



ANNUAL REPORT | 2012-2013

Centre for Development of Telematics





C-DOT's Citizen's / Clients' charter

To promote Innovation, Indigenous R&D and manufacturing to strengthen domestic telecom equipment manufacturing base in the country.

- To meet the telecom needs of the country, particularly of National importance in strategic sectors and rural applications.
 - Support telcos and service providers in the introduction of new technologies, features and services by optimal utilization of installed networks, pilots and studies.
 - Strengthen the Indian telecom manufacturing base by transfer of indigenously developed technologies.
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C-DOT

C-DOT Management

Governing Council

Chairman

Minister of Communications & IT

Vice-Chairman

Minister of State for Communications & IT

Members

Scientific Advisor to the Defence Minister

Chairman, Telecom Commission & Secretary (T)

Member (Technology), Telecom Commission

Member (Finance), Telecom Commission

Secretary, Department of Electronics and Information Technology

Chairman & Managing Director, BSNL

Executive Director, C-DOT

Directors, C-DOT

Steering Committee

Chairman

Chairman, Telecom Commission & Secretary (T)

Vice-Chairman

Member (Technology), Telecom Commission

Members

Chairman & Managing Director, ITI Ltd.

Director (Planning), BSNL

Sr. DDG, Telecom Engineering Centre

DDG (TPF), Department of Telecommunications

Sr. Director, Department of Electronics and Information Technology

Executive Director, C-DOT

Directors, C-DOT

Project Board

Chairman

Executive Director, C-DOT

Members

Directors, C-DOT

Overview

C-DOT, India's premier telecommunications R&D centre, has been a pioneer and a nation builder. Committed to providing a wide range of indigenously developed, cost-effective, state-of-the-art total telecom solutions, it has come a long way since its inception 28 years ago.

C-DOT's contribution to the rural telecommunications scene in the country is well known. In the eighties, C-DOT developed rural telecommunication products ideally suited to Indian conditions. Able to work without air conditioning, the C-DOT Rural Automatic Exchanges (RAXs) acquired legendary status for their ruggedness and reliability. More switching products like SBM RAX for semi-urban and MAX-L (and later MAX-XL) for urban use followed. 6RU10, a radio product for rural applications was also developed. All these products were based on contemporary digital technology.

Starting from the single mission of providing a dial tone, C-DOT has grown, over the last 28 years, to the level of a national centre for Research and Development in communication technology in many areas –Satellite communications, IN, ATM, DWDM, NMS, Wireless Broadband, GPON, NGN and Mobile Cellular systems. C-DOT's ATM technology is in use for onboard communications in Indian Navy ships. The GPON is eminently suited to play a lead role in bringing broadband pipes to rural

India, enabling delivery of a host of e-services. The SG-RAN product, based on sharing of active GSM infrastructure, can bring affordable mobile telephony to the rural market. The MAX-NG is breathing fresh life into the fixed line infrastructure of the country by bringing new service features to POTS (Plain Old Telephony Service) along with VoIP and broadband access to C-DOT's MAX / RAX subscribers.

C-DOT has also been active in the area of providing telecom software solutions. C-DOT's umbrella NMS (Network Management System) solutions have made it possible to manage heterogeneous networks with elements from multiple vendors. The Data Clearing House (CLH) solution of C-DOT is commercially deployed for reconciling the GSM roaming records between BSNL and MTNL and is holding its own against competitive pressures of the market.

C-DOT is also entrusted with the projects of national importance, like Central Monitoring System for telecom security and Secure Network for strategic applications.

The state-of-the-art R&D facilities at C-DOT's Delhi and Bangalore campuses are comparable with the best in the world.

STATUS AS ON 31st MARCH, 2013

Major activities pursued during the year 2012-13 were in line with the Annual Business Plan 2012-13 duly approved by C-DOT Governing Council. All the projects taken up in C-DOT were categorized under different schemes. The Schemes and the projects thereof, along with the status, pursued during FY 2012-13 are given below:

Scheme: Communication and security research and monitoring

Activities coming under this project include enhancements and software (SW) customization as part of R&D activities as well as progressive roll-out in the field. All the activities showed good progress. The development activities completed during the year focused on CMS SW customization, which included development of LEMF (Law Enforcement Monitoring Function), SW solution for LEAs (Law Enforcement Agency), support for LEMF, MNPO (Mobile Number Portability Operator) in the software for RMC (Regional Monitoring Centre) and CMC (Central Monitoring Centre). Besides, ISF (Interception Store-and-Forward) software was also enhanced to comply with new, indigenously developed hardware for this purpose. Development of SNMP agent for the EMS (Element Management System) for the interface hardware has been completed. Network Management System (NMS) for CMS has been implemented. Development activity has been completed for providing support for multiple codecs for 3G as well as customization for LIS (Lawful Interception System) in the ISF SW. Load testing of ISF and RMC has been completed. RMC-DR (RMC Disaster Recovery) design has also been finalized.



DRAX

The progress in the CMS roll-out for field deployment includes completion of MNPO integration with CMS SW and upgradation of existing pilot CMC data centre with equipment, catering to the load of 8 LSAs (Licensed Service Area). Data centre build work has been awarded and about 60% activities have been completed. Roll-out activity has been completed in 7 LSAs namely, Delhi, Haryana, Kolkata, Karnataka, Mumbai, Rajasthan and Tamilnadu with installation of ISF server at the Telecom Service Providers' (TSP) premises and integration of these ISFs with the corresponding pilot RMCs (Regional Monitoring Centre) designated for the LSAs.

Rural technologies

This scheme envisages deliverables with rural focus to help improve the rural tele-density and to provide broadband connectivity for bridging the digital divide.

During this financial year, SG-RAN system has been deployed in the field in BSNL network at Sakalwara, Bangalore and Hosur, Tamilnadu. GPRS functionality has been implemented and tested in SG-RAN under EAIS (Enhanced Active Infrastructure Sharing)

development program. Subsequently, the SG-RAN system installed in the field will also be upgraded to have GPRS functionality.

Broadband technologies

The Broadband technology scheme aims at development of broadband CPE (Customer Premises Equipment) with 3G wireless fallback and terabit router (commercial-grade multi-terabit routing system) for NKN (National Knowledge Network) for building a high capacity network addressing the application needs of networks of defence and security agencies too.

The routing platform with 300 Gbps throughput (full duplex) for NKN is ready. Additionally, multiple prototypes of these routing platforms are also being fabricated for various trials. Further, development of commercial-grade multi-terabit routing system has also progressed significantly with completion of its architecture and engineering design. The design implementation is now in progress. Development has also been completed for 3G-HSDPA (High Speed Downlink Packet Access) Modem, which has been interfaced to broadband ADSL (Asymmetric Digital Subscriber Line) Modem over USB connector to set up internet access through this 3G-HSDPA Modem. ADSL fallback to 3G has been field tried.

Next generation mobile technologies

The development in the mobile technologies is progressing at an exciting pace. In the coming years, mobile networks may well support services beyond those that are available on today's multi-megabit fixed connections.

The R&D thrust during the year has been on design and development of LTE (Long-Term Evolution) technology with focus on Femto eNodeB access node and all the elements of core network – the EPC (Evolved Packet Core). The Femto eNodeB hardware development activity has progressed significantly with lab realization of the prototype. EPC architecture has also been finalized, and EPC nodes, namely, Mobility Management Entity (MME), Serving Gateway (SGW), Packet Data Network Gateway (PGW), Home Subscriber Server (HSS) and Policy and Charging Rules Function (PCRF) are under implementation. Audio call, video call and video streaming have been demonstrated on the Femto eNodeB prototype using some of the developed EPC functionalities.

Carrier networks transport technologies

Projects on carrier network transport technologies have been planned to address the needs of the emerging applications that are data-centric, demand high bandwidth and large data rate for flow of information and require transport/backhaul, metro/aggregation and access networks to evolve with upcoming technology trends.

Development has been completed for IEEE1588-compliant CPEs (Customer Premises Equipment), i.e., Optical Network Termination - type-9 (ONT9) for network backhaul and cost-effective Optical Line Termination (OLT), i.e., Bhawan Damini, with optical interfaces. Bhawan Damini has been field tried in the NOFN trial block. ONT9 (IEEE1588 compliant CPE) is ready for field trial. Further, services over 10G GPON have also been demonstrated. Besides, development has also progressed well for C-DOT Line Card for Tejas (COLT), required for proprietary chassis.

Telecom services and applications

This scheme focuses on SW intensive services and applications catering to changing technology trends towards convergence of applications, networks, contents and value-added services creating differentiation. The progress in SW application development includes:

- Unified Network Management System (UNMS) base release supporting configuration, accounting, provisioning, number and fault management systems,
- NMS for NOFN (National Optical Fibre Network): Completion of prototype and Proof-of-Concept (PoC) demonstration. 3 NOFN trial blocks are under NMS monitoring,
- Telecom Asset Management System's (TAMS) integration with UNMS
- NMS application development and pilot trial for management of broadband wireless network based on C-DOT BBWT, IP-based Managed Lease Line Network (IP-MLLN) for BSNL, etc.
- Enhancements of the platform, namely, Customised Service Management Platform (CSMP) with functionalities like XML (Extensible Markup Language) and APIs (Application Program Interface) for NGN (Next Generation Networks).

