
4.	M/s Sutherland Global Services Ltd.	10
5.	M/s Assyst International Pvt. Ltd.	3
6.	M/s Zylog Systems Ltd.	5
7.	M/s Unlimited Innovations India Pvt. Ltd.	5
8.	M/s Vdart Technologies	2
9.	M/s Health Plan Systems (India) Pvt. Ltd.	2

ELCOT has allotted space on lease basis to the following IT/ITES companies in its 50,000 sq.ft. IT building viz.

Sl. No.	Name of the Company	Extent Allotted (In sq.ft.)	Status of operation with No. of employees
1.	M/s. iLink Systems Pvt. Ltd.	6668	80
2.	M/s. Scientific Publishing Company	12941	220
3.	M/s. Vuram Technology Solutions Pvt. Ltd.	5976	yet to commence operation
4.	M/s Vdart Technologies	3643	yet to commence operation

1.6 ELCOSEZ-Gangaikondan, Tirunelveli

At Gangaikondan Village in Tirunelveli, ELCOT has established an ELCOSEZ in 500 acres of land. Government of India has accorded SEZ approval for 290 acres of land in this ELCOSEZ.

All necessary Common Infrastructure facilities have been created by ELCOT to an extent of 100 acres by investing Rs.13 crores. ELCOT has also constructed a 50,000 sq.ft IT Building at an investment of Rs.16 crores. ELCOT has made a total investment of Rs.52.85 crores in this ELCOSEZ. An office space of 9338 sq.ft

has been allotted on lease basis to M/s. Kompos Media Pvt. Ltd. for their IT Business.

Lands have been allotted to the following IT/ITES companies on lease basis in this ELCOSEZ, viz.

Sl. No.	Name of the Company	Extent Allotted (In acres)
1.	M/s. Syntel International Pvt. Ltd.	100
2.	M/s. Sutherland Global Services Ltd.	10
3.	M/s. A & D Cosmic Power	25 (Non SEZ area)
4.	M/s. Deccan I Services	2

M/s. Syntel International Private Ltd., has obtained Co-developer status from Government of India and the construction of 2.60 lakhs sq.ft. IT Building is nearing completion.

1.7 ELCOSEZ-Jagirammalayam, Salem

At Jagirammalayam Village in Salem, ELCOT has established an ELCOSEZ at a total extent of 164.26 acres.

All necessary common infrastructure facilities have been created in an extent of 53.33 acres at a cost of Rs.10 Crores. The construction of 50,000 sq.ft. IT Building at a cost of Rs.19 Crores is nearing completion. ELCOT has made a total investment of Rs. 33 Crores.

Lands have been allotted to the following IT Companies on lease basis in this ELCOSEZ, viz.

SI.No	Name of the Company	Extent Allotted (In acres)
1.	M/s. dB Professionals	3
2.	M/s. Vee Technologies	9.49
3.	M/s. Mahima Technologies Pvt. Ltd.	3
4.	M/s. GTP Infotech Solutions Ltd.	2.5
5.	M/s. Sennovate Infotech Pvt.Ltd.	1.25

M/s. Vee Technologies has obtained Co-developer status from Government of India and commenced construction of IT Building in an extent of 20,000 sq.ft. (Approx.)

1.8 ELCOSEZ-Viswanathapuram, Hosur

At Viswanathapuram Village in Hosur, ELCOT has established an ELCOSEZ in 174.47 acres.

ELCOT has spent Rs.19 Crores to create all necessary Common Infrastructure facilities. The construction of 50,000 sq.ft. IT Building at an estimated cost of Rs.21 Crores is in progress. ELCOT has made a total investment of Rs.40 crores in this ELCOSEZ.

In this ELCOSEZ, land has been allotted on lease basis to the following Companies:-

Sl. No.	Name of the Company	Extent Allotted (in acres)
1.	M/s. Okaya Infocom Pvt.Ltd.	10
2.	M/s. CRM IT Solutions Pvt. Ltd.	3
3.	M/s. CRM Infotech India Pvt. Ltd.	2

2. Start-up Warehouse at Chennai

As per the Vision Document 2023 of Government of Tamil Nadu to showcase the IT/ITES presence and IT SEZs in the State and to leverage the Human Resource potential of our State, ELCOT have taken rental space of

6,860 sq.ft. in the first floor of Tidel Park Limited, Chennai to establish a 90 Seater Start-up Warehouse.

In order to build entrepreneurial capabilities and to give impetus to Start-ups, Hon'ble Chief Minister has inaugurated this "Start up Warehouse" facility at Chennai at an overall cost of Rs.3,53,15,800/-. NASSCOM is a Knowledge Partner for this centre.

3. PROCUREMENT

ELCOT has been appointed as the Optional Procurement Agency by Government of Tamil Nadu for IT procurements vide G.O. (Ms) No. 58, Finance (BPE) Department dated 16.02.1999. Accordingly, ELCOT is procuring hardware like Servers, Desktop Computers, Laptop Computers including Operating Systems, Printers, Scanners, UPS, Internet Protocol (IP) Camera Surveillance System and all the Local Area Network devices with latest configuration at competitive prices for various Government Departments / Boards / Corporations.

ELCOT has been supplying IT products to departments such as Revenue, Rural Development &

Panchayat Raj, Forest, Health & Family Welfare, Agriculture, Higher Education Department, Pollution Control Board, Chennai Corporation, Madras High Court etc.

4. Scheme for distribution of Laptop Computers

The Government of Tamil Nadu is implementing the scheme for distribution of priceless laptop computers to the students studying in Government and Government-aided Schools and Colleges in the State to facilitate them acquire better computer skills. The Scheme was inaugurated by the Hon'ble Chief Minister on 15.9.2011.

In the First Phase, 8,98,866 Laptop Computers were procured and supplied in the year 2011-12. In the Second Phase, 7,56,000 Laptop Computers were procured and supplied in the year 2012-13. In the Third Phase, 5,65,000 Laptop Computers were procured and supplied in the year 2013-14.

In Phase – IV & V (2014-15 and 2015-16), 10,16,028 (Phase IV-4,96,999 Nos. and Phase

V- 5,19,029 Nos.) Laptop Computers were procured and supplied.

For the Academic Year 2016-2017, 5,36,514 Nos. of Laptop Computers are to be procured and supplied.

5. Cloud and Web Hosting Services for Students and Young Entrepreneurs

Government of Tamil Nadu has proposed to offer Cloud Based Services such as Webhosting on a self-service mode for the benefit of emerging young entrepreneurs and students at normal cost.

This project aims to offer Infrastructure (IaaS), Platform (PaaS) and Software (SaaS) as a service through Cloud computing environment to the Students and entrepreneurs. The services offered include Servers and Storage for computerization software platform including the application deployment environment such as Application Server, Database Server, Web Server, Application Development Environment and custom made applications based on requirements.

A Memorandum of Association has been signed between Govt. of Tamil Nadu and Microsoft Corporation

(India) Pvt. Ltd. for provision of 'Microsoft Azure Cloud' Services to a maximum of 100 Students & entrepreneurs for a period of three months. The Program was launched by Hon'ble Chief Minister on 01.03.2016.

6. Rural Business Process Outsourcing (RBPO) Centres

Enhanced Rural BPO Policy was released by the Government for giving training and providing employment to the rural youth from poor socio-economic background and thereby prevent migration of youth from villages to cities.

This Policy has a provision of Capital Subsidy of 20% subject to a maximum of Rs.5 lakhs and Training Subsidy of Rs.2.25 lakhs for each RBPO. As announced by the Hon'ble Chief Minister, M/s Sutherland Global Services (BPO Company) has set up a 50 seater Rural BPO Centre at Navalur- Kuttapattu village, Srirangam in Tiruchy District based on the facilitation and coordination by ELCOT. In addition, approval has been given to M/s. Annai Women Development Agencies for establishment of Rural BPOs at three locations.

CHAPTER – III
INFORMATION TECHNOLOGY
INFRASTRUCTURE

Information Technology (IT) Infrastructure is an integrated framework which acts as a backbone for latest IT developments like Cloud Computing, State Data Centre, Internet Connectivity, Distributed Data Storage and Distributed Resource Sharing.

Tamil Nadu is one of the few States in India to have successfully implemented State Wide Area Network and State Data Centre.

To provide seamless online services, the following IT Infrastructure have been created in Tamil Nadu:

1. TNSWAN

- (i) Vertical Connectivity
- (ii) Horizontal Connectivity
- (iii) Redundant Connectivity

2. National Knowledge Network (NKN)

3. Broadband Connectivity / Internet Leased Line

4. Tamil Nadu State Data Centre (TNSDC)

5. Server Farm

6. Disaster Recovery Centre (DRC) and

Near Line DRC (NLDRC):

7. Cloud Computing at TNSDC

8. e-Mail Solution

1. Tamil Nadu State Wide Area Network (TNSWAN)

State Wide Area Network has been identified as one of the core e-Governance infrastructure under National e-Governance Action Plan (NeGAP). Government of India (GoI) had issued guidelines for setting up of State Wide Area Network and has also extended partial financial support to the States. Government of India approved the SWAN proposal of Tamil Nadu during April 2005. It is a shared scheme between State and the Central Governments at a revised estimate of Rs.140.25 Crores (GoI share is Rs.55.73 Crores and State share is Rs.84.52 Crores).

1 (a) TNSWAN Vertical Connectivity

TNSWAN core network has 708 nodes (POPs - Points of Presence), which were created at Secretariat, Raj Bhavan, DGP Office, O/o. Commissioner of Police, Corporation of Chennai, Government Complexes such as DPI, DMS, Ezhilagam, Panagal Building and Kuralagam at Chennai and at the Collectorates, Revenue Divisional Offices, Taluk Offices and Block Development Offices. This Network provides a link to all the Government departments by providing Voice, Data, Internet and Video connectivity for the delivery of services to the public, by improving the response time and transparency and to enable the Government Departments to access their Servers hosted at TNSDC. The Build, Own, Operate and Transfer (BOOT) Operation of the Network was completed on 30.11.2012. Now, Phase-II is under operation for a period of 3 years from 09.09.2013 to 08.09.2016. The State Government has accorded Administrative Approval for a sum of Rs.74.69 Crores towards TNSWAN Phase - II operations which is fully funded by the State. Strict Service Level Agreement (SLA) is being adhered for Vertical Connectivity on 24x7 basis.

The following services are provided to Government departments through TNSWAN.

- Secured Intranet Application Access
- Secured Internet Access
- Closed User Group Voice Services
- Video Conferencing Services

TNSWAN and NKN have been integrated at all District Headquarters as per the guidelines of Department of Electronics and Information Technology (DeitY, Government of India). With this integration, the bandwidth at District Head Quarters (DHQ) has been upgraded to 34 Mbps / 100 Mbps / 1Gbps as per the requirements.

1(b). TNSWAN- Horizontal Connectivity

Government Offices have been connected to TNSWAN POPs for availing intranet facility and to roll out the Department's applications that are hosted at TNSDC and also to avail services such as Voice, Data, Internet, Video Conferencing etc. Horizontal

Connectivity has been made available from TNSWAN Points of Presence (PoPs) to Government Departments.

So far, Horizontal Connectivity has been provided to more than 2000 offices of Government Departments namely Commercial Taxes, Tamil Nadu Water Supply and Drainage Board(TWAD), Tamil Nadu Health Systems Project(TNHSP), Treasuries & Accounts, Registration, Employment & Training, Forest, Transport, Tamil Nadu e-Governance Agency (TNeGA), State Health Society, Tamil Nadu Housing Board (TNHB), Survey and Settlement, Tamil Nadu Cement Corporation Limited (TANCEM), Tamil Nadu Civil Supplies Corporation, etc.

