Information Technology
Annual Report
2010-11

Government of India
Ministry of Communications & Information Technology
Department of Information Technology
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Overview

The underlying theme of the year 2010 has been recovery of the global economy from the unprecedented economic crisis of 2007-09. World GDP, which had declined by 0.6 per cent in 2009, grew at 5 per cent in 2010 and is expected to stabilize at about 4.4 per cent in 2011. The Indian economy has bounced back and is estimated to grow at 8.6 per cent in 2010-11 as compared to 8 per cent in 2009-10.

The Indian IT-BPO Industry has also witnessed robust recovery in 2010-11. The revenue aggregate of IT-BPO industry is expected to grow by 19.2 per cent and reach US $ 88.1 billion in 2010-11 as compared to US $ 73.9 billion in 2009-10.

The Indian software and services exports including ITeS-BPO exports is estimated at US $ 59 billion in 2010-11, as compared to US $ 50 billion in 2009-10, an increase of 18.0 per cent. The IT services exports is estimated to be US $ 33.5 billion in 2010-11 as compared to US $ 27.3 billion in 2009-10, showing a growth of 22.7 per cent. BPO exports is estimated to grow from US $ 12.4 billion in 2009-10 to US $ 14.2 billion in 2010-11, a year-on-year (Y-o-Y) growth of 14.5 per cent. IT services contributed 57 per cent of total IT-BPO exports in 2010-11, followed by BPO at 24 per cent and Software products/engineering services at 19 per cent.

The share of emerging markets in total exports has increased from 9.4 per cent in 2009-10 to 9.7 per cent in 2010-11. This trend towards a broader geographic market exposure is positive for the industry, not only as de-risking measure but also as a means of accelerating growth by tapping new markets.

The US and the UK remain key markets for Indian IT-ITeS exports in 2010-11 accounting for about 61.5 per cent and 17.2 per cent of total IT-BPO exports respectively. Revenue growth from Continental Europe however, has been relatively tepid, as the effects of recession on these geographies have lingered on for a longer time. These regions however, have seen pick up in demand as the year progressed.

India remains an integral part of the global sourcing strategy, and registered a growth rate twice that of other competitors in the global sourcing arena, to account for approximately 55 per cent of the addressable global sourcing market in 2010, up from 51 per cent in 2009. It is estimated that India-based resources account for about 60-70 per cent of the offshore delivery capacities available across the leading multinational IT-BPO players.

This phenomenal growth of the Indian IT-ITeS sector has had a perceptible multiplier effect on the Indian economy as a whole. The sector has grown to become the biggest employment generator and...
has spawned the mushrooming of several ancillary industries such as transportation, real estate and catering. Consequently, this sector has created a rising class of young consumers with high disposable incomes, triggered a rise in direct-tax collections and propelled an increase in consumer spending.

The IT-ITeS industry has created career opportunities for the youth, provided global exposure and offered extensive training and development. Furthermore, the industry has been a front-runner in bridging the gender divide in the Indian workforce (over 30 per cent of employees are women; over 60 per cent of industry players employ differently abled people).

The IT-BPO industry has played a key role in putting India on the world map. The industry has attracted more than 10 per cent of total FDI flowing into India. The industry also led in the development of the Indian organizations as global multinationals — with over 400 delivery centres (outside India), the industry has presence in 52 countries, and 200 cities with more than 10 organisations listed on overseas stock exchanges and more than 400 Fortune 500 customers.

Direct employment within the IT-BPO sector is expected to grow by 10.4 per cent to reach 2.5 million in 2010-11 with over 2,40,000 jobs being added during the year. The indirect employment attributed to the sector is estimated to be about 9.0 million in 2010-11 as compared to 8.2 million in 2009-10.

The spectacular growth performance in the IT-BPO industry in the last decade has helped the industry contribute substantially to India’s GDP. In 2010-11, the IT-BPO industry’s contribution to GDP is estimated to be 6.4 per cent as compared to 6.2 per cent in 2009-10.

The IT-BPO Industry has enormous potential to grow in the years to come. By the fiscal year 2015, the industry’s aggregate revenue is expected to reach US $ 130 billion, a CAGR of about 14 per cent from the year 2010-11 and contribute about 7 per cent to India’s GDP.

National e-Governance Plan

A major initiative of the Government for ushering in e-Governance on national scale, called National e-Governance Plan (NeGP) was approved on 16th May 2006. NeGP consists of 27 Mission Mode Projects (MMPs) encompassing 9 Central MMPs, 11 State MMPs and 7 integrated MMPs that span multiple backend Ministries/Departments. It also includes 8 program support components aimed at creating the right governance and institutional mechanisms, core infrastructure, policies & standards and the necessary legal framework for adoption of e-Governance in the country. It is implemented at the Central, State and Local Government levels.

State Wide Area Networks

State Wide Area Network (SWAN) is envisaged as the converged backbone network for data, voice and video communications throughout a State/UT and is expected to cater to the information communication requirements of all the Departments. Under this Scheme, technical and financial assistance is being provided to the States/UTs for establishing SWANs to connect all State/UT Headquarters up to the Block level via District/Sub-Divisional Headquarters, in a vertical hierarchical structure with a minimum bandwidth capacity of 2Mbps per link. As on 31st December, 2010, SWAN is operational in 23 States/UTs.

State Data Centres

State Data Centre has been identified as one of the important elements of the core infrastructure for supporting e-Governance initiatives under NeGP. Under the SDC Scheme, it is proposed to establish Data Centres in all the States/UTs so that common secure IT infrastructure is created to host State level e-Governance applications/Data to enable seamless delivery of Government to Government (G2G), Government to Citizen (G2C) and Government to Business (G2B) services duly supported by State Wide Area Network and Common Service Centres established at the village level. As on 31st December, 2010, 3 SDCs have been made operational. SDCs in 14 States are under implementation.

Common Services Centres

The Government has approved the Common Services Centres (CSCs) Scheme for providing support for establishing 100,000 Common Services Centres in 600,000 villages of India. The Scheme envisions CSCs as the front-end delivery points for Government, private and social sector services to
rural citizens of India, in an integrated manner. As of December 2010, number of CSCs rolled out in 31 States of India is 87,594.

It has been decided that the Common Services Centres will be suitably repositioned to be a network of Panchayat level Bharat Nirman Common Services Centres, to provide Government services to the citizens in rural areas. Accordingly, the CSCs are to be leveraged for various services for Bharat Nirman and flagship Schemes like NREGA, NRHM and SSA.

**Capacity Building Scheme**

In order to provide a mechanism for adequate capacity building and training for end user, a Capacity Building Scheme has been approved in January 2008. This envisions establishment of institutional framework for State Level Strategic decision-making including setting-up of State e-Governance Mission Team. A permanent CB Management Cell (CBMC) has been established. State e-Governance Mission Team has been setup in 27 States/UTs.

**e-District**

e-District is a State Mission Mode Project under the National e-Governance Plan. The Project aims to target certain high volume services currently not covered by any MMP under the NeGP and to undertake backend computerization to enable the delivery of these services through Common Services Centres.

The Department has approved 16 Pilot e-District projects covering 41 districts. Pilot projects have been launched/ gone live in 18 districts across 6 States. The pilot project is in advance stage of implementation in 8 States.

**Electronics/IT Hardware Manufacturing**

Electronics Hardware Manufacturing continues to be a thrust area for the Government. The Special Incentive Package Scheme (SIPS) that was announced on 21st March 2007 to encourage investments for setting up Semiconductor Fabrication and other micro and nano technology manufacture industries in India has received very positive response from prospective investors.

Under the scheme twenty six applications in all seeking financial assistance have been received. Out of these twenty six applications -twenty two are in the area of Solar Photovoltaic (SPV), one is in the area of Semiconductor Fab, one is in the area of ATMP & specified storage devices and two are in the area of LCD Panels. These applications are being evaluated.

A Task Force was set up by the Department in August 2009 to suggest measures to stimulate the growth of IT-ITeS and Electronics Hardware Manufacturing Industry. The recommendations of the Task Force have been examined by the Department in consultation with implementing Ministries/ Departments.

**Skill Development in IT**

Government of India announced the National Skill Development Policy which has set a target of skilling 500 million persons by 2022. The policy also aims at taking the advantage of demographic dividends, i.e. increasing population of working age group in India. The Department has been listed as a part of the skill development initiative and has been given a target to train 10 million persons by the year 2022 in the domain of Electronics, Information and Communication Technology. The Department has prepared a road map for achieving the set target.

**Cyber Law**

The Information Technology Act 2000, a legal framework for transactions carried out electronically, was enacted to facilitate e-Commerce, e-Governance and to deal with computer related offences. The Principal Act was amended through the Information Technology (Amendment) Act, 2008 to include provisions for new forms of cyber crimes like cyber terrorism, identity theft, child pornography, breach of confidentiality and leakage of data by intermediary and e-Commerce frauds. The Rules pertaining to sections 52, 54, 69, 69A and 69B of the Information Technology (Amendment) Act, 2008 have been notified.

**Cyber Security**

With the passage of Information Technology (Amendment) Act 2008, Indian Computer Emergency Response Team (ICERT) has been designated as Nodal agency for coordinating all matters related to cyber security and emergency response. It is now assigned with the task of
oversight of the Indian cyber space for enhancing cyber protection, enabling security compliance and assurance in Government and critical sectors and facilitating early warning & response as well as information sharing and cooperation. In order to have the optimum uptime and support 24x7 operations of ICERT, initiatives have been taken to setup a Disaster Recovery site at C-DAC, Bengaluru.

**National Knowledge Network**

Government had decided to establish a National Knowledge Network (NKN) which will consist of an ultra-high speed Core (multiples of 10Gbps and upwards), and over 1500 nodes covering all universities, research institutions, libraries, laboratories, hospitals and agricultural institutions across the country.

In the initial phase, a core Backbone consisting of 18 Points of Presence (PoPs) have been established with 2.5 Gbps capacity. A total of 104 Institutions have been connected to NKN and 15 virtual classrooms have been set up.

**Indian Languages Technologies**

To enable wide proliferation of ICT in Indian languages, the Department has taken a major initiative to make available Software tools & fonts in various Indian languages freely to the general public. Software tools & fonts for 22 constitutionally recognized Indian Languages have been released in public domain for free mass usage.

Machine Translation systems from English to 8 Indian languages in the tourism domain with varying efficiency have been developed. Machine Translation Systems for 9 Bidirectional pairs of Indian languages with varying efficiency have been developed.

**Free and Open Source Software Initiative**

Indian industry/ SMEs can benefit from the liberal licensing norms of Free and Open Source Software (FOSS) which enables software to be freely modified and distributed. GNU/Linux Bharat Operating System Solutions (BOSS) desktop version 4.0 with support for all 22 constitutionally recognized Indian languages and BOSS Advance Server version 1.0 has been released for deployment. 27 BOSS Support Centres have been established across the country.

**IT Research Academy**

IT Research Academy (ITRA) is a programme to build a national resource for advancing the quality and quantity of R&D in IT while institutionalizing an academic culture of IT based problem solving and societal development by closely collaborating teams of researchers and institutions having expertise in the different aspects of the chosen research or application problems. The ITRA will focus on strengthening the nation's competitiveness by expanding the R&D base in IT, especially by leveraging the large IT education sector and IT users such as Government, industry and other organizations.

**Centre for Development of Advanced Computing**

Centre for Development of Advanced Computing (C-DAC) is the premier R&D organization of the Department for carrying out R&D in IT, Electronics and associated areas. During the year, C-DAC carried out technology developments in the areas of interconnect technologies, system software, Reconfigurable Computing Systems (RCS), Grid middleware and various areas of scientific and engineering applications.

C-DAC developed and commissioned High Performance Computing (HPC) facilities at Indian Institute of Science and Education Research (IISER), Pune for promoting supercomputing related domain specific research; Dar-es-salaam Institute for Technology, Tanzania for work in the field of Weather Prediction and National Centre for Medium Range Weather Forecasting (NCMRWF), Noida for high end research in climate modeling.

**National Informatics Centre**

National Informatics Centre (NIC), an attached office of the Department, is a premier S&T organization. It has been playing a significant role in using ICT to streamline internal Government functions and facilitating implementation of e-governance. Accordingly, NIC has been engaged in setting up of Internet/ Intranet Infrastructure, preparing IT Plans and developing IT enabled Services including G2G, G2B, G2C and G2E portals.

A number of major initiatives have been undertaken by NIC for strengthening backend
automation and implementation of citizen centric services. E-payment for various Government services, SMS service for sending alerts and updates, e-tendering, e-office, web based counseling for admission into professional courses are some such activities.

GePNIC, e-Tendering solution of NIC for various Departments was implemented in a number of States. Cumulatively 48294 tenders worth ₹ 66,864.79 Crore in value were processed using GePNIC system.

Results-Framework Document and Strategic Plan

Government of India has approved the outline of a “Performance Monitoring and Evaluation System (PMES) for Government Departments” to measure the performance of the Government by preparing a Results-Framework Document (RFD), which provides a summary of the most important results that a Department/Ministry expects to achieve during the financial year.

In accordance with this, the Department prepared RFD for 2009-10 and 2010-11 with a vision entitled ‘e-Development of India as the engine for transition into a developed nation and an empowered society’ with five core areas namely: e-Government, e-Industry, e-Innovation /R & D, e-Learning and e-Security. The Results with respect to RFD 2009-10 were duly evaluated and the Department achieved an overall composite score of 97.45 per cent indicating excellent performance.

In addition to this, the Department has prepared a Strategic Plan for the next five years.
Major Policy Initiatives

The Information, Communication Technology and Electronics (ICTE) is the world’s largest and fastest growing industry. ICTE is increasingly finding applications in all sectors of the economy and thus is accepted as a key enabler in development. Today, India is a large, vibrant and one of the fastest growing economies in the world. As a result of impressive growth of the economy, steadily increasing buying power of the people and aspirations of the young, the consumption of electronics gadgets in the country is growing fast. India is one of the World’s fastest growing electronics hardware markets. The domestic demand of electronics hardware is estimated at US$ 400 billion by 2020. This provides a huge opportunity for India to become an electronics hardware manufacturing hub to meet its domestic requirements as well as the global requirements. Therefore, the Government has accorded high priority to this sector.

The Government has identified growth of electronics hardware manufacturing sector as a thrust area and has taken a number of steps on an ongoing basis for promotion of this industry in the country. Setting up of a Mission to implement schemes and policies in a focused and targeted manner, incentivization, eco-system development and attracting investment in electronics hardware manufacturing sector are amongst the major initiatives which are under consideration of the Government to take advantage of this opportunity.

Special Incentive Package Scheme (SIPS)

In order to create a conducive environment for manufacture of high technology, capital intensive semiconductors and other high tech electronic products, attract global investments as well as bridge the viability gap due to lack of adequate infrastructure and ecosystem, a Special Incentive Package Scheme (SIPS) was announced by the Government on 21.3.2007. The last date for receipt of applications under the Scheme was 31.3.2010. Twenty six applications in all, twenty two in the area of Solar Photovoltaic (SPV), one in the area of Semiconductor Fab, one in the area of ATMP & specified storage devices and two in the area of LCD Panels seeking financial assistance under the Scheme have been received and are being evaluated.

Task Force to suggest measures to stimulate the growth of IT-ITeS and Electronics Hardware Manufacturing Industry in the country

In the backdrop of the unprecedented global economic downturn, the Department constituted a Task Force in August 2009, to make recommendations covering strategies to augment the growth of the IT software and IT enabled services sector in the context of global developments; the steps needed to accelerate domestic demand for electronics hardware products, IT & IT enabled services and boost domestic manufacturing in Electronics hardware sector. The Task Force submitted its Report on 11th December, 2009.

As per the Report of the Task Force, the demand for electronics hardware in the country is projected to increase from the present US$ 45 billion in 2009 to US$ 400 billion by 2020. As against this demand projection, electronics hardware production (supply) is projected to grow from US$ 20 billion in 2009 to
US$ 400 billion by 2020, including exports of US$ 80 billion.

The Task Force, in its report has made a set of recommendations which have been examined by the Department in consultation with implementing Ministries/Departments. At the same time, a high level Committee has also submitted a report on measures to promote manufacture of electronic hardware including telecom equipment in India. Most of the recommendations made by the Task Force are already at various stages of implementation by the concerned Ministries/Departments of Government of India. Based on above recommendations, following five key initiatives have been identified:

- To set up a National Electronics Mission (NEM).
- To set up Semiconductor Wafer Fabs.
- To introduce Modified Special Incentive Package Scheme by providing capital grant and setting up of Electronics Manufacturing Clusters.
- To set up a dedicated “Electronic Development Fund” for promotion of innovation, R&D, Indian Intellectual Property (IP) and Development of Indian Microprocessor.
- To provide preferential access to “Indian Electronics Products/Manufactured-in-India Electronics Products” for all Government procurements and procurement by Government Licensees, PSUs etc.

For implementation of the above, action is underway for developing specific proposals in consultation with Stakeholders, for obtaining the approval of competent authority.

Other Policy measures

In order to promote the industry, action has been taken on a continuing basis to rationalize the tariff structure by making suitable changes in fiscal policy as part of annual budgetary exercise. An outward looking and liberal trade policy is one of the main features of India’s economic reforms. Approvals for all foreign direct investment upto 100 per cent in the electronics hardware manufacturing sector are under the automatic route. The salient features of the existing Foreign Trade Policy applicable to electronics hardware industry are brought out below:

Customs

- Peak rate of basic customs duty is 10%. Customs duty on 217 tariff lines covered under the Information Technology Agreement (ITA-1) of WTO is 0%.
- All goods required in the manufacture of ITA-1 items have been exempted from customs duty subject to actual user condition.

The general Export Promotion Capital Goods (EPCG) Scheme allows import of capital goods at 3 per cent customs duty, subject to an export obligation equivalent to 8 times of duty saved on capital goods imported under EPCG scheme, to be fulfilled in 8 years reckoned from Authorization issue-date. However, a Zero duty EPCG Scheme is available to exporters of electronic products. It allows import of capital goods at zero per cent customs duty, subject to an export obligation equivalent to 6 times of duty saved on capital goods imported under EPCG scheme, to be fulfilled in 6 years reckoned from Authorization issue-date.

The export obligation under EPCG Scheme can also be fulfilled by the supply of Information Technology Agreement (ITA-1) items to the DTA provided the realization is in free foreign exchange.

Supplies of Information Technology Agreement (ITA-1) items and notified zero duty telecom/electronic items in the Domestic Tariff Area (DTA) by Electronics Hardware Technology Park (EHTP)/Export Oriented Unit (EOU) units are counted for the purpose of fulfillment of positive Net Foreign Exchange Earnings (NFEE).

Special Economic Zones (SEZs) are being set up to enable hassle free manufacturing for export purposes. Sales from Domestic Tariff Area (DTA) to SEZs are being treated as physical export. This entitles domestic suppliers to Drawback/DEPB benefits, CST exemption and Service Tax exemption. 100 per cent Income Tax exemption on export profits available to SEZ units for 5 years, 50 per cent for next 5 years and 50 per cent of ploughed back profits for 5 years thereafter.

The salient features of the existing tariff structure applicable to electronics hardware industry are brought out below:

Customs
- Customs duty on specified raw materials / inputs used for manufacture of electronic components is 0%.
- Customs duty on specified capital goods used for manufacture of electronic goods is 0%.
- In order to promote indigenous manufacture of mobile handsets; parts, components and accessories for the manufacture of mobile handsets; sub-parts for the manufacture of such parts and components; and parts or components for the manufacture of battery chargers, PC connectivity cables and hands-free headphones of such mobile handsets and sub-parts for the manufacture of such parts and components are exempted from basic customs duty and excise duty. They have also been exempted from Special Additional Duty of Customs (SAD) upto 31.3.2012.
- LCD Panels have been levied a concessional customs duty of 5% to promote indigenous manufacture of LCD TVs.
- A concessional import duty structure of 5% additional duty of customs (CVD) and Nil SAD has been prescribed on parts of inkjet and laser-jet printers imported for manufacture of such printers.
- A concessional import duty structure of 5% CVD and Nil SAD has been prescribed on parts for manufacture of DVD writers, Combo drives and CD Drives subject to actual user condition.

Central Excise
- The standard rate of excise duty (CENVAT) is 10%.
- Microprocessors, Hard Disc Drives, Floppy Disc Drives, CD ROM Drives, DVD Drives/ DVD Writers, Flash Memory and Combo-Drives are levied concessional excise duty of 5%.

Production Profile
The performance of Electronics & IT-ITeS industry in 2010-11 was marked by sustained recovery and resurgence in growth momentum. The total production of Electronics & IT-ITeS Industry is estimated to grow at 13.1 per cent in 2010-11 as against 11.6 per cent in 2009-10. This increase in growth is attributed mainly to the accelerated growth of software and service industry, which is export driven and continues to dominate the electronics and IT industry. In 2010-11 the Indian software and services exports industry witnessed a surge in the growth. The total value of software and services exports is estimated at ₹ 269,630 Crore (US $ 59.0 billion) in 2010-11 as compared to ₹ 237,000 Crore (US $ 50 billion) in 2009-10, an increase of 13.8 per cent in rupee terms and 18.0 per cent in dollar terms.

The production and growth trend of the Indian Electronics and IT-ITeS industry since 2005-06 has been as follows:

<table>
<thead>
<tr>
<th>Year</th>
<th>Production (₹ Crore)</th>
<th>Growth (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2005-06</td>
<td>190,300</td>
<td>24.9</td>
</tr>
<tr>
<td>2006-07</td>
<td>244,000</td>
<td>28.3</td>
</tr>
<tr>
<td>2007-08</td>
<td>295,820</td>
<td>21.2</td>
</tr>
<tr>
<td>2008-09</td>
<td>372,450</td>
<td>25.9</td>
</tr>
<tr>
<td>2009-10</td>
<td>415,520</td>
<td>11.6</td>
</tr>
<tr>
<td>2010-11*</td>
<td>470,090</td>
<td>13.1</td>
</tr>
</tbody>
</table>

* Estimated

The above table indicates that Electronics and IT-ITeS industry has not only overcome the adverse impact of severe global recession but also staged a remarkable recovery in 2010-11. Software and services exports, which constitute about 57 per cent of Electronics and IT-ITeS industry’s revenue aggregate has returned to double digit growth trajectory in 2010-11.

The production performance of various industry groups in the Electronics Hardware and Software & Services Sector in 2010-11 is given below.

Consumer Electronics
The convergence of information, communication and entertainment is bringing new momentum in the consumer electronics industry in India. It has experienced rapid changes over the last few years. Changing life styles, higher disposable income and greater affordability is fuelling this growth. Consumer preference has shifted towards products and devices that come with smart technology, innovative designs and aesthetic looks. Premium products, particularly in the metros, are the growth drivers in the consumer electronics industry.
Consumer electronics is one of the largest segments in the electronics hardware sector in India. In this segment, Colour Television is the largest contributor. Market size for colour television in 2010-11 is expected to be 16.10 million units, a growth of 5.50 per cent over the previous year. In value terms, the growth is much higher at 16.40 per cent. This growth is fuelled by the sale of flat panel LCD TVs which is increasing in exponential terms. The market for LCD TV has increased from 1.5 million units in 2009-10 to 2.8 million units in 2010-11. Declining prices and low penetration levels is responsible for the growth of this segment. Conventional CRT TV segment on the other hand is stagnant at around 13.30 million units.

The DVD player market continues to decline from 6.20 million units in 2009-10 to 5.40 million units in 2010-11. Rapid growth and popularity of the DTH sector is impacting the DVD player market. The Home Theatre segment continues to grow from 0.24 million units in 2009-10 to 0.30 million units in 2010-11, a growth of 25 per cent. Production of microwaves oven is estimated to grow by 21.6 per cent to reach ₹930 Crore in 2010-11 as against a growth of 7.9 per cent in 2009-10. Growth rate in domestic production of PA System is estimated to remain flat at 10 per cent in 2010-11 over a base of ₹410 Crore in 2009-10.

During 2010-11, the total production of consumer electronics is estimated to be ₹33,400 Crore as against ₹29,000 Crore in 2009-10, a growth of about 15.2 per cent.

**Industrial Electronics**

This segment of Electronics/IT industry includes critical hardware technologies and systems with built-in software. It is a very challenging area which is multi-disciplinary in nature requiring high level of technical skill in designing systems for applications in a variety of industrial sectors of the economy. Whereas we have a good amount of expertise in conceptualizing such systems and its erection and commissioning, the sector is very largely dependent on import of critical hardware and associated software. Large projects are implemented with total import of C&I packages from abroad without any knowledge of its design. In most cases, this leads to higher initial cost and a much higher maintenance cost in the long run. This process is continuing for a long time now.
The important devices used in this segment relate to power electronics, medical electronics and other intermediates like semiconductor. Semiconductors are integral part of most medical equipments, starting from high end imaging to small hand held devices.

The estimated production figure for this segment for 2010-11 is ₹ 18,190 Crore as against ₹ 15,160 Crore in 2009-10, a growth of about 20 per cent.

**Computer Hardware**

India is one of the fastest-growing IT systems and hardware market in the Asia-Pacific region. Most of the prominent global vendors and some locals have strong presence in the Indian market. Most MNCs have their assembly units in India.

BFSI (Banking, Financial Services and Insurance), telecom, ITeS (Information Technology enabled Services), manufacturing verticals, Small & Medium Enterprises (SMEs), e-Governance and households are the key drivers of the IT systems and hardware market in India. With significant IT adoption plans on the anvil, the IT systems and hardware market is expected to expand rapidly in the ensuing years.