In addition, system architecture has also been finalised for Customised Platform for Rural Services (CPRS) that supports a host of features and functions, like, gesture and speech recognition, near-field communication etc. for providing application oriented services like Aadhaar authentication, e-agriculture, e-doctor consultation etc. During the year, speech

recognition and Aadhaar authentication features have been implemented. Client hardware development has been completed and tested.

Power efficient and Green telecom technologies

A high efficiency RF amplification technology to improve the efficiency of legacy power amplifier used in existing BTSs has been envisaged for development. This will be used not only in BTSs but also in LTE eNodeB or Femtocell under development. The specifications and the architecture have been finalised. Design implementation for HW has been completed.

Secure wireless and wireline networks

A secure mobile communication network is intended to be set-up using standard wireless technologies such as 3G and WiFi to provide access to the authenticated users of a closed user group (CUG), maintain the confidentiality of communicating users' identity, transport of classified and non-interceptable voice communication upgradable in future for video, data communication, etc. Major activities completed during this year are:

- WiPS application development with custom encryption and voice codec
- Customization of off-the-shelf smart phones for WiPS application,
- Core network elements' upgradation for secure mobile services and
- Demonstration of the network with commercially available handsets.

Enhancements, new features, upgradations, adaptations and technical support for developed technologies including the North-East program

It is an ongoing technology support program to address field problems, component obsolescence, upgradation requirements etc. for the deployed systems.

Regular on-site and off-site technology support is being provided. Field/pilot trials are also being carried out at multiple locations to establish suitability for various applications and various networks. Some of the technologies requiring regular field support and periodic upgradations are GPON, MAX, ATM, SG-RAN, MAX-NG, IMS-compliant MAX-NG, BBWT, SDCN and NMS. Accomplishments are as follows:

- SG-RAN system installed in BSNL network (at Sakalwara, Bangalore), Tata Teleservices network and Reliance network (at Hosur, Tamilnadu) as pilot field trial with live traffic.
- C-DOT's solution for voice provisioning over FTTH services is operational in 200 cities. Expansion to other cities is going on.
- Validation and testing of MAX-NG has been completed. These systems are operational in the field at 4 BSNL sites and have proved their field worthiness. An MoU has been signed with M/s BSNL for MAX-NG technology's roll-out. Accordingly, the activities are in full swing for the mass migration of C-DOT technology based fixed-line exchanges to the next generation packet technology based exchanges.
- IMS compliant NGN core and media gateway have been installed and commissioned in MTNL – Delhi & Mumbai. Further, C-DOT TDM based IN

platform has also been upgraded to NGN based IN platform in MTNL's network at Delhi & Mumbai.

- GPON technology has been upgraded with 1 new type of OLT and 3 new types of ONTs and the system has been installed in the NOFN trial blocks. NMS PoC has also been completed for NOFN. The 3 NOFN trial blocks are already under NMS monitoring.
- Regular on-site and off-site technology support is being provided.

Enabling technologies and telecom network

During this year, studies have been carried out in some technology areas such as optical backbone network trends in DWDM (Dense Wavelength Division Multiplexing) – up to 40/100Gbps line rates, 100+ channels, in-built grooming and multiplexing capability, re-configurable optical add-drop multiplexers, optical cross-connects etc. Other studies include natural language processing for analysis of text (speech transcripts, HTML pages from GPRS, SMS) data, which include spoken word spotting – detecting and searching particular words in audio files, free text search – semantic search, stem search, search with misspellings etc.

Campus infrastructure

The statutory approval of drawings in respect of construction of hostel and dwelling units, submitted by the architect to MCD (Municipal Corporation of Delhi), is in process. Clearance for layout plan has been obtained from MCD and building plan is under submission to MCD.

IPRs, Trademarks and Publications

Patents Filed

Sl. No.	Invention Name	Status	Application No.	Date of Filing
1.	A GSM-EDGE transmitter for modulating signal for transmission and a method thereof	Patent Pending	3799/CHE/2012	14.9.2012
2.	Device and Method to Provide Secure Communication in an Internet Protocol (IP) Network	Patent Pending	4502/CHE/2012	29.10.2012
3.	Framework for Dynamically Deriving a Network Management System and a Method Thereof	Patent Pending	1039/CHE/2013	12.03.2013

Design Registration

Sl. No.	Invention Name	Design Class	Design Subclass	Application Number	Date of Filing	Date of Grant
1.	Optical Network Terminal - Type-5 (Damak 5)	Class:14	Subclass:02	248934	22.10.2012	18.3.2013

Trademark Granted

Sl. No.	Trademark Name	Trademark Class	Application Number	Date of Filing	Trademark No.	Date of Grant
1.	SG-RAN	Class 38	1760470	5.12.2008	1760470	18.3.2013

Trademark Filed

Sl. No.	Trademark Name	Trademark Class	Application Number	Date of Filing
1.	Backhaul Damak	Class 9	2433097	26.11.2012
2.	Bhawan Damini	Class 9	2433100	26.11.2012
3.	Daksh Damini	Class 9	2433105	26.11.2012
4.	Damak	Class 9	2433109	26.11.2012
5.	Damini	Class 9	2433112	26.11.2012
6.	Laghu Damini	Class 9	2433113	26.11.2012

7.	Office Damini	Class 9	2433114	26.11.2012
8.	Surya Damak	Class 9	2433117	26.11.2012
9.	Vajra Damak	Class 9	2433118	26.11.2012
10.	Sangeet Damak	Class 9	2433115	26.11.2012

Technical papers published

Sl. No.	Title of Publication	Author(s)	Journal
1.	Some Experimental Investigations in the WiMAX Band and Comparison of Propagation Models in Mixed Urban Environments of Western India	Chhaya Dalela, MVSN Prasad, P K Dalela	Springer, Annals of telecommunications
2.	Experimental Investigation of GSM 900 MHz Results Over Northern India with Awas Electromagnetic Code and Other Prediction Models	MVSN Prasad, PK Dalela and C. Misra	Progress in Electromagnetics Research Vol. 125, 559-581
3.	Performance improvement in PAPR reduction with combined Partial Transmit Sequence and Noise shaping Algorithm	Gauraw Kumar Srivastava & Naresh Kumar Tadkapalli	Radio 2012 (The Radio and Antenna Days of the Indian Ocean)- Mauritius
4.	Crest Factor Reduction for Carrier Aggregated OFDM Systems	Gauraw Kumar Srivastava & Naresh Kumar Tadkapalli	SoftCom2012 (20th International Conference on Software, Telecommunications and Computer Networks)
5.	Tuning of COST-231 Hata Model for Radio Wave Propagation Predictions	Chhaya Dalela, M.V.S.N. Prasad and P. K. Dalela	Second International Conference in Computer Science, Engineering and Applications, CCSEA-2012

Process improvement

C-DOT achieved CMMI (Capability Maturity Model – Integrated) Maturity Level 3 certification during Financial year 2011-12 for both the locations, Delhi and Bangalore. During the year 2012-13, the required practices were continued in the development and technical support activities of all the projects and

quarterly internal audits were conducted to ensure sustenance of the maturity level.

In parallel, efforts were initiated towards high maturity process practices for achieving CMMI maturity level 5 certification. Studies, trainings and setting up of necessary infrastructure for the high maturity processes were completed. By the end

of the year 2012-13, the first-cut definition of the processes, process performance baselines and the performance models have been completed so that the same can be implemented on the ongoing and the new projects in the financial year 2013-14.

Business promotion

During the year 2012-13, significant efforts were made for the promotion of C-DOT technologies. These consisted of arranging Proof of Concept (PoC) trials and live demonstration of technologies at various exhibitions and seminars, like Defexpo 2012, India Telecom 2012, SES 2012 (Strategic Electronics Summit), International Convention on Modern Train Control for Capacity and Safety Enhancement, Krishi Mela, India Telecom 2012, Indian Science Congress 2013 etc.