1(c). TNSWAN - Redundant Connectivity

TNSWAN vertical connectivity is provided to all District Collectorates, Taluk Offices, BDOs and RDOs by using the bandwidth provided by NKN/BSNL. In order to ensure uninterrupted connectivity at the District Collectorates, Taluk Offices, BDOs and RDOs, a secondary 2 Mbps MPLS-VPN (1:1) redundant connectivity has been implemented. Provisioning of 207

links has been completed and 30 links are under process.

2. National Knowledge Network (NKN)

National Knowledge Network (NKN) is a national level high speed Network established by Government of India. NKN provides a common platform to the scientists, researchers, doctors, scholars and students to work together for advancing human development by connecting the academic institutions across India and the global scientific community.

The bandwidth through NKN is being provided by Government agencies such as Bharat Sanchar Nigam Limited (BSNL), Power Grid Corporation of India Limited (PGCIL) and RailTel. NKN also provides a Network platform to National e-Governance Projects (NeGP) for their roll out at national level. The NKN consists of an ultra-high speed core, starting with multiple 2.5/10 Gigabits per second and progressively moving towards 40/100 Gigabits per second (Gbps) connectivity. Two links of 1 Gbps speed from NKN have been terminated one each at TNSWAN & TNSDC with 100 Mbps Internet Connectivity.

Through the NKN connectivity all the TNSWAN & TNSDC users can also access the applications that are hosted at the national level. The applications can be accessed through NKN at a very high speed internet bandwidth which is several times faster than the earlier speed.

3. Broadband Connectivity / Internet Leased Line

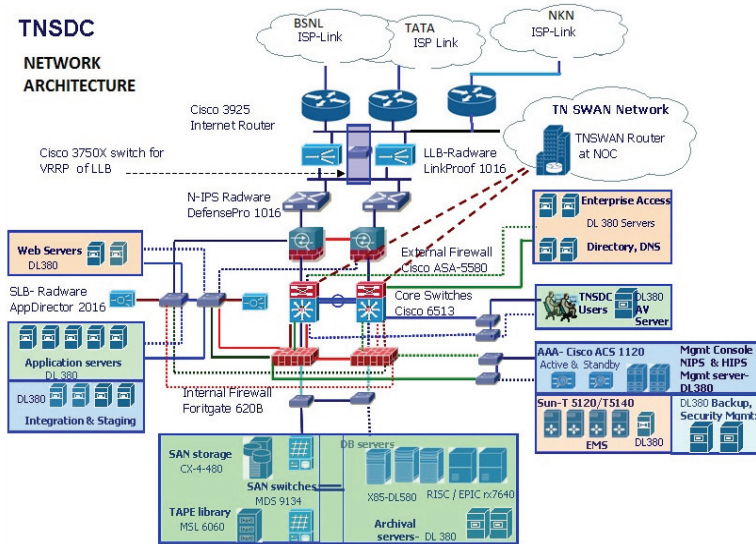
Broadband is a high speed data transmission facility which can carry a large amount of data by offering more bandwidth. ELCOT is providing Broadband connectivity to Government Offices at a competitive rate. About 25,000 Government offices including schools have been provided with Broadband connectivity.

Internet leased Line connectivity is being offered at 2 Mbps to 45 Mbps speed to the departments dealing with large amount of dynamic data. At present, Leased Line Connectivity is being provided to various departments such as Metro Water, Corporation of Chennai, Directorate of Rural Development, Archeology, Tamil Nadu Pollution Control Board, etc.

4. Tamil Nadu State Data Centre (TNSDC)

Tamil Nadu State Data Centre (TNSDC) is one of the core e-Governance back bone infrastructure under National e-Governance Action Plan (NeGAP). It is a shared scheme between State and Central Governments. As per the Guidelines of Department of Electronics and Information Technology (DeitY), Government of India (GOI), Tamil Nadu State Data Centre(TNSDC) has been set up at an estimated cost of Rs.60.80 crores (GOI share Rs.55.80 crores & State Share Rs.5.00 crores) and is in operation from 01.08.2011. Tamil Nadu is the first State in the country to obtain the ISO Certification for the Data Centre operations and Management of Information Security which is an important milestone in the operation of TNSDC. TNSDC has now obtained upgraded ISO certifications ISO/IEC 20000-1:2011 and ISO/IEC 27001:2013.

TNSDC NETWORK ARCHITECTURE



TNSDC is housed at ELCOT, Perungudi Complex and is being maintained with a strict Service Level Agreement (SLA) for ensuring 24 X 7 operation. TNSDC is a highly secured infrastructure in which the Government departments can host their applications. The TNSDC was initially set up with 40 racks and now expanded with 21 more racks. The Operations and Management is managed by Data Centre Operator (M/s. Wipro). The TNSDC is in the consecutive 5th successful year of operation.



SNAPSHOT OF TNSDC

68 applications of 25 Government Departments are Live from the TNSDC. Some of the Government applications which are operational in TNSDC are as follows:

- i) HMS & HMIS of Tamil Nadu Health Systems Project
- ii) e-Governance and e-District applications of SSDG
- iii) Crime and Criminal Tracking Network Systems (CCTNS)
- iv) e-Payment System of IGR
- v) ERP of Chennai Corporation
- vi) Document Management system of Chennai Metro Rail Project

- vii) College Management System of Dr. MGR Medical University
- viii) Enterprise Resource Planning (ERP) for Priceless Fan, Mixie, Grinder and Priceless Laptop Scheme etc.

The TNSDC which serves the hosting requirements of various Government Departments has currently reached 100% of its maximum capacity in terms of space. TNSDC Phase II in a new building at Perungudi is being implemented at an approved project outlay of Rs.40 Crores. Construction of building work is in progress.

5. Server Farm

In order to provide common test bed facility with Load balancer, Antivirus, Firewall etc., to the departments while hosting applications at TNSDC, a 'Server Farm' has been created at TNSDC with necessary hardware, software and testing tools. This will allow the departments to comply with Vulnerability Assessment and Penetration Tests before hosting applications at TNSDC.

6. Disaster Recovery Centre (DRC) & Near Line DRC (NLDR)

6.1. DRC-TRICHY

The Tamil Nadu State Data Centre (TNSDC) enables the State Government and the Departments to host their applications and services on a common, redundant, secured and controlled environment, easing the process of integration and resource optimization. However risks pertaining to natural disasters such as Tsunami, earthquakes, floods etc, pose a herculean challenge to any Data Centre. To ensure the business continuity of the departments which are providing e-services and to have a mirror image of data, Disaster Recovery Centre has been planned. ELCOT has been nominated as the implementing agency for setting up of Disaster Recovery Centre (DRC) in a phased manner.

Disaster Recovery Centre Operator (M/s.Sify Technologies) for Supply, Installation, Configuration, Testing, Operations and Management of Disaster Recovery Centre (DRC) at ELCOSEZ, Tiruchy was selected through Open Tender process at a cost of Rs.53.28 Crores and the work is in progress.

6.2. National Data Centre (NDC), PUNE

Under National Disaster Recovery Scheme, the TNSDC is mapped with National Data Centre (NDC), Pune. Through NKN Connectivity NDC, Pune was enabled as Disaster Recovery Centre. Disaster Recovery at NDC, Pune is operational and Disaster Recovery facilities of CCTNS and SHDRRC have been implemented.

6.3 Near Line Disaster Recovery Centre (NLDRRC)

To address the synchronous replication requirements for providing Near Line Disaster Recovery Solutions, ELCOT has entered into a Memorandum of Understanding (MoU) with BSNL Data Centre.

Near Line Disaster Recovery common IT infrastructure has been created by ELCOT at BSNL Data Centre. The requirements of the departments are being addressed on a case to case basis on receipt of demands from the departments.

7. Cloud Computing at TNSDC

For better and optimal utilization of the computer infrastructure at TNSDC and utilizing the same

infrastructure amongst multiple applications, Cloud Technology has been adopted at TNSDC. This technology will also drive consolidation of IT resources resulting in power savings.



CLOUD AT STATE DATE CENTRE

To start up, a small scale Cloud set up was established in co-ordination with C-DAC with the infrastructure of TNSDC. ELCOT Enterprise Resouce

Planning – Facility Management Service (ERP- FMS) etc. were hosted in this Cloud. As on date, 14 applications are deployed successfully in this Cloud environment and public access is enabled.

In order to have a full-fledged Cloud Set up, a System Integrator was identified through an Open Tender Process. Delivery, Commissioning and installation of full-fledged Cloud set up have been completed.

8. E-Mail Solution

The provisioning of e-Mail Services is an essential component of e-enabling of Government functioning. The existing e-Mail services is extended to 3100 users namely officers and departments within Secretariat, Officials in Districts and Taluks of few departments, MLAs and Hon'ble Ministers. In order to provide seamless desktop connectivity, as well as to adhere to the regulations in respect of storage and archival of email as official record of business process, a full-fledged e-Mail Solution has been mooted. The e-Mail Solution has been launched through NIC and is operational.

CHAPTER - IV

DIRECTORATE OF e-GOVERNANCE AND TAMIL NADU e-GOVERNANCE AGENCY

1. Introduction

The Directorate of e-Governance has been established and is functioning along with TNeGA with the objective of playing an advisory role to State Government in e-Governance initiatives and implementing ICT projects across the State.

Tamil Nadu e-Governance Agency (TNeGA), as a State Nodal Agency has been formed to support and drive all e-Governance initiatives of the Government of Tamil Nadu. TNeGA is implementing various e-Governance projects with the objective of making all Government services, wherever feasible, accessible to the common man in an efficient and transparent manner.

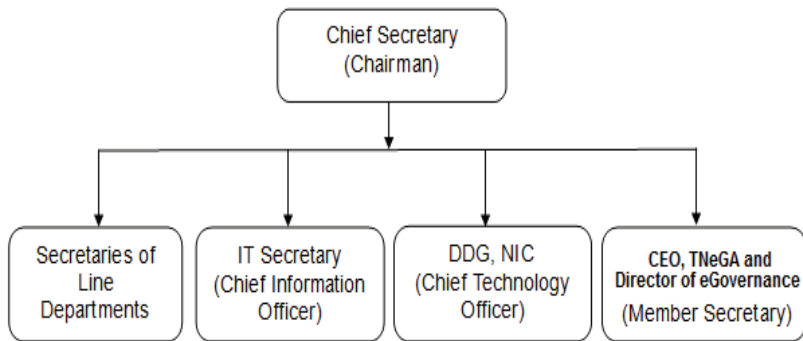
e-District, Common Service Centres in Rural and Urban areas, Capacity Building (CB) in Information and Communication Technology (ICT), Geographical Information System (GIS), State Resident Data Hub

(SRDH), State Services Delivery Gateway (SSDG) are some of the important projects under implementation by TNeGA.

Tamil Nadu e-Governance Agency aims to fulfill the above Vision of the Hon'ble Chief Minister, through use of Information Technology in Governance and delivery of services to public at their doorsteps.

2. Institutional Framework

The Institutional Framework (Figure 1) available for e-Governance activities at State Level is as follows:



Apex Committee (TNeGA)

Figure – 1

2.1 State Apex Committee

The implementation of Mission Mode Projects (MMP) of National e-Governance Plan (NeGP) at all levels of Government is driven by the Apex Committee headed by the Chief Secretary. It oversees and provides policy direction to State e-Governance initiatives and Mission Mode Projects and ensures Intra Departmental co-ordination. It is supported by **State e-Governance Group (SEG)** for providing standardization and consistency through Programme Management of the e-Governance initiatives.

2.2 TNeGA Board

The Tamil Nadu e-Governance Agency Board consists of the Secretaries of 11 Mission Mode Departments to guide the Tamil Nadu e-Governance Agency in its e-Governance activities and deliver the services to citizens. It was recently reconstituted.

2.3 Organizational Structure and IT Cadre

As more and more Departments are implementing ICT projects, it is essential to strengthen the organizations that are acting as nodal departments /

agencies in e-Governance to guide, standardize and implement, an integrated secure IT environment.