PC sales are expected to record a growth of 12 per cent in 2010-11 to touch 9.7 million. The Notebook sales are estimated to be 3.5 million in 2010-11 against 2.5 million in 2009-10, a growth of 40 per cent. This shows that Notebooks have caught the fancy of the consumers. Desktop sales are expected to reach 6.2 million in 2010-11 against 5.5 million in 2009-10, a growth of 12.7 per cent.

As regards servers, sales posted a growth of 41 per cent during second quarter 2010-11 on account of the easing of the Economic slowdown. Establishments which had been postponing their major IT purchases in last few quarters are now ready to invest in IT, which could be the major reason for the growth in the server sales. The Server market is expected to register positive growth in the future as the Server market expands to smaller cities and Small and Medium Businesses (SMBs). The small city growth is largely fuelled by the larger organizations strengthening their base in smaller cities on account of cost advantages. The SMB growth is largely fuelled by the adoption of non-traditional businesses like education, retail, healthcare & hospitality, etc.

Notwithstanding this surge in PC sales, domestic production is estimated to remain flat in 2010-11 at ₹ 14,970 Crore. This is largely due to decelerating growth in exports, substitution of domestic production by cheaper imports and rising input cost.

**Communication and Broadcasting Equipments**

Communication Technology is a key driver for development and growth. India is third largest in the world in terms of gross telephone subscribers, and second largest in Asia. The gross telephone subscribers in the country reached 787.28 Million at the end of December, 2010. Total wireless subscribers are 752.19 million as on December, 2010. The total Wireline subscribers are 35.09 million as on December, 2010. The overall Tele-density in India reached 66.16 per cent in December, 2010 with overall urban and rural tele-densities being 147.88 and 31.18 respectively. The total broadband (256 kbps download) subscriber base of India is 10.92 million in December, 2010.

The FM radio policy has been well received and there are a total of 248 channels operated by 42 operators in 84 cities at the end of September, 2010.

Besides the free DTH service of Doordarshan, there are 6 private DTH licensees, offering their services to the DTH subscribers. As on 30.9.2010, their reported subscriber base is 26.44 million. It is set to overtake the US as the largest DTH market in the world by 2012. This segment is expected to add 10-12 million subscribers every year. DTH with its digital picture and sound quality is able to deliver a much better performance vis-a-vis the analog cable operators. The growth is from both the urban area (where subscribers are moving away from cable) and rural area (where cable has not reached). Local manufacturing of Set-Top Box has now commenced and is meeting about 25 per cent of the total requirement of the DTH industry. Number of Set Top Boxes (STBs) installed in CAS notified areas of Delhi, Mumbai, Kolkata and Chennai increased from 7,70,519 in June-2010 to 7,75,876 in September-2010.

The estimated production figure for this segment for 2010-11 is ₹ 32,550 Crore as against ₹ 31,000 Crore in 2009-10, a growth of about 5 per cent.

**Strategic Electronics**

The strategic electronics segment envelops
satellite based communication, navigation and surveillance system, radars, navigational aids, sonars, underwater electronic system, infra-red based detection and ranging system, disaster management system, internal security system, etc. The Indian strategic electronic industry has been able to meet the bulk of the requirements of India's defence and paramilitary forces.

India's defence, aerospace and nuclear sectors are poised for substantial growth on the back of economic growth and the need to maintain national and energy security. The role of IT in defence is expanding with the new focus on cyber security.

Driven by geo-political considerations, India is expected to be one of the top-5 markets for defence equipment by 2015. Similarly, economic growth and a focus by commercial aircraft manufacturers on low-cost countries are expected to create growth in the aerospace market in emerging markets in general and India in particular. The civilian nuclear agreement between the US and India will enable commerce and cooperation, in particular allowing India to collaborate with global companies on nuclear projects. India has an opportunity to play an important role in this global phenomenon.

The estimated production figure for this segment for 2010-11 is ₹7,680 Crore as against ₹6,980 Crore in 2009-10, a growth of about 10 per cent.

**Electronic Components**

The production figure for this segment for the year 2010-11 is estimated to be around ₹14,970 crore as against ₹13,610 Crore in 2009-10, registering a growth of about 10 per cent.

The electronic component segment caters to the consumer electronics, telecom, defense and IT verticals. The growth in these segments is key determinants for the growth of electronic components. The key constituents include semiconductor, capacitors, and resistors, picture tubes, x-ray tubes and cathode ray tubes.

The demand in consumer electronics and mobile segment in India has maintained its growth trend in the year 2010-11. The growth in electronic components is led by the increase in domestic consumption of IT products from residential, commercial and enterprise. Further, the e-Governance initiatives of the government boost the demand for the segment.
The growth in this segment has been driven by growth of semiconductors. Semiconductor manufacturing extends beyond wafer fabs to include Assembly, Test, Mark and Packaging facilities (ATMPs), solar photovoltaic, optical LEDs, displays, display panels, storage devices and advanced micro and nanotechnology products. These products and other semiconductor devices are used in several applications, such as telecommunications for ubiquitous accessibility in electronics and consumer applications for product quality (e.g. PCs, mobile phones and TV sets), and in the automotive industry for safety, energy saving and driver assistance.

Software and Services Sector

The Indian Information Technology - Information Technology enabled Services (IT-ITeS) industry has continued to perform its role as the consistent growth driver for the economy. In 2010-11 the IT-ITeS industry has witnessed remarkable rebound. Amidst speculation and an uncertain global economic environment, the Indian IT-BPO industry once again exhibited buoyancy and maturity, reflected through a strong customer demand. The Indian Software and Services Industry (excluding hardware) is estimated to grow by 19 per cent, with aggregate revenues of US $ 76 billion in 2010-11. The IT-ITeS industry has geared itself by increasing its cost efficiencies, utilization rates. It has diversified into new verticals and shifted its business and pricing models. India is regarded as the premier destination for the global sourcing of IT-ITeS, accounting for almost 55 per cent in 2010 up from 51 per cent in 2009, of the global sourcing market.

The Indian software and services exports including ITeS-BPO (excluding hardware exports) is estimated at US $ 59 billion (₹ 2,69,630 Crore) in year 2010-11 as compared to US $ 50 billion (₹ 2,37,000 Crore) in year 2009-10, an 18.0 per cent growth in dollar terms and 13.8 per cent in rupee terms. IT services segment within exports exhibited fastest growth of 22.7 per cent in dollar terms (12.3 per cent in rupee terms) in 2010-11. This segment has contributed US$ 33.5 billion (₹ 1,53,095 Crore) in 2010-11 as against US$ 27.3 billion (₹ 1,29,402 Crore) in 2009-10. BPO exports have witnessed a growth of 14.5 per cent in dollar terms (10.4 in rupee terms) and is estimated to be US $ 14.2 billion (₹ 64,894 Crore) during 2010-11 as against US $ 12.4 billion (₹ 58,776 Crore)
during 2009-10. Software Products and Engineering Services exports have witnessed a growth of 13 per cent in dollar terms (8.9 per cent in rupee terms) in 2010-11 and is estimated to be US $11.3 billion (₹51,641 Crore) during 2010-11 as compared to US $10 billion (₹47,400 Crore) during 2009-10.

Indian IT-ITeS exports are well diversified across a wide range of mature and emerging vertical markets. Banking, Financial Services & Insurance (BFSI) remains the largest vertical market accounting for over 40.8 per cent of the Indian IT-ITeS exports in year 2010-11 as compared to 40 per cent in 2009-10. The emerging verticals (retail, healthcare, media, utilities and transport) are growing faster around 21 per cent and accounting for over 24 per cent of total exports in 2010-11. Other verticals including hi-tech/telecom and manufacturing has also witnessed double digit estimated growth of around 10 per cent and 17 per cent respectively during 2010-11.

Growing strong for the past few years, it is expected that the emergence of the KPO market will offer high-value services in off shoring and help the Indian ITeS Industry to climb the global value and knowledge chain. Skilled manpower and multilingual capabilities combined with the advantages of lower costs can help the country to emerge as a front-runner in KPO globally. India has a large pool of skilled manpower like chartered accountants, doctors, MBAs, lawyers, research analysts, etc., which would add value to the global KPO business and its high-end processes like valuation research, investment research, patent filing, legal and insurance claims processing, online teaching, media content supply, etc. The transition from the BPO to the KPO, which offers a high quality of human capital and ICT enablement, can be relatively smooth as our IT-ITeS companies are well established.

The industry has witnessed broad based growth across verticals and geographies. The US and the UK remain the key markets for Indian IT-ITeS exports (excluding hardware), accounting for about 80 per cent of the total exports in the IT-ITeS sector. The revenue from US market has witnessed a growth of 20.5 per cent and constituted 61.5 per cent of total IT-ITeS exports during 2010-11. However markets across Continental Europe having a share of 11.6 per cent in total exports market has generated 13.5 per cent increase in revenue during 2010-11. Exports to emerging markets (APAC, RoW) have expanded by 22.3 per cent accounting about 9.7 per cent of total exports in 2010-11. This trend towards a broader geographic market exposure is positive for the industry, not only as de-risking measure but also as a means of accelerating growth by tapping new markets. Over 600 Multinational Companies have been sourcing product development and engineering services from their centres in India. The growing nature of responsibilities and ownership assumed by these India based resources are helping India evolve into a strategic hub for R&D.

Though the IT-BPO sector is export driven, the domestic market is also significant. The revenue from the domestic IT market (excluding hardware) is expected to grow to about US $17.1 billion (₹78,700 Crore) in 2010-11 as compared to US $14.2 billion (₹67,800 Crore) in 2009-10 showing a growth of 20.4 per cent in dollar terms and 16 per cent in rupee terms. The domestic IT services, which accounts for about 63.6 per cent of the domestic IT-BPO market is expected to grow by 21.1 per cent in dollar terms and 16.8 per cent in rupee terms in 2010-11. BPO demand in the domestic market has witnessed noticeable growth over the past few years. The domestic BPO revenue is estimated to increase from US $2.3 billion (₹10,900 Crore) in year 2009-10 to about US $2.8 billion (₹12,700 Crore) in year 2010-11, a growth of 21.7 per cent in dollar terms and 16.5 per cent in rupee terms. The domestic software products and engineering services accounting for 20 per cent of the domestic IT-BPO market is estimated to generate revenue growth of around 10.8 per cent in dollar terms and 13.6 per cent in rupee terms in 2010-11.

Indeed, the phenomenal growth of the Indian IT-ITeS sector has had a perceptible multiplier effect on the Indian economy as a whole. In addition to the direct positive impact on National Income, the sector has grown to become the biggest employment generator and has spawned the mushrooming of several ancillary industries such as transportation, real estate and catering. Consequently, this sector has created a rising class of young consumers with high disposable incomes, triggered a rise in direct-tax collections and propelled an increase in consumer spending.

The total number of IT and ITeS-BPO professionals employed in India has grown from 0.52
million in 2001-02 to 2.5 million in 2010-11. Moreover, employee addition has been laudable in 2010-11. The industry has created around 2,40,000 direct employment in 2010-11 outstripping last year’s number of 90,000. Varied global economic recovery has sharply increased the demand for IT services offered by Indian companies. The total IT Software and Services direct employment is estimated to grow by 10 per cent in 2010-11 (excluding employment in Hardware sector) against 4 per cent in 2009-10. The indirect employment attributed by the sector is estimated to be about 8.3 million in 2010-11 as compared to 8.2 million in 2009-10.

The IT-ITeS industry has created career opportunities for the youth and provided global exposure. It has offered extensive training and development opportunities to the youth. Furthermore, the industry has been a front-runner in diversity at the workplace (over 30 per cent of employees are women, over 60 per cent of industry players employ differently abled people).

**Electronics & IT Exports**

During the year 2010-11, electronics and IT exports are estimated to be ₹295,530 Crore, as compared to ₹262,900 Crore in 2009-10 showing a growth of 12.4 per cent. The software and services exports witnessed a robust recovery. The total value of software and services exports are estimated at ₹269,630 Crore in 2010-11, as compared to ₹237,000 Crore in the year 2009-10, an increase of about 13.8 per cent.
Initiatives in Information Technology Sector

E-Governance

National e-Governance Plan (NeGP)

The National e-Governance Plan was approved by the Government in May 2006 with a vision to provide Public services to the common man in his locality at affordable cost. The NeGP is a multi-stakeholder programme which primarily focuses on making critical public services available and promoting rural entrepreneurship.

The objective of NeGP is to transform traditional processes and service delivery mechanisms and create an environment that is citizen-centric, with rights based approach to governance while making interaction with Government easier, effective and transparent. NeGP is unique in itself. It is not restricted to Government or Industry, or Public alone, but has expanded its reach to all strata of society especially at the grassroots. NeGP’s endeavour has been to improve the quality of life, by facilitating socio-economic development across the nation by giving access to crucial services and information in particular to the underserved population.

Out of the 27 Mission Mode Projects, 24 have been approved by the Government. 15 MMPs have gone live and are delivering services electronically, though may not be in the entire country or the entire set of services. As the delivery of G2C services remain an ever moving target, the goal of NeGP is to ensure that relevant technologies are used to ensure maximum outreach of services and optimal utilization of scarce resources.

State Wide Area Networks (SWANs)

State Wide Area Network (SWAN) is envisaged as the converged backbone network for data, voice and video communications throughout a State/UT and is expected to cater to the information communication requirements of all the Departments. A SWAN has two components, typically Vertical Component and Horizontal Component. The vertical component of SWAN is implemented using multi-tier architecture (typically, three-tier) with the State/UT Headquarter connected to the District Head Quarter which in turn is connected to the Block Head. Each SHQ, DHQ and BHQ is called a Point of Presence (PoP), which is a bandwidth aggregation point. The bandwidth provision for network connectivity is minimum of 2 Mbps upto the block level. For the horizontal component, 20 Horizontal offices at State/UT (HQ) and 10 Horizontal offices at each district and 5 Horizontal offices at each block level would be connected to these respective PoPs.

SWAN Implementation - Achievements during 2010-11

- As on 31st December, 2010, SWAN is operational in 23 States/UTs. These are: Haryana, Himachal Pradesh, Punjab, Tamil Nadu, Gujarat, Karnataka, Kerala, Jharkhand, Chandigarh, Delhi, Puducherry, Tripura, Lakshadweep, West Bengal, Sikkim, Chhattisgarh, Uttar Pradesh, Orissa, Maharashtra, Assam, Madhya Pradesh, Bihar and Uttarakhand.
Two States namely Andhra Pradesh and Arunachal Pradesh SWANs are in advanced stage of implementation, Network trials are being conducted at different tiers of SWAN.

Four States namely Manipur, Meghalaya, Mizoram and Nagaland SWANs have identified the network operator and implementation is underway.

Two States namely Jammu & Kashmir and Rajasthan have initiated the bid process to identify the Network Operator for implementation.

Two UTs namely Dadra & Nagar Haveli and Daman & Diu are in RFP/BOM finalization stage.

The State of Goa and UT of Andaman & Nicobar Islands have implemented Wide Area Networks outside SWAN Scheme.

Third Party Audit for Performance Monitoring of SWAN

To monitor the performance of SWANs, the Department has mandated positioning Third Party Auditor (TPA) agencies by the States/UTs. As on date, 13 States i.e. Haryana, Himachal Pradesh, Punjab, Gujarat, Karnataka, Kerala, Tripura, Orissa, Maharashtra, Arunachal Pradesh, Bihar, West Bengal and Chhattisgarh have empanelled the TPA agencies for monitoring the performance of the SWAN in their respective States. Remaining States/UTs are in the process of empanelment of TPA.

State Data Centres (SDCs)

State Data Centre has been identified as one of the important elements of the core infrastructure for supporting e-Governance initiatives under NeGP. It is proposed to create data repositories/data Centres in various States/UTs so that common secured data storage could be maintained to serve host of e-Governance applications. The broad policy guidelines for technical and financial assistance to the States for setting up of State Data Centres were finalized and circulated to the States including scheme of implementation and financial outlays.

Under the SDC Scheme, it is proposed to establish Data Centres in all the States/UTs so that common secure IT infrastructure is created to host state level e-Governance applications/Data to enable seamless delivery of Government to Government (G2G), Government to Citizen (G2C) and Government to Business (G2B) services duly supported by State Wide Area Network and Common Service Centres established at the village level.

Achievements during 2010-11

Since the approval of the SDC Scheme by the Government, the Department has approved the proposals received from 31 States/UTs.

As on 31st December, 2010, 3 SDCs have been made operational (Gujarat, Tripura and Rajasthan). SDCs in 14 States are under implementation (West Bengal, Sikkim, Orissa, Nagaland, Meghalaya, Maharashtra, Tamil Nadu, Puducherry, Haryana, Karnataka, Andhra Pradesh, Manipur, Kerala and Uttar Pradesh and 1 State (Jharkhand) has issued LoI to the selected bidder. Bid process is in progress in 6 States (Andaman & Nicobar, Madhya Pradesh, Mizoram, Uttar Pradesh, Jammu & Kashmir and Bihar Chhattisgarh). RFP for State has been approved by the Department.

RFP for 3 States/UTs (Himachal Pradesh, Lakshadweep and Arunachal Pradesh) is under finalization. RFP is under preparation by the State of Goa.

Common Services Centres (CSCs)

The Government has approved the Common Services Centres (CSCs) Scheme for providing support for establishing 100,000 Common Services Centres in 600,000 villages of India. The objective is to develop a platform that can enable Government, private and social sector organizations, to align their social and commercial goals for the benefit of the rural population in the remotest corners of the country through a combination of IT-based as well as non-IT based services.

Achievements during 2010-11

The Department has approved CSC proposal of two States (Karnataka and Goa) and two Union Territories (Andaman & Nicobar Islands and Chandigarh). The CSC Project is under implementation in thirty-one States.

The CSC Scheme is being finalized in Lakshadweep, Daman & Diu and Dadra & Nagar Haveli. In the NCT of Delhi, the CSC like Centres are already existing. As of December 2010, 87,594 CSCs have been established across the country. The issue of connectivity to the CSCs has also been addressed. BSNL has been identified to provide broadband connectivity to all 100,000 CSCs. Further connectivity of 2500 CSCs situated in remote areas of NE States and other areas is also being addressed
It has been decided that the Common Services Centres will be suitably repositioned to be a network of Panchayat level Bharat Nirman Common Services Centres, to provide Government services to the citizens in rural areas. Accordingly, the CSCs are to be leveraged for various services for Bharat Nirman and flagship Schemes like NREGA, NRHM and SSA. The Department has initiated discussions with various Ministries to finalize the modalities of leveraging the CSCs for delivery of services for various Bharat Nirman Schemes and other flagship projects of Government.

Implementation of State Portal, State Service Delivery Gateway (SSDG) & Electronic Form application

This project creates State Portals that will host electronic forms to offer convenient and easy services to citizens. This project leverages the existing e-Governance infrastructure like CSCs, SDCs and SWANs.

This project intends to provide easy, anywhere and anytime access to Government Services (both informational & transactional). The project aims to reduce number of visits of citizens to a Government office/Department for availing the services. It also aims to reduce administrative burden and service fulfillment time & costs for the Government, Citizens and Businesses and creating a more efficient communication through portal. The major components of this project include the State Portal, electronic forms, the services delivery gateway, gap infrastructure and training.

Guidelines have been formulated to provide Technical and Financial assistance to the States for setting up State Portals, State Service Delivery Gateways (SSDGs) and Electronic Forms and financial assistance is being provided to the States/UTs for creation of State Portal, SSDGs and Electronic Forms and meeting the operational expenses for a period of 3 years.

Achievements during 2010-11

- Proposals of 16 States/UTs were received and approved by the Department.
- Out of the approved 30 States/UTs proposals, around 17 States/UTs have floated the RFP for the selection of the Implementing Agency for the project.
- Out of these 17 RFPs, 10 States/UTs have completed the bid process and are in the process of issuing/issued the LoI to the selected Agency.
- 5 States (J&K, Goa, Himachal Pradesh, Tamil Nadu and UP) have already started the project implementation and the remaining would shortly start implementation.
- Centrally empanelled additional two implementing agencies for the SSDG, State Portal.

Capacity Building Scheme

Capacity Building is one of the important components of NeGP for establishing internal capacity within the Government framework essentially at the State level to mitigate the major managerial and technological challenges towards implementation of the e-Governance projects. The consistent strategies for integration, resource optimization, prioritization and resolving conflicts and overlaps also require for effective implementation of e-Governance projects. Thus specialized skills are required at the States/UTs to provide technical support to the policy & decision-making process; the overall management of the programme and leveraging the external industry resources etc.

The scheme is mainly for providing technical & professional support to State level policy & decision-making bodies and to develop specialized skills for e-Governance. The scheme is for a period of three years. The scheme envisions:

- Establishment of an institutional framework such as State e-Governance Mission Team (SeMT)
- Setting up of an Empowered Committee (EC) under the Chairmanship of Secretary-IT.
- Setting up of a CB Management cell at EGPMU of the Department.
- Strengthening of Training Institutions in States

The Capacity Building Scheme was approved on 10th January 2008. Approval for extension of Capacity Building Scheme without cost escalation has been obtained.

Achievements during 2010-11

Training

The training program under CB Scheme has
been divided into two phases and the Empowered Committee has approved the same, which is being implemented by National Institute of Smart Government (NISG). While the first phase focuses on the “Orientation/Training of SeMT and policy & decision makers”, the second phase is a “Specialized Training Program” for operation/project level officials.

Phase-I

In this regard a calendar for orientation/training for policy & decision makers named as “e-Governance Leadership Meet” was circulated to all States/UTs for opting slots according to their convenience. Following States/UTs have already conducted the “e-Governance Leadership Meet”

- Meghalaya
- Sikkim
- Manipur
- Orissa
- Nagaland
- Uttar Pradesh
- West Bengal
- Rajasthan
- Goa
- Maharashtra
- Jammu & Kashmir
- Andhra Pradesh
- Mizoram

Phase-II

The Specialized Training Program at project level for Secretaries, Joint Secretaries, Directors, Joint Directors and other senior level officers at HQ and District level preferably from NeGP and State MMPs; as well PeMT members in the areas like Government Process Reengineering, Business Models and PPP, Project Management, Change Management, Regulatory & Legal framework for e-Governance, Knowledge Management, Documentation standards & skills, Security Standards and Open Source Standards. Course design and content development for six modules have been completed. Rolling out in the States/UTs has commenced in November 2010. Two modules (e-Governance Life Cycle and Change Management) have been completed in the State of Rajasthan.

State e-Governance Mission Team (SeMT)

Setting up of SeMT on wet leasing in 27 States/UTs has been completed and rest are under process. Capacity Building Management Cell under NeGD of the Department as central agency has already initiated the process for creation of SeMTs centrally from open market on contract basis and from Central/State Governments/PSUs on deputation basis. Total 215 persons have been short listed and 90 on hold during the interviews conducted from 30th August to 16th September 2010 and all are in the process of positioning in 29 States/UTs.

Horizontal Transfer of Successful e-Governance Projects

The Department launched a major countrywide initiative “Horizontal Transfer of Successful e-Governance Initiatives” aimed at pervasively spreading the benefits of e-Governance across the country. One key component of this multi-pronged initiative is to identify and replicate major successes that have been achieved in some States. In the first phase, projects on Land Records, Transport and Registration were taken as they have potential for improving significantly Government-to-Citizen services.

Land Records Computerization Projects

- Pilot Project implementations in the State of Meghalaya has been completed.
- Roll out in entire State on Public Private Partnership model has been completed in Punjab.
- Roll out in entire State on Public Private Partnership model is being carried out in Assam.

Computerization of Property Registration

- Roll out in entire State on Public Private Partnership model is being carried out in Rajasthan.

Computerization of Transport system at RTOs

- Roll out in entire State on Public Private Partnership model is being carried out in Punjab.
- Implementation in 8 RTOs in the State of J&K is under progress.

National e-Governance Service Delivery Gateway (NSDG)

NSDG is a middleware infrastructure acting as a standards based routing and a message switch delinking the back end Departments from the front-
end service access providers. This facilitates standards based interoperability and integration to existing and new e-governance applications. A pilot implementation has been successfully developed and tested. The National Gateway is implemented by CDAC and is Live since August 2008.

**Achievements during 2010-2011**

The specific achievements made under this project during 2010-11 are as under:

- Integration of MCA21 with Trademark via NSDG.
- Integration with eBiz
- Integration with UP e-District completed in production
- Integration with TN e-District application completed in test environment
- Integration with J&K e-forms application
- Integration with Goa e-forms
- Program Management Unit for NSDG set up at the Department
- NSDG DR solution operationalized
- The Integration Kit prepared
- ISMS certification underway.
- Solution proposal for NSDG to handle messages larger than 2MB MPTA (Marketing, Promotion, Training and Awareness) proposal finalized.

**Open Technology Center (OTC)**

The Government has initiated the setting up of an Open Technology Center through NIC aimed at giving effective direction to the country on Open Technology in the areas of Open Source Solutions (OSS), Open Standard, Open Processes, Open Hardware specifications and Open Course-ware. This center is based in Chennai. This initiative will act as a National Knowledge facility providing synergy to the overall components of Open Technology initiative that are being taken by various communities and strengthen the support on the Open Technology. The OTC will provide the requisite support to the Standardization activity for e-Governance.

**Achievements during 2010-2011**

- Recommendation and support of OSS Stack to NIC applications
- Support for Standardization – Expert committees, member participation
- Knowledge portal
- Hand Holding Projects for adopting OSS
- Migration of legacy applications

**Standards for e-Governance**

Standards in e-Governance are a high priority activity, which will ensure sharing of information and seamless interoperability of data and e-Governance applications under NeGP.