The business promotion efforts resulted in the following major accomplishments:

- C-DOT GPON technology's pilot projects in NOFN: Award of purchase orders by BSNL, RailTel and PGCIL. BSNL allocated 3 sites, namely, Parwada (Vishakhapatnam), Panisagar (North Tripura) and Arain (Ajmer), covering about 59 *grampanchayats*, for trial of GPON technology in the NOFN. The systems have been installed at the sites.
- GPON's field trial is under active consideration in the Indian defence sector. Indian Army has shown interest in GPON for CNDS (Communication Secure Network for Defence Sector) and Sena Bhawan while Indian Air Force is considering the same for its AFNET (Air Force Network) at Vayu Bhawan.
- The e-panchayat project comprising panchayats and 20 village schools of Ajmer, Rajasthan, is being implemented using C-DOT's BBWT. The BBWT system and associated hardware, along with computers and printers, have been installed in the designated e-panchayat network. The trial has been completed.
- A PoC trial of BBWT was done at IGNOU and C-DOT campus to emulate the real use case scenario of distribution of educational content of NMEICT (National Mission on Education through Information and Communication Technology) over WiFi to remote, off-campus learners. IGNOU was the source and C-DOT Campus simulated the remote community of rural learners. The solution is under active consideration of NMEICT for country wide deployment.
- C-DOT received purchase orders for BBWT systems from R&D organisations under MoD, Govt of India, Delhi, for Wi-Fi connectivity.
- C-DOT's Data Rural Application Exchange (DRAX) application was installed at Ramanagara district zila parishad and Shimoga district zila parishad in Karnataka for field trial and capability demonstration to KSCST (Karnataka State Council for Science and Technology). DRAX application has received STQC (Standardisation Testing and Quality Certification) certificate for application usability.

MoUs, Agreements and Contracts

MoUs and agreements signed during the year are given in the table below:

S. No.	Type of Agreement	Date Signed	Partner	Purpose
1.	MoU	26/04/12	Bharat Sanchar Nigam Ltd. (BSNL)	Technical support for C-DOT DSS in BSNL Network
2.	MoU	29/06/12	Bharat Electronics Ltd. (BEL)	Framework for R&D, Manufacturing, creation, delivery of solution, services and support
3.	MoU	30/07/12	Mahanagar Telephone Nigam Ltd. (MTNL)	Co-operative framework for R&D, Manufacturing, Operation and Delivery of equipments
4.	MoU	31/10/12	ITI Limited	Synergy between R&D efforts and expertise in manufacturing, creation and delivery of innovative telecommunication services and support activities of mutual interest.
5.	MoU	01/11/12	Universal Services Obligation Fund Administration (USOFA)	Technical consultancy for USOF Scheme on provision of Mobile Communication Services in uncovered villages.
6.	MoU	19/11/12	Bharat Broadband Network Ltd. (BBNL)	To establish a framework for cooperation in telecommunication Research and Development creation and delivery of innovative telecommunication services and support activities relating to the telecommunication equipment and services.
7.	MoU	31/12/12	Bharat Electronics Ltd. (BEL)	To participate in RFI floated by Indian Army for ASCON PhaseIV Project
8.	MoU	30/01/13	ITI Limited	-- do --
9.	MoU	28/03/13	Bharat Sanchar Nigam Ltd. (BSNL)	Providing MPLS connectivity required for CMS Project

10.	Project Agreement	24/05/12	Karnataka State Council for Science and Technology (KSCST)	To take up C-DOT DRAX product for demonstration and evaluation in rural areas.
11.	Project Agreement	01/10/12	Wipro & National Informatics Centre Services Inc. (NICSI)	Design, site preparation, supply, Installation, testing, commissioning, operations and maintenance of basic infrastructure for establishing a Data Centre at C-DOT, New Delhi
12.	Project Agreement	19/12/12	Bharat Sanchar Nigam Ltd. (BSNL)	Implementing migration of PSTN based C-DOT MAX/RAX Exchanges to VoIP based C-DOT MAX NGN, in the BSNL Network
13.	Project Agreement	01/02/13	QAI India Ltd.	Providing professional and appraisal services for attaining CMMI ML5
14.	Project Agreement	01/03/13	Precision Electronics Ltd.	Field support of ATM Project (Amdt.)
15.	Project Agreement	21/03/13	Cyber Q Consulting Pvt. Ltd.	Outsourcing of experienced technical manpower
16.	TOT Agreement	18/04/12	Sai InfoSystem (India) Ltd.	Bhavan Damini, ONT 3&4 (WiFi Ver) ONT 5&7
17.	TOT Agreement	26/04/12 13/03/13	Himachal Futuristic Communication Ltd. (HFCL)	Bhavan Damini, ONT 3&4 (WiFi Ver) ONT 5&7 Mini OLT
18.	TOT Agreement	03/05/12	VMC Systems Ltd.	Bhavan Damini, ONT 3&4 (WiFi Ver) 5&7
19.	TOT Agreement	24/05/12 20/12/12	ITI Limited	Bhavan Damini, ONG 3&4 (WiFi ver.), ONT 5&7 Mini OLD, ONT 6&8, Bhavan Damini Ver.2
20.	TOT Agreement	10/07/12	Bharat Electronics Ltd. (BEL)	Bhavan Damini, ONT 3&4 (WiFi ver.) ONT 5&7
21.	TOT Agreement	31/08/12	United Telecoms Ltd. (UTL)	Bhavan Damini, ONT 3&4 (WiFi ver.) ONT 5&7

OTHER ACTIVITIES

Exhibitions & Conferences

C-DOT has been participating in telecom exhibitions and conferences to reach out to potential customers, collaborators and to enhance the visibility of brand C-DOT. C-DOT's booths, with live demonstration of technology at work, unlike most other exhibitors, have drawn notice and high footfalls for being bigger, better and highly informative.



- **Defexpo 2012**

C-DOT participated in Defexpo-2012, the 7th in the series of biennial Land, Naval and Internal Security Systems Exhibition, held at Pragati Maidan, New Delhi from 29th March to 1st April, 2012. C-DOT demonstrated its GPON, NMS and BBWT solutions along with the Communication network for Defence Security. Top officials from the three armed forces visited C-DOT stall and appreciated the technologies showcased there.

- **IRSTE Convention 2012**

C-DOT participated in 'International Convention

on Modern Train Control for Capacity & Safety Enhancement', held on 27th-28th April, 2012 at Manekshaw Centre, New Delhi. The convention was organized by Institution of Railway Signal & Telecommunication Engineers (IRSTE), India. C-DOT demonstrated its technical competencies by showcasing GPON, NGN, BBWT, and NMS technologies.

- **World Telecommunication and Information Society Day 2012**

WTISD 2012 was celebrated at Delhi and Bengaluru offices of C-DOT on 17th May, 2012. The year 2012's theme "Women and Girls in ICT" had special significance for C-DOT as women constitute over 30% of centre's workforce and have made major contributions. Talks by invited women experts and C-DOTians were arranged.

- **Strategic Electronics Summit (SES) 2012**

This Elcina event was held at HAL Convention Centre, Bangalore on 26th and 27th of July, 2012. C-DOT's participation was marked by demonstration of its technologies and products.

- **Commemoration of 25 years of RAX**

128-port Rural Automatic Exchange (RAX) – the first product developed by C-DOT, completed 25 years in the service of nation on 21st July, 2012. The first RAX was commissioned on 21st July, 1986 at Kittur (Belgaum, Karnataka). This was a milestone event which brought the significance of rural telecom into sharp focus and paved way for the telecom revolution in the country. To commemorate the historical event, simultaneous functions were organized on



7th August, 2012 at three locations- Delhi, Bangalore, and Kittur. The function in Delhi was presided over by Shri Sam Pitroda. Shri G. B. Meemamsi, founding Executive Director and Dr. M. V. Pitke, founding Director, C-DOT, presided over the functions at Bangalore and Kittur respectively. Hon'ble Minister for Communications and IT Shri Kapil Sibal addressed the august gathering over phone. All the three venues were linked through live video conferencing. The day assumed further significance as the RAX at Kittur was upgraded to MAX-NG based on all IP Next Generation Networks technology.

- **C-DOT Foundation day Seminar**

C-DOT Foundation Day was celebrated on 24th August, 2012 by organizing a seminar at C-DOT Campus, New Delhi. The seminar was inaugurated by Prof. P V Indiresan, an eminent educationist and former director of IIT Madras. Lectures by eminent technologists on Next Generation Services and Optical Networks followed. On 25th August, a technical workshop was organized which was attended by all

C-DOTians, Government and PSU officials, representatives from the armed forces and telecom equipment manufacturers. The workshop had talks by Dr. Rao Mikkilineni, CEO Kawa Objects and Mr. Simon Love, Director, OPTUS Australia, followed by interesting and informative panel discussions.

- **India Telecom 2012**

As in previous years, C-DOT participated in the International Conference & Exhibition "India Telecom 2012", organized by the Department of Telecommunications in association with FICCI. The event was held at Pragati Maidan, New Delhi from 13th to 15th December, 2012. C-DOT's stall was the highlight of this edition of the show. The theme of C-DOT's stall was "C-DOT - R&D for the Next Telecom Revolution". GPON, NGN, BBWT, NMS and D-RAX were displayed live. Many high ranking government and defence officials visited the stall and held discussions with C-DOT officials.