To meet the above need, an IT Cadre has been sanctioned by Government with 2 Joint Directors (Technical), 5 Senior System Analysts / Senior System Engineers, 20 System Analysts / System Engineers, 60 Assistant System Analysts / Assistant System Engineers under the Technical Wing along with an Administrative Wing consisting of one Deputy Director, 1 Accounts Officer, 1 Superintendent, 2 Assistants, 2 Junior Assistants and 2 Office Assistants. Under the Technical Wing, the feeder category would be Assistant System Analysts / Assistant System Engineers.

The following chart depicts the organizational structure (Figure-2) of the Directorate of e-Governance / Tamil Nadu e-Governance Agency:

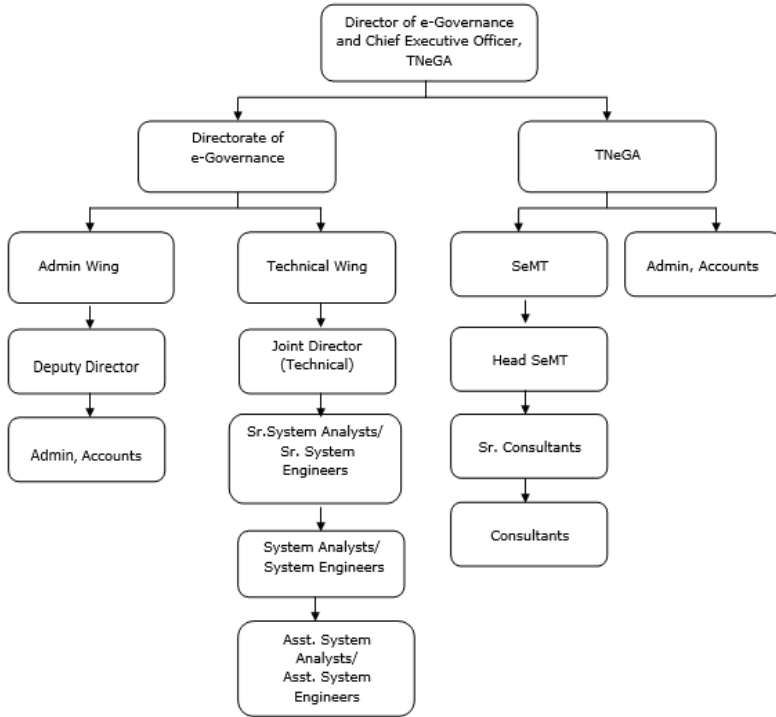


Figure - 2

2.4 State e-Governance Mission Team (SeMT)

A State e-Governance Mission Team (SeMT) is deployed in TNeGA. It comprises a group of IT Consultants in Programme Management, Technology Management, Financial Management and Change Management areas. The SeMT Consultants are handholding the Departments in their e-Governance

initiatives and support the implementation of **Mission Mode Projects** (MMPs) of NeGP. The Consultants act as an internal advisory body to the State Government Departments and help them to create department level ICT Roadmap and awareness.

2.5 District e-Governance Society (DeGS)

The Government have ordered the formation of District e-Governance Societies (DeGS) in all the Districts for implementing the e-Governance projects. Accordingly, District e-Governance Societies (DeGS) have been formed in all the Districts. The District e-Governance Society is headed by the District Collector, except in Chennai, where the Commissioner, Corporation of Chennai is the Head. The district level officials of all service delivery Departments are the members of the Society. The DeGS is responsible for the implementation of the ICT projects at District level. The DeGS will play a key role in the post-implementation and operations of the e-Governance Programme at District level.

For smooth functioning of the DeGS, a sum of Rs.10 lakhs is being provided by the Government as

seed money assistance to each DeGS. Further, to ensure the self-sustenance of the DeGS, a viable revenue generation model has been designed and implemented.

3. Projects, Programmes and Schemes

3.1 e-District Programme

e-District is one of the State Mission Mode Programmes(MMP) under NeGP, which aims at electronic delivery of identified high volume citizen centric services through Arasu e-Sevai Centers, Facilitation Counters, Primary Agricultural Co-operative Credit Societies (PACCS) etc., by leveraging the common infrastructure of SWAN, SDC and SSDG.

Tamil Nadu was one of the States chosen for Pilot implementation of e-District Project. Six Districts viz., (Ariyalur, Coimbatore, Krishnagiri, Perambalur, The Nilgiris and Tiruvarur) were chosen as Pilot e-Districts and 17 Revenue services, 6 Social Welfare services were initially rolled out. Subsequently, the existing 23 services of the pilot phase have been rolled out to the

remaining 26 districts in the State and are operational since last year.

The System Integrator for e-District roll out has been selected and services of various Departments have been identified for implementation and the development of software has been completed.

At present, under e-District Programme, the following 92 services are offered by leveraging the common infrastructure of SWAN, SDC, and SSDG through Arasu e-Sevai Centres.

Category of Services	Department	Service Name
Certificate Services	Revenue	1. Income Certificate
		2. Nativity/Residence Certificate
		3. Community Certificate
		4. First Graduate Certificate
		5. Deserted Women Certificate
		6. Family Migration Certificate
		7. Agriculture Income Certificate
		8. Widow Certificate
		9. Unemployment Certificate
		10. Birth Certificate for Village
		11. Death Certificate for Village

		12. Filing of Online Grievance Day Petition
	Corporation of Chennai	13. Printing of Birth Certificate
		14. Printing of Death Certificate
	TNEB	15. Electricity Bill
	TNEA	16. Tamil Nadu Engineering Admission 2016 Online Registration
	Chennai Metro Water Supply and Sewerage Board	17. Water and Sewerage Tax
Social Welfare Schemes	Social Welfare & Nutritious Meal Programme Department	18. Moovalur Ramamirtham Ammaiyar Ninaivu Marriage Assistance scheme
		19. Annai Theresa Ninaivu Marriage Assistance Scheme for Orphan Girls
		20. EVR Maniammaiyar Ninaivu Marriage Assistance Scheme for Daughter's of Poor Widows
		21. Dr. Muthulakshmi Reddy Ninaivu Inter-caste Marriage Assistance Scheme
		22. Dr. Dharmambal Ammaiyar Ninaivu Widow Remarriage Assistance Scheme
		23. Chief Minister's Girl Child Protection Scheme I & II

Scholarship Schemes	Adi-Dravidar & Tribal Welfare Department	24. Gol Post matric Scholarship for SC Students
		25. Gol Post matric Scholarship for ST Students
		26. State Special Scholarship for Post matric Students
		27. Higher Education Special Scholarship Scheme
	Backward Classes, Most Backward Classes, Minorities Welfare Department	28. Issuance of Post Matric Scholarship
		29. Educational Assistance to the students in Professional Courses
		30. Educational Assistance to Graduates
		31. Educational Assistance to Polytechnic Students
Social Security and Pensions Scheme	Revenue Department	32. Indira Gandhi National Disability Pension Scheme (IGNDPS)
		33. Indira Gandhi National Old Age Pension Scheme (IGNOAPS)
		34. Indira Gandhi National Widow Pension Scheme (IGNWPS)
		35. Destitute Deserted Wives Pension Scheme (DDWPS)
		36. Destitute Widow Pension Scheme (DWPS)

		37. Physically Handicapped Pension Scheme (PHPS)
		38. Unmarried Women Pension Scheme (UWPS)
Integrated Services for Other Departments under e-District Project	Civil Supplies Department	39. Consumer Complaints Other than PDS
		40. Consumer Complaints related to PDS
	Registration Department	41. Application through Offline Payment
		42. Printing Challan for Offline Payment
		43. Online Appointment for Marriage/Document Registration
		44. Printing Acknowledgement for Appointment
	Tamil Nilam	45. Tamil Nilam - Extract of 'A' Register
		46. Tamil Nilam - Extract of Chitta
		47. Tamil Nilam - Full field Patta Transfer
		48. Tamil Nilam - Joint Patta Transfer
		49. Tamil Nilam - Subdivision

	State Transport Authority	50. Booking Appointment for Driving License
		51. Learner's License Online Application
		52. Re-Print Learner's License Online Application
	Tamil Nadu Police Department	53. CSR Status
		54. FIR Status
		55. Online Complaint Registration
		56. Status of Complaint-Viewing
		57. Vehicle Search
	Commissioner of Municipal Administration (CMA)	58. Collection of Non Tax items
		59. Collection of Professional Tax
60. Collection of Property tax		
61. Collection of Underground Drainage Charge		
62. Collection of Water Charges		
Directorate of Boilers		63. Registration of License under Boilers Act
		64. Renewal of License under Boilers Act
Corporation of Chennai		65. Renewal of Trade License
		66. Collection of Company Tax
		67. Collection of Professional Tax
		68. Collection of Property Tax

	Agricultural Services	69.mKisan Registration
		70.VNR Seeds
		71.Kisan Point
	Election Services (Shortly)	72.Election Commission Services - Tamil Nadu, Form 6,7, 8 & 8A
		73.EPIC PVC Print
		74.EPIC Aadhaar seeding
	Government to Citizen (G2C) Gol Services	75.Swachh Bharat
		76.JAN SURAKSHA YOJNA
		77.Rashtrapati Bhavan Museum Visit
		78.National Pension System (Swavalamban Yojna)
		79.Passport
		80.PAN Card
		81.Public Grievances
		82.Birth and Death Certificate Registration
		83.National Career Services
	UID Services	84.Aadhaar Print
		85.Aadhaar Mobile Update
		86.Best Finger Detection (BFD)
		87.Aadhaar e-KYC print
88.New Enrollment (Shortly)		
Text book Corporation	89.Apply for School textbooks	
TNPSC	90.Apply for TNPSC exams	
Election Commission	91.Voter ID correction	
BSNL	92.ISD - Broadband connection	

Other than the above mentioned services, 9 Business to Citizens services (B2C), 9 Education related services, 2 Insurance Services, 4 Mobile and Direct to Home (DTH) Services, 2 Recruitment Services, 4 Travel Services, 9 Skill Services, 4 Banking Services and 5 Training Services are also available. Thus, a total of 140 services are provided under e-District Programme (CSC, TACTV, APNA CSC) by leveraging the common infrastructure of SWAN, SDC, and SSDG.

3.2 Arasu e-Sevai Centres

Arasu e-Sevai Centres have been envisioned as the front-end delivery channel for State Government, private and other services to citizens. The idea is to develop a platform that can enable Government, private and other organizations to integrate their commercial services at a single point for the benefit of the Citizens through a combination of IT as well as non-IT services.

The Government has taken steps to provide Government Services in electronic mode to the common man in his locality through Arasu e-Sevai Centres. As of now, the Arasu e-Sevai Centres are delivering e-District

services and other services that are useful to the common citizen. Considering the usefulness of the Rural CSCs, the Scheme has been extended to urban areas. Arasu e-Sevai Centres are functioning in urban areas with the objective of providing unified access to the e-services of different Government Departments at a common point in the urban and semi-urban areas of the State.

Arasu e-Sevai centres run by Primary Agricultural Co-operative Credit Societies (PACCS), Village Poverty Reduction Committee (VPRC) formed under Pudhu Vazhvu Project, ELCOT and TACTV are delivering the e-services.

The Pilot for the Arasu e-Sevai Centres Scheme was launched in Chennai by the Hon'ble Chief Minister of Tamil Nadu on 24.02.2014 in the following 14 places:

Taluk Offices	–	3
Corporation of Chennai (Zonal Offices)	–	3
Chennai Metro Water Supply & Sewerage Board (CMWSSB) (Depots)	–	2
Urban Co-operative Credit Societies	–	6

Currently there are 10,486 centres functioning across the State. So far, the total number of transactions made as on 31st July 2016 is 1,96,84,714. The details of Arasu e-Sevai Centres run by various Agencies are given below:

Sl. No.	Agency	No. of Centres
1.	ELCOT	461
2.	Tamil Nadu Arasu Cable TV Corporation Ltd.,	790
3.	Primary Agricultural Co-operative Credit Societies	4340
4.	Village Poverty Reduction Committee	4371
5.	Village Level Entrepreneuers	440
6.	Village Level Fund for Agricultural Development (IFAD)	19
7.	Others	65
	TOTAL	10,486

3.2(i). Arasu e-Sevai Centres of ELCOT

ELCOT has implemented Arasu e-Sevai Centres in places like Offices of the Rural Development & Panchayat Raj, Commissionerate of Municipal Administration, Corporation of Chennai, Chennai Metropolitan Water Supply and Sewerage Board

(CMWSSB), Taluk Offices, District Collectorates, Revenue Inspector Quarters, Block Development Offices, Town Panchayats across the State to provide multiple Government services under a single roof to the citizen. As on 31st July 2016, 461 Centres are run by ELCOT.