**Achievements during 2010-11**

The specific achievements made under this project during 2010-11 are summarized as:

- Metadata and Data Standards for Person Identification and Land Region Codification – published on http://egovstandards.gov.in

**Biometrics**

- The documents on Face Image data and Fingerprint Image and Minutiae Data Standards for Indian e-Governance Applications have been released in November 2010

**Digital Signature**

- Interoperability Guidelines for Digital Certificate Signature published
- Guidelines on usage of Digital Signatures in e-Governance Applications published

**Information Security**

- Seven guideline documents as part of the e-Governance Security Assurance framework which will help in implementation of ISO 27000 standard published
- Technology Standards in Interoperability Framework for e-Governance (IFEG) - IFEG document listing Technical Standards for the various generic areas prioritized by the Department for phase-I put up for public review
- Quality Assessment Framework - Two guideline documents on Quality Assurance Framework (QAF) and Conformity Assessment Requirements for e-Governance applications (CARE) published

**India Portal**

India Portal is a Mission Mode Project in the integrated service category under the NeGP. This
Portal is envisaged to be a unified portal that will provide 'single window access' to information and services to be electronically delivered from all state sector institutions and organizations.

**Achievements during 2010-11**

- **Content Enhancement** – This is an ongoing activity and content is regularly enhanced under different sections/modules of India Portal namely Business, Overseas, Citizen, Governments, Sectors, Know India and Services.
- **Web Ratna Award -** Awards in 8 different categories for Government Ministries/Departments/States/Offices to promote exemplary e-governance initiatives.
- **Training and support -** for website design guidelines implementation.

**e-Governance Conformity Assessment Centres (eGCAs)**

To ensure trust and confidence of the citizens and all stakeholders involved it is important to provide the necessary 3rd Party Audit and testing services for Compliance and Certification to various mission mode projects.

Through this project, the Department has established 7 “e-Governance Conformity Assessment Centres (eGCA)” across the country (i.e. Chennai, Bangalore, Hyderabad, Delhi, Kolkata, Pune/Mumbai, Guwahati) to provide the requisite facilities for testing, audit and certification. Kolkata and Bangalore centres are accredited internationally by A2La, USA for software testing. The eGCA centre is also providing services to various e Governance projects (both mission mode and other projects) covering following areas:

- Support to 17 Mission Mode Projects already given
- Seventy Five projects of Central and State level completed
- Training to various Ministries/Departments on subject areas of Quality e-Governance provided
  - 150 Govt. officials on Sevottam (IS 15700) accredited by QCI
  - 8000 Industry professionals on various subject areas.

**Other Achievements**

- Six certification schemes launched (Website certification, biometric device certification, smart card certification, software replication, ISMS and ITSM certification schemes launched)
- Publication of two books and presentation of more than ten papers
- State-of-the-Art Biometrics device test lab. is planned to be setup at Mohali (new STQC IT Center).

**e-District**

e-District is a State Mission Mode Project under the National e-Governance Plan. The Project aims to target certain high volume services currently not covered by any MMP under the NeGP and to undertake backend computerization to enable the delivery of these services through Common Services Centres.

The Department has approved 16 Pilot e-District projects covering 41 districts. Pilot projects have been launched/ gone live in 18 districts across 6 States in Uttar Pradesh, Tamil Nadu, Kerala, Bihar, West Bengal and Assam. The pilot project is in advance stage of implementation in 8 States - Maharashtra, Madhya Pradesh, Haryana, Punjab, Uttarakhand, Mizoram, Orissa and Jharkhand.

**e-Bharat**

The Department has been carrying out dialogue with World Bank for possible programmatic support for NeGP under the Bank’s Development Policy Lending arrangement.

Subsequent to an agreement with the World Bank to take forward this project initiative, intensive deliberations between the Department and World Bank are currently underway as part of preparatory activities for this project including identification of policy actions in the area of e-Governance for the purpose of this lending. On satisfactory completion of Bank’s appraisal the loan funding will be approved and disbursed by the Bank.

**India Development Gateway (InDG)**

India Development Gateway (InDG) is a national level initiative that seeks to facilitate rural empowerment through provision of relevant information products and services, responding to the strategic needs of the rural communities, in their local languages. InDG catalyzes the use of ICT for
collaboration and knowledge sharing among development stakeholders representing from Government, NGOs, community based organizations, private, academic and research institutions. This initiative is supported by the Department and being implemented by C-DAC, Hyderabad since 2006. As part of this initiative a multilingual platform (www.indg.in) has been established for knowledge sharing with information, products and services in 8 Indian languages on 6 identified verticals.

**Achievements during 2010-11**

- Contents were added in two more languages (Assamese & Kannada) in the www.indg.in portal, making the portal available in 8 languages at present and content specific to north eastern States added during this period. Social Welfare vertical had been added as sixth vertical, with special focus.

- Designed, developed and piloted three value added services, i.e. Vyapar (Online Buyer Seller Platform), Real Time Weather Forecast (Panchayat level), Ask An Expert and made available for public use.

- Established strategic partnership with selected SCAs (Service Centre Agencies) in 4 States and initiated piloting of products and services in selected CSCs in 8 districts.

- Conceptualized the 'State Resource Groups' and initiated the activities in Andhra Pradesh and Assam, to ensure dynamic and localized content flow for the portal.

- Considering the need for building the capacity of VLEs, InDG team organised 14 trainings and workshops for the VLEs and developed customised training manuals in local languages (Hardware Troubleshooting and Fundamentals of IT).

**Assessment of e-Governance Projects**

The Department has been mandated to undertake the assessment of e-Governance projects on the dimensions of outreach of services rendered, cost of accessing the services, quality of services delivered and impact on quality of governance assessed on attributes such as transparency, reduced corruption, fairness of treatment, quality of feedback and level of accountability. In past, 3 Central Mission Mode Projects (MMPs) – MCA21, Income Tax & Passport and 3 State MMPs – Land Records, Transport and Property Registration in 10 States were assessed. The second cycle of assessment studies was initiated in 2009 wherein the Indian Institute of Management, Ahmedabad (IIMA) was contracted by the Department to become a knowledge Partner. Projects covering four Urban Local Bodies under JnNURM project; collection of Commercial Taxes in ten States and a base line survey for e-District program in five States were taken up in this study.

**Assessment of Commercial Taxes project**

Commercial Taxes constitute around 70 percent of total revenues for States and Union Territories and is also a State MMP under the National e-Governance Plan (NeGP). The CT-MMP aims to ensure standardization across States in their implementation of Value Added Taxes (VAT) as well as providing improved services to citizens. The Report presents the assessment of impact of varying degrees of computerization in the service delivery of Commercial Tax Departments in 5 States- Andhra Pradesh, Chhattisgarh, Gujarat, Rajasthan, and Tamil Nadu from the perspective of the businesses paying Commercial Taxes. The analysis identified areas of improvement which could be targeted when further computerization is undertaken by the agencies covered in the report.

**Assessment of Urban Local Bodies (ULBs) under JnNURM project**

The JnNURM report presents an overall view of the impact of varying degrees of computerization in the service delivery of four ULBS in New Delhi, Mumbai, Hyderabad and Kolkata from the perspective of the citizens and businesses using the municipal services. A detailed analysis of impact was carried out for each ULB for each service on a variety of parameters which were included in the questionnaires administered to users of manual and computerized services.

**Baseline Study of e-District**

Recognizing the importance of baseline surveys, the Department decided to conduct the field survey of citizens in five pilot States – Madhya Pradesh, Maharashtra, Tamil Nadu, Uttar Pradesh and West Bengal for the e-District Mission Mode Project, which is being implemented by the Department itself. The study was designed so as to capture all elements that define the cost of accessing a complex service such as obtaining a certificate or license and to understand the reasons that explain high levels for any of the cost elements such as number of trips, waiting time and use of intermediaries. Several areas
of improvements that could be targeted by the e-District program were identified. These covered reduction in cost of accessing services by citizens and also improving the quality of governance.

Awareness and Communication

To take forward the progress made by various Mission Mode Projects under NeGP and enhance uptake of e-Services, the Government approved a 2-years project for NeGP Awareness & Communication (A&C). The project was approved to fulfil the following objectives:

- Build NeGP as an umbrella brand
- Create awareness about e-Governance services and service delivery points
- Expedite ownership/stake of implementers into e-Governance/NeGP

The Apex Committee declared NeGP as the umbrella brand for all e-Governance projects in the country, on 16th July 2010. It was also decided that all Mission Mode Projects shall carry the NeGP logo and tagline as the unifying feature of the programme.

In order to create awareness about the various services and service delivery points, an extensive country-wide campaign has been planned and specific funding allocation has been made for District e-Governance Societies in all districts to support awareness generation activities at village level. In addition, a CSC Awareness week was organised in the month of November 2010 across the country wherein various programmes were organised at district, tehsil and panchayat levels to impart information about the availability of various services through CSCs. An A&C project has been funded in 44 Central and State Universities to generate awareness amongst the youth and academia.

Leveraging the excitement around the Commonwealth Games, an Exhibition Train as a run up to Commonwealth Games 2010 was run jointly by the Department & Ministry of Railways on the theme of Information Technology and Sports. The Train visited 24 States & UTs and halted at 49 stations. In the Train, 6 coaches showcased the IT prowess of India based on the following themes – IT Story of India, Role & achievements of the Department & its affiliated organisations, IT in social Sector, IT & private sector and Common Services Centres. Over 7 lakh people from all walks of society visited the train.

The Department participated in the 30th India International Trade Fair held from 14-27 November, 2010 at Pragati Maidan, New Delhi to showcase the potential of ICT through its affiliated organisations such as NIC, C-DAC, DOEACC, STPI, NIXI, NICSI as well achievements under NeGP and the CSC Scheme.

6 Regional Consultation Workshops were conducted at Chandigarh, Chennai, Kolkata, Mumbai and Lucknow to seek inputs on specific challenges in speeding up delivery of e-Services across States. Over 600 delegates participated in these workshops. The findings of the workshop were released at the 2nd meeting of the National e-Governance Advisory Council held in November 2010 at Delhi. Over 250 delegates participated in the meeting.

In addition to these workshops, the Department lent its support to events organised in the area of Information Communication Technology (ICT) and e-Governance, by other organizations to enhance ownership of various stakeholders of the programme.

New Initiatives in e-Governance/GIS applications/ongoing Projects

eG-SWARAJ – Gram Swaraj Digital Approach: This is an e-Governance initiative for creation of digital database of multiple thematic layers and development of decision support system for various natural resources management. The implementing agency is JSAC, Ranchi, Jharkhand. This is on the verge of completion.

Remote Sensing and GIS Project on Integrated Land Management and Administrative Planning (ILMAP) in Manipur State on Pilot basis: This has been initiated in the State of Manipur associating the Manipur Remote Sensing Application Centre (MARSAC), to develop and implement Integrated Land Management and Administrative Planning (ILMAP) on a pilot scale in one district for improving land resource management and delivery system. This is on the verge of completion.

Development of GIS based Integrated Infrastructure, Resource and Utility, Planning & Management system (IIRUPM) for Assam State on Pilot: This has been initiated on pilot basis for the purpose of incorporating all the attribute data of Government Line Departments including resources such as forest, fisheries, water bodies, municipalities, health, education, employment, public utilities, etc and development of Decision Support system. This is being implemented by Assam Electronics Development Corporation Ltd (AMTRON), Assam. Project is at advanced stage of completion.
Integrated Land Management and Administrative Planning (ILMAP) in East and South Districts of Sikkim: This has been initiated on pilot basis for development of special database and integration of information with all the attribute data of Government Line Departments including natural resources such as forest, water bodies etc., and also development of a web-based data dissemination system. System Requirement Specification has been prepared. Project is under progress.

Development of Digital Land Resource Information System for Integrated Land Management for Mizoram State on Pilot: This has been initiated for development of special database and integration of information with all the attribute data of Government Line Departments including natural resources such as forest, water bodies etc., and also development of a web-based data dissemination system. System Requirement Specification has been prepared. This is under progress.

HILLARIS-(Hill Area Resource Information System using Geographic Information Technologies): A Spatial Decision Support System to Udhagamandalam District (The Nilgiris) is conceptualized to build GIS data layers at micro level with all attributes relevant to them and with number of end-user modules to be hosted in WEB environment accessible by district authorities using GPS data capturing survey and Remote Sensing data processing technique through Digital Image Processing and Digital Photogrammetric methods for Hill Area Development. This was implemented by Bharathidasan University, Tiruchirappalli and has been completed.

Remote Sensing and GIS Application for Chennai City on e-Governance Aspect: This has been initiated for the development of interactive database information system and formulation & design of rapid visual screening procedure based on seismic hazard map on web. This is being implemented by Anna University, Chennai. System Requirement Specification and procurement of Hardware/Software completed.

Automated Driving Test Track System for Regional Transport Department, Government of Karnataka: The objective of this system is to standardize and automate the procedure of evaluating the driving skill of a driver before granting him license to drive on public roads. This system removes the subjective opinion of an examiner.

E-Crantii, Jhansi Jan Suvidha Kendra: The objectives of this project are:
- Better dissemination of Government information at the remotest corner
- Saving time, labour & cost of people visiting officers/offices, getting information, lodging complaints & inquiring the status, etc.
- Reducing the response time of the concerned department and increase in their accountability & efficiency.
- Creating awareness in the areas of e-administration, e-education, e-health, etc.
- Extension of benefits of ICT to farmers, labourers, unemployed youth etc.
- Streamlining the functioning of office using the latest tools available with ICT like SMS etc.
- Reduce duplication of efforts
- Ensure effective and constant communication through the process of disposal of a grievance.

Fast Tracking Delivery of G2C services, J&K: The proposal is for fast tracking the delivery of G2C services in the State of J&K by utilizing the infrastructure of MPSEDC (Madhya Pradesh). The main features are:
- Enabling the highly visible G2C services offered by the District administration to the citizens thereby enabling end to end electronic delivery of service to citizens.
- Infusion of transparency and accountability in G2C service delivery and administration.
- Use CSCs to deliver services to citizens at the village level.

Implementation of e-Complaints System for the Police of the State of Maharashtra: The main features are:
- Online Complaint lodging
- Acknowledgement to citizens using mobile
- Online Complaint status checks
- MIS reports for senior officials of the Department

Cyber Security

The increasing complexity of IT systems and networks led to mounting security challenges for both the providers and consumers. Cyber Security
strategy towards securing country’s cyber space is being pursued with major initiatives: (a) Security R&D, (b) Security Policy, Compliance and Assurance, (c) Security Incident – Early Warning & Response and (d) Security Training.

R&D initiative is aimed at development/enhancement of skills and expertise in areas of cyber security by facilitating basic research, Technology demonstration and Proof-of-concept and R&D test bed projects. Research and development is carried out in areas of cyber security including (a) Cryptography and cryptanalysis, (b) Network & System Security, (c) Monitoring & Forensics and (d) Vulnerability Remediation & Assurance through sponsored projects at recognized R&D organisations.

During the year 2010-11, eleven R&D projects were initiated in the areas of (i) packet marking schemes for trace back network security attacks, (ii) reactive roaming scheme for honeypots, (iii) enterprise level security metrics, (iii) steganalysis covering digital multimedia objects, (iv) side channel attack resistant programmable block ciphers, (v) trust models for cloud computing, (vi) establishment of computer forensic lab and training facility and (vii) investigation of probabilistic signatures for metamorphic malware detection.

Advanced version of cyber forensics tool kit namely Cyber Check version 4.1 capable of acquiring Windows System (including Window 2007), Mac Systems and Linux Systems has been developed. Enterprise Forensic System capable of carrying out live forensics and hardware based high speed data acquisition tool also have been developed. Virtual training environment based training modules with hands-on training capability to facilitate practical training on Cyber Forensics has been created addressing the requirements of Law Enforcement Agencies. To detect hidden contents in images generated by Steganography tools, first version of analysis tool StegoCheck has been made available to User agencies. A prototype solution of malware prevention system based on application behaviour modeling was developed for specific applications on Windows and Linux Operating System and testing is being carried out. A Web-service based Information System Security Design and Operational Management Tool Suite was developed and tested by user organisations and work is continuing to enhance the capabilities with additional services. Test bed for information security skill development using Virtual Training Environment has been developed.

Cyber Law

The Information Technology Act, 2000, a legal framework for transactions carried out electronically, was enacted to facilitate e-Commerce, e-Governance and to deal with computer related offences. The principal Act was amended through the Information Technology (Amendment) Act, 2008 to include provisions for new forms of cyber crimes like cyber terrorism, identity theft, child pornography, breach of confidentiality and leakage of data by intermediary and e-commerce frauds. The following Rules pertaining to sections 52, 54, 69, 69A and 69B respectively of the Information Technology (Amendment) Act, 2008 are notified:

- Cyber Appellate Tribunal (Salary, Allowances and Other Terms and Conditions of Service of Chairperson and Members) Rules, 2009.
- Cyber Appellate Tribunal (Procedure for Investigation of Misbehaviour or incapacity of Chairperson and Members) Rules, 2009.
- Information Technology (Procedure and Safeguards for Monitoring and collecting traffic data or information) Rules, 2009.

The other rules are being finalised.

Indian Computer Emergency Response Team (ICERT)

ICERT is the national nodal agency for responding to computer security incidents as and when they occur. ICERT creates awareness on security issues through dissemination of information on its website (http://www.cert-in.org.in) and operates 24X7 Incident Response Help Desk. It provides Incident Prevention and Response services as well as Security Quality Management Services.

In the recent Information Technology (Amendment) Act 2008, ICERT has been designated to serve as the national agency to perform the following functions in the area of cyber security:

- Collection, analysis and dissemination of information on cyber incidents
- Forecast and alerts of cyber security incidents
- Emergency measures for handling cyber security incidents
- Coordination of cyber incident response activities
- Issue guidelines, advisories, vulnerability notes and white papers relating to information security practices, procedures, prevention, response and reporting of cyber incidents
- Such other functions relating to cyber security as may be prescribed

The activities carried out by ICERT comprise of the following:

<table>
<thead>
<tr>
<th>Activities</th>
<th>Year 2010-11</th>
</tr>
</thead>
<tbody>
<tr>
<td>Security Incidents handled</td>
<td>4727</td>
</tr>
<tr>
<td>Security Alerts issued</td>
<td>22</td>
</tr>
<tr>
<td>Advisories Published</td>
<td>46</td>
</tr>
<tr>
<td>Vulnerability Notes Published</td>
<td>142</td>
</tr>
<tr>
<td>Security Guidelines Published</td>
<td>1</td>
</tr>
<tr>
<td>White papers Published</td>
<td>1</td>
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<tr>
<td>Trainings Organised</td>
<td>21</td>
</tr>
<tr>
<td>Indian Website Defacements tracked</td>
<td>10,953</td>
</tr>
<tr>
<td>Open Proxy Servers tracked</td>
<td>1,585</td>
</tr>
<tr>
<td>Bot Infected Systems tracked</td>
<td>1,635,212</td>
</tr>
</tbody>
</table>

ICERT has evolved as the most trusted referral agency in the area of information security in the country. ICERT is regularly interacting with CISOs of Critical Infrastructure Organisations and sectoral CERTs to ensure security of the critical systems, collaboration with IT product and security vendors to mitigate the vulnerabilities in various systems, cooperation with international CERTs and security organizations on information sharing and incident response, promote R&D activities in the areas of Artifact analysis and Cyber Forensics and security training and awareness. In order to have the optimum uptime and support 24X7 operations of ICERT, initiatives have been taken to setup a Disaster Recovery site at C-DAC, Bengaluru.

**Security Assurance Framework**

ICERT has taken steps to implement National Security Assurance Framework to create awareness in government and critical sector organisations and to develop and implement information security policy and information security best practices based on ISO/IEC 27001 for protection of their infrastructure. For communicating with these organisations, ICERT maintains a comprehensive database of more than 800 Point-of Contacts (PoC) and Chief Information Security Officers (CISO). As a proactive measure, ICERT has also empanelled 51 information security auditing organisations to carry out information security audit, including the vulnerability assessment and penetration test of the networked infrastructure of government and critical sector organisations. The technical competency of the empanelled organisations is regularly reviewed by ICERT with the help of a test network.

**Crisis Management Plan**

Crisis Management Plan (CMP) for countering cyber attacks and cyber terrorism has been prepared. The CMP has been approved by the National Crisis Management Committee (NCMC) for wider circulation and implementation. ICERT/Department has been conducting workshops to appraise the Central Ministries and States/UTs about the CMP implementation and all necessary assistance is being provided to Central Ministries and States/UTs with regard to implementation of CMP. A revised version of CMP was released in March 2010.

**Cyber Security Drills**

Indian Computer Emergency Response Team is carrying out mock drills with critical information infrastructure organizations to check the porosity of critical information infrastructure with respect to cyber security. These drills have helped tremendously in improving the cyber security posture of the information infrastructure and training of manpower to handle cyber incidents, besides increasing the cyber security awareness among the critical sector organizations. Besides this, ICERT is also participating in cyber security drills at the international level. During the year 2010-11, two international drills involving Asia Pacific CERTs and one national drill involving critical sectors such as Banks/FIs, Civil Aviation, Telecommunication etc., have been conducted.

**Security Cooperation and Collaborations**

ICERT plays the role of mother CERT and is regularly interacting with the cyber security officers of sectoral CERTs in Defense, Finance and other sectors to advise them in the matters related to cyber security.
To facilitate its tasks, ICERT has collaboration arrangements with IT product vendors, security vendors and Industry in the country and abroad. Security Cooperation agreements and MoUs have been signed with Microsoft, RedHat, Cisco, EMC2, eBay, Trend Micro, Symantec, McAfee and Afilias. This collaboration facilitates exchange of information on vulnerabilities in relevant products, developing suitable counter measures to protect these systems and providing training on latest products and technologies.

ICERT has established collaborations with international security organisations and CERTs to facilitate exchange of information related to latest cyber security threats and international best practices. ICERT is a member of Forum of Incident Response and Security Teams (FIRST).

ICERT has become Full Member of Asia Pacific CERT (APCERT) since August, 2008. ICERT has become Research Partner of Anti-Phishing Working Group (APWG) to counter and develop best practices for containing phishing attacks.

ICERT is interacting with other international CERTs to exchange advance information regarding vulnerabilities and malicious code, responding to incidents involving attackers and victims of international jurisdiction. Functional relations are being established with international CERTs from USA, Japan, Korea, Australia, Brazil etc. ICERT has signed MoUs with National Cyber Security Centre, Republic of Korea, JPCERT/CC and National Computer Board, Mauritius for mutual cooperation in the area of cyber security.

The Department, ICERT and Confederation of Indian Industry (CII) have established the Information Security Advisory Forum to foster cooperation between Government, industry, consumer and law enforcement agencies on information security issues.

As part of its many activities, the Forum organizes Conferences, Training and Awareness Programs for the internet consumers (that include children, parents and teachers) who are often susceptible to cyber attacks, and aims to provide tools and resources to counter such threats.

Security Awareness

Creating security awareness among Indian IT infrastructure organizations is one of the important role of ICERT. ICERT is conducting training workshops to train officials of Government, critical sector, public/industry sectors, financial and banking sector and ISPs on various contemporary and focused topics of Information Security. ICERT team members have provided training on Computer Forensics and Log Analysis to other Government organisations and Law Enforcement. ICERT members also participated in various national and international conferences and delivered lectures on topics related to information security. In order to increase the outreach, ICERT has engaged NASSCOM and Data Security Council of India to spread the cyber security awareness and facilitate interaction with various user groups. During the year 2010-11, ICERT has conducted 21 trainings and about 850 officers have been trained.

Cyber Forensic

Cyber Forensic investigation facility at ICERT is equipped with the equipment and software tools to handle cyber forensic investigations of the cyber crimes and has been carrying out imaging and analysis of digital evidence in the cases of cyber crimes. Hands on practical trainings were provided to the law enforcement agencies on Investigation of Cyber Crimes, Computer Forensics - imaging and analysis of digital evidence, Mobile Forensics and Network Forensics at the training workshops organized by ICERT, State Police and other training institutions for law enforcement agencies. ICERT is working with defence, banks, public sector enterprises, judiciary and law enforcement agencies in training their officials as well as extending the support in investigation of cyber crimes.

Early Warning System

ICERT is implementing a project for Attack Detection and Threat Assessment at ISP and organisation level. This project will enable detection of cyber threats and attacks and issuance of early warning to take appropriate counter measures to mitigate the attacks and contain the damage.

Controller of Certifying Authorities

The Information Technology Act, 2000 facilitates acceptance of electronic records and Digital Signatures through a legal framework for establishing trust in e-Commerce and e-Governance. For authentication of electronic transactions using digital signatures, the Controller of Certifying Authorities (CCA) licenses Certifying Authorities to issue Digital Signature Certificates under the IT Act, 2000. Seven Certifying Authorities are operational currently and the total number of Digital Signature Certificates issued in the country grew to more than 18,00,000 by December, 2010. For ensuring continued trust in
Technical Infrastructure

The Root Certifying Authority of India (RCAI) set up by the CCA is at the root of trust for authentication through Digital Signatures. Repository containing Certificates issued by CCA to the licensed CAs and the Certificates issued by the licensed CAs to subscribers has been established and is being operated by the Office of CCA. The Disaster Recovery Site is also fully operational. Policies relating to the website of CCA have been formulated in accordance with the Guidelines issued by the Ministry.