- **C-DOT at 100th Indian Science Congress**

C-DOT participated in the Pride of India Expo at the 100th Indian Science Congress at Kolkata from 3rd - 7th January, 2013 and exhibited its products and solutions. Live demonstrations of D-RAX and CNMS suite of products were made and posters related to GPON, Routers, Aggregators, NGN, NMS, BBWT and SG-RAN were displayed. The theme of ISC -2013 was 'Shaping the Future of India'. Distinguished figures in the field of Science & Technology such as Prof. M. S. Swaminathan, Dr. Mashelkar, Dr. Somenath Ghosh, and Dr. Devi Prasad

Karnick visited the C-DOT stall and appreciated the efforts of C-DOT in the field of Telecommunications.

- **Vibrant Gujarat 2013**

C-DOT shared a stall with M/s SIS to showcase its technologies in the Vibrant Gujarat 2013 exhibition, held at Gandhinagar on 12th – 13th January, 2013. C-DOT's GPON and DRAX were exhibited. Awareness about telecom technologies was created among members of the industry and the general public through this exhibition.

Important Visits

- **Visit by Chairman, ITU-Development**

Mr. Malcolm Johnson, Chairman, ITU-Development and Director of Telecom Standardization Bureau, visited C-DOT, Delhi on 13th March, 2013. He was given a presentation on C-DOT followed by lab visits. Mr. Malcolm appreciated C-DOT's efforts in extending the benefits of telecommunications to rural India.

Training Programmes for C-DOT's customers

- **Centralized Monitoring System (CMS) training programme**

CMS orientation and training programme was organized for three lead LEAs (Law Enforcement Agency) on 12th – 13th June, 2012 at C-DOT campus. The aim of the program was to apprise LEAs about the CMS architecture and the monitoring facilities available through it. Live

Demo using test targets of various TSPs was also given. LEAs appreciated the training programme and gave their valuable feedback.

- **Bhawan Damini training programme**

Five out of seven licensees of C-DOT GPON technology opted for Bhawan Damini (Mini OLT) Technology transfer and signed MoUs with C-DOT. A training program for GPON & Bhawan Damini was organized on 3rd – 5th July, 2012 at C-DOT, New Delhi.

Promotion of Institutional transparency and RTI Implementation

C-DOT has appointed a Transparency Officer (TO) for promotion of institutional transparency within the Public Authority through proactive and effective implementation of the provisions of section 4 of the RTI Act, 2005. These include effective record management, digitization of records, networking and incremental proactive disclosures.

The setup in C-DOT for implementation of RTI Act 2005 consists of a First Appellate Authority (FAA), the Chief Public Information Officer (CPIO) and two Assistant Public Information Officers (APIO), one each for Delhi and Bengaluru offices.

During the year 2012-13, 41 new requests for information were received. All were accepted and the information was provided within the stipulated time-limit. Out of these, further appeals were made to the First Appellate Authority in eight (8) cases. All the appeals were heard and decisions given.

HR Initiatives in C-DOT

During the year 2012-13, C-DOT hired 112 fresh Engineers of Computers and Electronics &

Communication stream through Campus recruitment from IITs, NITs and other reputed Engineering colleges. C-DOT also hired 2 experienced engineers during this period.

Women Empowerment

C-DOT's Management has always been sensitive to gender issues and has consistently worked towards creating organizational culture reflecting gender equality. Presently, about 31% of staff in C-DOT are women.

Existing Policies:

- All female staff members are allowed to avail up to 180 days maternity leaves and up to 90 days leaves subsequent to that (270 days inclusive of 180 days maternity leave). For miscarriage/abortion, leave of a total of 45 days in the entire service span is permissible.
- C-DOT offers accommodation and transport benefits to all its women employees with different options that maybe availed as per individual needs. This ensures the safety and security of all women employees.
- Reimbursement for residential telephone expenses is admissible to 100% of the women staff. Multifunctional allowance is admissible to 40% of the women employees.
- Career growth opportunities for women are available to women employees in C-DOT. In the last financial year, of the total employees promoted to higher grades 31% of them were women. In management cadres (Team Leaders, Group Leaders, Technical Experts and Sr. Technical Experts) about 17% are women.

- In order to address issues relating to Sexual Harassment of women staff at work place, a Committee has been constituted by C-DOT Board to take a fair and justified view of the cases and recommend suitable action on the same.

Employees' Welfare:

- For the purpose of coverage for hospitalization expenses, C-DOT has taken a Tailor-made group medi-claim insurance from National Insurance Company Ltd. Staff members (and their families) in executive cadres have coverage of Rs. 5 Lakhs and staff in non-executive cadres have been covered for Rs. 3.5 Lakhs with the facility of opting for Rs. 5 Lakhs. The policy has been made effective from 01 April 2006.
- Grievance redressal procedure has been introduced for C-DOT staff to provide the employees with an easy & readily accessible machinery for prompt disposal of their day-to-day grievances.

Recruitment of SC/ST and persons with disabilities:

For recruitment of persons with disabilities and candidates belonging to SC/ST category, C-DOT follows government rules providing for reservation in jobs in C-DOT.

C-DOT has a system in place to look after the welfare of persons belonging to these categories and address any problems/complaints that may come up.

Benefits for persons with disabilities:

- C-DOT follows guidelines issued by Government of India with respect to reservations in jobs for persons with disabilities.

- The C-DOT Campus at Delhi has been constructed in such a manner so as to ensure barrier free environment for the persons with disabilities. The main entrance/exit can be approached through a ramp together with stepped entry. Even elevators connecting the various working areas have been installed in way to facilitate persons with disabilities to move around freely from one wing to another.

Promotion of Hindi in C-DOT

C-DOT is making serious efforts to ensure compliance to the Official Language Policy of Government of India. To create awareness among the employees, C-DOT organizes different programmes throughout the year. Many innovative programmes have been initiated at both Delhi and Bangalore centres of C-DOT in this regard. Hindi workshops are held regularly on topics of relevance.

The progress of Rajbhasha Hindi's use in C-DOT's working was inspected by the Hon'ble Committee of Parliament on Official Language on 12th November, 2012. The Hon'ble committee was largely satisfied with the use and propagation of Rajbhasha at C-DOT and gave some suggestions which have since been implemented.

Hindi Utsav 2012 was celebrated at C-DOT offices from 10th - 25th September, 2012 (Bangalore) and 14th - 28th September, 2012 (New Delhi). The Utsav began with Inse Miliye.... . India's great photo journalist Shri Raghu Rai was the guest. Shri Rai spoke about the need to give free reins to ones creativity and of viewing the world around us in all its detail and diversity. During the fortnight, many competitions and events were organized to motivate C-DOTians to do their day-to-day work in Hindi. An audio-visual Quiz was also organized in Hindi, which was liked by one and all. The highlight of the Utsav was Kavi Sammelan which had some very renowned poets honouring us with their presence. Dr. Uday Pratap Singh, Dr. Kunwar Bechain, Shri Surendra Sharma, Smt. Mamta Kiran, Shri Laxmi Shankar Vajpayee, Dr. Vinay Vishwas and Shri Arun Gemini as Sanchalak, kept the audience enthralled.

A Takniki Sanghosthi (Technical Seminar) was organized on 28th February, 2013 on the occasion of 'National Science Day'. Technical presentations were made on different topics by C-DOTians. The Sanghoshthi was held simultaneously at Delhi and Bengaluru offices of C-DOT over a video conferencing link. Shri A K Bhargav, Director BBNL and Shri Jai Prakash Kardam, Director, Kendriya Hindi Prashikshan Sansthan were the judges. Best entries were awarded.

Grants and expenditure during 2012-13

The grants in aid received during the financial year were Rs. 150 crores. The total expenditure on various schemes / projects up to 31st March, 2013 is Rs. 226.62 crores.



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C-DOT

Report of the Auditors on the Accounts of C-DOT for the year ended 31st March, 2013 and Management's Replies thereto

To: The Members of
Centre for Development of Telematics (C-DOT)

Sl.No.	Auditor's Observations	Management's Replies thereon
1.	<p>Report on the Financial Statements</p> <p>We have audited the accompanying financial statements of Centre for Development of Telematics (hereinafter referred to as 'C-DOT' or Centre) under the Societies Registration Act, 1860 which comprise the Balance Sheet as at 31st March, 2013 and the Income and Expenditure account for the year then ended, and a summary of significant accounting policies and other explanatory information.</p>	Factual position is stated.
2.	<p>Management Responsibility for the Financial Statements</p> <p>Management is responsible for the preparation of these financial statements that give a true and fair view of the financial position and financial performance of the Centre in accordance with the General Accepted Accounting Principles in India. This responsibility includes the design, implementation and maintenance of internal control relevant to the preparation and presentation of the financial statements that give a true and fair view and are free from material misstatement, whether due to fraud or error.</p>	Factual position is stated.