Apart from the above services, additional services like Tamil Nadu Engineering Admission (TNEA) Services such as BE / B.Tech Online Registration, APNA CSC Portal Services like Aadhaar Card Printing, DTH Recharge, Data Card Recharge, Mobile Recharge, Mobile Bill Payment, Filing of New EPIC Card, Passport, PAN Card, Bus Ticket Booking etc. have also been provided at Arasu e-Sevai Centres for the benefit of citizens.

3.2(ii). Arasu e-Sevai Centres of Tamil Nadu Arasu Cable TV Corporation Ltd.

As per the announcement made by the Government in the floor of the Assembly on 04.08.2014, Tamil Nadu Arasu Cable TV Corporation Ltd. has established 790 Arasu e-Sevai Centres in all the Taluks of Tamil Nadu including the Chennai Corporation Area.

The Arasu e-Sevai Centres are equipped with state-of-the-art facilities with high speed broadband internet connectivity and offer a host of services like Certificates of Revenue and Social Welfare Departments, Utility Bills payment facility, Aadhaar Card Services, Online booking for Text Books etc. Within a short span of 18 months from the inception, about 54 lakh persons have benefited from the services offered by the Arasu e-Sevai Centres of Tamil Nadu Arasu Cable TV Corporation Ltd. and the Arasu e-Sevai Centres have netted a revenue of Rs. 24 crores as on 27.07.2016.

3.3. State Portal / State Services Delivery Gateway (SSDG)

The State Portal provides a one-stop access to Tamil Nadu Government Information and e-Services. Features like integration of e-District services, Content Management System, links to all Department services, Mobile compliance, Citizen Registration etc.

The Portal has been tested thoroughly by Software Testing and Quality Control (STQC) Organisation for functionality, performance and security. This was inaugurated by Hon'ble Chief Minister on 24.02.2014.

3.4 Capacity Building

Capacity Building Scheme aims to develop IT expertise and skills at various levels of Government to achieve the following:

1. Bringing standardization and consistency across various e-Governance initiatives
2. Change Management and training requirements
3. Government Process Reengineering
4. Optimizing cost and resource utilization
5. Leveraging external resources
6. Implementing best practices followed elsewhere.

As part of the Capacity Building, the following Courses / Training programs are undertaken by TNeGA for the benefit of Government employees:

- Basic IT orientation Training
- e-District Application Training
- e-Governance Orientation Training
- Specialized Training on e-Governance (STeP) Program
- Soft Skills Training
- Hardware and Networking Courses
- Database Management Courses
- Internet Protocol Version 6 (IPv6) Training
- Change Management Training
- Government Process Engineering Training
- Project Management Courses
- Application Software Training

Digital Signature Certificate Training Programme was conducted during September 2014 in 6 major regions. About 381 Government officials participated.

In October 2014, 60 Government officials from the State of Tamil Nadu participated in STeP eGLC conducted by National Institute of Smart Governance (NISG) at Hyderabad.

In the month of May 2015, ICT week for students covering all 32 districts was conducted in 4 batches at Chennai. In total, 382 students have participated in the ICT-Week programme.

As on today, 9397 Government officials have been trained on e-District application software.

So far, 41,556 Government employees have been given various types of training. The following chart describes the Training programmes conducted by TNeGA since 2009.

Training Modules Conducted (since 2009)

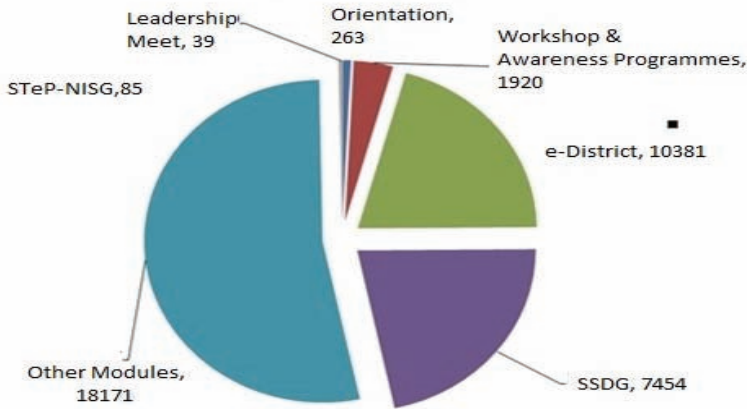


Figure - 3

3.5 Tamil Nadu Geographical Information System (TNGIS)

Considering the urgent necessity to bring about a point of convergence for Geographical Information System users through a focused development environment and avoid disorientation and wastage of resources, it was felt that a common platform for Tamil Nadu State Spatial Data Infrastructure (TNSSDI) needed to be established in the Tamil Nadu Geographical Information System (TNGIS) and a Tamil Nadu Geographical Information System Policy be evolved.

Orders have been issued for this purpose and a sum of Rs.132.80 Lakhs has been approved administratively. The following activities are being undertaken:-

- A Technical Team has been formed with representatives from user Departments.
- Design and Development of Metadata Framework in progress by the Implementing Agency (NIC).
- A comprehensive design is proposed to take care of the diverse set of spatial data including:
 - ✓ Multiple Departments
 - ✓ Multiple Areas of interest viz. State, Districts, Blocks, Taluks, Corporations, etc.
 - ✓ Layers on Multiple Scales (Admn. Boundary in 50K, 10K, 1K, etc.)
 - ✓ Multiple roles / users in Multiple Departments/ Districts
 - ✓ Multiple privileges (Intra / Inter / Public) for various layers

- Initiated GIS Services based Web Interface based on Metadata Framework.
- So far eight departments/organizations have shared their respective layers.
- NIC is preparing a solution with the standards mentioned in the proposal.
- Identification and classification of layers and segregation of layers for Public / Government Domain including authentication mechanism.
- Sharing of base layers procured from Survey of India (SoI) to collate and consolidate layers from various departments at appropriate scales and to study the requirements and appropriate integration etc.
- An infrastructure for proper access and usage of GIS across various departments is being developed.
- Standards based Web GIS shall be adopted as the technology to provide interface for the various datasets, keeping in mind the large number of users who would show interest to view the same.

- Correction of Base layers work at the District level is completed and hosting is done for 27 Districts and also 47 vector layers have been hosted in TNGIS website.
- Hardware procured and placed at BSNL-SDC.
- NIC has developed an application software and hosted it.
- A separate domain name www.tngis.tn.gov.in has been created.
- The Security Audit has been taken up by STQC-IT and as and when the Web Security Audit is completed, it would be opened to public.

This application was inaugurated by the Hon'ble Chief Minister on 05.08.2016.

3.6 State Resident Data Hub (SRDH)

State Resident Data Hub (SRDH) is a unified AADHAAR enabled Data base of all citizens. This repository will be accessed by and be available to all departments which deliver services to citizens. It will help the Government in better targeting, effective service delivery, greater accountability and more efficient

monitoring of schemes. The estimated cost for this project is Rs.30.25 Crores.

The SRDH aims to enable the State to :

- Manage complete State Level Resident Data in a digitized, centralized and secured manner.
- Utilise AADHAAR number to uniquely identify citizens (the beneficiaries of different schemes implemented by Government).
- Integrate AADHAAR enabled National Population Register (NPR) data with Departmental utility Databases on a real time basis.
- Incorporate AADHAAR authentication into various applications.

Consulting agency is in place to support the project implementation and the project is being implemented by the System Integrator. An application software has been developed for the project by the System Integrator. Data from various Government departments have been received and are being standardized.

This application was inaugurated by the Hon'ble Chief Minister on 05.08.2016.

3.7 e-Office

e-Office Application has been initiated in TNeGA during 2015-2016 to make a paperless office. Since the usage of e-Office has begun, TNeGA and Directorate of e-Governance (DeG) are progressively becoming paperless organizations. e-Office application has been successfully implemented in IT department at Secretariat and it will be implemented in all other Departments shortly. This will ensure efficient and effective functioning of all Departments making them paperless by 2023. Using e-Office application, the retrieval of all data can be easily done within few seconds electronically.

3.8 Facilitation for Mission Mode Departments

The Government Departments have been implementing e-Governance projects for the past few years. For delivering of services to the citizens, the Government of Tamil Nadu has prioritized the services of 14 Departments as State Mission Mode Departments (MMDs). The Information Technology Department is

facilitating these Departments with common infrastructure namely, Tamil Nadu State Wide Area Network (TNSWAN) and Arasu e-Sevai Centres for enabling electronic delivery of services. ELCOT and TNeGA are involved in providing technical guidance and project implementation support for the Mission Mode Departments.

CHAPTER – V

E-GOVERNANCE AWARDS AND OTHER INITIATIVES

1. Hon'ble Chief Minister's Award for Excellence in e-Governance for Government Departments

Government of Tamil Nadu announced that as a mark of recognition and encouragement, the Departments which strive towards e-Governance successfully will be awarded the “Chief Minister's award for Excellence in e-Governance” every year.

For the year 2015-16, the nominations are invited for all the 3 categories from the Government departments & Districts.

2. Hon'ble Chief Minister's Award for Excellence in e-Governance for Students

Government of Tamil Nadu has announced “Chief Minister's Award for Excellence in e-Governance” to encourage and create an awareness on e-Governance among the youth, Students and e-Governance enthusiasts.

For the year 2015-16, nominations have been invited to participate in all the categories.

3. Tamil Nadu e-Governance Award for MSME

Government of Tamil Nadu has announced the e-Governance Award for Micro, Small and Medium Enterprises (MSME). It aims at recognizing and promoting outstanding e-Governance (ICT) Solutions and applications, thereby encouraging innovation and excellence among Tamil Nadu ICT Talents and enterprises in their constant pursuit for creative and better solutions to meet social needs.

For the year 2015-16, nominations have been invited to participate in all the categories.

4. IT Security Auditing

In order to protect the Government websites and IT applications from defacement and hacking, IT Security Auditing is being conducted in a phased manner. ELCOT has empanelled Security Audit Agencies for this purpose. A sum of Rs.1,76,41,000/- has been sanctioned for this purpose and it is proposed to conduct security audit for 93 website and IT Applications. So far,

security auditing for 83 websites have been completed and for 10 websites is under process. Further action on security auditing will be taken up as and when the requests are received from the Departments.

5. Online Demonstrative Services Directory

Government of Tamil Nadu announced that an “Online Demonstrative Services Directory” will be created which will contain the name of the e-Services, Website address, Links to the Services and a demonstrative user guide made available to the public. The software has been developed, tested and deployed in the cloud environment at ELCOT data centre.

6. Scheme Monitoring Software

In order to measure the effectiveness of the schemes and to improve the delivery of the benefits to the public, a “Scheme Monitoring Application Software” has been announced. This tool will enable the Departments to review and monitor the progress of the schemes on a near real-time basis and help in decision making.

The software has been developed, User Acceptance & Security Auditing have been completed and deployed in the cloud environment at ELCOT data centre.

7. e-Learning content for Government Employees

In order to improve employees' ICT skills and to expedite e-Governance implementations in the State, an online training software has been developed to implement e-learning solution. The software has been developed, tested and deployed in the cloud environment at ELCOT Data Centre.