Enhancing trust

The Root Certificate of RCAI has been pre-installed in Microsoft's IE Browser for ease of establishment of trust. Pre-installation of Root Certificate in other popular Browsers like Mozilla, Firefox is in progress. To further enhance the level of trust in digital signatures, a proposal was prepared for setting up the Online Certificate Validation Service (OCVS), for which discussions on the different possible implementation models are currently under way.

Standards & Interoperability

In respect of upgradation of standards being followed in the Public Key Infrastructure (PKI) implementation in India, the key length for the subscribers is being changed to 2048 bits from 1024 bits from 1st Jan, 2011 while the use of SHA-256 hash algorithm is being mandated from 1st Jan, 2012 in place of SHA-1. Possibilities are being explored for using new Technologies like Extensible Markup Language (XML) Digital signatures as Electronic Signatures under the Information Technology Act, 2000.

To enhance interoperability among Digital Signature Certificates issued by different CAs, Guidelines have already been notified. Certifying Authorities are now in the process of implementation of Interoperability Guidelines.

International Cooperation

CCA attended the Special Steering Committee meeting of the Asia PKI Consortium (APKIC) in Beijing in June, 2010. The General Assembly/Steering Committee (GA/SC) meeting of APKIC and the one day Annual International Symposium was held in New Delhi, India in October, 2010. CCA was elected to be the Vice Chairman of APKIC.

An MoU had been signed earlier with ICTA Mauritius for implementing Public Key Infrastructure (PKI) in Mauritius. Discussions were held on several occasions and the launch of Mauritius PKI has recently been announced.

A study tour was undertaken to India by a delegation from the Rwanda Utilities Regulatory Agency (RURA) in December 2010. They visited and held discussions with the office of CCA and with CAs in Delhi, Ahmedabad & Hyderabad.

Training & Awareness Generation

Under the Nationwide PKI Awareness programme on Digital signature and Digital Signature Certificate, One-day seminars were held in Calicut, Visakhapatnam, Cochin, Hyderabad, Ahmedabad and Bhubaneswar. Also, a two day Workshop was held in Noida and a three day Training programme was held in Hyderabad. The office of CCA also participated in training programs in this area in various other academic institutions.

Legal Aspects

Steps have been initiated for formulating Legal Framework for Escrowing the Encryption Key used for encrypting source code of the software. This is being done in the interest of security and business continuity. Additionally, for advising the Office of CCA on various legal issues and to sort out litigation matters in the court, a panel of lawyers/Law firms is also being setup.

Cyber Appellate Tribunal (CAT)

As per the IT Act 2000, any person aggrieved by an order made by the Controller of Certifying Authorities and an Adjudicating Officer can prefer an appeal to the Cyber Appellate Tribunal (CAT).

The office and Court of the CAT was inaugurated in July 2009 at its new location at LIC Building, Connaught Place, New Delhi.

Chairperson, Cyber Appellate Tribunal (CAT) participated in Awareness Programme organized by the various Organizations on all Indian Level and delivered lectures on Cyber Laws and Adjudication issues in India, National e-Governance, Cyber Law Enforcement Programmes and Cyber Security for Judicial Officers etc. Chairperson, CAT also co-hosted a Western Regional Consultation meeting on Cyber Law Enforcement Programme of National
Project Committee on Enforcement of Cyber Law which was attended by Hon’ble Judges of Supreme Court, Judges of High Court, Chief Justice of various States, Judicial Officers from all over India and Senior Officials of Government of India.

The Semiconductor Integrated Circuits Layout-Design Act 2000


During the year, the setting up of the technical resource - Data Center (DC) of SICLD Registry has progressed. Two projects in the area of “Creation of data base of prior-art in IC Layout Designs” were initiated and first module of prior-art data in Analog and Mixed IC Designs and Digital IC Designs is collected for porting to SICLD Registry. Work on creation of dedicated prior-art data base at SICLD Registry facility through porting and testing of the modules generated through the R&D projects was initiated and first version of prior-art library realized for use in screening of the incoming chip IP applications. A project on “Matters of Semiconductor IC Layout Design Registrations” was completed. Action on bringing into force further sections of the SICLD Act to operationalize the Registration of Applications was taken. Diffusion of information on IC layout Design Registration matters was continued.

During the year, a project entitled “Specialized Human Resource Development in IC Layout Design” was initiated at University of Pune. Around 150 specialized manpower would be developed under the project over a period of 3 years. M.Sc. (one semester) IC layout design course has been initiated under the project. The approvals for initiations of P.G. Diploma course is in process. Approval of Legislative Department, Ministry of Law and Justice has been obtained for bringing into force relevant Sections of the Act so that the Registry can be made operational subsequently. The Department supported two projects at C-DAC Noida and University of Pune (2009-2010) last year. Under these projects, creation of Layout Design Database for Digital, Analog & Mixed Signal from prior-art Sources is in process. IC Layout Design Diagnostic tools have been procured and installed in the Semiconductor Integrated Circuits Layout–Design Registry. Diffusion of information on IC Layout–Design Registration is being continued.

Internet Governance

Internet Governance encompasses the governance of public policy issues of openness, security, privacy and most importantly the management of critical Internet resources of IP address and Domain Names. This entails formulation of governing policies, programmes and processes of Internet resources and information - both domestic and international. This will be in cooperation and consultation with all the stakeholders from the government, private sector and civil society.

Achievements during 2010 –11

Pragmatic Efficient Reliable Internetworking Solution Using Consumer-Centric Omnipresent Ethernet (PERISCOPE) by IIT Mumbai: The project has resulted in the development of an Ethernet Switch such as to enable handling applications within the network layer by bringing down latency to 0.03 microseconds. The Switch has found acceptance by MTNL to setup two of its Data Centres.

Development of a Self-Managed QoS Network Solution BY C-DAC, Bengaluru: An adaptive, self-configuring network solution EDGE (Enterprise Wide Self-Managed Network Solution) has been developed. It works with the TCP/IP protocol, applicable to LAN, WAN, Intranet, Extranet and Internet networks. An IDS (Intrusion Detection System) called N@G integrated with EDGE has also been developed.

Development and Integration of Technology for Virtualized Cloud Computing by IIT Mumbai: Development of transport layer technology for Cloud Computing through the integration of Light Trails technology for optical layer multicasting, dynamic bandwidth allocation and sub-wavelength granular support at low price points.

Development of an Open Source Web Browser for the Blind People by IIT Kharagpur: An open source web browser with voice feedback for the blind with speech facilitation for navigation or data entry in a web page is being developed. This development will include Text extraction engine; Text to Braille transliteration system in Linux platform, integration with Braille Devices and open source English TTS engine to the web browser (under process).
Internationalized Domain Names - Implementation in Indian Languages NIXI and CDACs (Pune, Thiruvananthapuram, Kolkata):

Internet Corporation for Assigned Names and Numbers (ICANN) which manages IDNs has cleared for delegation of India’s IDN ccTLDs in the root zone. The 7 Indian Languages include Hindi (Devanagari), Bengali (Bengali), Gujarati (Gujarati), Punjabi (Gurumukhi), Tamil (Tamil), Telugu (Telugu) and Urdu (Arabic). Processes and evaluations are underway for Beta test of the domain registration process. IDN Domain Name registration policy is being drafted in consultation with concerned organizations.

IPv6 deployment in the country (NIXI, ERNET):
The Department has supported IPv6 dual stack architectural setup of existing IPv4 network to make the backbone networks of Education Research Network (ERNET), National Internet Exchange of India (NIXI) and other organizations under the DIT IPv6 ready. It has also organized training for network engineers, workshops and seminars for an early adoption of IPv6.

Impact of Broadband in India-Internet & Mobile Association of India (IAMAI):
Assessment report on the Impact of Broadband/Internet on Indian economy especially GDP growth, Social Empowerment including education, healthcare and rural commerce, government services. Report will include Case studies on what is working and what is not working based on samples from “developing” and “developed” States of India.

India’s participation in Internet Corporation for Assigned Names and Numbers (ICANN):
The Department represents India in the Governmental Advisory Committee (GAC) of ICANN. The Department has hosted the secretariat of GAC since 2006 till 2010. It is the key forum for discussing the public policy issues relating to the Internet concerning the standardization, protocols and technology and affecting the social and economic life of the countries. GAC has representatives of national governments, multinational governmental organizations and treaty organizations and distinct economies. The Department participates in all ICANN meetings.

Internet Governance Forum (IGF):
The Department, India is a member of the Multi Stakeholder Advisory Group of the Internet Governance Forum of the United Nations and participates actively in all IGF meetings. India’s concerns on the issues of public policy on Internet and its Governance is presented in this UN forum through regular participation, holding workshops and Dynamic Coalition meetings and multi-lateral and bi-lateral meetings.

Information Technology Investment Regions (ITIR)

To promote investment in the IT/ITES/Electronic Hardware Manufacturing (EHM) units, the Government has decided to attract major investment by providing a transparent and an investment friendly policy and set up Information Technology Investment Regions (ITIRs). These would be endowed with excellent infrastructure and investor-friendly policy environment. Such ITIR would reap the benefits of co-sitting, networking and greater efficiency through use of common infrastructure and support services. Such a complex would boost, augment exports and generate employment.

Information Technology Investment Regions (ITIR) policy resolution has been notified in the Gazette of India under which each State/UT in India can set up an integrated township for facilitating growth of IT/BPO and Sunrise Industries with world class infrastructure. Proposals have been received from 4 States namely Karnataka, Andhra Pradesh, Orissa and Tamil Nadu. The same have been circulated to the member Departments/Ministries nominated by High Powered Committee for their comments. The proposals are being processed in line with the guidelines provided in the Policy resolution.

ICT Measurement and Indicators

Reliable data and indicators on the access and use of ICT help Governments to design and evaluate ICT policies and strategies, compare their ICT developments with those in other countries and adopt solutions to reduce the digital divide.

Achievements during 2010-11

- The Committee on ICT Measurement & Indicators met frequently to discuss various ways and means to develop suitable ICT Indicators.

- A study on construction of e-Development Index (eDI) (conceived as a composite national Index) was initiated with an objective/goal to measure the progress towards an Information Society captured by economic growth, employment, innovation, productivity growth, competitiveness, Revealed Comparative Advantage (RCA) and human welfare facilitated by ICT.
National Council of Applied Economic Research (NCAER) has been assigned this study.

A discussion paper on construction of eDI has been prepared and was hosted on the website of NCAER for wider consultation.

**Results-Framework Document (RFD) & Strategic Plan**

Government of India has approved the outline of a “Performance Monitoring and Evaluation System (PMES) for Government Departments” to measure the performance of the Government by preparing a Results-Framework Documents (RFD) of all the Ministries/Departments, which provides a summary of the most important results that a Department/Ministry expects to achieve during the financial year.

The Department prepared RFD with a vision entitled 'e-Development of India as the engine for transition into a developed nation and an empowered society' with the following areas:-

- e-Government
- e-Industry
- e-Innovation/R & D
- e-Learning
- e-Security

**Achievements during 2010-11**

- RFD – 2009-10 has been uploaded on the Department’s website and evaluated by High Power Committee (HPC). As per this, the Department has achieved a composite score of 97.45% for RFD – 2009-10.
- RFD – 2010-11 has also been prepared and approved by HPC. It has been uploaded on the website of the Department.
- Strategic Plan of the Department for the next five years has been formulated and uploaded on the website of the Department.
Technology and Application Development

Media Lab Asia

The Media Lab Asia (MLAsia) is a not-for-profit Company of the Department. The aim of this Company is to bring the benefits of ICT to daily lives of common man in the areas of Education, Empowerment of the Disabled, Healthcare & Livelihood Generation. It works in collaboration with academic and R&D institutions, industry, NGOs and State Governments in this endeavor. It is also identifying technologies that can be taken to the land for deployment along with the aim to reach the common man. With the help of its projects MLAsia has already touched nearly 1.5 Million people’s lives in 1500+ locations.

Achievements during 2010-11

Visually impaired women empowerment through Shruti Drishti: Shruti-Drishti (Text to Speech & Text to Braille), a special web browser for visually impaired developed with the Department’s support, along with the associated required hardware (Computer Systems, UPS, Braille Embossers, Braille Keyboards, Tactile Readers) has been deployed along with support and training in 40 visually impaired women/Co-Ed schools throughout the country. It is benefitting 4081 blind students (including 2314 female blind students) and 80 teachers. The feedback from the schools is positive. The students use the system for generating content.

ICT enabled integrated assessment tool for Mentally Retarded (MR) children - Punarjani™: A web based tool to aid the teachers for the progress assessment and evaluation of the MR children and analysis of the results has been developed. The tool has been deployed in 8 schools in the state of Kerala on a pilot basis and is benefiting more than 800 Mentally Retarded students. The tool was very well appreciated by the experts observing it as the first initiative of its kind in India. The tool is web enabled and has been hosted at http://www.punarjani.in. Observing widespread interest for this tool among special schools for MR children, there is a plan to deploy it in 100 more schools. “Punarjani” trademark has been registered.

Establishment of Chanderi weavers ICT resource centre in Chanderi, MP: The project aims at providing various livelihood and soft skills through ICT based empowerment and facilitation of textile weavers in Chanderi community. The activities are as follows:-

Digital Preservation: - CAD software tool has been deployed and 150+ traditional weaving designs digitized and preserved. 11 master designers have been trained so far. In addition more than 160+ apparel designs have been made.

Impact on community by ICT based Training: - In design making at Weaving Level, Cloth Design, Apparel Design and
Textile Design & Finished Product Design, 250 persons including women and Children have already been trained. 700+ students have been trained in Vocational skill training & 850+ trained in Design making & English speaking programme. Formation of 12 Self Help Groups (SHGs) from local community and microfinance, small scale trading activities has been started.

**Marketing by use of ICT:** For marketing of local community products and to create exclusive outlet of the finished products an e-Commerce enabled website www.chanderiyaan.net is being developed to sell Chanderi products through Internet. Finished products created through the Centre have been showcased at Raja Rani Mahal, Chanderi. Chanderiyaan stall was also placed in Commonwealth Games exhibition, during October 2010.

**eGalla™: An Affordable Retail Management System:** eGalla is an affordable retail management system. It is a solution designed to address the needs of the unorganized retail sector. The end users of eGalla may be whole salers, small scale retail shopkeepers and people employed in small shops. This software is an easy to use, accurate and multi-user application which can be ported on any computers / laptops. eGalla is available both as stand alone and web based product. It includes inventory, customer management, vendor management, account receivable, account payable and bill printing modules in addition to different business reporting tools. The system has been tested in 20 shops in & around Mumbai. The technology is ready for transfer and large scale deployment.

**ICT in rural schools in Mizoram to another 100 schools in the State- (North-East):** Computer Aided teaching tool has been deployed to enhance the concept clarity and interest in the learning process in 100 rural schools of Mizoram. 1400 capsules on subjects of Physics, Chemistry, Biology, including practicals & Maths for classes XI and XII, and Science & Technology, History, Civics, Geography, and Maths for Classes VIII to X have been provided in the schools. More than 13000 teachers & students have benefited. Impact evaluation of the project is under progress.

**Multimedia based pre-primary teachers resource kit for English and Hindi:** A Comprehensive Integrated Multimedia based Pre-primary Teacher’s Resource Kit for Pre-Primary schools (Targeting Playgroup, Pre-Nursery, LKG & UKG) covering more than 200 modules has been prepared. The system can be used both by teachers and parents. The content has been integrated with voice over’s, videos and interactive animations etc.

**Mobile and Internet based math prep guide application:** The math prep guide software enables students to understand and solve the difficult Math questions with simple strategies. It also enables cracking a tough discrete quantitative problem by using easy algebra and common sense probability reasoning.

It provides Comprehensive chapter-wise manual (Class-XI & XII Mathematics, NCERT syllabi) on the wireless mobile platform and internet in the most scientific manner to take on the examination. The system is now available on www.ganitmitra.in.

**Mobile and internet based virtual laboratory for life science experiments for higher secondary education:** More than 70+ Life Sciences experiments (for classes XI & XII NCERT syllabus) have been developed. It provides on screen instructions for navigation and has comprehensive Dictionary/vocabulary specific to an experiment. The
content can be delivered through portal, mobiles and also packaged on Multimedia Card & DVD's. The content has now been integrated with voice over's, videos and interactive animations etc.

**Progress made under ongoing and new projects**

**ICT for Livelihood Generation**

Development of a set of alternative ICT models based on a study and analysis of the major ICT initiatives in agriculture in India to meet the information need of the Indian farmers: A project has been awarded by Indian Council of Agricultural Research under the Component 4 (Basic and Strategic Research in the Frontier Areas of Agricultural Sciences) of the World Bank funded, National Agricultural Innovation Project (NAIP) to the Consortium led by MLAsia. The partners are National Institute of Rural Development, Hyderabad, Mudra Institute of Communication, Ahmedabad and Acharya N.G. Ranga Agricultural University, Hyderabad. The project aims to study the past and present major ICT initiatives in agriculture in India, the extent of their success, the factors affecting the success as well as failure of such initiatives. Based on this study, the project will suggest appropriate ICT models to meet farmer's information needs for different selected scenarios considering the infrastructural and social-economic constraints with some field testing within the existing infrastructure. Progress so far has been as under:

- Organized five workshops to identify the major ICT initiatives in Agriculture in India in five regions - East, West, North, South and North East. 118 eminent scholars from 96 organisations who are involved in developing/implementing ICTs in agriculture participated in these workshops.
- Documented Major National (143) and International (73) ICT based projects which directly or indirectly provide agricultural based information.
- Developed a web portal 'www.ekrishinaip.in' 
- Completed field study of twenty two ICT initiatives in agriculture and need analysis of farmers’ in Orissa, Andhra Pradesh, Kerala, Maharashtra, Jharkhand, Uttar Pradesh, Tamil Nadu, Puducherry, Gujarat, West Bengal and Madhya Pradesh.

**Grameen Gyan Kendra:** The project involved development of models for use of ICT to improve social infrastructure and public interaction for the emerging knowledge-based society and integrated rural development for employment generation and livelihood security. Nine Grameen Gyan Kendra’s (GGKs) have been established in Sonbhadra, Mirzapur and Varanasi in Uttar Pradesh.

Integrated Agri Services Programme (IASP) has been taken up through GGKs in Mirzapur, Sonbhadra and Varanasi districts of Uttar Pradesh. The target is to cover more than 2000 farmers. Services like input/ output linkages/information, financial information etc., will be delivered.

**Chanderi Integrated ICT for Development Programme (CIIDP)**

**ICT & Social Entrepreneurship Programme:** An ICT based facility has been created for block printing, weaving & embroidery work. 20+ people have been trained and more than 100 people are undergoing training at the facility.

**Digital Tourism Promotion Programme:** Local Community Portal having social-cultural-historical-information in digitized form is now available on. http://chanderiyaan.chanderi.org and http://www.chanderi.org. Mobile based application is being developed so that pre tour & on tour information can be provided on mobile phones to assist tourists.

**ICT in Healthcare program:** e-Dhanwanthari, a web based Telemedicine software has been deployed with multipurpose medical equipments to connect the existing public health facilities in Chanderi with telemedicine facilities with Ashok Nagar hospital. Medical consultation is being given to patients for basic medical test such as ECG, Spirometry, NIBP & Spo2 etc.

**Interactive Portal for Livelihood Generation of Migrant Workers:** The migrant worker’s portal aims at computerizing the process of livelihood generation and training of the unorganized sector workers and fulfil the requirement of the client (contractor/recruiters/household) through Front Level Agencies such as NGOs, SHGs, Hardware Shop owners & PCO operators etc. The testing of the portal is being carried out.
ICT for Healthcare

Rural Health Management Information System-Health-Asociado™: The system empowers the grass root level health workers with mobile/handheld based data collection. A centralized health database is created for generating different statistical and graphical reports. The reports are being used as an input to health planning and decision making authorities at higher levels. The system is implemented at three Blocks (20 PHCs/CHCs/BPHCs, covering 7.8 lakh population) of Mallapuram district, Kerala.

1.5 lakh population is registered in the year 2010-11 and over all 4.5 lakh population is registered with the system. Block Medical Officers are utilising this data for generation of different reports & action plans for health workers. Process for filing Patent & Copyright is in progress.

Low Cost mobile Telemedicine Van-mDhanwanthari: The mDhanwanthari is operating at 20 locations of Cherthala Taluk, Kerala through KVM Hospital, Cherthala for the treatment of TB patients, Diabetic patients and mother & child care. This service can be availed by 4.34 lakh population of the Taluk whereas more than 8000 rural patients have been benefited through the system. A nominal amount is charged from the patients for diagnostic tests to maintain the sustainability of the system.

Rural Telemedicine System- e-Dhanwanthari™: e-Dhanwanthari offers quality medical care at patient’s door step. A specialist at one site delivers health care, diagnoses the diseases, gives intra-operative assistance, provides therapy or consults with another physician or paramedical personnel at a remote site. The system has been integrated with 4 Specialty Hospitals Centres/Medical Colleges and 8 Remote Centres (CHC/PHC) in Kerala. More than 400 patients have been treated in the 2010-11 and over all more than 800 patients have benefited from the system. The advanced telemedicine facility is provided to different patients like paediatric patients, TB patients, orthopaedic patients, neurological patients and others. EMR of the patients is used for post consultation and disease pattern analysis. Process for filing Patent & Copyright is in progress.

ICT for Empowerment of Disabled

A Comprehensive Satellite/Internet based National Network for Education, Training and Empowerment of the Disabled: The project taken up jointly with Rehabilitation Council of India (RCI) - (a statutory body under the Ministry of Social Justice and Empowerment) includes development & broadcasting of interactive programs through Edusat for students, parents, trainee teachers & professionals associated with and engaged in different areas of disabilities. An interactive Internet portal providing all the relevant information in different disability issues is available on http://www.punarbhava.in. 470+ RCI/MSJE recognized Institutions have been connected to ‘Navshikhar’ channel. Regular transmission of programs is being conducted from Monday to Friday from 10:00 Hrs. to 17:00 Hrs. Portal “Punarbhava” is regularly updated and is being made accessible as per W3C guidelines.

Supply, installation and commissioning of computerized Braille transcription system at the blind schools throughout the country: In order to address the lack of accessible content and reading, writing, printing & learning Braille needs of visually impaired persons in schools, CBTS (Computerized Braille Transcription System) has been installed in 40 schools where 80 teachers have been trained and around 3000 students have been benefited.

ABCD (Audio Books Content Delivery) for visually impaired: Indigenously developed Daisy audio books players "Buddy" along with complete curriculum of secondary and senior secondary level have been test deployed at NAB (National Association of Blind) New Delhi and Gangtok branch.

Content Generation for Capacity Building of Persons with Blindness or Low Vision: The project aims supporting graduate / post graduate level visually impaired students by facilitating content in accessible formats like e-text, Braille, Daisy, large print and audio books as per requirement. For Inclusive Education, 4473 hours (515 Nos.) of Audio Daisy Books have been generated. 454 books have been converted into
e-Text. 69 books (900 Hours) have been generated in synthesized voice. Benefiting a large cross section of Visually Impaired students, more than 20,000 copies of CDs of these books have been distributed. Media Lab Asia is a member of DAISY Forum of India, which is a network of more than 80+ organizations working for digital books.

**Sanyog:** Under this project object based iconic communication interface has been enhanced for Bengali, Hindi and English. By object driven icon selection, the system can generate simple sentences in all the three languages. A new interface has been designed for connecting the special access switches with the system. An initial testing of Embedded Sanyog has been done.

**Development of MIS & Interactive Portal for National Trust:** Media Lab Asia has developed the official website & MIS for National Trust which is an autonomous organization of the Ministry of Social Justice & Empowerment, Government of India set up under the “National Trust for the Welfare of Persons with Autism, Cerebral Palsy, Mental Retardation and Multiple Disabilities Act (Act 44 of 1999)”. The website gives information about the various types of disabilities, schemes of the National Trust, past and upcoming events and the various happenings in National Trust. Through MIS, National trust ensures further transparency in its working with more information and online access to facilities like submission of application for various schemes, reviewing the status of applications etc. The website can be accessed at www.thenationaltrust.co.in and www.thenationaltrust.in

**SAMBHAV- National Resource Centre on Disability:** ‘Sambhav’ provides the facilities for demonstration and practical use of the displayed items by persons with disabilities. It helps them in getting acquainted with the devices and taking decisions for buying a particular device. The centre will have information about the price, availability and usage of devices.

**Technology Development for Indian Languages Programme (TDIL)**

Advances in Human Language Technology will offer access to information and services to people in their language. There are 22 constitutionally recognized languages and these are in 11 scripts. Technology Development for Indian Languages (TDIL) will enable people to access and use IT solutions in their own languages. Development of technologies in multilingual computing areas initiative is directed towards R&D efforts.

The focus areas are:

- Translation Systems
- Cross Lingual Information Access and Retrieval
- Linguistic Resources
- Human Machine Interface systems
- Language processing and Web tools
- Localization and content creation
- Standardization

**Achievements during 2010-11**

**Machine Translation**

**Machine Translation (English- Indian Languages):** In the Phase-1 of the project Machine Translation Systems for 8 Language Pairs: English to Hindi, Marathi, Bengali, Oriya, Tamil, Urdu, Punjabi and Malayalam in the tourism domain with varying efficiency have been completed.


The Phase II of these projects is being initiated to improve the technology and to extend the technology to more language pairs and domains.

**Cross-Lingual Information Access system (CLIA):**

In Phase-I CLIA System for 6 Languages: Hindi, Bengali, Tamil, Marathi, Telugu and Punjabi have been developed for Tourism domain. Under Phase II other domain would be explored.