Sl.No.	Auditor's Observations	Management's Replies thereon
3.	<p>Auditor's Responsibility</p> <p>Our responsibility is to express an opinion on these financial statements based on our audit of accounts which are incorporated in the said statements. We conducted our audit in accordance with Standards on Auditing issued by the Institute of Chartered Accountants of India. Those Standards require that we comply with ethical requirements and plan and perform the audit to obtain reasonable assurance about whether the financial statements are free from material misstatement.</p> <p>An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the financial statements. The procedures selected depend on the auditor's judgment, including the assessment of the risks of material misstatement of the financial statements, whether due to fraud or error. In making those risk assessments, the auditor considers internal control relevant to the Centres' preparation and fair presentation of the financial statements in order to design audit procedures that are appropriate in the circumstances. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of the accounting estimates made by management, as well as evaluating the overall presentation of the financial statements.</p> <p>We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.</p>	<p>Factual position stated</p>

Sl.No.	Auditor's Observations	Management's Replies thereon
	Opinion	
	We report that:	
	(1) We have obtained all the information and explanation, which to the best of our knowledge and belief were necessary for the purpose of our audit;	
	(2) In our opinion, proper books of accounts as specified in the relevant Act and Rules thereon and Bye Laws of the Society, have been kept by the Centre, so far as appears from our examination of those books and the aforesaid Balance Sheet and Income and Expenditure Account dealt with by this report are in agreement with the books of account.	
	(3) We further report that:	
	a. Fixed Assets	
	In the absence of physical verification of Fixed Assets and reconciliation between the physical and financial records with the regular periodicity, the effect of the differences, if any, on the financial statements to that extent cannot be ascertained.	Noted for Compliance
	b. Investments and Loans	
	a. No provision has been made by the Centre for decline in value of investments of Rs. 52 Crores in the Equity Shares of Joint Venture Company namely C-DOT Alcatel Lucent Joint Venture Private Limited on account of total erosion	Management in consultation with the Government is engaged in deciding on takeover or merger of the joint venture. Appropriate accounting treatment for erosion in net-worth of the joint venture, loan and interest thereon will be made once the plan in consultation with the Government is agreed upon.

Sl.No.	Auditor's Observations	Management's Replies thereon
	<p>of its net worth (Refer Note No. 3 of Part A – Schedule No. 16).</p>	
	<p>b. The Centre had also advanced a loan of Rs. 18.46 Crores to the said Joint Venture Company in the financial year 2008-09. As per the agreement, the Joint Venture Company has defaulted in the repayment of installments. Since the net worth of the company has eroded, the recoverability of this amount and provision required, if any, cannot be commented upon.</p>	
	<p>c. Claims Recoverable</p>	
	<p>In the absence of confirmation and reconciliation of claims recoverable amounting to Rs. 1989.57 lakhs, we are unable to comment on their recoverability and provision required against them, if any, and consequent effect thereof on the financial statements.</p>	<p>The amount under Claims recoverable are considered good for recovery as they are mainly due from a 100% Government of India Telecom service provider and as discussions are being held at highest levels for recovery.</p>
(4)	<p>In our opinion, subject to our observations set out in para 3 above and the impact thereof on the assets, liabilities and excess of expenditure over income of the Centre to the extent determined or otherwise stated therein and reliance placed on the copies of records/ documents and representation of the Management and to the best of our information and according to the explanations given to us, the financial statements give a</p>	<p>Factual position stated.</p>

Sl.No.	Auditor's Observations	Management's Replies thereon
	<p>true and fair view in conformity with the accounting principles generally accepted in India:</p> <p>(a) in the case of the Balance Sheet, of the state of affairs of the Centre as at 31st March, 2013 ; and</p> <p>(b) in the case of the Income and Expenditure Account, of the excess of expenditure over income of the Centre for the year ended on that date.</p>	

For M/s. Shiromany Tyagi & Co.
Chartered Accountants
(FRN006117N)
Sd/-
(CA Sunil Kumar Rastogi)
Partner
M. No. 501378
Place: New Delhi
Date: 23rd August, 2013

For Centre for Development of Telematics

Sd/-
(V.V.R. Sastry)
Executive Director

Balance Sheet as at 31st March...

(In Rupees)

	Schedule No.	2013	2012
CORPUS / CAPITAL FUND AND LIABILITIES			
Corpus/Capital Fund	1	2,928,449,665.94	3,429,115,714.44
Reserves & Surplus	2	23,658,685.67	23,658,685.67
Current Liabilities & Provisions	3	571,380,215.04	249,809,043.62
TOTAL		3,523,488,566.65	3,702,583,443.73
ASSETS			
Fixed Assets	4		
Gross Block		5,090,481,473.63	4,716,713,731.69
Less :- Depreciation		4,100,616,755.11	3,620,399,389.23
Net block		989,864,718.52	1,096,314,342.46
Assets in transit	4	16,533,070.77	3,385,000.00
Capital Work in Progress	5	4,459,882.00	4,459,882.00
Investments-Long Term	6	520,000,000.00	520,000,000.00
Current Assets, Loans & Advances and Deposits	7	1,992,630,895.36	2,078,424,219.27
TOTAL		3,523,488,566.65	3,702,583,443.73
Significant Accounting Policies	15		
Notes on Accounts	16		

Schedules 1 to 16 form an integral part of the Financial Statements

For and on behalf of the
Centre for Development of TelematicsSd/-
G. Mukundan
Chief Finance OfficerSd/-
V.V.R.Sastry
Executive DirectorIn terms of our report of even date
For M/S Shiromany Tyagi & Co
Chartered Accountants
Firm Regn. no. FRN006117NSd/-
C.A. Sunil Kumar Rastogi
Partner
M.No. 501378Place: New Delhi
Date: 23rd August, 2013

Income and Expenditure Account for the year ended 31st March...

(In Rupees)

	Schedule No.	2013	2012
INCOME			
TOT, Royalty, FSR and Publications	8	314,384,091.13	459,667,291.00
Interest Earned	9	43,288,134.28	91,946,422.03
Other Income	10	9,641,687.43	10,859,503.89
TOTAL(A)		367,313,912.84	562,473,216.92
EXPENDITURE			
Establishment Expenses	11	1,287,582,366.12	870,394,396.98
Operational Expenses	12	387,554,424.47	318,780,656.67
Other Administrative Expenses	13	202,326,898.20	198,066,912.02
Depreciation	4	289,593,437.05	184,405,806.55
TOTAL(B)		2,167,057,125.84	1,571,647,772.22
Excess of expenditure over income for the year C = (B-A)		1,799,743,213.00	1,009,174,555.30
Add/less(-) :- Adjustments pertaining to earlier years	14	200,922,835.50	-36,932,172.60
Balance being excess of expenditure over income		2,000,666,048.50	972,242,382.70
Add:- Excess expenditure over income of earlier years		13,033,337,447.68	12,061,095,064.98
Balance being deficit carried to Corpus Fund/Capital Fund		15,034,003,496.18	13,033,337,447.68
Significant Accounting Policies	15		
Notes on Accounts.	16		

Schedules 1 to 16 form an integral part of the Financial Statements

For and on behalf of the
Centre for Development of TelematicsSd/-
G. Mukundan
Chief Finance OfficerSd/-
V.V.R.Sastry
Executive DirectorIn terms of our report of even date
For M/S Shiromany Tyagi & Co
Chartered Accountants
Firm Regn. no. FRN006117NPlace: New Delhi
Date: 23rd August, 2013Sd/-
C.A. Sunil Kumar Rastogi
Partner
M.No. 501378

Schedule 1

Corpus / Capital Fund[Forming part of the Balance Sheet as at 31st March...]

[In Rupees]

	2013		2012	
Grants from Dept. of Electronics (Presently Dept of Information Technology)				
Accumulated balance	335,200,000.00		335,200,000.00	
Grants from Dept. of Telecommunication				
Balance at the beginning of the year	16,127,253,162.12		14,867,253,162.12	
Add:- Contributions towards Corpus/ Capital Fund during the year	<u>1,500,000,000.00</u>	17,962,453,162.12	<u>1,260,000,000.00</u>	16,462,453,162.12
Less:- Balance of net expenditure transferred from the Income and Expenditure Account		15,034,003,496.18		13,033,337,447.68
TOTAL		2,928,449,665.94		3,429,115,714.44

Schedule 2

Reserves & Surplus

(Forming part of the Balance Sheet as at 31st March...)

(In Rupees)

	2013		2012	
General Reserve				
Balance at the beginning of the year	23,658,685.67		23,658,685.67	
Less: Provisions withdrawn during the year	<u>0.00</u>	23,658,685.67	<u>0.00</u>	23,658,685.67
TOTAL		23,658,685.67		23,658,685.67

Schedule 3

Current Liabilities & Provisions

(Forming part of the Balance Sheet as at 31st March...)