8. e-Governance Initiative Fund

To deliver various services of Government Departments through e-Governance, 14 Departments have been selected as Mission Mode Departments (MMDs) and these departments are being computerized. In order to support the non-Mission Mode Departments which intend to deliver integrated services through e-Governance, an e-Governance Initiative Fund has been created for encouraging their e-Governance initiatives. A sum of Rs.10 Crores (Rupees Ten Crores only) has been sanctioned.

9. SMS based Services Tracking Facility

In order to utilize the mobile phone penetration in the State, the Government of Tamil Nadu has accorded administrative approval for a sum of Rs.1,20,50,000/- to enable the citizens to track the applications submitted through e-District Application using SMS facility. The application development is under progress.

10. Centre of Excellence (CoE) for Capacity Building

Government of Tamil Nadu has implemented various e-Governance initiatives in the State and is providing services to the citizens through various modes under the e-Governance schemes. As the skill sets in the department are not adequate to handle the e-Governance projects in the initial stages of Project development and implementation, it is required for the Government to build the capacity in ICT skill.

The Government of Tamil Nadu announced to establish “Centre of Excellence for Capacity Building” in order to manage and implement software development in Government departments and to help the Government Employees to develop their e-Governance skills and to issue eligibility certificates.

Centre of Excellence (CoE) will be established with the support of either State Government Departments or with Public Private Partnership (PPP) mode. CoE will be a facility for collaboration on innovative research, technology and software solutions, involving a combination of academic, industry and government participants. The fundamental principles of “Centre of Excellence for Capacity Building” in Government of Tamil Nadu are Education, Entrepreneurship and Innovation.

11. e-Taal

e-Taal is a web portal for dissemination of **e-Transaction** statistics of Central and State Level Projects including Mission Mode Projects. It receives transaction statistics from web based applications periodically on near real time basis. Based on the statistics, the States / Projects are ranked on National Basis. After continuous efforts of TNeGA and with the coordination of several Government Departments, the State has been placed among the top three States in overall e-transactions in the “State Government Projects” category.

CHAPTER - VI

ACHIEVEMENTS FOR THE YEAR 2015-16

1. Chief Minister's Best Practices Award 2015

The service rendered to the citizens by the Arasu e-Sevai Centres has been recognised and awarded with the Best Practices Award for Good Governance by the Hon'ble Chief Minister during the Independence Day Function, 2015.

2. e-District

More than three hundred services have been identified under e-District Programme covering various Departments. Out of which, 140 services are live and this Project has been implemented in all districts. Currently, there are 10,486 centres functioning across the State. The Number of Transactions made under the e-District Programme for Revenue & Social Welfare departments upto 2014-15 and inclusive of Apna CSC services from 2015-16 are given below:-

Year	No. of Transactions	Cumulative Transactions
2011-12	83,046	83,046
2012-13	1,98,353	2,81,399
2013-14	9,85,353	12,66,752
2014-15	24,75,890	37,42,642
2015-16	1,10,10,387	1,47,53,029
01.04.2016 to 31.07.2016	49,31,685	1,96,84,714

3. “WEB RATNA” Award

The Web Portal of Government of Tamil Nadu, www.tn.gov.in has won the “**Web Ratna**” Award in “Gold Icon” category. The Award category aims to acknowledge the State/UT of India which has displayed exemplary initiative in establishing comprehensive web presence. The selection criteria include the overall quality of web based initiatives, the spectrum of Sectors/Departments having good web presence and the level of responsiveness towards web based queries by citizens. Aspects of usability and accessibility are also considered. The Award was presented by Department of Electronics & Information Technology, Government of India.

CHAPTER – VII

ICT ACADEMY OF TAMIL NADU (ICTACT)

ICT Academy of Tamil Nadu is formed as a joint venture of Central Government, State Government and Industry, with a vision to make the students graduating from various institutions in Tamil Nadu employable in the IT sector by enhancing the standards of their education. ICTACT is a not-for-profit autonomous organization. This organization is governed by a governing body that consists of representatives from leading IT organizations and the Government of Tamil Nadu.

During the year 2015-16, ICTACT has actively pursued the following initiatives:-

- Trained 4,431 Higher Education Faculty members by conducting 112 Faculty Development Programs in the State benefitting college students.
- Trained 2,251 School Education Faculty members by conducting 50 Faculty Empowerment Programs in the State benefitting school students.
- Published 646 research articles in its 5 ICTACT International Research Journals.

- Conducted 3 Industry-Institute Interaction Conferences (ICTACT Bridge) in 3 Cities and conducted 30 Technical Seminars (ICTACT Power Seminars) for students, 1 ICTACT Conclave for academicians across the State.
- Conducted Entrepreneurship Development Program for 2,140 Students of 107 Colleges as a part of the project of Entrepreneurship Development Institute (EDI), Government of Tamil Nadu.
- Conducted Advanced Entrepreneurship Orientation Program for 214 Students of 107 Colleges as a part of the project of EDI, Government of Tamil Nadu.
- Trained and Certified 155 graduating students on Advanced IT / ITES Sector as a part of Employability Skill Program approved by Tamil Nadu Skill Development Corporation (TNSDC), Government of Tamil Nadu.
- Trained and Certified 182 Unemployed Youth on Telecom Sector as a part of Employability Skill Program approved by Tamil Nadu Skill

Development Corporation (TNSDC), Government of Tamil Nadu.

- Trained and Certified 140 Unemployed Youth on Retail Sector as a part of Employability Skill Program approved by Tamil Nadu Skill Development Corporation (TNSDC), Government of Tamil Nadu.
- Trained and Certified 400 Unemployed Youth on BFSI Sector as a part of Employability Skill Program approved by TNSDC, Government of Tamil Nadu.
- Trained and Certified 150 New Age Drivers on Smart Drivepreneur program as a part of Skill Training Program approved by TNSDC, Government of Tamil Nadu.
- Trained and Certified 120 graduating students on Employability Skill Training for SC / ST as a part of Employability Skill Program approved by Rajiv Gandhi National Institute of Youth Development (RGNID), Government of India.

1. ICTACT Partnerships

- ICTACT partnered with Rajiv Gandhi National Institute of Youth Development (RGNIYD), Government of India for the purpose of Entrepreneurship Development and implementation of Career Guidance Projects.
- VMware has partnered with ICTACT to provide VMware IT Academy programs, online hand holding on labs, video classes, faculty training etc. In specific, VMware will deliver VMware Faculty Development Programs and Student Skill Development Programs for Computer Science, Information Technology and Computer Application streams. In addition, ICTACT will be the regional IT Academy for VMware and will set up VMware IT Academies in 100 colleges across India.
- Autodesk has partnered with ICTACT to provide free access of Autodesk Software Suites, Learning Resources and Training and Global Certifications to ICTACT member institutions in the State of Tamil Nadu

- Hortonworks has partnered with ICTACT to provide access to the Hortonworks materials and also to purchase books directly from their vendor. In addition, their optional certification exams will be available for ICTACT.
- EMC Academic Alliance and ICTACT has partnered to establish 50 centers of Academic Excellence in the State during the year. These Centers of Academic Excellence will be set up in leading IT Institutes as identified by ICTACT across the State to provide students with an opportunity to learn and practice key skills in the areas of Cloud, Data Science, Analytics, IT Infrastructure and other leading Technologies. EMC through its Academic Alliance initiative, will offer the technical expertise, resources, and study materials required for setting up the centers.
- ICTACT has partnered with Palo Alto Networks as Authorized Academy Center to provide classroom and technical training on Firewall Installation, Advanced Firewall Troubleshooting and Advanced Threat Management.

- ICTACT is an Authorized Training Partner of Telecom Sector Skill Council (TSSC) to conduct courses in Telecom as per Skill Sector Council Standards.
- ICTACT partnered with the Government of Tamil Nadu in conducting Global Investors Meet (GIM) 2015, and played a key role in attracting investors for the State by conducting various workshops, conferences and seminars across the nation.

Tamil Nadu's ICT Academy has been singled out as one model for skill training that has been recommended for expansion across the country. The Sub-Group of Chief Ministers for Skill Development, formed following the first meeting of NITI Aayog has listed the Academy and its model as one of the best practices of States that need to be disseminated and replicated.

2. Government Projects completed in 2015-16

ICT Academy having developed its training capabilities, has been serving the Government Departments on providing training to its employees specifically in the areas of ICT and e-Governance. ICTACT has been involved and is part of various

Government Projects. Some of the projects undertaken for the Year 2015- 2016 are as follows:

Sl. No.	Name of the Project	Department
1	Employability Skill Training Program on BFSI Sector for 2000 unemployed youth.	Tamil Nadu Skill Development Corporation (TNSDC), Government of Tamil Nadu.
2	National Level Youth Entrepreneurship Development Training Project for 300 NSS Officers and 12,000 Students.	Rajiv Gandhi National Institute of Youth Development, Government of India.
3	National Level Career Guidance Seminar for 20,000 Higher Secondary and Senior Secondary class students.	Rajiv Gandhi National Institute of Youth Development, Government of India.
4	Soft Skills/IT Skills Training for 100 students in Tamil Nadu Institute of Labour and Studies, (TILS).	Tamil Nadu Skill Development Corporation (TNSDC), Government of Tamil Nadu.

5	Soft Skills/IT Skills Training for 100 Girl Students in Social Welfare Homes.	Directorate of Social Welfare and Nutritious Meal Programme, Government of Tamil Nadu.
6	Skill Training program on Hardware and Networking for 30 unemployed youth.	Entrepreneurship Development Institute, Government of Tamil Nadu.

3. ICTACT International Research Journals

ICT Academy of Tamil Nadu has been publishing the following peer reviewed scholarly Journals once in 3 months (quarterly).

- ICTACT Journal on Communication Technology (IJCT)
- ICTACT Journal on Image and Video Processing (IJIVP)
- ICTACT Journal on Soft Computing (IJSC)
- ICTACT Journal on Microelectronics (IJME)
- ICTACT Journal on Management Studies (IJMS)

The Index Copernicus Value (ICV) for ICTACT International Journals

ICTACT Journal on Communication Technology (IJCT)	62.08
ICTACT Journal on soft Computing (IJSC)	78.42
ICTACT Journal on Image and Video Processing(IJIVP)	63.80

Global Impact Factor for ICTACT Journals

ICTACT Journal on Communication Technology (IJCT)	0.788
ICTACT Journal on soft Computing (IJSC)	0.787
ICTACT Journal on Image and Video Processing(IJIVP)	0.786

ICTACT Journals are listed/hosted in internationally recognized indexing databases/sources like Directory of Open Access Journals (DOAJ), Index Copernicus, Inspec (IET), EBSCO Host, Google Scholar, J-Gate, Cite Factor, Research Bib, etc. To maintain the quality of the Journals, ICTACT works alongside some of

the prominent and experienced experts, researchers in various disciplines across the globe.

4. ICTACT Conferences, Conclaves and Seminars

During 2015-16, ICT Academy of Tamil Nadu has conducted 3 ICTACT BRIDGE conferences in Chennai, Coimbatore and Madurai. ICTACT has conducted 30 Power Seminars for students.

5. ICTACT New Initiatives for 2016-17

New Initiatives of ICT Academy of Tamil Nadu for the year 2016–17 are as follows:-

5.1. New Government Projects for 2016-17

- Rajiv Gandhi National Institute of Youth Development and ICT Academy of Tamil Nadu launches “Employability Skills Training” for graduating 1000 SC / ST students of Arts, Science and Commerce streams.
- ICT Academy of Tamil Nadu facilitates the manpower of IT Skill Instructors at 40 ITIs with 49 Instructors across Tamil Nadu through Department of Employment and Training.