**Optical Character Recognition system (OCR):** In phase I alpha version of OCR System for 9 Scripts: Bangla, Devanagari, Malayalam, Gujrati, Tamil, Telugu, Kannada, Oriya, Gurumukhi have been completed.

**On-line Handwriting Recognition system (OHWR):** In phase I of the project technology has been tested for 6 Scripts: Hindi, Bengali, Tamil, Telugu, Kannada and Malayalam. The technology in phase II thus will be improvised further to convert the developed technology into usable products.

**Development of Text to Speech (TTS) and Automatic Speech Recognition (ASR) systems:** Alpha versions of TTS systems in 5 Indian
Languages namely Hindi, Bengali, Tamil, Telugu and Malayalam have been developed. Project for development of Automatic Speech Recognition (ASR) Systems for agricultural domain has been initiated for six Indian Languages namely Hindi, Bengali, Assamese, Tamil, Telugu and Marathi.

**Language Technology Resource Development**

**Annotated Text Corpora:** Annotated Text Corpora for 11 Indian languages i.e. Hindi, English, Gujarati, Punjabi, Oriya, Bengali, Telugu, Malayalam, Marathi, Urdu, Konkani and Tamil is being developed under "Indian Language Corpora Initiative" project.

**NE-WordNet** project is being implemented for development of Wordnet for four North East region languages i.e. Assamese, Bodo, Manipuri & Nepali.

**Under Speech Corpora** project 50 hrs of Annotated Bodo Speech Corpora has been developed.

**National Roll-Out Plan**

Language CDs (in 22 constitutionally recognized Indian Languages) containing localized tools and fonts facilitate the citizens to do their basic text processing, send e-mails and do web browsing. These can be downloaded from http://www.ildc.gov.in.

**Human Resource Development in Indian Languages**

M. Tech. in Computational Linguistics/ Knowledge Engineering/ Language technology and PG Diploma in Language Technology courses have been initiated at premier universities/ institutions to fulfil demand of trained manpower in the area of Natural Language Processing. 30 students are presently enrolled in these courses and will join the ranks of Industry/academia shortly.

**Standardization**

**Indian Rupee Sign:** The Government has approved a unique symbol ₹ for Indian Rupee. The newly approved symbol has been included in the Unicode and ISO-10646 Standards. The modified INSCRIPT Keyboard layout incorporating the Indian Rupee Sign ₹ has been submitted to BIS for declaring it as a national standard.

**Web Internationalization, Standardization and W3C India Initiative:** Most of the future Web Applications would be Internet / Intranet based. Adoption of World-Wide-Web Consortium (W3C) web standards in Indian languages would enable e-content/dynamic applications and services seamlessly access independent of devices and platforms and geographical locations. In the initial phase, Web Internationalization for Indian languages would be carried out in Hindi and possibly one language from each region. This activity in long term will be spread over all 22 officially recognized languages. W3C India office at DIIT will pursue this goal in close coordination with World Wide Web consortium.

**Information Dissemination**

**TDIL Web-site:** The TDIL website (http://tdil.mit.gov.in) and TDIL Data Centre "Indian Language Technology Proliferation & Deployment Centre" (http://www.tdil-dc.in) disseminate the outcome of TDIL Programme.
Technical Journal of Indian Language Technologies: The VishwaBharat@tdil is a technical journal of Indian Language Technologies, which consolidates in one-place information about products, tools, services, activities, developments, achievements in the area of Indian Language software. All the issues are accessible through TDIL Web site also.

Convergence Communications & Broadband Technologies

Convergence of technologies has been the major driving force of this decade, uniting the distinct information, communication and broadcast sectors. With the advancement of technology in communications, computers and multimedia, innovative and low cost applications are being evolved through indigenous research and development. The programme is aimed at supporting and developing capability in R&D in Convergence Communications, Broadband technologies and mission critical strategic areas. Under the programme financial support is provided to projects/schemes for undertaking research, development and study in the areas of Convergence, Communication, Broadband technologies and Strategic electronics. A number of academic institutions, industries user, organizations and research labs spread all over the country have been involved in this programme.

Achievements during 2010-11

Major projects completed during the year included development of WLAN systems, TETRA based secure communication system, Ultra Wide Band Transceiver, Broadband on Power lines, Resilient Packet Ring for MAN, Wireless Sensor Networks for agriculture monitoring and tracking mine-workers with active tags, Electronic Design Centre for SoP, Compact Antenna Test Range Facility and Autonomous Vertical Profiler and WiFi Broadband backbone for NE region.

Development projects are being implemented in emerging areas such as, Wi-Max mesh networks, Wi-Max QoS networks, TETRA Communication, Cognitive Radio, Software Defined Radio, OFDM transceiver, MIMO for spectral optimisation, Wireless 4G communication, Multi-media over IP, Smart Antenna, Ultra Wide Band radio, Microwave Imaging systems, Wireless Sensor Networks for vehicles, underwater, gas and landslide detection and emergency communication network, Multiple language subtitles on DTH and Hazardous Object Removal system.

Technology Development Council (TDC)

The main emphasis of the programme is:

- To facilitate proliferation and absorption of emerging technologies in IT by supporting research and development
- Promote the use of Free and Open Source Software
- Develop and apply state-of-art cost effective indigenous solutions for the important industrial sectors
- Technology development in Bio-Informatics
- Technology development in e-Commerce
- Innovation and IPR promotion.

Achievements during 2010-11

Ubiquitous Computing

The objective of the programme is to create a R&D base in the multi-disciplinary areas of Ubiquitous Computing (UbiComp), resulting in development of core technologies, qualified researchers, development of tools and products to enable realization of Ubiquitous Information Society of India. Under this programme, several projects are being executed by C-DAC centres and other institutions. Several UC system components have been developed by the implementing agencies in various projects, like - Wireless Sensor Network (WSN), Adaptive Framework for WSN Applications, Sensor nodes, Zigbee based home network and intelligent home artefacts. Applications in agriculture, learning, healthcare and vehicle parking etc., are being tested at lab and fields. Out of the applications developed and deployed, agriculture and vehicle parking were appreciated by various stake holders and further orders for implementing in real applications have been obtained in scaled up configurations. Projects in UC Test Bed/ Applications and Real Time Landslide Monitoring have progressed well with useful outcomes.

Perception Engineering Programme

Perception Engineering (PPE) is an emerging field of research where technology developments are motivated by human perception based models and algorithms. A multi-institutional Programme on PPE was launched by the Department at six institutes for initiating academic programmes/research and collaborative research in device development for interpretation of human and man-machine perceptual senses. The research includes brain modelling, visual perceptions, hearing
perceptions and artificial sensing. The areas of
development are perceptual applications software
tools/models/algorithms and applications
development for rehabilitation, machine learning,
machine vision, sensing devices for neuro-
physiological aspects. Development of i) Perception
based multimedia conferencing system ii) Perception
driven robotics with vision based navigation and
hazardous area monitoring and iii) Electronics artificial
Olfaction and Gustatory sense based perceptual
psychometry are being focused upon.

**PARAM system for Weather Forecasting**

A project has been successfully completed by
C-DAC, Pune to set up PARAM system at National
Centre for Medium Range Weather Forecasting
(NCMRWF), Noida and several technological
upgradations have been implemented for better
storage and operational production data and faster
processing in the network environment. A 500 Giga
Flop (GF) PARAM - PADMA system with IBM
processors, indigenously developed system area
network - PARAMNet with 32 nodes and system
software have been installed. At present several
weather forecasting models have been ported on
PARAM by NCMRWF with the help of C-DAC. The
storage facility of the PARAM system has been
successfully and sufficiently implemented.

**Virtual Observatory - India**

The Next Generation (VOI-TNG) - Inter University
Centre for Astronomy & Astrophysics (IUCAA, Pune):
The Phase I of the project has been successfully
completed with high storage, data analysis and data
mining, Astronomical data visualization, web-based
high volume database access and utilities / software
tools for Astro-data presentation and study by
academia, scientists, industries in India and
worldwide. The Phase 2 of the project has been
initiated by the Department to take up further
development as per state-of-the-art technology and
user needs at IUCAA, Pune. During Phase I,
IUCAA, Pune with the support from M/s Persistent
Systems, Pune has developed several software
tools which will access and use many terabytes of
data for making astronomical estimations and study
on their co-relation. Mirrors or very large
Astronomical data have been created. 3D
visualization and Grid compatible accessing of VO
software tools and data mining software is also
being attempted in Phase II.

**RFID Programme**

In an attempt to generate indigenous capabilities
for RFID based solutions for various applications a
national programme for RFID was launched by the
Department in 2007. This phase of the programme
was successfully completed in July 2010. Parcel
Tracking System has been implemented for
Department of Posts in six cities i.e Delhi, Mumbai,
Chennai, Kolkata, Hyderabad and Bangalore
covering 140 post offices. Under the programme
C-DAC Noida has also implemented in-house people
attendance system and Bio Medical Waste
Management system.

**Innovation and IPR Promotion**

The Department in 2008 has launched a scheme
for Technology Incubation and Development of
Entrepreneurs (TIDE) in the area of Electronics & ICT.
The scheme provides financial support for nurturing
the techno-entrepreneurs as well as for strengthening
the technology incubation activity at the institutions.
17 institutions are being supported under TIDE
scheme.

Multiplier Grant Scheme (MGS) is to encourage
collaborative R&D between industry and academics/
R&D institutions for development of products and
packages. The scheme aims to strengthen industry-
institute-linkages, encourage and accelerate
development of indigenous products/packages and
bridge the gap between R&D and commercialisation.
A study report on “Collaborative R&D between
Industry and academic/R&D institutions” has been
completed. The 6 proposals as received under the
MGS are being evaluated.

**Scheme to Support International Patent
Protection in Electronics & IT (SIP-EIT)** targeted
towards SMEs and Technology Start-up so as to
courage indigenous innovation and to recognize
the value and capabilities of global IP and capture
growth opportunities in the area of information
technology and electronics has been implemented.
Under this scheme, 50% of the total costs towards
filing international patent by SMEs/Start Ups will be
reimbursed by the Department. 5 ICT based
international patents from various companies have
been supported during the year which makes the
total number of supported cases to 42.

Other major activities being undertaken under
the programme include creating IPR awareness,
facilitating technology development, providing IPR
facilitation services to Department’s Societies and
Grantee institutions. 6 IPR clinics were organized
and about 6 lectures were delivered towards creating
awareness. As part of IPR facilitation services to
the Department’s Societies and Grantee institutions,
191 IPRs have been filed during the year that
includes 15 Patents, 172 software copyrights and
4 trademarks. This makes the total IPRs filed by the Department 600. Various technology development projects which can augment IPR infrastructure, add efficiency to the IPR process, reduce piracy and help the IPR implementing agencies have also been initiated/completed.

**Free and Open Source Software Initiative (FOSS)**

Free and Open Source Software Initiative Cell has been established with an objective to develop and proliferate Free/Open Source Software (FOSS) in the country. Indian industry/SMEs can benefit from the liberal licensing norms of FOSS which enables software to be freely modified and distributed.

The National Resource Centre for Free/Open Source Software (NRCFOSS) has been established to provide design, development and support services to the FOSS community in the country and also strengthen the global FOSS ecosystem by contributing to the open source pool. Several milestones have been achieved including indigenized GNU/Linux Operating system BOSS desktop version 4.0 with support for all 22 Indian constitutionally recognised languages and BOSS Advanced Server version 1.0 released for deployment. 27 BOSS Support Centres established across the country. Deployment of BOSS in e-governance applications in Chhattisgarh and Kerala; in education sector in IT@schools project in Kerala and Sarva Shiksha Abhiyan program in Punjab; and in office applications in Indian Navy has been successfully completed. NRCFOSS Phase II project initiated to implement the recommendations of FOSS Adoption Framework, executed in consortium mode by seven implementing agencies - CDAC (Chennai, Hyderabad, Mumbai, Delhi), AUKBC (Anna University K.B.Chandrasekhar) Research Centre, Chennai and IIT (Mumbai, Chennai). Other activities include establishment of GCC (GNU Compiler Collection) Resource Centre; technology development for Mobile Platforms using open source software; Open source e-learning laboratory; Architecture evolved for setting up knowledge banks as part of NRCFOSS Phase II project.

**Bioinformatics Initiative**

The initiative aims to develop software tools and databases to provide cost-effective, enhanced computing power, increased storage for the Bioinformatics in the domain of Drug Delivery, Agri Bio-Informatics Promotion Research Program for crop improvement, disease detection, pest control and Infrastructure/Eco-system creation to facilitate Bioinformatics Research. Following Databases and Software tools have been developed to aid Drug Discovery as part of Centre of Excellence initiative as well as other sponsored research initiatives:

- Prediction of 3D structures of viral proteins *i.e.*, human rhinoviral protomer and Parainfluenza
- Elucidation of the molecular basis of Type 2 Diabetes Mellitus
- Development of immune epitopes Database for Viral proteins
- An integrated drug target database developed which is designed to include all the information regarding the targets found in Plasmodium Falciparum
- A prostrate specific mammalian gene expression database developed
- Small molecular inhibitors against three therapeutic targets involved in cancer (WWP1, Stat3, Stat5) identified in-silico. Experimental validation in progress.
- Structure prediction of target enzymes (trypanothione reductase, tryparedoxin peroxidase and trypanothione synthetase) of leishmania parasite using computational approaches like homology modelling

Following Databases and Software tools have been developed under Agri Bio informatics Promotion for crop improvement, disease detection etc.:

- Analysis of genomic and proteomic data of pathogen of coconut and araecanut for root wilt and yellow leaf disease
- Insilico characterization and classification of endangered and rare medicinal plants used by tribals in Gujrat
- Analysis , Identification and characterization of Resistant/Antivirulance gene in crop genome with potential role in increasing their disease resistance
- Generate a high resolution map encompassing resistant genes associated with biotic stress tolerance in rice.

Several projects have been initiated in the North East region for creating biodiversity inventory of medicinal plants specific to North East region, finding specific inhibitors of target enzyme which has potential to develop into novel drugs, characterization of resistant gene in crop genome with potential role in increasing disease resistance, creation of microbial indicator database for sacred groves of Meghalaya etc.
Digital Preservation & Green Initiative

A report has been prepared on requirements of Digital Preservation in India by conducting a national level study involving digital preservation experts and other stakeholders. A center of excellence for Digital Preservation is being set up at CDAC, Pune & CDAC, Noida with an emphasis on developing tools, technologies, standards and best practices for long-term digital preservation in India. A project has been initiated at CDAC, Chennai & CDAC, Bengaluru to develop ICT technologies for energy efficient and smart buildings with low carbon emissions.

Next Generation Automation Technologies

Under the Automation Systems Technology Centre (ASTeC) Project, development testing and field trials of Colour Sensing System and Simulation Platform of Modeling have been completed. Other technology modules developed under this project have been offered for field trials. Work on remaining modules taken up at various participating institutes is being completed.

In another collaborative research project entitled “Intelligent Transportation System (ITS) Project” being implemented by C-DAC, Thiruvananthapuram as a nodal agency with participation of IIT-Bombay, IIT-Madras and IIM-Kolkata, first National Workshop on ITS project was organized in June, 2010 at Pune to create awareness amongst the participants from academic/R&D institutions, industry and user agencies. Development of eight different technology modules undertaken under this project has been progressed.

In the newly initiated project entitled “Electronics for Agriculture and Environment (e-AGRIEN)” at CDAC, Kolkata technology road map has been finalized and projects activities have been started.

National Mission on Power Electronics Technology (NaMPET): Through the National Mission on Power Electronics Technology (NaMPET) project, infrastructure required for carrying out research in Power Electronics have been created at 11 leading academic institutes including IITs/IISc and at nodal Centre CDAC, Thiruvananthapuram. As part of collaborative endeavour, twenty projects were jointly taken up for research and technology development by the nodal agency CDAC, Thiruvananthapuram with other academic institutions. NaMPET had supported ten projects. Some of the advanced power electronics technology developed under NaMPET are: Matrix Converter, Full Spectrum Simulator, Universal Front End for Micro Generators using renewable sources, Inverter for Airborne applications, IGBT Gate Drivers, Hall Effect Current Sensor, etc. The NaMPET project has been completed.

IT Research Academy

IT Research Academy (ITRA) is a Programme to build a national resource for advancing the quality and quantity of R&D in IT while institutionalizing an academic culture of IT based problem solving and societal development by closely collaborating teams of researchers and institutions having expertise in the different aspects of the chosen research or application problems. The ITRA will focus on strengthening the nation’s competitiveness by expanding the R&D base in IT, especially by leveraging the large IT education sector and IT users such as government, industry and other organizations.

ITRA will help build and link research groups across the country, with the objective that the activities of each group are characterized by the following features:

- State-of-the-art basic IT research,
- Sensitivity to societal problems,
- Research targeted at creative problem solving, leading to new technologies,
- Technology transfer capabilities,
- Self-esteem and teamwork in all activities,
- Effective dissemination of the knowhow of successful features of ITRA for replication by other institutions, and
- As a consequence of the above features, a major increase in the national capacity of producing advanced IT researchers, e.g., Ph.D.s, including those capable and inclined to become faculty in Indian institutions.

The ITRA programme has been approved by the Government with a total budget of ₹148.83 Crore over a period of 5 years in October 2010.

Medical Electronics & Telemedicine

The broad objectives of Electronics in Health and Telemedicine are as follows:

- Initiate technology development activities to promote manufacture of medical electronic equipments and Telemedicine systems in the country.
- Deploy indigenous development to win the confidence of the users.
- Create infrastructure to support production of medical electronic equipment.
- Futuristic research & development covering new concept, technologies, etc.
Achievements during 2010-11

Deployment of 6 MV Integrated Medical LINAC for Cancer Treatment

During the first phase two machines (Siddharth 1 & 2) were developed and commissioned- one at Mahatma Gandhi Institute of Medical Sciences (MGIMS), Wardha and the other at Regional Cancer Centre (RCC) Adyar. These two machines are being used for treatment of cancer patients. During the second phase it is envisaged to deploy four 6 MV medical Linear Accelerator (LINAC) machines for cancer treatment at four hospitals. Three hospitals have been identified at Amaravati, Indore and Madurai. Siddharth 3 Linac, which is earmarked for the first hospital has been developed and is being integrated and tested at SAMEER Mumbai.

Establishment of facility for batch fabrication of Linear Accelerator (LINAC) tube and machines

Establishment of the Infrastructure facility for batch fabrication of LINAC Machines at Kharghar, Navi Mumbai is in the final stage of completion. Radiation shielded rooms and workshops are constructed and test equipments needed for manufacturing and testing the LINAC tubes and machines are procured. Once fully established, the complete medical LINAC machine can be assembled, tested and evaluated using the infrastructure facilities.

Portable Medical Electrical Safety Analyzer

The project envisages indigenous development of electrical safety analyzer, fabrication of three prototype of portable electrical safety analyzer and establishment of technology for commercialization. The portable medical electrical safety analyzer is used for on-site electrical safety testing of electrical equipment in hospitals and other healthcare delivery settings. The product prototypes have been developed and the field trials have been conducted. The knowhow documents have been prepared and the system is ready for technology transfer.

Mobile Tele-Oncology system

ONCONET-Kerala was implemented as a Department sponsored pilot telemedicine project for providing connectivity to the peripheral centres of Regional Cancer Centre, Trivandrum. The project on development and implementation of Mobile Tele-Oncology system was initiated with the objective of extending the coverage of ONCONET-Kerala to the rural masses of Malabar area covering the districts of Kannur, Kasargode, Kozhikode, Wayanad and Malappuram districts. Under this project, a fully equipped mobile Telemedicine van with VSAT link has been developed and handed over for field trials to Malabar Cancer Care Society (MCCS), Kannur. Using the Telemedicine van, MCCS has so far conducted 43 medical camps covering a population of about 87000 over three districts, viz. Wayanad, Kannur and Kasargod in Northern Kerala. Three full blown cancer patients and 106 pre-cancer cases have been identified through these medical camps of which 35 cases were treated in the telemedicine van and the remaining patients were referred to specialty centres for treatment.

Electronics Components and Materials Development Programme

Electronic materials and components are critical backbone of electronic hardware, and the equipments used in Information Technology (IT) and telecommunication sector. Electronic Materials Developments Programme (EMDP) focuses on sponsoring R&D programmes in the emerging field of material science and technology at leading institutions such as C-MET, IITs, IISc, CSIR labs, etc. The scope of the programme is to develop new materials, process methodologies, technologies leading to components or equipments. EMDP also focuses the environmental impact during manufacturing, energy saving aspects of equipment operations and electronic waste management as key areas. Thrust areas include photovoltaic, energy storage, phosphor, information storage materials, chip components (resistors, capacitors, inductors), flexible electronics, sensors materials, electronics device packaging, lead free glass, paste etc.

The following projects were implemented during the year: development of lead free X-ray absorbing materials, evolving cost effective, environmentally-friendly recycling technology of electronic waste, developing metal oxide nanostructures based hybrids as energy conversion devices, development of p-type ZnO thin films for application of electronic device, metal-insulator/polymer nanocomposites for high-permeability GHz-frequency inductors, development of tunelling magneto resistance material for spintronic devices for high density data storage, development of chip in glass with nano NTC material for fast response thermal sensors, carbon aerogel capacitors, development of broadband EMI shielding materials using magneto-dielectric nano-particles, development of hybrid solar cells based on organic polymers and inorganic nano particles, evolve an environmentally sound recovery process of metals from printed circuit boards,
design and development of piezoelectric multilayer actuator for micro valve.

**Achievements during 2010-11**

During the year, following new projects have been evolved for financial support by the Department:

- Development of Liquid Crystalline Polymer based Chemical Sensor at Institute of Advanced Study in Science & Technology, Guwahati
- Flexible Thin Film Transistors (TFTs), at NCL, Pune,
- Novel recovery and conversion of Plastics from WEEE to value added products at CIPET, Bhubaneswar,
- Development of prototype cell for hydrogen production and water purification using perovskite based multiferroic materials, at Jadavpur University, Kolkata
- Development of GHz Frequency Filters and Attenuators Using Nanoscale Magnonic Crystals at S. N. Bose National Centre For Basic Sciences, Kolkata
- Development of CIGS and kesterite thin film solar cells at C-MET, Thrissur
- Development of Nano-PZT Materials and Pilot production of Piezoceramic components for Defence and industrial applications, at C-MET, Thrissur
- Development of Prototypes Aprons, Glass sheets and Curtains from Lead free X-ray absorbing materials, at C-MET, Pune

**Components & Materials**

- Development of Optically Active Polymers for Data Storage Applications, BHU & Moser Baer, UP
- Development of liquid crystalline polymers, IASST, Guwahati,
- Establishment of testing facilities for the hazardous substances as per European Union (EU) Directive of Restricting the use of hazardous substances (RoHS) at C-MET Hyderabad (to be completed).
- Development of Processing Technology for recycle & Reuse of Electronic waste at NML, Jamshedpur (to be completed).

**Photonics**

- Technology for fabrication of Rare Earth doped Fiber laser by Nanoparticle Deposition & Fiber Laser Development at CGCRI, Kolkata.
- Development of Mid Stage Access Optical Amplifier (MSA) at IIT Delhi and Optiwave Photonics Limited, Hyderabad.

**C-MET**

- Polymer/glass nanocomposites for X-Ray absorption.
- NTC chip thermistors with variation of B-values.
- Prepared PZT films for actuator applications.
- Prepared carbon aerogel electrodes for supercapacitors.

**Microelectronics**

Recognising the importance of microelectronics as the leading edge technology-powering nation’s growth, Microelectronics Development Programme was initiated in 1980s. The thrust of Microelectronics Development Programme has been to develop - core R&D capabilities, technologies and trained manpower in the country and use it as a catalyst for development of overall Semiconductor Industry in the country.

India with its growing VLSI market demand is set to redefine the contours of semiconductor industry. A large number of multinational companies have set up VLSI design centres in the country to make use of the available specialised manpower.

In addition to the ongoing R&D projects, two new projects have been initiated during the year.

**Achievements during 2010-11**

**New Projects Initiated**

- “Low Power CODEC for Digitally Programmable Hearing Aids” at IIT Madras: A project has been initiated at IIT Madras to design a low power CODEC (coder decoder) chip that can be used as a front-end for digitally programmable hearing aids for performance and cost advantages. This project would provide further upgradation of Digital Programmable Hearing Aid technology in India.
- The development of Indian Microprocessor has been debated upon at various fora including the case for development of an Indian Microprocessor, its requirement for industry/strategic sector and its applications. The Department has constituted a study team consisting of technical experts in the area to come out with possible development directions.
Design & Development

Developing Analog Mixed Signal Design Domain

Analog Mixed Signal Design is the backbone of the Integrated Circuit Designing. Accordingly four projects in this area have been supported by the Department at IIT Madras, IISc Bangalore, IIT Kharagpur and CEERI Pilani. These projects focus in different aspects / areas of Analog Mixed Signal Design. The focus of IIT Madras project is Ultra-High Speed Data Communication and Data Conversion; IISc Bangalore on Wireless Communication; CEERI Pilani on Instrumentation Applications and IIT Kharagpur on Development of Computer Aided Design Environment for CMOS Analog Circuits. Some of the research results in these projects are as follows:

- 3 Analog Mixed Circuits namely - Very High Speed Delta Sigma Data Converter, 10 GHz Adaptive equalizer Chip and 10 Giga bits per sec Timing Recovery Chip have been designed and fabricated at IIT Madras.
- Power Scalable Digital Base Band Chip (fabricated, Characterized & tested), Low Power RF front end chip, in-situ power monitor chip and Low Power SAR ADC has been designed / fabricated at IISc Bangalore. One patent is likely to be filed on a low power timing recovery scheme.
- 10 Bit SAR based Analog to Digital Converter (ADC) has been designed & fabricated at CEERI Pilani
- An automated module capable of generating Geometric Programming (GP) compatible device model for any new technology of Analog Mixed Circuits has been developed at IIT Kharagpur. Also a GP based circuit sizing algorithm has been developed to make it yield-aware.