(In Rupees)

	2013		2012	
CURRENT LIABILITIES				
1. Sundry Creditors				
a) For Goods	101,811,949.57		31,437,334.90	
b) Others	<u>63,720,112.32</u>	165,532,061.89	<u>64,393,432.28</u>	95,830,767.18
2. Advances received				
- For Funded Projects		29,571,954.60		23,409,224.60
3. Statutory Liabilities		17,560,386.00		17,115,494.00
4. Other Current Liabilities		<u>80,586,772.55</u>		<u>113,453,557.84</u>
Sub-total(A)		293,251,175.04		249,809,043.62
PROVISIONS				
1. Gratuity	2,518,225.00		0.00	
2. Leave salary	<u>275,610,815.00</u>		<u>0.00</u>	
Sub-total(B)		278,129,040.00		0.00
TOTAL(A+B)		571,380,215.04		249,809,043.62

Schedule 4**Fixed Assets**(Forming part of the Balance Sheet as at 31st March, 2013)

(In Rupees)

	G r o s s B l o c k				D e p r e c i a t i o n				N e t B l o c k	
	As on 01.04.2012	Additions	Adj./Write-off	As on 31.03.2013	As on 01.04.2012	For the year	Adj./Write-off	As on 31.03.2013	As on 31.03.2013	As on 31.03.2012
Land -Free Hold	120,000,000.00	0.00	0.00	120,000,000.00	0.00	0.00	0.00	0.00	120,000,000.00	120,000,000.00
Building -Office	570,180,967.65	0.00	0.00	570,180,967.65	295,868,712.62	27,431,225.50	0.00	323,299,938.12	246,881,029.53	274,312,255.03
Building -Residential	23,627,434.00	0.00	0.00	23,627,434.00	13,114,120.56	525,665.67	0.00	13,639,786.23	9,987,647.77	10,513,313.44
R & D Equipment	2,500,553,601.63	114,498,247.53	(842,530,733.84)	1,772,521,115.32	2,048,095,827.69	52,998,889.74	(628,900,643.95)	1,472,194,073.48	300,327,041.84	452,457,773.94
R & D Computers	829,120,634.31	249,582,121.77	836,136,645.48	1,914,839,401.56	804,767,750.55	174,264,958.99	819,630,052.70	1,798,662,762.24	116,176,639.32	24,352,883.76
Office Equipments & Appliances	343,151,538.56	3,498,788.00	(304,841.00)	346,345,485.56	245,050,836.38	15,235,297.28	(273,999.34)	260,012,134.32	86,333,351.24	98,100,702.18
Furniture & Fixtures	279,868,246.23	5,721,573.00	324,841.00	285,914,660.23	163,290,832.12	12,239,889.87	224,929.42	175,755,651.41	110,159,008.82	116,577,414.11
Library Books	50,211,309.31	6,897,510.00	(56,410.00)	57,052,409.31	50,211,309.31	6,897,510.00	(56,410.00)	57,052,409.31	0.00	0.00
Total	4,716,713,731.69	380,198,240.30	(6,430,498.36)	5,090,481,473.63	3,620,399,389.23	289,593,437.05	(190,623,928.63)	4,100,616,755.11	989,864,718.52	1,096,314,342.46
Assets in transit									16,533,070.77	3,385,000.00
Previous year's total	4,652,641,574.93	99,278,025.16	(35,205,868.40)	4,716,713,731.69	3,460,202,775.16	184,405,806.55	(24,209,192.48)	3,620,399,389.23	1,096,314,342.46	1,192,438,799.77

Schedule 5

Capital Work in Progress

(Forming part of the Balance Sheet as at 31st March, 2013)

(In Rupees)

	As at 01.04.2012	Additions	Transfer to Fixed Assets	As at 31.03.2013
Campus -Delhi				
1) Campus-Residential Complex	4,459,882.00	0.00	0.00	4,459,882.00
Total	4,459,882.00	0.00	0.00	4,459,882.00
Previous Year Balance	4,459,882.00	0.00	0.00	4,459,882.00

Schedule 6

Investments - Long Term

(Forming part of the Balance Sheet as at 31st March...)

(In Rupees)

	No. of Fully Paid Equity Shares	Face Value Per Share (Rs.)	2013	2012
UNQUOTED (At Cost)				
JOINT VENTURE COMPANY				
1. C-DOT Alcatel-Lucent Research Centre Pvt. Ltd. (CARC)	52,000,000	10	520,000,000.00	520,000,000.00
TOTAL			520,000,000.00	520,000,000.00

Schedule 7

Current Assets, Loans & Advances and Deposits

(Forming part of the Balance Sheet as at 31st March...)

(In Rupees)

	2013		2012	
A. CURRENT ASSETS				
1 Inventories (As taken, valued and certified by the Management)				
a) Inventory	264,050,361.69		210,041,207.59	
b) Inventory in transit	<u>1,789,924.95</u>	265,840,286.64	<u>6,695,441.05</u>	216,736,648.64
2 Sundry Debtors				
a) Debts outstanding for a period exceeding six months	422,492,877.30		362,603,747.00	
b) Others	<u>151,177,963.20</u>		<u>160,480,260.00</u>	
	573,670,840.50		523,084,007.00	
Less:-Provision for Bad & Doubtful Sundry Debtors	<u>68,990,982.00</u>	504,679,858.50	<u>68,990,982.00</u>	454,093,025.00
3 Bank Balances -				
With Scheduled banks				
a) On Deposit Accounts	385,656,570.00		419,927,707.50	
b) On Saving Accounts	<u>68,458,649.09</u>	<u>454,115,219.09</u>	<u>277,362,950.82</u>	<u>697,290,658.32</u>
TOTAL (A)		1,224,635,364.23		1,368,120,331.96
B. LOANS & ADVANCES				
1 Loans				
a) Staff	2,820,701.00		3,296,349.00	
b) CARC Pvt Ltd	<u>184,578,500.00</u>	187,399,201.00	<u>184,578,500.00</u>	187,874,849.00
2 Advances and other amounts recoverable in Cash or in kind or for value to be received.				
a) Contractors & Suppliers	22,464,503.25		30,622,520.63	
b) Employees	2,184,566.90		4,786,349.00	
c) Prepaid expenses	<u>9,074,542.50</u>	33,723,612.65	<u>6,032,774.01</u>	41,441,643.64
3 Interest Accrued				
a) On Staff Loan	829,101.82		317,902.59	
b) On Bank Deposits	8,382,905.89		8,113,398.29	
c) CARC Loan	<u>39,923,577.00</u>	49,135,584.71	<u>19,989,095.00</u>	28,420,395.88
4 Claims Recoverable		198,957,159.35		198,924,840.35
5 Tax Deducted at Source		197,327,964.44		164,856,296.44
6 Disputed Income tax		81,031,283.31		81,031,283.31
7 Cenvat credit receivable		<u>13,985,730.67</u>		<u>3,842,845.69</u>
TOTAL (B)		761,560,536.13		706,392,154.31
C. DEPOSITS				
a) Office Building	40,500.00		40,500.00	
b) Others	<u>6,394,495.00</u>		<u>3,871,233.00</u>	
TOTAL (C)		6,434,995.00		3,911,733.00
TOTAL (A)+(B)+(C)		1,992,630,895.36		2,078,424,219.27

Schedule 8

Income from Royalty, TOT, F&TSR and Publications

(Forming part of Income & Expenditure Account for the year ended 31st March...)

(In Rupees)

	2013	2012
1) Income from Royalty	2,491,323.00	13,467,714.00
2) Income from Transfer of Technology (TOT)	20,200,000.00	7,200,000.00
3) Field/Technology Support Receipts (F&TSR)	291,604,046.00	438,887,052.00
4) Income from Publications	88,722.13	112,525.00
TOTAL	314,384,091.13	459,667,291.00

Schedule 9

Interest Earned

(Forming part of Income & Expenditure Account for the year ended 31st March...)

(In Rupees)

	2013	2012
1) On Term deposits with Scheduled Banks	12,774,304.04	22,426,577.26
2) On Saving Account with Scheduled Banks	8,045,485.64	5,820,044.63
3) On Loans to Employees/Staff	318,922.60	294,077.14
4) On loans to Others	22,149,422.00	63,401,322.00
5) Others	0.00	4,401.00
TOTAL	43,288,134.28	91,946,422.03

Schedule 10

Other Income

(Forming part of Income & Expenditure Account for the year ended 31st March...)

(In Rupees)

	2013	2012
1) Profit on Sale/disposal of Assets	57,073.68	6,675.00
2) Miscellaneous Income	9,434,334.24	10,692,136.43
3) Gain due to foreign exchange translation	150,279.51	160,692.46
TOTAL	9,641,687.43	10,859,503.89

Schedule 11

Establishment Expenses

(Forming part of Income & Expenditure Account for the year ended 31st March...)