- ICT Academy is undertaking training of 100 girls in 5 Social Welfare Homes on IT Literacy and Soft Skills through Directorate of Social Welfare.
- ICT Academy of Tamil Nadu is undertaking training of 800 unemployed youth on BFSI Sector skills thereby making them employable in BFSI Sector through Tamil Nadu Skill Development Corporation.
- ICT Academy of Tamil Nadu is undertaking training of 600 unemployed youth on Telecom Sector skills thereby making them employable in Telecom Sector through Tamil Nadu Skill Development Corporation.
- ICT Academy of Tamil Nadu is undertaking training of 1,000 unemployed youth on Retail Sector skills thereby making them employable in Retail Sector through Tamil Nadu Skill Development Corporation.
- ICT Academy of Tamil Nadu is undertaking training of 2,000 New Age Drivers on Smart Drivepreneur skills thereby making them

employable in Smart Drivepreneur through Tamil Nadu Skill Development Corporation.

- ICT Academy of Tamil Nadu is undertaking training of 300 graduating Students on Advanced IT / ITES Skills thereby making them employable in Advanced IT / ITES Industry through Tamil Nadu Skill Development Corporation.
- ICT Academy of Tamil Nadu is undertaking training of 250 Graduating Students on Entrepreneurship Development Program (EDP) thereby equipping the students with entrepreneurship skills through Small Industries Development Bank of India (SIDBI).

5.2. School Initiatives

ICTACT under its school initiatives has implemented a range of training programs with focus on enhancing the skill-set of teachers in the K-12 sector. ICT Academy of Tamil Nadu contributes to School Empowerment through its training, services, events, workshops, competitions etc. for the school teachers and students, thereby benefitting the students and teachers.

5.3. ICTACT Youth

ICTACT is starting ICTACT Youth, an initiative to enhance Employability Skills in students which has become an ever existent issue in making them industry ready. ICTACT Youth will address specific issues on communication and leadership skills among students, which has been a long time Gap found in the Industry.

Under ICTACT Youth, ICTACT year-on-year conducts two National Level student competitions named ICTACT Youth TALK and ICTACT Youth PRESENT which is conducted every year to nurture and develop the communication, presentation and leadership skills among students.

The top selected 6 Students travel to Singapore on an Education tour for 3 days to nurture their skills.

ICTACT will organize an annual summit titled “ICTACT Youth Summit” for students especially college students.

ICTACT is forming ICTACT Youth Circle in colleges with an objective of enhancing the communication skills of graduating students and platform to practice speaking. The ICTACT Youth Circle’s mission

is to help students to improve the skills of speaking, listening and thinking, through a relaxed, friendly and supportive environment. Every member has the opportunity to develop communication and leadership skills, which in turn foster self-confidence and personal growth.

5.4. ICTACT Digital Literacy Certification Drive

The Digital India vision promises to transform India into a fully connected knowledge economy offering world class services at the click of a mouse. The vision aims to change the life in rural India by making every citizen a netizen who will be a fully empowered citizen. Inspired by the vision, ICTACT has been implementing various programs to strengthen and contribute towards success of the Digital India vision.

ICTACT is organizing the “ICTACT Digital Literacy Certification Drive” during the period June 2016 to Dec 2016 with an objective to assess and certify individuals on “Appreciation of Digital Literacy – Level 1” under the National Digital Literacy Mission (NDLM) program of the Government of India. ICTACT being the assessment and certification partner of NDLM.

“ICTACT Digital Literacy Certification Drive” enables all Industry Members and ICTACT Member Institutions to get all their Digital Literacy trained individuals assessed and certified through ICTACT.

5.5. ICTACT Awards

ICTACT on its mission to empower students and faculty members, finds a need to recognize and reward the actual contributors to their education ecosystem.

ICTACT Academic Partner Excellence Awards, ICTACT Best Coordinator Awards are awarded for the member institutions of ICTACT to recognize their valuable and effective relationship with ICTACT. The Techno awards are to encourage effective use of technology in teaching and welcome nominations from academicians across the country. ICTACT Student Innovator Award is awarded to encourage the student community on their innovations.

The winners are awarded at the flagship event, ICTACT Bridge. So far, ICTACT have recognized 50+ faculties, teachers and institutions in the last five years.

CHAPTER - VIII

TAMIL VIRTUAL ACADEMY

1. Introduction

The Tamil Virtual University (TVU) was established as a Society by the Government of Tamil Nadu on 18th May 2000 to provide Internet based resources and opportunities to the Tamil Communities living in different parts of the globe, as well as others interested in learning Tamil and acquiring knowledge of the History, Art, Literature and Culture of the Tamils. Later, Tamil Virtual University has been renamed as Tamil Virtual Academy. The Website of Tamil Virtual University has been functioning from 17.2.2001.

2. Vision

The Tamil Virtual Academy aims at providing Internet-based resources and opportunities for the Tamil communities living in different parts of the globe as well as other language speakers to know Tamil, Science, Technology, Tamil Computing software and acquiring knowledge of the history, art, literature and culture of the Tamils and to identify, establish, maintain and promote

the solutions for the Tamil computing requirements of Tamil Diaspora, Government, Educational, Media and Business institutions.

3. Mission

- To develop the solutions for Tamil Computing.
- To develop and deliver Internet based learning material for Tamil language, literature and culture to the global Tamil Communities and others involved in Tamil.
- To develop and deliver customised programmes to meet the cultural needs of the Tamil Communities in different parts of the world and help them to retain heritage.
- Compile the knowledge resources developed by the Tamils who are living around the world and to propagate the same.
- To provide lessons on Tamil language, literature and culture.
- To provide the opportunities to acquire knowledge or learn or get the Certificate/Diploma/Degree through Tamil University, Thanjavur.

4. Activities

- To organise and provide academic programmes from basic levels to Research programme.
- To carry out fundamental research and develop a database required for Tamil Software Development.
- To Develop Digital Library for the use of students and others.
- To develop Tamil software through Tamil Software Development Fund provided by the Government of Tamil Nadu and to test and certify the software developed by others.
- Cultural activities of Tamils are documented and uploaded in the website for dissemination and knowledge sharing.

5. Academic Programmes

At present, Tamil Virtual Academy is offering Academic Programmes like Primary Education, Certificate Course, Diploma, Higher Diploma and Degree

(B.A. (Tamilology) and no age limit is prescribed to join these courses. The details are as given below:

Primary Course	Certificate Course	Higher Certificate	Degree
Introducing Alphabets and Rhymes for Beginners	Basic level (1-2 Std. equivalent)	Grade-1 (7-8 Std. equivalent)	Diploma
	Intermediate level (3-4 Std. equivalent)	Grade-2 (9-10 Std. equivalent)	Higher Diploma
	Advanced level (5-6 Std. equivalent)	Grade-3 (11-12 Std. equivalent)	Degree (B.A. Tamilology)

16,043 candidates from **74 Countries** have registered for different courses. 5,040 students for certificate course, 155 students for higher certificate course, 447 students for Diploma course and 235 students for Higher Diploma course and 191 students for Degree course were awarded so far. Academic programmes are provided through 80 contact centres in 19 Countries.

For the benefit of students and others, TVA has developed and released CD's for Primary, Basic, Intermediate and Advanced level students under the

captions, Learn Tamil, Tamil Karpom, Thirukkural and Technical Glossary.

6. Infrastructure

In the Tamil Virtual Academy, the following infrastructure facilities have been inaugurated on 22.09.2014 by the Hon'ble Chief Minister of Tamil Nadu. The details are given below:

6.1 Tamil Computing Lab

A Tamil Computing Lab measuring 1085 sq.ft with 24 Modular Workstations with internet and fully air-conditioned facilities have been developed utilizing the amount of Rs.20 lakhs sanctioned.

6.2 Studio and Auditorium

To visualize the Tamil Virtual Academy's internet lessons related programmes and virtual classroom lectures, an air-conditioned studio has been established in 2,274 sq.ft with a control room for audio and video facilities. To conduct the academic related Tamil Programmes, an air-conditioned auditorium has been established at TVA in 2,274 sq.ft with a capacity of 150

seats. The Government have sanctioned Rs.17 lakhs for the above works.

6.3 Incubation Centre for Tamil Software

TVA has established an Incubation Centre to develop Tamil Software measuring 1682 sq.ft utilizing Rs.45 lakhs sanctioned for this project which includes a library, server room and 13 air-conditioned rooms (each 64 sq.ft) with latest computers and internet facilities.

7. Thagavalattruppada

A comprehensive and collaborative Repository of Tamil Language, Literature, Art, etc. containing details of all the achievements of the Tamils and Tamil language and literature has been created under Thagavalattruppada scheme by Tamil Virtual Academy. Accordingly, orders have been issued in G.O (Ms.) No.4, Information Technology Department, dated 20.2.2015 sanctioning a sum of Rs.20 lakhs to TVA. So far, 48 lakhs pages have been scanned. Digitization works are in progress at various resource centres such as Connemara Public Library, Thanjavur Saraswathi Mahal Library, Tamil Nadu Archives, U.Ve.Sa Library etc. In

addition to this, TVA has collected 56 lakhs of scanned files from various institutions such as Connemara Public Library, Tamil Nadu Archives, Tamil Nadu Archeological Department, Thanjavur Tamil University, Thanjavur Saraswathi Mahal Library, Department of Tamil Development etc. and the work is under progress.

8. Visual Thesaurus, e-Learning Portal, Digital Library

TVA has proposed to develop Visual Thesaurus, e-Learning Portal, Digitization projects.

8.1. Visual Thesaurus for Tamil

Visual Thesaurus for Tamil shall be developed in which the words with same meaning shall be grouped and their pronunciation and description will be available. For the above works, a sum of Rs.27.42 lakhs have been sanctioned in G.O.(Ms).No.16, Information Technology Department, dated 3.9.2014 to TVA. The database has been developed for the purpose of machine translation. This Visual Thesaurus is different from dictionary. Till date, 65,000 meanings have been identified for 10,000 head words.

8. 2. e-Learning Web Portal

To develop an e-learning web portal to help the students to learn Tamil language easily, a sum of Rs.12.26 lakhs have been sanctioned in G.O.(Ms).No.15, Information Technology Department, dated 3.9.2014 for this project. In the first phase, students can search their particulars in the web portal and the work is in progress. As the next step, all the concepts available in the lessons will be developed with Audio and Video facilities.

8.3. Digitization of Nationalized books

Digitization of 2,211 nationalized books with search facilities were planned by Tamil Virtual Academy. Accordingly, a sum of Rs.10 lakhs have been sanctioned in G.O.(Ms).No.5, Information Technology Department, dated 20.2.2015 to digitize 178 nationalized books in the first phase. Presently, 2,211 books are converted into text format. The text correction work is under progress.

9. Project Works

9.1. Annotated Corpus for Tamil literature

To implement an “Annotated Corpus for Tamil Literatures” project, in G.O. (2D) No.19, Information Technology Department, dated 18.11.2011, a sum of Rs.25.00 lakhs have been sanctioned to TVA. In the first phase, 56 books have been taken from its digital library which includes, Sangam period, Post Sangam period, Epics, Bhakthi and Minor literatures for assigning the grammatical category for each word and 18 books have been completed so far. Separate software is also being developed for this. There are 7 types of searches available. In this corpus, there are 36 grammatical categories given on linguistics basis. This corpus is designed for Machine Translation purpose.

9.2 Speech Database

In order to develop a Speech Database for Tamil computing purpose, a sum of Rs.10 lakhs have been sanctioned in G.O (2D) No.20, Information Technology Department, dated 18.11.2011 for this project. For this, Words have been collected from TVA’s e-lectures and training to the computer being given. In this project,

Dragon and Sphinx3 software have been used. Further, Acoustic Models, Language Model files, Word Dictionary, Filler Dictionary like files has been created.

9.3 An Electronic Dictionary with Pronunciation

TVA has been sanctioned with a sum of Rs.30 lakhs in G.O.(2D) No.5, Information Technology Department, dated 18.6.2012 to develop an “Electronic Dictionary with Pronunciation for Tamil”. To get the meaning of a word in the dictionary, one can type or pronounce a word to get the meaning and the meaning will be displayed in the monitor. This dictionary is divided into three parts. They are: 1. Meaning, 2. Paradigm 3. Inflected form. For which, a software tool also has been developed with 9 types of descriptions. They are: Headword, Phonetic Transcription, Phonemic Transcription, Tamil meaning etc. This is the first Dictionary in Tamil with Phonetic Transcription in the history of Tamil.