Digital Programmable Hearing Aid (DPHA)

Earlier a FPGA based DPHA was developed. However, to take advantage of the low cost & low power consumption of the Application Specific Integrated Circuit Technology (ASIC), an ASIC based DPHA was designed and Fabricated by CDAC Thiruvananthapuram. 40 pieces of fabricated ASIC prototypes using 130 nano-meter technology have been received. These ASICs have been tested to check their functionality. Using these ASIC, the integrated body worn type DPHA (14 numbers) have been designed and tested for mild to profound hearing losses. These will now be sent for the field trials. After the successful trials of body worn DPHA, the ASICs will be productionized.

MEMS Sensors

The Department had supported a project in 2009-10 at CEERI Pilani for development of MEMS based sensors for Volatile Organic Compounds - Benzene, Ethanol, Methane, Methanol and Propanol & Pollutant gases namely - ammonia, carbon dioxide, carbon mono-oxide, hydrogen sulphide, nitrogen compounds and sulphur dioxide. Under this ongoing project micro-heater has been developed and experiments on sacrificial oxides is in progress.

Facility for Low Temperature Co-fired Ceramics (LTCC)

This activity has been supported jointly by NPMASS-DRDO and the Department at CMET Pune in 2009-2010. Under the project a capability will be developed to handle the advanced applications in LTCC such as high density interconnects, microfluidics and micro-sensor packaging by augmenting the existing facilities at CMET as the present facility has limitation of fabrication of large cavities and also of post wire printing & bonding. Specifications of required equipment have been finalized and procurement is in process. Work on dispensing of conductor lines of different patterns on LTCC by direct writing method using dispensing method has shown good progress.

Re-configurable Techniques for Reconfigurable Computing Systems (RCS)

Three projects have been supported by the Department in the area of Reconfigurable techniques for Reconfigurable computing systems at CEERI Pilani, IISc Bangalore and IIT Roorkee. Under the projects system level reconfiguration techniques for RCS has been implemented including generic application algorithm mapping at runtime. Reconfigurable SoC laboratory has been setup at IISc, Bangalore.

Other Technology Development Projects

Smart Camera Algorithms for Object Tracking and Change Detection have been developed and ported on the Field Programmable Gate Arrays (FPGAs) in a project supported at IIT Delhi & CEERI Pilani. Lab demonstration has been completed. Discussions are underway with industry for possible usage of this technology.

Technology for Synthetic Jet based Cooling for High Heat Flux Electronics Components has been
developed at IIT Bombay and available for transfer of technology.

Software implementation of machine translation and text summarization for natural language processor application completed in a project supported at IIT Kanpur. Algorithms for Hardware implementation of machine translation and text summarisation are under progress.

Software has been developed at IIT Kharagpur for low power memory test sequence generation. A scheme has been developed to select proper partitioning of memory modules to ensure low test power without sacrificing memory latency. A web based interface for the software tools has also been developed.

**Patents**

During the year 2010-11 following 5 patents have been filed under the Department supported project-

- Low Noise amplifying Mixer - IISc Bangalore (International Patent)
- Adaptive Digital Base Band Receiver - IISc Bangalore (International Patent)
- Low Distortion active Filter - IIT Madras (provisional)
- Synthetic Jet Actuator and a semiconductor module comprising this actuator - IIT Bombay
- Low Power Continuous Delta Sigma Converters - IIT Madras (International Patent)

**Synthetic Jet Impingement in Duct with a Synthetic Jet Impingement in Duct with and without cross-flow**

**Publications**

22 papers have been published/presented in Journals/National/ International conferences/ workshops/seminars.

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**Nanotechnology**

Under nanotechnology initiative programme of the Department projects are initiated for the development of nano-materials, nano-devices, subsystem, system and human resource development in the area of nanoelectronics.

**Achievements during 2010-11**

**New Projects initiated**

Following major/medium/small projects have been initiated during the year 2010-11

- Nanostructured materials and devices of wide band gap semiconductors at Indian Institute of Science, Bangalore.
- Non-silicon based Technologies for Nanofabrication and Nanoscale Devices at IIT Delhi.
- Growth of Single Wall Carbon Nano Tubes for Semiconducting Applications at Jamia Millia Islamia, New Delhi.
- Development of Carbon Nanotubes based Gas Sensor at Jamia Millia Islamia, New Delhi.
- Development of Multifunctional magnetic nanoparticulates for cancer at IIT Bombay.

**Capacity Building**

The following have been achieved in the Indian Nanoelectronics Users Programme (INUP):

- One workshop was organized at IISc Bangalore. More than 85 participants from all over India attended the workshops. One Day awareness programme was organized at IISc Bangalore and 20 Participants participated in the programme. Three Hands-on-Training were organized, 2 at IISc Bangalore and 1 at IIT Bombay. More than 55 participants attended the Hands-on-Training.
- About 270 researchers have been trained on nanotechnologies at different levels.
- 32 R&D projects from 22 institutions/organisations across India have been identified/undertaken by external researchers at IIT Bombay and IISc Bangalore.

More than 200 researchers have been trained in other projects across the country.

**Nanoelectronics Infrastructure**

- A nanoelectronics centre at IISc Bangalore has been established for nanoelectronics capacity building in the country through technology development and generation of
expertise. This facility is available for use for researchers in the country through INUP Programme and otherwise.

- MBE cluster tool based epitaxial nano semiconductor infrastructure and process integration facility for the development of high performance RF/Microwave compound semiconductor heterostructure nano-devices on silicon is being established at IIT Kharagpur. The facility will be available for the researchers across the country.

- Action has been initiated for the creation of facility for non-silicon based technologies for nanofabrication and Nanoscale devices at IIT Delhi.

- Facility for the synthesis and characterization of nanostructured Shape Memory Alloy (SMA) thin films and heterostructure for MEMS applications has been established at IIT Roorkee.

- Reactors to implant dopants at an ultra-shallow depth using the plasma immersion ion implantation technique have been developed at IIT Bombay.

**Nanoelectronics process/technology development**

- Micro-heaters for gas sensors have been designed, fabricated and tested at IISc, Bangalore.

- Microstereolithography system has been integrated and commissioned. Micro-components fabricated using this system at IISc Bangalore.

- Technology for the development of low cost Atomic Force Microscope (AFM) has been developed at IISc Bangalore.

- The High Performance Cluster Computing facility for nano process/device simulations has been created at VNIT Nagpur.

- A process for the growth of Silicon Quantum Dots has been developed at VNIT Nagpur.

- Shape Memory Alloy thin films has been grown and characterised at IIT Roorkee for their use in MEMS application.

- The following technologies have been developed at IIT Bombay:
  - An ultra-sensitive nano-electromechanical cantilever technology for disposable healthcare applications.
  - A nano-composite polymer cantilever technology for explosive detection.
  - A fluorescence quenching polymer system for explosive detection.
  - A low-cost SPR based sensing platform for detection of antibody-antigen interactions.
  - An organic transistor based sensing system for Radiation Monitoring.
  - Simulation packages for flash memory design.

- Optimized 30 unit processes for the fabrication of sub 100 nm MOSFET at IIT Bombay.

- A cantilever sensor structure with an organic transistor integrated on the same called “CantiFET” has been developed at IIT Bombay.

- An organic transistor based electronic nose for environmental and security application has been developed at IIT Bombay.

- Carbon Nanotubes have been synthesised and characterised for their field emission behaviour at IIT Delhi.

- Quantum Semiconductor glass nanocomposites have been grown and characterised for their optical and energy applications at C-MET, Pune.

- A prototype CO gas sensor using ZnO sensing elements has been developed at IIT Kharagpur.

- Development of prototype of nanocrystalline silicon MEMS pressure sensor is being done by Jadavpur University using the facility of CEERI, Pilani.

- IIT Kharagpur has fabricated and characterized the wide Spacer AlGaAs/GaAs High Electron Mobility Transistor (HEMT) using the facility of SSPL, Delhi.

- A general purpose computer simulation tool for Hot-Wire Chemical Vapour Deposition
(HWCDV) has been developed at VNIT, Nagpur. The tool is useful in simulating the thickness of film.

Technology utilization

- The process developed for the fabrication of GaN High Electron Mobility Transistor (HEMT) at IIT Bombay is being used by SSPL, New Delhi. Scientists from SSPL have been trained at IIT Bombay and have been able to successfully replicate the process at their site.
- The technology developed for the development of ferroelectric materials for microwave devices at IISc, Bangalore is being utilized by Bharat Electronics Limited (BEL) to realize a tunable ring resonator device operating at 16GHz.
- Following Technologies are ready for transfer:
  - An ultra-sensitive nano-electro-mechanical cantilever technology for disposable healthcare applications.
  - A low-cost SPR based sensing platform for detection of antibody-antigen interactions.
  - An organic transistor based sensing system for Radiation Monitoring.
  - Process has been initiated for incubating a start-up for the above technologies at IIT Bombay under the Society for innovation & Entrepreneurship, IIT Bombay.

Patents

The patents filed during this period include the following:

- An interface circuit between a sensor and a signal conditioning circuit - Indian Patent

The following works are ready for patent filing:

- A low Cost Polymer Nanocomposite MEMS Accelerometer with Piezoresistive transduction.
- Photo-patternable multifunctional nanocomposite as piezoelectric layer for MEMS applications.

Photonics Development Programme

 Photonics can be seen as a technology based on the merging of the photon and the electron. The range of Application areas covered by Photonics mainly include Communication, Sensing, Display, Imaging, Bio-Sciences & Medical, Defence, Industrial Applications etc. The new upcoming and latest state-of-the-art technology areas majorly include Biophotonics, Nanophotonics, Polymer for Photonic, Photonic Crystal Fibers, Green Photonics, Solid State Lighting etc.

Biophotonics and Photonics for Health Care:
Under the project Construction & Muti-site Commissioning of Multiple Fluorescence Correlation Spectrometers at TIFR, Mumbai, the second workshop for the project was held at NEHU Shillong in November 2010. The FCS systems have been used for various biomedical analysis and chemical structure studies etc. Based on work done in the project Clinical Evaluation of Polarized Fluorescence Spectroscopy for early diagnosis of cancerous and pre-cancerous lesions, IIT Kanpur, a paper “Polarized Fluorescence study in human cervical tissue: Change in auto-fluorescence through different excitation wavelengths”, selected for oral presentation in SPIE January 2010, San Francisco, USA.

Optical Fibre and Fibre Lasers:
Under the project Fabrication of Rare Earth Doped Fibers for High power Fiber lasers through Nanoparticle Deposition, Experiments carried out to investigate mechanism of formation of oxide particles. The MCVD system (with high temperature Rare Earth vapour delivery system) specially designed by M/s Nextrom, Finland has been received. An experimental laser set-up has also been made ready to demonstrate lasing with the CGCRI fibers. A laser output up to 5W was achieved during initial experimentation. The experimental set-up for photodarkening measurement standardised and fibers characterized. The measurement of photodarkening effect with change in rare earth concentration and host glass composition completed. In the project “Tunable and Multi Wavelength Fibre Laser for Fibre Optic Applications” by IIT Bombay, ring cavity for fiber laser implemented. Modelling of fiber laser based on existing analytical approach done. Broadband generation in C- and L bands has been optimized with Dispersion Shifted Fiber (DSF) and Highly Non Linear Fiber (HNLF) as well as their combination.

Material Growth and Component Development Technology:
Under the project Growth of dilute III-V-nitride materials for mid-infrared Optoelectronic devices, InAsN GaSbBi and InSbBi grown by LPE using InN Material and characterized by EDX & HRXRD. Variation in growth parameter for obtaining specific functionality done. Under the project Ultra
Under the project, Green Photonics: (also presented at Photonics 2010) shown. Reduction in temperature measurement error (paper Raman OTDR has been demonstrated. A 2.5 times SNR improvement of 10 dB using Golay codes for these sensors to ERDA for installation in a live transformer. ERDA has calibrated FBG at different temperatures and experimented on testing acrylate and polyimide coated fibers. Under the project “Distributed Strain & Temperature Sensing Using Inelastic Processes in Optical Fibres”, IIT, Madras, SNR improvement of 10 dB using Golay codes for Raman OTDR has been demonstrated. A 2.5 times reduction in temperature measurement error (paper also presented at Photonics 2010) shown.

**Optical Amplifier:** The project Design and Development of Mid-stage Access EDFA at IIT (D) and Optiwave Photonics, Hyderabad aims to realize two units of MSA EDFA modules with desired specifications. At IIT (Delhi), simulation studies completed to work out the pump power, signal power and ASE power variation along the length of the fiber and optimum length of 9-11 meters fixed for the fiber amplifier. At Optiwave, work towards improving the control circuit by modifying the values of the components completed. Characterisation of the transit response done.

**LPWG (Long Period Waveguide Grating) and FBG (Fiber Bragg Grating):** Under the project “Long Period Waveguide Grating based Integrated Optic Wideband Tunable Notch Filter using silica-on-silicon”, the LPWGs in silica-on-silicon have been realized and reported for the first time internationally. Some of the devices fabricated have been packaged at SAMEER. Nine publications and conference papers have resulted from this work. Under the project Development of a unified approach for realizing Fiber Bragg Grating with long term stability the Algorithm for Decay prediction from Growth Data which enables prediction of the lifetime and decay parameters formulated. Besides the Indian patent filed earlier, an International PCT patent is also being filed.

**Optical Sensors for electrical equipment:** Under the project “Development of FBG Sensor system for detection and location of hot spots in electrical equipment” CSIO has carried out fabrication and characterization of FBG sensors and handed over these sensors to ERDA for installation in a live transformer. ERDA has calibrated FBG at different temperatures and experimented on testing acrylate and polyimide coated fibers. Under the project “Distributed Strain & Temperature Sensing Using Inelastic Processes in Optical Fibres”, IIT, Madras, SNR improvement of 10 dB using Golay codes for Raman OTDR has been demonstrated. A 2.5 times reduction in temperature measurement error (paper also presented at Photonics 2010) shown.

**Green Photonics:** Under the project, “Fabrication and Characterization of blue Organic Light Emitting Diodes (OLED)” work in collaboration with IICT, Hyderabad for development of blue OLEDs on Anthracene based derivatives ongoing.

### Building up of Manpower Base for Photonics in India:

The goal of the project “Photonic Research Fellowship” being implemented at TIFR, Mumbai is to help research programs in photonics to attract the best students. The short-listing of the Fellowship applicants carried out. At present there are 13 mentors from six institutions.

### Digital Library

Libraries are the storehouse of knowledge as they maintain the book and other knowledge resource available - mostly in printed form. However, with the advent of digital technology and Internet connectivity, the library scenario is changing fast. Data available in physical form is being preserved digitally in Digital Library. Digital Libraries have the ability to enhance access to information and knowledge through Internet connectivity. They also Bridge barriers of time and space.

The Department has undertaken the Digital Library Initiative and as part of this, copyright free books, manuscripts and thesis etc., have been digitized. Four mega centres at IIT-Hyderabad, IIT-Alahabad, C-DAC-Noida and C-DAC-Kolkata have been set up for technology development and digitization. In addition, scanning centres at Goa University, Pune University, Hyderabad Central University, Namgyal Institute of Tibetology, Sikkim, Delhi University, Banasthali Vidyapith, President House Library, Sharda Pitham-Sringeri and State Central Library, Hyderabad were also set up for digitizing copyright free books, manuscripts etc. Indian Institute of Sciences (IISc), Bangalore is coordinating with these mega/scanning centres for uploading and hosting the digitized data. More than 110 Million pages of data in 22 Indian and 17 foreign languages has been digitized and uploaded on Digital Library of India web site www.new.dli.ernet.in and www.dli.iit.ac.in. The data has been accessed by the masses.

### Achievements during 2010-11

- 18 Million Textual pages have been digitized.
- 50 hours of audio/video on Hyman Recitations have been recorded.
- A repository for the digitized data has been set up at ERNET PoP, Pune by ERNET India. The data from the IISc, Bangalore’s server has been transferred on this repository.
- Bandwidth connectivity to Indian Institute of Sciences-Bangalore, IIT-Hyderabad, has been provided. The digitized data has been hosted on Digital Library of India web for accessing.
Human Resource Development

HRD activities are targeted to ensure availability of trained human resources for the manufacturing & service sectors of electronics and IT industry. Initiatives include identifying gaps emerging from the formal sector, planning programmes in non-formal and formal sectors for meeting these gaps. In pursuance, projects have been initiated for generation of quality manpower in the areas of Information Security and VLSI Design; and setting up of Regional Institutes of e-Learning and Information Technology (RIELIT) at Kohima (Nagaland), Agartala (Tripura) and Ajmer (Rajasthan) for creating skilled manpower in the area of Computer Science/IT. A Scheme for Manpower Development for the Software Export Industry had been initiated under which various projects are being implemented. The Department had also set up a Working Group on Human Resource Development in Information Technology with the main objective to evolve long-term HR strategies and suitable approach for the implementation of these strategies.

The National Skill Development Policy has set a target of skilling 500 million persons by 2022. The Department has been given a target of skilling 10 million persons by 2022 in the domain of Electronics, Information and Communications Technology. The Planning Commission had accorded ‘in-principle’ approval to the road map prepared by the Department for expansion of capacities of DOEACC and CDAC for achieving the set target. The Department is in the process of getting the Detailed Project Reports examined by EFC.

E-Learning

E-Learning is one of the thrust area identified by the Department for imparting education using educational tools and communication media. The Department has been financially supporting R&D projects in following thrust areas under E-Learning at various academic educational institutes, R&D Labs etc.: -

- Real Time Video Compression and decompression techniques
- Developing authoring tools in Indian languages
- Developing content independent of platform & environment
- Quality assurance in e-learning

Achievements during 2010-11

Design and Development of Service Oriented Architecture based Standards Compliant e-Learning Framework with Personalized Learning Features - C-DAC, Hyderabad :- The objectives of the project are (i) To conceive a service-oriented architecture for standard compliant e-learning framework complemented with web mining and Rich Internet Application technologies (ii) To develop web 3.0 (semantic web) based Personalized learning environment and (iii) To study the interoperable e-learning standard and arrive at possible solution for developing a conversion tool for creating SCORM compliant content.

The activity related to Literature survey has been done on the available technologies and their implementation for Personalization. Also the activity related to Exploration of Rich Internet Application (RIA) framework has been completed.

Design and Development of a Framework for Adaptive Instruction - C-DAC Mumbai :- The objectives of the project include (i) To develop an
open source Framework for Adaptive Instruction (FAI) to deliver instructions in personalized manner (ii) To develop Adaptive Instruction for two sixth standard subjects and two IT courses using the framework and (iii) To set up an adaptive instruction framework server etc. Work is progressing on Design & Prototype implementation of FAI, design of Adaptive Instruction Markup language and development of Adaptive Content for one subject of sixth standard.

**Video Compression and Decompression for e-Learning - C-DAC, Mumbai:** The objective of the project is to improve the performance of video compression and decompression techniques based on H.264 for lower bandwidths (below 128 kbps) and to provide better quality of video and audio at lower bandwidths and lesser latency for E-Learning. Literature Survey has been completed. Work is going on in respect of Experimental set up and exploration of existing H.264 frameworks.

**National Competitiveness in Knowledge Economy, IIT, Roorkee:** This is a multi-institutional project being implemented through IIT, Roorkee. The participating organizations in the project are (i) IIT, Roorkee (ii) IIT Madras, Chennai (iii) National Productivity Council (NPC), New Delhi and (iv) International Management Institute (IMI), New Delhi. The project was initiated with the following broad objectives:

- Mapping the directions of transition from industrial economy to knowledge economy
- Developing strategies of change management for transformation from industrial age to information age
- Identifying new knowledge streams/disciplines likely to emerge in the evolving knowledge economy and suggesting specialized courses to help meet manpower requirements of the knowledge economy etc.

All project components like conducting of Symposium, International Conferences, Seminars, Workshops, Brainstorming Sessions, Competitions, Commissioned Research and Consultancies etc., are progressing.

**Information Security Education and Awareness Project**

The Information Security Education and Awareness Project is aimed towards development of human resource in the area of Information Security at various levels (Certificate Level to B.Tech, M.Tech & Ph.D. Level). This activity is presently being implemented through 6 Resource Centres (RCs) as mentoring institutions and 33 Participating Institutes (PIs). The project also has a component on awareness which is being implemented through CDAC Hyderabad. The project also aims at imparting training to the Central and State Government Officers on issues related to Cyber/Information Security which is being implemented through six implementing agencies (CDAC, ERNET India, DOEACC Society, ICERT, STQC Dte., & NIC).

Various courses in the area of Information Security have been continued at all the RCs/PIs. So far, around 32,000 students have been trained/undergoing training in various long-term/short-term courses at RCs/PIs.

The training programmes for Government Officers were continued through the six implementing agencies. A modular courseware on Information Security (10 Modules) for short duration training programmes has been designed/developed and integrated with e-learning (e-Sikshak) tool with complete audio integration, and hosted through website by CDAC Hyderabad.

Two batches of Government Officers have undergone training at Cylab, Carnegie Mellon University, USA. One batch of 20 officers underwent Advance Training in Information Security & Cyber Forensics and a second batch of 18 officers had Basic Training in Information Security, Incident Handling & Cyber Forensics.

Information Security awareness workshops were conducted through the participating institutes. So far more than 205 workshops have been organized by various PIs/Implementing Agencies across the country covering more than 7000 Teachers/Parents/NGOs and around 25,500 school children/college students. 25 posters on various topics of Information Security Awareness were designed and around 62,000 posters were distributed to target users. Further, around 30,000 stickers were distributed in Mumbai Internet Safety Week 2010 in association with Mumbai Cyber Police, NASSCOM, and DSCI. A dedicated website for information security awareness (http://www.infosecawareness.in) has been designed, developed and made operational. In addition, four cartoon videos for children and eBooks/awareness course materials were made available on the website.

A three level Certification Scheme for Information Systems Security Professionals has
been designed for implementation through DOEACC Society. Level-1 of the Scheme viz. Certified System Security Analyst (CSSA) has been launched by DOEACC Society from July 2010 at Gorakhpur and Kolkata Centres.

**Scheme for Manpower Development for the Software Export Industry**

The projects being implemented under the scheme are aimed to create course contents, generate mentors & quality faculties and skilled graduates in the Information Technology sector at various locations across India with a view to increasing the employability of the students. The Scheme covers Training of the Trainer’s Program, Enhancement of quality of IT education in colleges, Virtualization of Technical Education, conducting specialized short term courses in IT/ITES sector, setting up of National On-line Test System for Graduate Engineers in Information Technology, etc.

Achievements under the Scheme are given below:

- Various projects under the scheme are being implemented at C-DAC-Noida, IIIT-Allahabad, IIITM-Gwalior, IIIT-Bangalore, IIIT-Hyderabad, State Government of Tamil Nadu and UP Technical University. The projects at C-DAC-Pune, C-DAC-Hyderabad under this scheme have been completed.

- Necessary training infrastructure like setting up of lab etc., has been created at IIIT-Allahabad, IIITM-Gwalior, CDAC-Pune, IIIT-Bangalore and CDAC-Hyderabad. 4122 faculties and 5276 students have been trained/undergoing training under these projects.

- Online Examination Software’ developed by CDAC, Noida is under final stages of development. Using this software, online examinations for admission to the courses being run at CDAC-Noida and ERNET India’s Recruitment Exams were conducted during 2010 covering over 7000 candidates. DOEACC Society is also using this software for conducting examination of their Course on Computer Concepts (CCC). The software was also tested with 5000 concurrent users. A question pool characterization module having more than 1,00,000 objective type questions on 400 topics has been prepared for the Online Examination Software. The Software is being audited by STQC for product certification.

- To achieve grid based virtualization of technical education in engineering colleges of Uttar Pradesh and Uttarakhand, UP Technical University, Lucknow has identified 14 nodal centres (Institutions) and necessary infrastructure has been set up at these institutions. The testing for delivery of video/audio lectures has been carried out among the nodal centres. Presently NPTEL course contents are being delivered in virtual mode.

- Under the above mentioned projects various workshops/seminars in IECT areas such as GIS, Rural Services Delivery and Contents, Expert System and their Application, E-Healthcare, Data Digitalization, Data Warehousing and Data Mining, Enhancing Creativity & Soft Skills for better Communication, Information Security & its Application, Open Source Technology for enhancement, productivity tools like Moodle, Mediawiki, Redmine and version control tools etc., were conducted.

In addition the following projects are also being implemented:

- The Department is supporting the Government of Kerala in ‘Setting up of ICT Academy Kerala (ICTACK)’ with the primary objective to train faculties in Engineering, Arts, Science, Polytechnic and ITIs and support roll out of mass based HR programme for graduates.

- Training Programmes on ‘IT Enabled Soft Skill Enhancement to Improve Employability of Engineering and Management Students’ by Anna Universities of Coimbatore and Chennai have been started. Syllabus was defined and course contents were developed. Currently Training programme is conducted covering aptitude, communication skills, time management and behavioral skills for the students from Engineering and MBA stream. So far, 5165 & 5180 students have been trained by Anna University Coimbatore & Anna University Chennai respectively.