(In Rupees)

	2013	2012
a) Salaries and Wages	978,564,865.00	620,860,582.00
b) Bonus	832,126.00	839,322.00
c) Contributions to Provident Fund	66,579,096.00	55,760,248.00
d) Contributions to other Funds	5,818,200.00	5,441,239.00
e) Gratuity provided for employees	32,518,225.00	24,703,868.00
f) Staff Welfare expenses	179,820,884.70	142,183,542.95
g) Rent on Residentials and Maintenance Expenses	16,150,153.00	15,537,655.00
h) Recruitment and Training Expenses	7,298,816.42	5,067,940.03
TOTAL	1,287,582,366.12	870,394,396.98

Schedule 12

Operational Expenses

(Forming part of Income & Expenditure Account for the year ended 31st March...)

(In Rupees)

	2013	2012
a) R &D Components & Consumables	243,389,953.17	201,729,570.39
b) Freight & Forwarding Charges	11,405,419.38	8,962,512.28
c) Repair & Maintenance-R&D & Office Equipments	78,460,664.20	67,927,683.36
d) Design, Development & Technology support Expenses	26,036,763.50	18,674,440.64
e) Consultancy Expenses	27,282,443.00	20,390,728.00
f) Testing Charges	979,181.22	1,095,722.00
TOTAL	387,554,424.47	318,780,656.67

Schedule 13

Other Administrative Expenses

(Forming part of Income & Expenditure Account for the year ended 31st March...)

(In Rupees)

	2013		2012	
a) Travelling and Conveyance expenses		29,921,260.40		20,501,847.00
b) Vehicle hire charges		2,990,380.00		2,543,162.00
c) Rent, Rates & Taxes		2,046,516.00		2,037,506.00
d) Interest Paid		27,116.00		0.00
e) Electricity & Water Charges		70,910,707.00		62,420,593.00
f) Repairs & Maintenance-Others		42,537,015.00		37,989,740.13
g) Newspaper , Periodicals, Journals & CDs		1,842,937.57		1,216,384.00
h) Insurance Charges		864,105.00		410,909.00
i) Printing, Stationery, Photocopy & Admin Consumables		12,734,026.67		12,144,969.77
j) Postage, Telephone and Communication Charges.		16,177,576.51		15,158,599.48
k) Exhibition, Advertisement & Publicity Expenses		10,565,090.00		11,271,277.00
l) Expenses on Conference/Seminar/Membership Fees		3,953,671.60		3,611,712.10
m) Legal, Professional fees & Honorarium		4,282,136.00		2,313,330.00
n) Patent fees		1,280,335.00		1,127,921.00
o) Remuneration to Auditors				
Audit Fees	300,000.00		250,000.00	
Out of pocket expenses	<u>137,475.00</u>	437,475.00	<u>75,500.00</u>	325,500.00
p) Hospitality/Entertainment Expenses		224,299.00		141,320.00
q) Bank Charges		1,351,993.02		888,102.89
r) Loss due to foreign exchange translation		173,935.43		55,184.54
s) Miscellaneous Expenses.		6,323.00		160,213.96
t) Loss on sale of Assets		0.00		4,810,725.15
u) Provision for Bad & Doubtful Debtors		0.00		18,937,915.00
TOTAL		202,326,898.20		198,066,912.02

Schedule 14

Adjustments Pertaining to Earlier Years (Net)

(Forming part of Income & Expenditure Account for the year ended 31st March...)

(In Rupees)

	2013		2012	
	Debit	Credit	Debit	Credit
INCOME				
TOT, Royalty, FSR and Publications	178,000.00	0.00	0.00	33,771,439.00
Interest Earned	0.00	0.00	0.00	18,590.00
Other Income	1,457,007.00	0.00	77,340.00	0.00
EXPENDITURE				
Establishment Expenses	1,056,862.00	0.00	0.00	75,942.00
Operational Expenses	6,067,079.99	0.00	0.00	8,923,183.32
Other Administrative Expenses	1,405,910.00	0.00	106,808.00	0.00
Depreciation	190,757,976.51	0.00	5,672,833.72	0.00
TOTAL	200,922,835.50	0.00	5,856,981.72	42,789,154.32
Net Debit/Credit	200,922,835.50			36,932,172.60

Schedule 15

Significant Accounting Policies

[Forming part of the Accounts for the year ended 31st March, 2013]

1. Accounting Method

- a) The financial Statements are prepared on accrual basis of accounting under historical cost convention in accordance with generally accepted accounting principles and standards in India and provisions of the Societies Registration Act, 1860.
-

2. Use of estimates

- a) Preparation of financial statements require estimates and assumptions to be made that effect the reported amount of assets and liabilities on the date of financial statement and the reported amount of revenues and expenses during the reporting period. Differences between actual results and estimates are recognized in the period in which the results are known/materialized.
-

3. Fixed Assets

- a) Fixed Assets are stated at cost less accumulated depreciation and any impairment in value. Cost of fixed assets comprises the purchase price and any directly attributable cost of bringing the asset to its working condition for its intended use.
 - b) Assets, the individual cost of each of which is not more than Rs. 5,000.00, the whole of such cost is charged to revenue in the year of acquisition itself except Library books which are capitalized irrespective of the individual values thereof.
 - c) Subsequent expenditure related to an item of fixed asset is added to its book value only if it increases the future benefits from the exiting asset beyond its previously assessed standard of performance.
 - d) The Management conducts physical verification of fixed assets and their reconciliation with financial records. Such exercise is undertaken, taking into account the nature/size of activities of the Centre.
-

4. Depreciation

- a) The provisions of Appendix I to the Income Tax Rules, 1962 (The Rules), as amended from time to time, are applied with the exceptions indicated below
 - i. Assets put to use anytime during the year are depreciated at the full rate prescribed by the Rules.
 - ii. Library books purchased during the year are depreciated fully in the same year.
 - iii. Assets, which are sold or discarded or lost or disposed off during the year, do not suffer depreciation for that year.
-

5. Inventory Valuation

- a) Stores and Spares (including machinery spares) are valued at cost. The cost is calculated on weighted average method. Cost comprises expenditure incurred in the normal course of business in bringing such inventories to its location and includes, where applicable, appropriate overheads.
 - b) Obsolete, slow moving and defective inventories are identified at the time of physical verification of inventories and, where necessary, provision is made for such inventories.
-

6. Investments

- a) Current investments are valued at lower of cost & fair market value.
 - b) Long Term Investments, including in Joint Ventures, are carried at cost. Where necessary, provision is made to recognize decline, other than temporary, in valuation of Long Term Investments.
-

7. Accounting for Grants-In-Aid

- a) Grants-in-aid received from the Government are treated as towards "Corpus / Capital Funds".
- b) The Grants-in-aid are treated as accrued when sanction memos are issued by the Administrative Ministry.

8. Revenue Recognition

- a) In respect of projects undertaken by the Centre for Telecom Operators and other agencies, the expenses and income in relation to these, are accounted for as expenditure/income respectively, only upon completion of the milestones related to project. Where the milestones/acceptances are not completed, the balances available in the Project account are shown as advances/recoverable on the balance sheet date.
 - b) Revenue is recognized to the extent that it is possible to estimate/ascertain that the economic benefits will accrue to the Centre and the revenue can be realistically measured. When the Centre is unable to assess the ultimate collection with reasonable certainty, revenue recognition is postponed and is recognized as revenue when the collection is reasonably certain.
-

9. Foreign Currency Transaction

- a) Foreign currency transactions are accounted at the exchange rate prevailing on the date of transaction and the difference between the date of transaction and payment/receipt/accrual are accounted for as income or expenditure, as the case may be.
 - b) Monetary Current Assets and current liabilities denominated in foreign currency are translated at the exchange rate prevailing as at the year end and the resultant gain/loss is adjusted to revenue account. Advances paid to foreign suppliers for materials/services are treated as non-monetary assets and consequently are reported using the exchange rate at the date of transaction.
 - c) Contingent liabilities denominated in foreign currency are translated at the exchange rate prevailing as at the year end.
-

10. Retirement and other employee benefits

- a) The Centre operates defined benefit plan for Gratuity to its employees. The costs of providing benefits under this plan are measured on the basis of actuarial valuation at the end of each year using projected unit credit method. Actuarial gains or losses for the defined benefit plan are recognized in full in the period in which they occur in the statement of profit or loss.
- b) Provisions for compensated absences are accounted for based on actuarial valuation using the projected unit credit method at the year end.