9.4. Syntactically and Semantically Annotated Tamil Corpus

To develop a “Syntactically and Semantically Annotated Corpus”, Government have sanctioned a sum

of Rs.25 lakhs in G.O. (2D) No.6, Information Technology Department, dated 11.06.2012 to TVA. This project identifies the Phrases, Clauses and Semantics. For Syntax, in the first phase, among the 22 literatures, there are 15 types of phrases like: Subject, Predicate, Noun, Phrases, Clauses etc. have been identified and for Semantics. There are 7 types of grammatical descriptions like: denotations, connotations have been identified along with the meaning. Separate software tool is also being developed.

10. Documentation and Archiving of Tamil Art & Culture

A monthly Lecture Series on Tamil Heritage, Art & Culture shall be organised in TVA by the Scholars and Experts and the same shall be recorded and webcast in TVA website. Every month, a renowned scholar will deliver a special lecture on Sculptures, Language and Ancient Culture of Tamils.

11. Outreach initiatives of Tamil Virtual Academy

The Tamil Virtual Academy is following integrated outreach approach to strengthen and enrich the Tamil Computing initiatives in Tamil Nadu. For this outreach

initiative, TVA is implementing the following projects:

1. Kani Tamil Peravai in higher education institutions,
2. Tamil Mega Encyclopaedia Project to enrich the Tamil content in the virtual domain,
3. Localization of Khan Academy videos in Tamil.

11.1. Kani Tamil Peravai (Forum for Tamil Computing)

To develop Tamil Computing and ensure that next generation should realise its significance, The Tamil Virtual Academy has established 85 units of “*Kani Tamil Peravai*” (Forums for Tamil Computing) in the State and the Government have sanctioned a sum of Rs.25 Lakhs as seed money in G.O.(Ms) No.6, Information Technology Department, dated 29.02.2016 to develop these Forums. Kani Tamil Peravai units are functioning in 20 Engineering Colleges, 4 Medical Colleges, 2 Agricultural Colleges and 59 Arts and Science Colleges. 8,500 members were enrolled in this forum from 85 Colleges. The State Unit of Kani Tamil Peravai has built the Tamil Computing skills for 1,100 teachers and 10,000 students of 7 Universities of Tamil Nadu. Kani Tamil Peravai has conducted thematic workshops on Natural language Process, Mobile App Development and Workshop on e-content Development for more than 250

participants (teachers and students) from the Tamil Nadu Higher Education Institutions.

11.2. Tamil Mega Encyclopaedia Project

Under the Tamil Mega Encyclopaedia Project, about 36,000 encyclopaedic articles in Agriculture, Fisheries have been developed. For this initiative, TVA has collaborated with Tamil Nadu Agricultural University, Tamil Nadu Fisheries University and Movement for Agro Tamil Science. It is proposed to develop Multimedia Encyclopaedia in more than 210 fields in Tamil under this project.

11.3 Khan Academy- Localization of Education Videos in Tamil

Khan Academy has published about 8,300 videos in English. TVA has started an initiative to localize those videos in Tamil. To enrich the Tamil educational content, TVA has localized above 1,250 videos in Tamil.

11.4 Open Source and Creative Common initiatives

To promote usage of Tamil Language in Internet, Tamil Virtual Academy will collaborate with non-profitable organizations such as Wikipedia to undertake

various campaigns to reach out to school and college students in the State and conduct various contests to enhance the Tamil Computing skills of the younger generation.

12. NEW PLAN OF ACTION

To promote the development of Tamil computing across the world as well as to create a conducive environment and a vibrant ecosystem to benefit Tamil Scholars, public servants, students and general public, new Tamil Computing projects have been identified. A High Level Committee consisting of renowned Tamil Scholars, experts from Linguistics and Tamil Computing fields and representatives from software industry has been constituted to formulate those projects and also a number of meetings have been conducted.

- **Tamil Corpus Bank**

Now TVA has developed a Tamil Corpus Bank which consists of more than 110 Million words. At present meta tagging work is under progress.

- **Digitization**

Under the ongoing “Thagavalattruppadaï” Scheme, resources such as all print resources, rare Tamil books, Inscriptions, Palm Leaf Manuscripts, Paintings which are not digitized earlier and also not covered under Copyright Act are to be digitized. In addition to this, collection of photographs of Archaeological remains and temples, etc. audio & video files are to be digitized. All these digital resources will be published online with suitable search facility.

- **Unicode format**

Necessary steps have been taken to ensure wider acceptance and usage of Tamil ‘99 keyboard, Unicode/TACE format in Government offices and also by the general public.

- **Unicode encoding**

Necessary steps have been consistently taken to ensure that the websites of Government Departments and other organizations adopt bi-lingual format and use Unicode/TACE format.

- **Tamil Software Development**

Tamil Virtual Academy has undertaken a long term Research and Development Programmes on Tamil Language Technology and Natural Language Processing (NLP) with an aim to update the existing software tools like Word Processor, Spell Checker and OCR as well as to create various tools such as Text Recognizer, Text Summarization, Speech Recognizer and Automatic Translator. To aid the on-going Tamil linguistic research in a major way, a massive Corpus Development and e-Dictionary creation are under progress.

Through the TANII funds, 15 Tamil software have been identified through external expert committee and they are under development.

Necessary software applications will be developed to promote the usage of Tamil in computers, cell phones, smart phones as well as all kinds of electronic gadgets.

Modern Language Development Tools to assist students, teachers will be developed.

- **New syllabus**

Tamil Virtual Academy is revising its syllabus so that the Tamil Language can be effectively taught as a second language and as a foreign language to the Tamil people living across the globe.

- **Training for Teachers**

Considering the lack of formal teacher education of the volunteers who impart Tamil education to the children living in other countries, a new Diploma Course on Tamil Teaching Education will be introduced.

- **Learning Management System**

A new Learning Management System (LMS) encompassing a state-of-the-art Universal Language Assessment Tool, e-learning platform through multi-media contents, virtual classrooms and interactive learning is in developing stage.

- **Mobile application**

To attract the younger generation in a major way, mobile applications compatible with cell phones, smart

phones to impart Tamil lessons, grammar and dictionary with multimedia content are to be created.

- **Modernization of website**

The website of Tamil Virtual Academy will soon be revamped with rich content of rare Tamil books and much more useful information meant for the Tamil diaspora.

- **Creative Commons format**

Necessary steps have been initiated to ensure creative, educational & scientific content, products and the relevant processes created and hosted by Tamil Virtual Academy be given universal access to everyone. Those contents, products and processes will be made available under “Creative Commons” format.

CHAPTER - IX
TAMIL NADU ARASU CABLE TV
CORPORATION LTD (TACTV)

1. Introduction

Arasu Cable TV Corporation was incorporated on 04.10.2007 with the objective of providing high quality cable TV signals to the public at an affordable cost. This Corporation was registered under the Companies Act, 1956. Digital Head Ends were commissioned at 4 places viz., Thanjavur, Tirunelveli, Coimbatore and Vellore to provide Cable TV Services. However, due to various reasons, the Corporation became defunct.

The Hon'ble Chief Minister of Tamil Nadu, after assuming office in May 2011, revived and revamped Arasu Cable TV Corporation. The Corporation was granted Rs. 3 Crores as loan and it was renamed as **Tamil Nadu Arasu Cable TV Corporation Ltd (TACTV)**.

The Hon'ble Chief Minister of Tamil Nadu made an announcement on the floor of the Assembly on

30.08.2011, that Tamil Nadu Arasu Cable TV Corporation would provide quality services at an affordable cost with Rs.70/- being the monthly subscription payable by the subscribers to the Cable TV operators of which Rs.20/- would be paid to Tamil Nadu Arasu Cable TV Corporation per month per subscriber by the Cable Operators. Accordingly, TACTV is providing 90 to 100 channels of good quality at an affordable cost of Rs. 70/- to the public.

The Hon'ble Chief Minister of Tamil Nadu inaugurated the Cable TV services all over Tamil Nadu (except Chennai) on 02.09.2011.

2. Vision

The vision of Tamil Nadu Arasu Cable TV Corporation is to provide quality services to the public at an affordable cost.

3. Background

Before the advent of TACTV, the Cable TV sector in Tamil Nadu was totally unorganized, with very few Multi System Operators (MSOs) in the field, and the

Local Cable Operators as well as the public were forced to pay exorbitant amount as subscription fees. The public were paying Rs.150 to Rs.250 to the Local Cable Operators to avail the Cable TV services.

The revival and revamping of TACTV has helped to provide quality Cable TV services at an affordable cost of Rs.70/- per month. At present, TACTV is transmitting 90-100 Channels, including Free-to-Air Channels, Pay Channels and Private Local Channels.

The service being provided by the TACTV is a welfare step taken by the Government in the interest of the public and Cable TV operators. The response from the Local Cable Operators and the public is overwhelming and more and more cable operators and the general public have started to come into the fold of TACTV and are using the signals.

This is evident from the fact that the **subscriber base** of TACTV which was **4.94 lakhs on 02.09.2011** has **risen to 70.52 Lakhs** connected through 26,246 Local Cable Operators **as on 31.07.2016**.

4. Infrastructure

Tamil Nadu Arasu Cable TV Corporation has established additional infrastructure by utilising the Head Ends of willing erstwhile private Multi System Operators (MSOs) in 27 Districts on lease, apart from revamping its existing Digital Head Ends in four Districts and commissioning of the Digital Head End in Chennai. Thus, as on date TACTV Corporation has under operation 82 Head Ends including those utilised on lease from the erstwhile MSOs. TACTV Corporation has established connectivity to 70.52 Lakhs subscribers through 26,246 Local Cable Operators from these 82 Head Ends across the State.

5. Organization Structure

TACTV is headed by a Chairman and a Managing Director. There are two General Managers in the cadre of District Revenue Officer and one General Manager in the cadre of Joint director supported by 2 Deputy Managers in the cadre of Tahsildar with 54 supporting staff in Head Quarters to manage the entire operations in the State. Each District has one Deputy Manager in the Cadre of Tahsildar who is supported by one Assistant

Manager, one Technical Assistant and 3 Assistant Technicians. The Technical Wing is headed by two Chief Technical Officers supported by One Assistant Technical Officer, 8 Technical Assistants and 10 Assistant Technicians. The Finance Wing is headed by a Financial Advisor and Chief Accounts Officer supported by One Accounts Officer, One Assistant Accounts Officer and 5 Accountants.

6. Inauguration of Cable TV Services in Chennai

The Hon'ble Chief Minister of Tamil Nadu inaugurated the Cable TV Services of TACTV in Chennai Metro on 20.10.2012. TACTV is now providing Analog and Digital signals to the Local Cable Operators in Chennai Metro Area.

7. Digitalization

The Government of India, Ministry of Information & Broadcasting in the Ref.No.9/32/2007-BP&L dated 02.04.2008 issued Multi System Operator Licence to the Tamil Nadu Arasu Cable TV Corporation in the Conditional Access System (CAS) areas of Chennai Metro. As per the Cable TV Network Amendment Act, 2011, in the first phase, four Metros including Chennai

were to be digitalized on or before 31.10.2012 and the cable TV services in the entire country to be digitalized within the time-frame of 31.12.2016. TACTV applied for MSO Licence for the DAS notified areas of Chennai Metro on 05.07.2012 and for the Rest of Tamil Nadu (RoTN) on 23.11.2012. Both these applications are pending with the Ministry of Information & Broadcasting (MIB), Government of India.