- DOEACC Centre in Chennai has been established and currently operating from a 5500 sq. ft. rented premises at ISTE Professional centre at Anna University Campus. The academic activities of the centre were launched from July 2010. DOEACC ‘O’ level course is currently being offered at the Centre.
Development of North-Eastern Region

The Department through DOEACC Society has initiated projects for setting up Regional Institutes for e-Learning and Information Technology (RIELIT) at Kohima (Nagaland), Agartala (Tripura); and DOEACC Centres at Shillong (Meghalaya), Gangtok (Sikkim) and Itanagar (Arunachal Pradesh). These institutes/centres are aimed to create skilled manpower in the area of Computer Science and Information Technology and related disciplines for making available industry ready professionals and also cater to the needs of the respective States in the North-Eastern region. The achievements made in the projects are as under:

- RIELIT, Kohima, Nagaland is conducting DOEACC ‘O’ & ‘A’ level (IT) and Hardware, CCC, BCA and other short-term courses. So far, 2297 students have been trained at the RIELIT centre at Kohima and at extension centre of RIELIT at Chuchulimlang, Nagaland. The training activities have been shifted to the permanent campus at Mereima. The remaining finishing works at Academic Building, Girls Hostel, Staff Quarters, etc., are in progress.

- RIELIT, Agartala is offering training courses of DOEACC (IT) ‘O’ & ‘A’ level, DOEACC CHM ‘O’ & ‘A’ level, ITES & other short-term training courses from a 7000 sq. ft. temporary accommodation, provided free of cost by the State Government of Tripura since December 2008. So far 694 candidates have been enrolled/trained in various courses. Possession of 15 acres of land at Radha Kishore Nagar near Agartala from the State Government of Tripura has been taken for construction of permanent RIELIT campus. The process of finalizing the Project Management Consultant is in progress.

- DOEACC Centre, Shillong has started short-term training courses from rented premises of 6000 sq. ft. since December 2009. Training courses of DOEACC “A” & “O” Level (Hardware) and “A” & “O” Level (Software), ITeS-BPO and CCC have been started. So far 187 students have been enrolled/trained for various courses.

- Setting up of a DOEACC Centre at Gangtok (Sikkim) and Itanagar (Arunachal Pradesh) has been initiated. The renovation activities for setting up of classrooms, labs office etc., at Gangtok (Sichy) has been completed.

Special Manpower Development in VLSI Design and Related Software

The Department in 2005 has initiated a Special Manpower Development Program in the area of VLSI Design and related software to generate the key catalyst ingredient for the VLSI design sector. The duration of the programme is for a period of seven years. This programme is currently being executed at 7 Resource Centres (RCs) and 25 Participating Institutions (PIs) with a total outlay of ₹49.98 crore for a period of seven years.

Major elements of the program are:-

- Establishing State-of-the-art VLSI Design Laboratory.
- Generation of manpower in VLSI Design area at various levels.
- Instruction Enhancement Program (IEP) for faculties of PIs.
- Workshop involving International Guest Faculty & ZoPP Workshop.
- India Chip Program.
- VLSI Design Resource website and 7 sub-sites at RCs

Major achievements during April to December 2010 are as follows:

- Establishment of the VLSI Design Laboratories with State-of-the-art Hardware platform and Electronics Design Automation (EDA) software environment in all PIs and RCs has been specialized.
- During the academic year 2009-10 (i.e. ending on August 2010), about 5365 students at various levels (i.e.) B.Tech (3889), M.Tech (1422) & Ph.D. (54) in the domain of VLSI Design and Microelectronics were trained under this program.
- Two Instruction Enhancement Programmes (IEP), for the training faculty of PIs were conducted in area of “Chip Integration and Tapeout Issues” and “Semiconductor Memory Design and Test”. About 58 faculties of PIs were trained. An IEP on “VLSI Application in Biomedical Engineering” would be conducted by IIT Kharagpur during 7-12th March 2011. One more IEP on “Low Noise Low Power Opamp Design and Testing” is scheduled during March 2011.
• VLSI Design Resource website of 7 RCs have been created.

• Support has been provided for fabrication of seven chips under India chip project for siliconization of analog and digital design done by students of RCs and PI's. Nineteen designs from 15 organizations namely: SVNIT Surat, DIT Delhi, NIT Srinagar, SGSITS Indore, BESU Kolkata, IT BHU, TU Patiala, Jadavpur University, NIT Warangal, NIT Calicut, IIT Kanpur, IIT Guwahati, NIT Trichy, NIT Surathkal and VNIT Nagpur were integrated at five institutions (IIT Kanpur, IIT Guwahati, NIT Trichy, NIT Surathkal and VNIT Nagpur) and sent for fabrication. Two additional designs undertaken at IIT Delhi were also sent for fabrication. These chips have been fabricated at Europractise and are currently undergoing testing. The Chip Layout views of designs from IIT Delhi and those integrated designs merged are given below:

Digital Design: Integrating designs from 5 institutions

Analog Design from IIT- Delhi.

Analog Design: Integrating designs from 2 Institutions.

Analog Design: Integrating designs from 3 institutions.

Digital Design: Integrating designs from 2 institutions.

Digital Design: Integrating designs from 6 institutions

Analog Design: Integrating designs from 6 Institutions

Development of Weaker Sections

The Government is committed to the development of weaker section for their growth. The Department accordingly has supported ICT projects for development of SC/ST.

The list of such Projects (on-going) is as under:

• Training in IT for M.Ed & B.Ed degree holders among SC/STs - Kerala.

• Capacity building for training of women and ST youth in IECT in North East region - Mizoram.

• Bachelors & Masters courses in computer applications - Manipur.

• Training of 3491 qualified Women and SC/ST candidates in Tripura for preparing for NASSCOM Assessment of Competence (NAC) Test - Tripura.

• Capacity Development of Tripura Youth in IT Entrepreneurships - Tripura.

• Capacity Building for IT skill based Self Help Groups (SHG) of North East (NE) region (Tripura, Mizoram, Manipur and Sikkim).

• Capacity Building, Education and Skills Development for 1680 Women and SC/ST in IT using Language Technology as medium.

Gender Empowerment

Gender Empowerment through ICT has been one of the major initiatives of the Government. The objective of the initiatives is to empower women
through capacity building in ICT, entrepreneurship
development and IT training so as to enhance their
employability in IT-ITeS sector where the employment
opportunities are growing. Department has
supported ICT projects relating to empowerment of
women. The list of 18 such projects (on-going) is as
under:

- Advance level course in the area of ICT for
  improving the employability of Women
  Candidates, Gorakhpur - Uttar Pradesh.
- Women Empowerment through ICT - Kerala.
- Training of Graduate / Undergraduate
  Women Candidate for ‘O’ and ‘A’ level of
  DOEACC Course - Kolkata, Gorakhpur,
  Srinagar and Jammu.
- Establishment of ‘Chanderi Weaver ICT
  Resource Centre’ (CWICTRC) - Madhya
  Pradesh
- Skill enhancement computer training and
  resource Centre in Women Colleges - Kerala.
- ICT enabled Anti-Poverty programme to
  create Women entrepreneurs in BPL families
  - Orissa
- Training of Graduate / Undergraduate
  Women for ‘O’ & ‘A’ level of DOEACC
  course - Chandigarh, Shimla, New Delhi,
  Lucknow
- Capacity Building for IT skill based Self Help
  Groups (SHG) of North East (NE) region
  (Tripura, Mizoram, Manipur and Sikkim)
- Capacity building for training of Women and
  ST youth in IECT in North East region -
  Mizoram
- Training of 3491 qualified Women and SC/
  ST candidates in Tripura for preparing for
  NASSCOM Assessment of Competence
  (NAC) Test - Tripura
- Chanderi Integrated ICT for Development
  Programme (CIIDP) - Madhya Pradesh.
- Computer Learning Centres in Government
  First Grade Women Colleges - Karnataka.
- Capacity Building, Education and Skills
  Development for 1680 Women and SC/ST in
  IT using Language Technology as
  medium.
- Women Empowerment through value added
  skill development program in IECT -
  Aurangabad.
- Training of Graduate/Under Graduate women
  of NER in ITeS-BPO - NE Region
- Capacity building for improving the
  employability of women in ICT area - Orissa
- IT Infrastructure creation in hostels for
  “Kasturba Gandhi Balika Vidyalaya”
- Capacity building for IT skill based
  economically weaker Women/SHG/Local
  Youth for Purba Medinipur district of West
  Bengal.

**ICT for Empowerment of Differently
abled**

**A Comprehensive Satellite/Internet based National
Network for Education, Training and
Empowerment of the Disabled:** The project taken
up jointly with Rehabilitation Council of India (RCI) -
(a statutory body under the Ministry of Social Justice
and Empowerment) includes development &
broadcasting of interactive programs through Edusat
for students, parents, trainee teachers &
professionals associated with and engaged in
different areas of disabilities. An interactive Internet
portal providing all the relevant information in different
disability issues is available on http://
www.punarbhava.in. 470+ RCI/MSJE recognized
Institutions have been connected to ‘Navshikhar’
channel. Regular transmission of programs is being
conducted from Monday to Friday from 10:00 Hrs.
to 17:00 Hrs. Portal “Punarbhava” is regularly
updated and is being made accessible as per W3C
guidelines.

**Supply, installation and commissioning of
computerized Braille transcription system at the
blind schools throughout the country:** In order
to address the lack of accessible content and
reading, writing, printing & learning Braille needs
of visually impaired persons in schools, CBTS
(Computerized Braille Transcription System) has
been installed in 40 schools where 80 teachers have
been trained and around 3000 students have been
benefited.

**ABCD (Audio Books Content Delivery) for visually
impaired:** Indigenously developed Daisy audio
books players "Buddy" along with complete
curriculum of secondary and senior secondary level
have been test deployed at NAB (National
Association of Blind) New Delhi and Gangtok branch.

**Content Generation for Capacity Building of
Persons with Blindness or Low Vision:** The project
aims supporting graduate/post graduate level visually impaired students by facilitating content in accessible formats like e-text, Braille, Daisy, large print and audio books as per requirement. For Inclusive Education, 4473 hours (515 Nos.) of Audio Daisy Books have been generated. 454 books have been converted into e-Text. 69 books (900 Hours) have been generated in synthesized voice. Benefiting a large cross section of Visually Impaired students, more than 20,000 copies of CDs of these books have been distributed. Media Lab Asia is a member of DAISY Forum of India, which is a network of more than 80+ organizations working for digital books.

Sanyog: Under this project object based iconic communication interface has been enhanced for Bengali, Hindi and English. By object driven icon selection, the system can generate simple sentences in all the three languages. A new interface has been designed for connecting the special access switches with the system. An initial testing of Embedded Sanyog has been done.

Development of MIS & Interactive Portal for National Trust: Media Lab Asia has developed the official website & MIS for National Trust which is an autonomous organization of the Ministry of Social Justice & Empowerment, Government of India set up under the “National Trust for the Welfare of Persons with Autism, Cerebral Palsy, Mental Retardation and Multiple Disabilities Act (Act 44 of 1999)”. The website gives information about the various types of disabilities, schemes of the National Trust, past and upcoming events and the various happenings in National Trust. Through MIS, National trust ensures further transparency in its working with more information and online access to facilities like submission of application for various schemes, reviewing the status of applications etc. The website can be accessed at www.thenationaltrust.co.in and www.thenationaltrust.in

SAMBHAV- National Resource Centre on Disability: ‘Sambhav’ provides the facilities for demonstration and practical use of the displayed items by persons with disabilities. It helps them in getting acquainted with the devices and taking decisions for buying a particular device. The centre will have information about the price, availability and usage of devices.

ICT Vocational Centres for Children with Disabilities-Phase II: 50 ICT Vocational centres have been setup across the country for the disabled students with special IT assistive tools and technologies. Further 50 more schools are identified and setting up of ICT infrastructure is in progress. Each Centre is being equipped with computer furniture, uninterruptible power supply, LAN environment, desktop computers, servers and assistive tools for the disabled children. The schools are also being provided with internet and intranet access, applications, contents and instructors for imparting training to the disabled children. Special courses including models on computers, usage of assistive devices, English language, personality development and skill development on job oriented applications are being designed.

Setting up of ICT and Satellite based distant training facility for Mentally Retarded Children: For providing distance training to the special educators, parents and teachers of children affected with mental retardation, a project has been initiated. The main objective is for creating infrastructural facilities for imparting distance training to the Teachers and other rehabilitation professionals in the field of special education using the EDUSAT. 8 Satellite Interactive Terminals (SITs) have already been set up.
Standardization, Testing and Quality Certification (STQC) Directorate

STQC Directorate has established a well-developed network of test laboratories spread across the country including North East region. The laboratories are equipped with state of the art standards and equipment. It provides Test & Calibration, Training and Certification services. Many national and international accreditations/recognitions have made STQC services widely acceptable at international level also. With this STQC has established itself as a premier organization for Quality Assurance in the field of Electronics and Information Technology (IT) in the country.

Electronic Regional Test Labs (ERTL) at Delhi, Kolkata, Mumbai & Thiruvananthapuram and Electronic Test & Development Centres (ETDC) at Bengaluru, Chennai, Hyderabad, Pune, Goa, Mohali, Solan, Guwahati, Agartala & Jaipur are providing test and calibration services. In order to provide software evaluation services, IT Centres have been established at Delhi, Kolkata, Bengaluru, Chennai, Hyderabad, Pune, Guwahati, Mohali & Thiruvananthapuram. Additionally, Indian Institute of Quality Management (IIQM) at Jaipur, Centre for Electronic Test Engineers (CETE) at Bengaluru, Hyderabad, Pune, Noida & Kolkata, Center for Reliability at Chennai and Regional Certification Centres at Delhi, Mumbai, Kolkata and Bengaluru have been rendering specialized services in the respective areas. Currently, STQC services are being utilized by more than 10,000 organizations representing the entire segment of industry, Government Departments, R&D organizations, etc.

### Infrastructure

#### Test & Calibration Services offered

<table>
<thead>
<tr>
<th>Service</th>
<th>Details of Services</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Calibration</strong></td>
<td>(DC, LF, HF &amp; RF) Voltage, Current, Power, Frequency, L, C, R, Modulation, Attenuation, and Impedance etc.</td>
</tr>
<tr>
<td><strong>Non-technical</strong></td>
<td>Temperature, Pressure, Length, Mass, Force, Humidity, Viscosity, Volume &amp; Density etc.</td>
</tr>
<tr>
<td><strong>Testing</strong> (as per national/international standards)</td>
<td>Equipment &amp; Systems testing, Safety testing, EMI/EMC testing (Emission &amp; Immunity), Bio medical equipment testing</td>
</tr>
<tr>
<td><strong>Component testing</strong></td>
<td>Type testing, Burn In, Screening of Active / Passive components, ICs, hybrid devices, PCBs etc</td>
</tr>
<tr>
<td><strong>Environmental testing</strong></td>
<td>Climatic &amp; Durability testing namely Dry heat, Damp heat, Cold, Dust, IP, Salt spray, Vibration, Bump, Shock, Drop, Topple etc</td>
</tr>
<tr>
<td><strong>Explosive atmosphere</strong></td>
<td>Electronic / Electrical products for use in hazardous atmosphere</td>
</tr>
<tr>
<td><strong>Reliability &amp; Failure analysis</strong></td>
<td>Electronic &amp; IT products</td>
</tr>
<tr>
<td><strong>PV modules testing</strong></td>
<td>Solar panels and other devices etc.</td>
</tr>
</tbody>
</table>
Achievements during 2010-11

STQC Information Technology (IT) Services

STQC IT Centres are fully equipped with software tools for test automation. IT Centres at Kolkata and Bengaluru have obtained international accreditation from American Association of Laboratory Accreditations (A2LA), USA for system conformance testing and software conformance testing in the area of Information Technology. STQC Directorate has also introduced a range of IT related services in alignment with Department’s Policies and Programmes. Details of IT services offered through these Centres are indicated below:

<table>
<thead>
<tr>
<th>IT Services offered</th>
<th>Details of Services</th>
</tr>
</thead>
<tbody>
<tr>
<td>Software Application Testing</td>
<td>• Functional</td>
</tr>
<tr>
<td></td>
<td>• Non-functional (Performance, Usability, Security, etc.)</td>
</tr>
<tr>
<td>Documentation Review SW</td>
<td>• Software Documents (SRS, SDD, User Manual, Plans, etc.)</td>
</tr>
<tr>
<td></td>
<td>• Technical architecture</td>
</tr>
<tr>
<td>Process Audit</td>
<td>• SW Development, Operation &amp; Maintenance Processes;</td>
</tr>
<tr>
<td></td>
<td>• Service Delivery &amp; Support Processes</td>
</tr>
<tr>
<td>IT Infrastructure Audit (BoM &amp; Architecture)</td>
<td>• Data Centre (DC), Disaster Recovery Centre (DRC), Network, Gateway and Hardware</td>
</tr>
</tbody>
</table>

Some of the IT centre wise major achievements are as follows:

**IT Centre, Delhi:** Large number of e-Governance Projects of Central and State Governments have either been handled or executed by the Centre namely E-Biz (DIPP, Ministry of Commerce), Biometric device testing (UIDAI), COMPACT and e-LEKHA (Ministry of Finance), Income Tax, Himachal State Electricity Board, Employee Provident Fund (Ministry of Labour), Rashtriya Swasthya Bima Yojana (Ministry of Labour), E- Procurement System (CRIS, Indian Railways), Commercial Tax (MPVATIS, MP), MP Excise (Madhya Pradesh), Central Data Vault (ITDA, Uttaranchal), and Smart Card Testing covering Card Layout, Card OS & Software application.

**IT Centre, Kolkata:** The test facility has been accredited by A2LA, USA. The Centre has undertaken third party audit for Quality and Security assurance for important e-Governance projects like, eDistrict West Bengal, Assam, Mizoram, Orissa and Passport Seva Project. It has also carried out Application Security Audit for North-Eastern States namely Election Department, Government of Manipur and Commissioner of Taxes, Guwahati, Government of Assam. Common Criteria (CC) test laboratory established at Kolkata has completed Evaluation of first CC Compliant product (Router OS) at EAL 2.

**IT Centre, Bengaluru:** This is the first Laboratory accredited by A2LA outside USA for system conformance testing and software conformance testing. This became an important milestone as very few IT Testing laboratories are accredited all over the world. The centre has been re-assessed in July 2010. The Centre has handled Critical Defense Projects namely Akash (Weapon control system for Indian Air force developed by BEL, Bengaluru), Bharani Radar testing (LRDE, Bengaluru), technical review of artifacts for Unmanned Air Vehicle Rustom 1 (developed by ADE), IV&V of Maritime Operational Knowledge System (MOKS) and Maritime Development Awareness (MDA) for the Indian Navy developed by Centre for AI and Robotics, Bengaluru, and Project Sharang for DRDO, Hyderabad. Evaluation of number of e-Governance projects are in progress namely ITD-CPC solution for Income Tax Department, Load testing of Public Grievance System for Municipal Reforms Cell, Security testing of TDIL portal, Kerala University computer centre, Motor Vehicles Department, e-procurement etc. The Centre has also helped in establishing a Centre for software testing of e-Governance products at CDIT, Thiruvananthapuram.

**IT Centre, Chennai:** The Centre has evaluated number of software applications such as Passport Seva (Ministry of External Affairs), ADCRS-GIS Software (CAIR, Bengaluru), Web Application Software (Board of Apprenticeship Training (SR)), and Banking Application Software (Registrar of Cooperative Societies (RoCS)), Chennai. It has also conducted Application Security Testing, security audit, vulnerability assessment and performance testing for number of software application solutions. ISMS audit of nine organisations has also been completed. The Centre has conducted training programs on various IT related topics i.e. ISMS-LA, CSTM, SSDP, CNSM and Web-QA.

**IT Centre, Hyderabad:** Number of e-Governance Software of Andhra Pradesh Government namely CETS Web Counseling software used for allotment
of Higher education colleges, e-Procurement software, Greater Hyderabad Municipal Corporation software used for payment of taxes etc., AP Commercial taxes software have been tested.

**IT Centre, Pune:** Testing and evaluation of e-Governance Projects from State and Central Ministries have been undertaken. This includes e-District Maharashtra, Budget Estimation and Monitoring System (BEAMS) for Government of Maharashtra, TRAFFICOPP for Pune Police, Flat Allotment system for CIDCO, Mumbai, e-Tendering for Pune Municipal Corporation (PMC) & Pimpri-Chinchwad Municipal Corporation (PCMC).

**Empanelment of External Training Organizations**

STQC has launched an Intermediary Scheme for Empanelment of External Training Organisations to conduct STQC Training Programs. The programs will be conducted by Intermediaries either with STQC faculty or by their own approved faculties. Nine organizations have been empanelled so far.

**Capability Approval under Website Quality Certification Scheme**

In order to facilitate smooth compliance of eGov State Portal Project, activity of Capability Approval was initiated to recognize capable solution providers. Major IT players namely M/s. Accenture, Infosys, HP, 3i and Wipro have been assessed and granted Capability Approval certificates. These organisations have developed and demonstrated to the assessment team a Proof of Concept and Capability Manual indicating availability of necessary corporate processes and quality control mechanisms to develop websites conforming to Guidelines for Indian Government Websites.

**Information Security**

STQC has certified many organizations as per ISO 27001 (Information Security Management System) in India and abroad. Number of training programmes on information security have been designed and delivered. These courses are also accredited by international agencies. STQC is one of the empanelled organisations for Information Technology security audit with Indian Computer Emergency Response Team (ICERT) and Public Key Infrastructure (PKI) audit with Controller of Certifying Authority (CCA).

**IT Services Management (itSM)**

In order to improve the quality of IT services such as Web services, Facility Management, Internet, BPO Services etc., STQC has initiated a certification scheme in respect of Certification of Service Level Competence. The international accreditation from itSM Foundation (itSMF), UK and RvA Netherland were successfully maintained this year also.

**Accredited Test and Calibration Services**

**ERTL (East), Kolkata:** After successful completion of fail safety evaluation of Solid State Block Proving equipment for Indian Railways, the laboratory has received another important project for Research Design & Standards Organisation, Ministry of Railways for evaluation of Train Collision Avoidance System. Further as a part of a test facility for evaluation of Solar Photovoltaic Panels, a Sun Simulator has been installed in the laboratory. Additionally, for products to be used in hazardous locations, Test reports issued by the laboratory are being accepted in Europe for ATEx certification.

Moreover, Photo-Voltaic modules test facility is being strengthened at ERTL (E) and ETDC (Bengaluru) in collaboration with Ministry of New & Renewable Energy for testing and certification of Solar PV modules and lighting systems. The facility includes sun simulator module tester, Environmental chambers, Hail tester etc.

**ERTL (North), Delhi:** It is one of the key lab amongst STQC labs. The laboratory has setup High Precision Temperature-Resistance Calibration and Optical Calibration facilities and achieved NABL accreditation for commercial operation.

The temperatures are realized by means of the thermal equilibrium states of pure metals i.e. Fixed Point Cells as Intrinsic Primary Standards of Temperature in the range from -38°C to 661°C, based on Long Stem Standard Platinum Resistance Thermometry. These Fixed points are realized using specified procedures in special maintenance apparatus having highly stable and very low gradient working zone. A high precision resistance thermometry D.C. bridge, along with highly precise & stable DC resistance standards, is used to measure resistance ratios at these fixed points. The facility is unique in STQC where it caters for traceability to reference/working standards of SPRT/PRT/RTD available in STQC labs as well as major accredited labs offering calibration services in the above range.
The laboratory has also established comprehensive test facility for EMI/EMC. The facility includes Anechoic Chamber and G-TEM cells. The facility is being utilized by large number of organisations including Defence and Delhi Metro.

**ERTL (S), Thiruvananthapuram:** The Lab has been participating in Space Programmes through components Screening, Packages & Modules testing and Environmental testing. Carried out Screening of one lakh components consisting of LCR devices, Discrete devices, ICs- digital & Linear of different packages leaded as well as SMDs for customers like Space organizations, TIFR etc. Also, Screening of more than 800 isolators used for monitoring Electronic packages in GSLV/PSLV was carried out. ESS for more than 1000 PCBs for Defence related projects has been completed. The Lab has conducted Safety testing & performance testing at four selected hospitals in Kerala under National Rural Health Mission Project and participated in the evaluation process for Safety testing on electro medical equipments for Government of Rajasthan.

**ETDC, Bengaluru:** Electronics Test and Development Centre, Bengaluru has been providing accredited Test and Calibration services to Industries (SSI, MSI & LSI), Defense and Space centres located in Karnataka. The Lab has established state of art NABL accredited High Precision Calibration facility from DC to 18 GHz and EMC (Electromagnetic Compatibility) test facility with 3 m Anechoic chamber for testing of Electronic, Medical & Information Technology (IT) products as per National & International standards/Specification. In addition to NABL accreditation the laboratory has also accredited by IECEE for safety testing of IT products, FCC listing for 3m Anechoic chamber, BIS for safety & performance testing of Electronic Ballasts and solid state Inverters run by storage batteries and STQC ‘S’ mark for safety testing of IT products, Household appliances, Measuring instruments etc. The centre also established NABL & IECEECB accredited Photovoltaic test facility for testing of PV modules up to 100W which is under augmentation to 200W with the co-operation of MNES under Jawaharlal Nehru National Solar Mission (JNNSM). A product Flow meter has been tested for LVD for CE mark requirement. The test report issued by the Lab is accepted by M/s Ultraflux, France.