11. Adjustments pertaining to earlier years

- a) Adjustments necessitated during the current year due to errors/omissions pertaining to one or more previous years are treated as prior period items only when the value in each such case exceeds Rs. 5,000.00
-

12. Provisions and Contingent Liabilities

- a) The Centre creates provision when there is a present obligation as a result of an obligating event that probably requires an outflow of resources and a reliable estimate can be made of the amount of outflow.
 - b) A disclosure for a contingent liability is made when there is a possible obligation or a present obligation that may, but probably will not, require an outflow of resources. Where there is a possible obligation or a present obligation in respect of which the likelihood of outflow of resources is remote, no provision or disclosure is made.
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Schedule 16

Notes on Accounts

(Forming part of the Accounts for the year ended 31st March, 2013)

PART - A : Balance Sheet

1.0 Fixed Assets

- a. Fixed assets include land at New Delhi measuring 40 acres (Previous Year- 40 acres) was acquired in 1993 from Government of India. This land has been considered free hold, even though no formal conveyancing has been done in favour of the CENTRE.
- b. From the current year, Computer Software has been depreciated as per the rates prescribed by the Income Tax Rules, 1962 as against the rates prescribed for Plant & Machinery applied hitherto. Consequent to this, the additional charge of depreciation, recomputed on retrospective basis, in the Income & Expenditure Account during the year is Rs. 1918.71 lakhs. (Previous Year Rs. Nil)

2.0 Capital Work-in -Progress

- a. This represents the cumulative expenditure, incurred since 2008-09, on the proposed Housing facility at the Campus at New Delhi, amounting to Rs. 44.60 lakhs as at 31.03.2013. (Previous Year - Rs. 44.60 lakhs)
- b. The expenditure under this head will be capitalized appropriately under "Fixed Assets", upon completion of the Housing Facility.

3.0 Investments

- a. The aggregate of the investments in the equity of a Joint Venture Company engaged in Research & Development in the field of Telecommunications was Rs. 5200.00 lakhs as at 31.03.2013. (Previous Year - Rs. 5200.00 lakhs)

- b. As one of the promoters of the Company, C-DOT is exploring the possibility of reviving that company by takeover or merger. Hence, no provision has been made in these accounts in respect of the erosion of the net worth of that company as at 31.03.2013.

4.0 Current Assets, Loans, Advances and Deposits

- a. Inventory of Components includes
- An amount of Rs. 145.87 lakhs as at 31.03.2013, (Previous year Rs. 85.10 lakhs) being components which remained unmoved for more than three years on the balance sheet date . The Management is of the view that these components may still be used in the current and future R&D programmes of the Centre.
 - The value of Components, which were purchased in the past years, issued to the indentors, treated as consumed in the accounts of the year of issue, but part of which were returned to the stores during the current year by the indenting groups unconsumed – Rs. 15.41 Lakhs as at 31.03.2013 (Previous Year - Rs. 89.40 lakhs).
 - Due to change rate of overhead applied on the cost of the Inventory as on 31.03.2013, the consumption of components for the year 2012-13 is higher by Rs. 50.26 lakhs. (Previous year Rs. Nil). The change in basis was necessitated by review of the practices followed.
- b. Sundry Debtors amounting to Rs. 5736.71 lakhs includes
- On account of TOT & Royalty dues of Rs. 2331.43 lakhs as at 31.03.2013 (Previous Year - Rs. 2279.99 lakhs) due from the concerned licensee has been fully met by the value of the land and buildings at Bangalore belonging to that licensee taken over / occupied by the Centre since 2005.
 - On account of Royalty dues of one of the licensees, the same are being received in installments. The balance as at 31.03.2013 was Rs. 508.90 lakhs (Previous Year - Rs. 628.90 lakhs)
 - On account of dues for other services rendered to Telecom companies Rs. 2206.47 lakhs as at 31.03.2013. (Previous Year - Rs. 1632.04 lakhs).
 - The balance amount of Rs. 689.91 lakhs as at 31.03.2013 (Previous Year Rs. 689.91 lakhs) provision has been made in these Accounts.

c. Claims Recoverable

- i. The aggregate of the amount realizable by the Centre as at 31.03.2013, on account of projects undertaken by it for the other organizations on reimbursement of cost basis, was Rs. 1989.57 lakhs (Previous Year - Rs. 1989.25 lakhs). All these amounts, which are included under "Claims Recoverable", are considered good for recovery. Hence, no provision has been made in respect thereof, while making these accounts.

5.0 Contingent Liability not provided for

- a. On account of unexpired letters of credit issued by bankers in respect of purchase orders for procurement of components and equipment – Rs. 106.25 lakhs as at 31.03.2013 (Previous Year - Rs. 75.20 lakhs)
- b. On account of bank guarantees given by / on behalf of the Centre of Rs. 8.80 lakhs as at 31.03.2013 (Previous Year - Rs. 8.80 lakhs).
- c. On account of pending legal cases, the amount outstanding is Rs. 20.87 lakhs. (Previous year Rs. 20.87 lakhs).
- d. Income Tax Assessments
 - i. Income Tax demanded by the Department, disputed by the Centre, for the Assessment Years 2003-04, 2005-06, 2006-07, 2007-08, 2008-09 , 2009-10 and 2010-11 amounted to Rs. 10966.30 lakhs including interest (Previous year, for Assessment Years 2003-04, 2005-06 to 2008-09, 2009-10 Rs. 9547.00 lakhs).
 - ii. The Centre has filed writ petitions before the Hon'ble High Court at Delhi, which granted stay of demand and
 - iii. Notwithstanding the above, the department has adjusted and withdrawn from the Centre's account Rs. 810.31 lakhs (Previous year Rs. 810.31 lakhs), which has been protested by the Centre.
 - iv. The Hon'ble High Court at Delhi, has also directed CBDT to consider afresh the issue of notification issued under Sec 35(1)(ii) of the Income Tax Act, 1961
 - v. For the balance amount of the tax demanded, for the years indicated in (i) above, no liability is considered in these accounts, in view of (ii & iv) above.

PART - B: Income & Expenditure Account

1.0 Income

- a) Miscellaneous income includes income from rent amounting to Rs. 26,86,170.00 received and accepted under protest from a Telecom company, awaiting finalization of the agreement.
-

2.0 Expenditure

A. Employees' Benefits

i. Gratuity

The value of liability of the Centre on account of Gratuity in respect of all employees on rolls at the end of the year on actuarial valuation basis was Rs. 2451.22 Lakhs (Previous year Rs. 2069.84 lakhs). The net expenditure recognized in the Income & Expenditure account for Gratuity in the current year was Rs. 325.18 lakhs (Previous Year Rs 247.04 lakhs). The Gratuity Trust, which is managed by a separate Board of Trustees comprising of employees, will be discharging the liability on this account.

ii. Earned Leave (EL)

As per Rules of the Centre, Earned Leave is encashable by serving employees as well as by those leaving the services, either on superannuation or otherwise. The provision for liability, estimated on actuarial valuation basis, in respect of Earned Leave of employees as at 31.03.2013, was Rs. 2756.11 lakhs (Previous Year Rs. 2193.47 lakhs). Consequently, the expenditure for the year has been higher by Rs 2756.11 lakhs.

B. Bonus

Ex-gratia payment to eligible employees of the Centre, as per applicable policy from time to time is treated as expenditure of the year on an estimate basis. The estimated expenditure provided on account of bonus for the year 2012-13 is Rs 8.32 lakhs. (Previous Year 8.29 lakhs)

C. Consumption of Components

- i. As per the practice followed consistently, the value of consumption is arrived at by reducing the value of closing stock from the aggregate of the values of opening stock and the purchases made during the year.
- ii. Accordingly, the value of components consumed during the year was Rs. 2433.90 Lakhs. (Previous year Rs. 2017.30 Lakhs)

D. Adjustments Pertaining to earlier years (Net)

- i. Income and Expenditure under this head (refer Schedule 14), includes income of Rs. (-) 16.35 lakhs (Previous year Rs. 337.13 lakhs) and expenditure of Rs. 1992.88 lakhs (Previous year Rs. (-) 32.19 lakhs).

E. Foreign Exchange Fluctuations

- i. The net result of the fluctuations in Foreign Exchange on account of the transactions during the year was a loss of Rs. 0.24 Lakhs (Previous Year- gain of Rs. 1.06 Lakhs).
- ii. The gains and losses on account of such fluctuations are distinctly disclosed in Schedule 10 and 13 respectively.

PART - C : General

- a. The nature of activities of the Centre is such that these have been assumed to be not resulting in any 'manufacture' and 'sale' of products. As a consequence, the provision of the statutes relating to taxation on manufacture and Sale of Products are not deemed to apply in the case of the Centre. However, some of the technical services rendered by the Centre have been recognized as services attracting the levy of service tax. In such cases, applicable taxes have been either paid or admissible credits therefor availed, in making these Accounts.
- b. Previous year's figures have been regrouped or rearranged, wherever necessary.

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Chief Finance Officer

Sd/-
C.A. Sunil Kumar Rastogi
Partner
M/s. Shiromany Tyagi & Co
Chartered Accountants
M.No. 501378
FRN006117N

Sd/-
V.V.R. Sastry
Executive Director

Our Bankers

Canara Bank

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New Delhi-110 030

Syndicate Bank

Corporate Finance Branch
6, Sarojini House, Bhagwan Dass Road,
New Delhi-110 001

Canara Bank

Electronic City-I, Hosur Road,
Bengaluru-560 100

Central Bank of India

Sona Towers, 71/1, Millers Road,
Bengaluru-560 100

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Shiromany Tyagi & Co.

Chartered Accountants
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