8. 'Digital Addressable System' (DAS) License for Chennai Metro

TACTV Corporation applied for MSO Licence for the DAS notified areas of Chennai Metro and the same is pending with the Ministry of Information & Broadcasting (MIB), Government of India. The Ministry referred the matter to the Telecom Regulatory Authority of India (TRAI) which had reiterated its earlier stand of not allowing Central/State Government/PSUs/ Government funded bodies into broadcasting activity. But TRAI's recommendation is yet to be accepted by the GOI and the GOI has formed an Inter-Ministerial Committee (IMC) on 03.01.2013 to look into the

recommendations of TRAI and the IMC has not yet submitted its report.

The Hon'ble Chief Minister of Tamil Nadu had written to the then Hon'ble Prime Minister of India on 16.12.2012 requesting to advise the Ministry of Information and Broadcasting to issue DAS License to TACTV Corporation. Further, the Madurai Bench of Hon'ble Madras High Court in W.P. No.11649 of 2012 had given an interim order dated 06.12.2012 that "the process of issue of licence to the respondent (TACTV) may go on and licence may also be issued. But issue of license is subject to the outcome of the writ petition".

TACTV Corporation also filed a Writ Petition (W.P.34213/13) against Telecom Regulatory Authority of India (TRAI) challenging its Press Release No. 91/2013 dated 10.12.2013 which termed transmission of Analog signals in Chennai Metro Area as illegal. The Hon'ble Madras High Court restrained TRAI from disconnecting TACTV Corporation's subscriber signals and further directed the Ministry of Information & Broadcasting to immediately take a decision upon TACTV Corporation's application for DAS license dated 05.07.2012. Hon'ble

Chief Minister met Hon'ble Prime Minister on 03.06.2014 and presented a memorandum in which the issue of DAS licence to TACTV Corporation was among the highlighted points. A detailed letter was also sent by the Hon'ble Chief Minister to the Minister of State, Information & Broadcasting (Independent Charge) on this issue. Hon'ble Chief Minister has subsequently also written a letter to the Hon'ble Prime Minister on 05.07.2014 regarding the issue of DAS licence to TACTV Corporation.

Further, in this regard, Principal Secretary to Government, Information Technology Department, Chairman, TACTV Corporation, Members of the Parliament along with the Officials of TACTV Corporation Limited had met the Hon'ble Minister for Information & Broadcasting at New Delhi on 08.12.2014 and stressed to expedite the issue of DAS Licence to TACTV Corporation Limited.

On 7.8.2015, the Hon'ble Chief Minister has presented a Memorandum to the Hon'ble Prime Minister in which the issue of DAS Licence was once again reiterated.

Further, as the DAS Licence application of TACTV for both Chennai and Rest of Tamil Nadu (RoTN) is pending with the Ministry of Information & Broadcasting without any decision, TACTV had submitted an application dated 29.10.2015 with Ministry of Information and Broadcasting for issue of Provisional Licence. As Ministry of Information & Broadcasting has not issued even the Provisional DAS Licence, TACTV filed the W.P. No. 40365/2015 in the Hon'ble Madras High Court. The Case came up for hearing on 04.02.2016 and the Ministry of Information & Broadcasting was directed to file the Counter Affidavit and till then Status quo was ordered. The Ministry of Information & Broadcasting has filed the Counter Affidavit and in the recent hearing on 15.04.2016, the Hon'ble High Court of Madras has granted interim injunction regarding interference of the telecast by TACTV while the main writ petition is pending. On 14.06.2016, the Hon'ble Chief Minister has presented a Memorandum to the Hon'ble Prime Minister in which the issue of DAS Licence was once again reiterated.

9. Steps taken by TACTV for Digitalization

TACTV has taken steps to digitalize the Cable TV services in Chennai Metro and in order to do this, TACTV had floated a Tender for the supply of installation, testing and commissioning of Digital Cable TV Head End with Conditional Access System (CAS), Subscriber Management System (SMS) and 10 Lakh Set Top Boxes (STBs) on rate contract basis for one year on 25.09.2012. Orders were placed and an initial lot of 50,000 Set Top Boxes were procured. Out of this, 28,752 Set Top Boxes have already been distributed to 383 Local Cable Operators. TACTV has invested Rs.20.72 Crores towards upgradation of Digital Control Room, purchase of Set Top Boxes, CAS, SMS and other items required for establishment of Control Room at Chennai.

TACTV is providing 90-100 Channels with quality and clarity to the subscribers in Chennai Metro Area through the Local Cable Operators at an affordable cost of Rs.70/- per month. At present, TACTV has connected 3.40 Lakhs subscribers through 820 Local Cable Operators in Chennai Metro Area.

Apart from Chennai, TACTV has distributed a total of 19,291 Set-Top Boxes for providing Digital Cable TV services in Tirunelveli, Coimbatore and Salem Districts.

10. Internet Services

On 14.09.2015, Hon'ble Chief Minister, on the floor of the Tamil Nadu Legislative Assembly, announced under Rule 110 about the implementation of BharatNet in the State and formation of a Special Purpose Vehicle "Tamil Nadu FibreNet Corporation" to execute this project. The Hon'ble Chief Minister also announced that Tamil Nadu Arasu Cable TV Corporation has obtained Internet Service Provider (ISP) Licence from Union Ministry of Communication and IT and the Corporation will offer high quality, low cost internet services to Village Panchayats. Hon'ble Chief Minister also announced that Internet Protocol Television (IPTV) service will be provided along with high speed broadband and other internet services. The Government Order has been issued on 01.02.2016 for the formation of Tamil Nadu FibreNet Corporation with a Share Capital of Rs.50 lakhs.

In order to start the Internet Services by utilising the ISP Licence granted by Union Ministry of Communication and IT, TACTV has selected through Tender process, the Telecom Company for leasing of Internet Bandwidth. The Broadband Internet Service of TACTV under the “Internet to every Household” scheme was launched by Hon’ble Chief Minister on 01.03.2016 and 1,100 Subscribers availed the internet services in the District Headquarters.

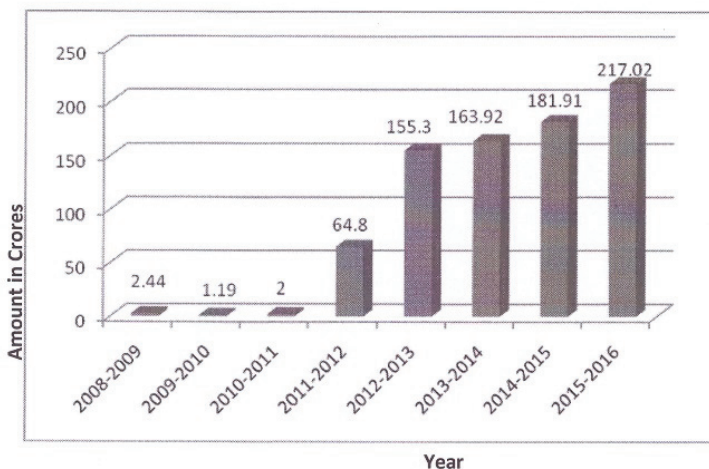
In order to extend TACTV’s Internet Service to entire Tamil Nadu, it requires the creation of extensive Aerial Optic Fibre Cable on its own throughout the State. TACTV has proposed to create the OFC infrastructure in a phased manner by utilising the Transmission Tower Infrastructure of TANTRANSCO and steps are being taken for this.

A Government Order viz., G.O.(Ms.) No.2, Information Technology (Admn.2) Department, dated 25.01.2016 has been issued for the roll out of IPTV services by TACTV. Technical project report is being prepared to start IPTV services shortly.

11. Financial performance of TACTV

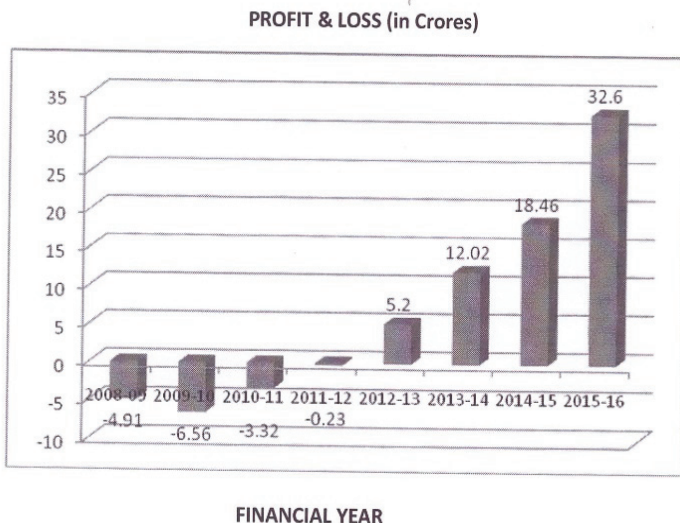
TACTV was started with Government's Share Capital of Rs.25 Crore. TACTV also received Rs.33 Crore from Government as term loan. TACTV's revenue has increased from Rs 2.44 Crore in the year 2008-09 to Rs.163.92 Crore in 2013-14, Rs.181.91 in 2014-15 and has reached Rs.217.02 Crore (unaudited) in 2015-16.

TACTV REVENUE DETAILS



TACTV was incurring loss till 2011-12 and subsequently TACTV increased its subscriber base and tapped revenues from Private Local Channels resulting in profit of Rs.5.2 crores, Rs.12.02 crores, Rs.18.46

crores and Rs.32.6 crores respectively for the years 2012-13, 2013-14, 2014-15, 2015-16 after tax.



1. Financial Performance of 2013-14

TACTV has achieved a net profit for the first time after its inception during the financial year 2013-14 after wiping out the accumulated losses of previous years.

Several steps were taken to increase the revenue from all the sources. The most important of which was increasing the subscriber base which was 62.31 Lakhs (as on 01.04.2013) to 65.93 Lakhs as on 31.3.2014.

Further, revenue was also generated by giving allotment orders to more Private Local Channels selected through Tender-cum-Auction process and also through inviting Expression of Interest in the year 2013-14. Due to these measures, the revenue of the Corporation increased from Rs.155.34 crores during 2012-13 to Rs.163.92 crores during 2013-14.

Further, TACTV was paying Rs.15.78 Crore towards broadcaster's subscription fee amounting to Rs.189.36 Crore per annum but the annual receipts were around Rs.163.92 Crore resulting in a huge deficit.

Hence, TACTV has taken expenditure control and revenue augmentation measures including discounts to the tune of Rs.38.40 Crore from the Pay Channel Broadcasters for the year 2013-14.

All the above said measures made TACTV to attain a profit of **Rs.14.40 crores before tax (PBT)** and **Rs.12.02 Crore** after Tax (PAT) for the year 2013-14.

After wiping out the accumulated loss of Rs.9.83 crores, TACTV had a surplus fund of Rs.2.18 crores

during 2013-14 and out of this, an amount of Rs.1.50 crores was paid as dividend to the Government.

13. Financial Performance of 2014-15

During 2014-15, the subscription rates of various Pay Channel Broadcasters were further reduced through negotiations thereby making a saving of Rs.8.59 crores per year. The revenue of the Corporation during 2014-15 was Rs.181.91 crores as against Rs.163.92 crores achieved during 2013-14.

During the financial year 2014-15, the Corporation made a Profit of Rs.24 crores before Tax (PBT) and Rs.18.46 crores after Tax (PAT).

Tamil Nadu Arasu Cable TV Corporation has also paid a dividend of Rs.5.50 crores to the Government for the year 2014-15.

14. Financial Performance of 2015-16

During 2015-16, the subscription rates of various Pay Channel Broadcasters were further reduced through negotiations thereby making a saving of Rs.11.50 crores per year.

The revenue of the Corporation during 2015-16 is Rs.217.02 crores (unaudited) as against Rs.181.91 crores achieved during 2014-15.

During the financial year 2015-16, the Corporation has made a Profit of Rs.49.85 crores before Tax (PBT) and of Rs.32.60 crores after tax (PAT) as against Rs.18.46 crores achieved during 2014-15.

Tamil Nadu Arasu Cable TV contributed Rs.5 crores to the Chief Minister's Public Relief Fund in 2016.

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