**ETDC, Chennai:** NABL reassessment audit has been carried out during the year 2010-11 and accreditation has been obtained for the following disciplines: Electro technical calibration, thermal calibration, mass calibration, pressure calibration, dimensional calibration etc. Automation of calibration in Electro Technical calibration for 5520A Calibrator has been developed and being used. Automation of Energy meter calibration for calibrating SM 3050 reference standard meters for energy has been developed and being used. Safety testing of Ultra Freezer, as per IEC 61010-1 and indirect Ophthalmoscope as per IEC 60601-1 has been carried out successfully. The Lab has been rendering services to power sector industries especially Tamil Nadu Electricity Board, and Andhra Pradesh Electricity Board through Reference Standard Meters calibration and type testing of Energy Meters.

**ETDC, Hyderabad:** Gold plated samples used for Space application has been subjected to 1000 thermal shock cycles. Display system with remote control unit and vigilance control devices for Indian Railways and Jammers for Defence applications have been subjected to environmental testing. Prompt calibration services have been provided to private & Government power generating Transmission & Distribution organizations in Andhra Pradesh region. Also, onsite Calibration and regular calibration services have been provided to top customers from Aerospace, Telecom, Defence, Atomic Energy, Railways, Pharma and Power Sectors.

**ETDC Pune:** Carried out evaluation of different types of Power Modules for VSSC, Department of Space, Thiruvananthapuram. Environment testing on various products like Speed sensors, Pump motor, limit switches for Nuclear Power Corporation for their power plant at Kaipakkam and Evaporator of TATA NANO carried out. This Centre also carried out comparative EMI/EMC testing of 8 different types of mobile handset.

**ETDC, Goa:** The Lab has Extended On-site Calibration Service to Nuclear Power Corporation Ltd., Kaiga. Facilities are NABL accredited in the
area of Electro-technical, Mechanical, Thermal parameters for both at lab as well as on-site calibration. ETDC has organized training in ISMS awareness programme for Goa Shipyard Ltd. and around 500 participants were trained. ETDC was notified in the Gazette for acquiring more than 80% staff with working knowledge of Hindi.

**ETDC, Guwahati and ETDC, Agartala:** Two STQC laboratories are operating in the NE Region and providing Test & Calibration services and Training services in the field of Information Technology/Computer education to the industries and technology users. Test & Calibration services are extended to the organizations located throughout the NE Region covering all the eight States towards improvement of Quality of their products and services. The services are received by most of the Small, Medium and Large Scale Industries covering the Industrial sectors like Oil & Natural Gas, Refineries, Exploration units, Railways, Power - Generation, Transmission & Distribution, Paper, Cement & Building material, Food & Beverages, Cosmetics, Cable & Conductors, Plywood, Carbon Products, Steel and Service sectors, Telecommunication, Automobile, Service & Maintenance units, Hotels, Hospitals, Pharmaceutical & Pathological Laboratories etc. About 175-SSI, MSI & LSI organisations are the beneficiaries through these services. Additionally, facilities have been upgraded in the field of Electro-medical Test & Calibration for the benefit of Hospitals, Dispensary and other Pathological Test Laboratories situated in the NE Region.

**Centre for Reliability (CFR), Chennai:** The Centre has carried out Reliability Estimation of Flight Data Transfer Unit for Merlinhawk Pvt. Ltd., Bengaluru. Performed Reliability Prediction Analysis of AC Servo Amplifier and Power Supply for Kirloskar Electric Company Ltd., Bengaluru which is used in Naval applications. Also, carried out Reliability Estimation of DC to DC Converter for Amara Raja Power Systems Limited, Tirupathi which is used in Indian Railways. Additionally, conducted three In-House Certified Reliability Professional Training programmes at Lakshmi Machine Works Ltd., Coimbatore, Space Applications Centre (SAC), Ahmedabad and Bharat Electronics Ltd., Bengaluru.

**Overseas services offered**

Test and Calibration services have been provided to overseas clients from Germany, UK, Bahrain and SAARC countries by ERTL (E), Kolkata.

**Services offered in North East**

ERTL (E), Kolkata offered Calibration service for instruments and navigational aids used by Airports in East and North-East Regions. Calibration service for Biomedical equipment has also been provided to a number of hospitals and for setting up Data Centres by two organisations in Eastern Region.

**MoU with Unique Identification Authority of India (UIDAI)**

UIDAI has signed an MoU with STQC for testing of Biometric devices as per international standards. These devices are tested for functional, safety, performance and interoperability tests. Accordingly certification is given jointly by UIDAI and STQC. Only certified devices can be placed in Indian market for this project and used by enrollment bodies.

**Training Services - Knowledge-based skill-oriented**

**CETE, Kolkata:** The centre has conducted 45 skill
based training programmes for different industries in which 480 participants (36 women) attended and 13 project based training programmes for different engineering colleges in which 330 students (71 women) participated. In addition this centre has also provided project based training for 25 students of two engineering colleges and organized industrial visits for 38 students from one engineering college of North-East Region.

CETE, Bengaluru: It has been offering skill and competency training programmes in Quality Assurance since 1996. The Centre has trained over 2000 working professionals across India in the area of Quality Management, ISO 9000, ISO 17025, ISO 15189 in 2010. All the courses provide practical ready-to-use inputs and are aided by CETE's access to the state-of-the-art and state-of-the-practice Manuals, Data, Benchmark, Games, Case Studies and Exercises.

CETE, Pune: Two courses have been conducted as per ISO 15189 for the diagnostic/clinical laboratories. A course on laboratory competence was conducted at Tata Motors, Jamshedpur. Various courses on lab management, Six sigma, Measurement Uncertainty were conducted in collaboration with Quality Council of India. In addition, training provided to students of BITS, Pilani for their MS programme in Quality Management.

Certification Services

Internationally Accredited Certification Services are being offered for Quality Management System (ISO 9001), Environmental Management System (ISO 14001) and Product Safety Certification to customers in India and abroad. It also offers International Certification services for safety of electrical products under IECEE-CB.

Initiatives in Computer Education & IT in North East region

Towards generating IT educated manpower in the NE Region, ETDC, Guwahati and ETDC, Agartala have taken special initiatives by running DOEACC Accredited “O” & “A” Level computer courses for the benefit of the educated unemployed youth resulting into qualitative improvement of the IT manpower resources.

Skill development training for Nurses in the field of Information Technology are also being conducted in the State of Tripura.

Initiatives have been taken towards creating awareness about the various security and quality aspects of Information Technology Management, Information Security Management, Network Security Management, Website Quality and Software Testing etc. Towards achieving the objective various Training/Workshop/Seminar are being organized. Organisations like - NIC, Oil India Ltd., IOCL, Railways, BSNL, Powergrid, NEEPCO, Educational Institutions, State Government Departments & PSUs, etc. are the major beneficiaries.

Efforts are also being put up by facilitating support services towards Software Development of Election Department, Government of Tripura and providing IT Network Solution to Tripura University and Fishery College, Tripura.

Development of SC/STs and Weaker sections

On-the job training to SC candidates with ITI qualification as a part of Training cum Employment programme of SC Development Directorate, Government of Kerala has been provided by ERTL (S), Thiruvananthapuram.

Long term job-oriented training programs have been planned for unemployed scheduled caste youth with the assistance of District Scheduled Caste Co-operative Society Andhra Pradesh by ETDC, Hyderabad.

Computer Awareness Training course is also being organized free of cost by ETDC, Guwahati and ETDC, Agartala for the welfare of Women, SC/STs, specially enabled, weaker sections of the NE Region.

Growth in Revenue Earning

During the financial Year, a major initiative taken was to strengthen STQC IT services to keep pace with the Policies and Programs of the Department. These services included certification and training in the area of Website Quality Certification, Information Security Management System, Software Quality Assurance and Information Technology Service Management. At the same time conventional STQC services like testing, calibration, certification and training were also consolidated and expanded. Due to these initiatives, revenue earning still shows a healthy trend. STQC is expected to earn more than ₹40 crore during the year.

Internet Exchange of India (NIXI)

Seven Internet Exchange Nodes are functional at Ahmedabad, Bengaluru, Chennai, Delhi (Noida),
Hyderabad, Kolkata and Mumbai The Internet Exchange nodes have ensured peering of ISPs among themselves for routing domestic Internet traffic within India, resulting in better quality of service (reduced latency, reduced bandwidth charges for ISPs) by saving on international bandwidth. Maximum volume of Internet traffic being handled by NIXI is 12Gbps.

NIXI nodes located at Bengaluru, Chennai, Mumbai and Noida are IPv6 ready with all its functional operations available online to the member ISPs. Two Data Centers have been established in Delhi and Chennai towards disaster management with an uptime of maximum 5 minutes. NII also undertakes training and workshop for network managers and other engineers in cooperation with Asia Pacific Network Information Centre (APNIC).

Since 2005 NIXI is also managing the .IN Registry (www.registry.in). Presently, 80 Registrars have been accredited to offer .IN domain name registration worldwide to customers. It has helped in proliferation of Web hosting in the country and enhancement of Indian language content in the Internet. Approx. 8.50 lakhs .IN Domain Names have been registered till February 2011. Activity related to domain name registration in Indian Languages is in process.

**E-Infrastructure**

E-Infrastructure comprises tools, facilities and resources that are needed for advanced collaboration and includes integration of various technologies such as Internet and broadband technologies, computing power, bandwidth provisioning, data storage, grid based resource sharing, cloud computing etc.

**Achievements during 2010-11**

**Establishment of Bio IT facility:** Bio-IT Research & training facilities at Institute of Bio-Informatics Applied Bio-technology (IBAB), Bengaluru is funded by the Department. The project objective is creation of Professional manpower in Bio IT field, R&D in Bio-IT area and Knowledge sharing with national & international companies. The work related to setting up of lab is in advance stage.

**ICT Vocational Centers for Skill Creation for the Children with Disabilities in the area of Information Technology:** 50 ICT Vocational Centers for training the physically challenged children have been set up in addition to 20 ICT Vocational Centres set up in Phase-I. The less privileged children in the proximity of these centers have learnt ICT skills enabling them to seek employment and earn livelihood. The infrastructure at schools is connected to LAN and Internet. In the Phase II, 50 additional ICT centers have already been identified in consultation with States/UTs and are under implementation through ERNET India.

**Setting up of ICT and Satellite based distant training facility for Mentally Retarded Children:** For providing distance training to the special educators, parents and teachers of children affected with mental retardation, a project has been initiated. The main objective is for creating infrastructural facilities for imparting distance training to the Teachers and other rehabilitation professionals in the field of special education using the EDUSAT. 8 Satellite Interactive Terminals (SITs) have already been set up.

**Establishment of Knowledge Data Center at Anna University, Chennai:** Knowledge Data Centre project is proposed jointly by Anna University, Sun Microsystems and Government of Tamil Nadu. The main objective of this data center is host e-content developed at various place and deliver the same for the benefit of students of the affiliated colleges in the tier II and tier III colleges. The installation of the equipment, namely, Blade Servers, SAN storage servers have been completed. The installation of ten workstations is in progress. About 400 courses of e-content from NPTEL have been obtained and porting of the same is in progress.

**National Knowledge Network (NKN)**

The Government’s decision to set up National Knowledge Network was announced in the Budget Speech, 2008-09. A High Level Committee (HLC) was set up under the Chairmanship of Principal Scientific Adviser to the Government of India to coordinate and monitor the establishment of the NKN.

On 25th March 2010 the Government approved the establishment of the National Knowledge Network (NKN) at an outlay of ₹ 5990 crore, to be implemented by NIC over a period of 10 years.

**Objective**

The objective of the National Knowledge Network is to bring together all the stakeholders in Science, Technology, Higher Education, Research & Development, and Governance.

The output of the project will be a high capacity countrywide infrastructure at education & research Institute level, which will be available 24x7 to support education and research applications, and other
applications as envisaged by these institutions which require very high bandwidth. A high speed data communication network would be established which would interconnect Institutions of higher learning, research & Governance.

The NKN will facilitate the knowledge sharing, collaborative research, countrywide classrooms (CWCR) etc., and help the country to evolve as Knowledge Society.

Health, Education, Grid Computing, Agriculture and e-Governance are the main applications identified for implementation and delivery on NKN.

**Features of the NKN**

Network will consist of an ultra-high speed Core (multiples of 10Gbps and upwards), and over 1500 nodes. It is scalable to higher speed and more nodes also.

The Core shall be complemented with a distribution layer at appropriate speeds. The participating institutions can directly or through distribution layer connect to the NKN at speeds of 100 Mbps /1 Gbps.

**Achievements during 2010-11**

- The logo and website of NKN (www.nkn.in) has been launched.
- 3 Points of Presence (PoPs) have been established with 2.5 Gbps capacity for core Backbone (a total of 18 PoPs established so far).
- A total 38 number of Institutions have been connected to NKN (total 104 Institutions connected so far), and 9 virtual classrooms were setup (a total of 15 virtual classrooms were setup so far).
- MoU has been signed between (NIC & NICSI) & the service providers namely BSNL, Railtel, PGCIL & MTNL.
- Trans Eurasia Information Network (TEIN3) links is integrated with NKN.
- Initial set of IP numbers (/16 and /20) and autonomous system numbers from APNIC has been obtained.
- MoU has been signed between GLORIAD (The Global ring network for advanced applications development), the National Knowledge Network (NKN) and Tata Institute of Fundamental Research (TIFR).
- Local ring to connect NIPGR, NIPFP, ICGEB, IUAC, NII, and IIMC with JNU has been accomplished.
- Network Sanitation Lab is being setup at IIT Mumbai, for sanitization of network equipments to be deployed in NKN.

The five Model projects recommended by Model Project Evaluation Committee (MPEC) in its first meeting were approved by HLC in its 9th meeting held on 6th August 2010.
Societies

Centre for Development of Advanced Computing (C-DAC)

The Centre for Development of Advanced Computing (C-DAC) has today emerged as a premier Research & Development (R&D) organization of the nation in ICT&E (Information Communication Technologies and Electronics). It focuses on incubating, nurturing, and strengthening national technological capabilities in context of global developments in selected areas. In that process, it continuously works towards realizing nation's policy and pragmatic interventions and initiatives in Information Technology (IT). As an institution for high-end R&D activities, C-DAC has been at the forefront of IT revolution, constantly building capacities in emerging/enabling technologies and innovating and leveraging its expertise, caliber and skill-sets to develop and deploy IT products and solutions for different sectors.

High Performance Computing (HPC) and Grid Computing

C-DAC’s HPC programs are focused towards building capabilities, systems, facilities and applications for nation’s high performance computing requirements. The activities in HPC area is now being focused towards research, design and development of Petaflop computing. During the year, C-DAC carried out technology developments in the areas of interconnect technologies, system software, Reconfigurable Computing Systems (RCS), Grid middleware, and various areas of scientific and engineering applications. It also continued its efforts towards building the National Grid Computing infrastructure and creating awareness among the potential users of grid technologies.

Significant achievements during the year in this area include the following:

- PARAM Yuva: The System, with Peak Performance of 54TF and Sustained Performance of 37.8 TF (70% peak), (HPL-LINPACK) was ranked 182nd in June 2010 in the Top 500 Supercomputers List. Installation of 200 TB storage and tape library has been completed.

- HPC Facilities commissioned during the last year at:
  - Indian Institute of Science and Education Research (IISER), Pune for promoting supercomputing related domain specific research.
  - Dar-es-salaam Institute for Technology, Tanzania for work in the field of Weather Prediction and ICT.
  - NCMRWF, Noida for high end research in climate modeling.

- Computational Electromagnetics (CEM) Code has been ported at DRDL Jodhpur for modeling and aerospace applications.
- “ONAMA” resource bundle incorporates a set of parallel and serial applications & tools for engineering disciplines such as Computer Science, Mechanical, Electronics & Communication, Electrical, Civil, Chemical Engineering, etc.

- Location specific Weather Forecast for 50000 locations in Tamil Nadu, Andhra Pradesh, Madhya Pradesh, Assam, Karnataka and Maharashtra made accessible through India Development Gateway Portal.

- Replica Exchange Molecular Dynamics (REMD) has been simulated on PARAM Yuva. Total simulation time of 18µs has been achieved.

- In the area of Bioinformatics, C-DAC has collaborations with IIT Madras, Biotechnology and Biological Sciences Research Council (UK), Oregon Health & Science University (USA), University of Surrey (UK); Institute of Animal Health (UK), caBIG (NIH) for various applications like genome annotation, protein folding and cancer care through cancer Grid.

- Foundation Phase of Garuda completed; Operational Phase of Garuda in progress; Garuda migration to NKN at 30 sites completed.

- Indian Grid Certification Authority (IGCA) has issued more than 218 grid certificates.

- Initiated new collaboration with Open Source Drug Discovery (OSDD), National Institute of Disaster Management (NIDM) and Indian National Centre for Ocean Information Services (INCOIS).

- Automatic Grid Service Generator (AGSG) v1.0 and Problem Solving Environment for Protein Structure Prediction (PSE4PSP) v1.0 in February 2010 released.

- Security Assessment System developed on test bed.

**Multilingual Computing and Heritage Computing**

C-DAC’s language technology products and solutions cover a wide range of applications such as publishing and printing, word processing in Indian languages, office application suites with language interfaces, information retrieval, speech technologies, language learning, video and television and multimedia content in Indian languages for subtitling, newsroom automation, multi prompter systems and online titling. Several of these have been developed and marketed not only for Indian languages but also for foreign languages like Tibetan, Bhutanese, Thai, Perso-Arabic and so on.

Significant achievements during the year in this area include the following:

- National Roll Out of Indian Language Tools and Technologies: Single CD containing localised version of Open office along with relevant fonts and keyboard drivers in 22 official languages has been developed and handed over to Manufacturers Association for Information Technology (MAIT) for further evaluation and distribution.

- Internationalized Domain Name (IDN) Registration: Work on 15 languages has been completed. Awareness raising national workshops on IDNs for Indian languages were organized.

- Learning Indian Languages through Artificial intelligence (LILA) Hindi Prabodh, Praveen and Pragya converted and migrated to Unicode Standard representation for English and 14 Indian Languages.

- Manner Based Lexically Driven (MBLD) model based Automatic Speech Recognition system for Bangla developed.
- Sutra: Web based translation assistance tool for software localization.
- Information Extraction & Retrieval (IE&IR) based intelligent office automation system with Natural Language Processing (NLP) has been deployed at TDIL data centre.
- Self-learning package for Sanskrit, Swadhyaya (Teach Yourself Sanskrit) completed.
- LIPS Live : Language Independent Programme Subtitling solution implemented for Star TV Network to display subtitles on their channels - Star Movies & Star World. This is for the first time in India that the subtitles are displayed on-the-fly using completely automated play-out system.

**Professional Electronics including VLSI and Embedded Systems**

In the area of Power Electronics, the technology development efforts are focused towards designing of tools and components for power quality improvement, power supply modules, energy meters, distribution automation, remote inspection devices, etc. On the other hand, in the area of agro-electronics, the technology development efforts are focused towards development of tools for online, real-time quality estimation for food and agro products and automation of post-harvest processing of these products. Other initiatives in the areas of Real-time Systems, Embedded Systems and VLSI Design include sensors and sensor networks, embedded systems for industrial applications and next-generation controllers. Many Academic, R&D and Industry collaborations have been set up under these. Significant achievements during the year in this area include the following:

- Vessel Tracking System, VETRA, a multi-rotor DGPS system with radio link is deployed at Naval Under Water Range (NUWR), Goa for navigating Ships and submarines.
- Sonic Ultrasonic NDT System (SOUNDS) designed specifically for non-destructive testing of materials used on rockets and spacecrafts.
- TETRA Technology Baseband Solutions:
  - 'Automated dial 100 system' deployed in Thiruvananthapurum, Kochi, Kozhikode, Thalassery, and Shillong.
  - GSM-based Distress Call Response Management System for Kolkata, Bhopal and Indore Police.
- Advanced Power Electronics Labs established at 11 academic institutes in India as part of the NaPET mission.
- Hazardous Object Removal System: A six wheeled mobile platform to pick up and remove potentially hazardous objects has been developed. It is a high mobility platform equipped with video cameras to enable a human operator to operate it from a distance and control a robotic pickup arm.
- Body-worn Digital Programmable Hearing Aid has been developed using prototype ASIC. Field trials and mass production being initiated.
- Smart Parking (SPARK) deployed at Greater Hyderabad Municipal Corporation (GHMC) parking complex at Hyderabad; Bagged Special Jury Choice Award and achieved 3rd position in the people choice award in ‘ICT Enabled Municipal IT Initiative of the year’ during e-India 2010.

**Software Technologies including FOSS**

C-DAC’s initiatives in this area includes Free & Open Source Software (FOSS), software tools and
applications, software products for addressing digital divide, software products and solutions for e-Governance.

Significant achievements during the year in this area include the following:

- BOSS Proliferation: BOSS Linux 3.1 deployed in Chhattisgarh Online Information System for Citizen Empowerment (CHOICE) project. EduBOSS, a BOSS Linux distribution specialized for education released. It is bundled with BharateeyaOO (in 19 Indian languages) comprising word processor, Presentation tool, spreadsheet, etc.; Deployment of EduBOSS in all schools of Haryana (approx. 5000 machines) is in progress.

- India Development Gateway (InDG): Developed 3 multimedia products (Production & Marketing of Medicinal, Aromatic and Dye-Yielding Crops; Nutrition and Health; Sustainable Agriculture) for public use; 18304 registered farmers are getting market information through SMS and e-mail.

- State Services Delivery Gateway (SSDG): State-level counterpart of National Service Delivery Gateway (NSDG); Awareness program conducted in 16 States

- Analysis of Lunar data of Chandryaan Mission for
  - Digital Elevation Model (DEM) / 3D Generation for Lunar Surface using Chandrayaan-1 Data
  - Morphometric analysis of Lunar Crater

- Cloud Computing test bed using 4TF computing facility with BOSS Linux OS has been setup at C-DAC Chennai; Feasibility study and analysis of Cloud middleware components is completed

- M-Computing Lab was inaugurated at Bengaluru on October 28, 2010

**Cyber Security and Cyber Forensics**

Cyber Security is one of the priority areas and proposes to deliver multilevel/multilayered security solutions against various types of threats. Solutions already developed in this direction are Cyber Forensics tools, Adaptive Intrusion Detection System, End systems security solution, document security solutions, Steganographic tools etc. C-DAC continues to explore delivering the need of the hour Cyber Security Solutions.

Significant achievements made during the year in this area include the following:

- Three Cyber Forensics Labs set up for Central Board of Direct Taxes (CBDT) at Delhi and Mumbai. Training Lab with interactive learning facilities for Kerala Police has been setup.

- Prototype Intrusion Prevention System (IPS) has been deployed at Weapons and Electronics Systems Engineering Establishment (WESEE) of Indian Navy. Flow analyzer component of IPS is pilot deployed at NKN-NOC at Delhi. IPS of 1Gbps Throughput is being evaluated.

- Stegocheck ver 4.0.3 and StatAnalyst ver 1.0 for steganography developed.

- Three endpoint security products Malware Resist, NAYAN (Network Abhiyan) and USB Pratirodh were developed.

- Deployed Distributed Honeynet node at CERT-in and Cyber Security Research Lab of Punjab Engineering College, Chandigarh.

- Information Security and Education Awareness (ISEA): Awareness training conducted through workshops (198) for Teachers & Parents (6856 Nos), Students (2479 Nos) and School Children (22256 Nos) in 39 cities across 22 States.

- PKI Outreach Programme: conducted 30 workshops across the nation for creating awareness.

**Health Informatics**

C-DAC has developed a range of products and solutions for better health care services. These include Hospital Information System (HIS), Systems and Solutions for Telemedicine and Tele-education, Decision Support Systems (DSS) for Oncology and
Significant achievements during the year in this area include the following:

- **Mobile Tele-oncology System**: Cancer detection, cervical cancer treatment, follow up consultation and palliative care for rural people. Handed over to Malabar Cancer Care Society, Kannur on 10th October 2009 for serving the five northern districts of Kerala. Between January-September 2010:
  - 43 camps conducted in rural Kerala
  - 4242 people attended
  - 106 pre cancerous cases detected
  - 35 patients cured in the Van

- **Mobile based Healthcare Information service - Mcare**: Strengthening health care services at grass root level; Implemented at 14 PHCs, 86 Sub-Centres in 2 blocks of Tirur Taluka in Malappuram Dist, Kerala.

- A live ‘eSanjeevani’ tele-medicine demonstration between Kanpura village, Rajasthan and Post Graduate Institute of Medical Education and Research (PGIMER) Chandigarh was shown to a high level delegation from the White House, Washington DC, USA. ‘Sanjeevani’ was also implemented at 11 locations in Tanzania.

- The project Pulse Analyzer in collaboration with BARC and IIT Bombay has been completed.

- **Cure@home**: Implemented in 10 villages of Arunachal Pradesh. Deployment at Gram Panchayat Level in Tripura. Web-enabled version of Cure@Home has been developed.

**Education & Training**

C-DAC’s education and training programs are based on finishing school model. Various courses offered under these programs are designed to produce industry-ready professionals for the IT industry.

Significant achievements and courses launched during the year are:

- **Formal Education Programmes (MCA, M.Tech., MBA)**
- **Corporate Training Programmes**
- **International Training Programmes**
- **ERP Training Programmes**
- **ICT Training to students belonging to Minority Community across India in 15 States**, 27 cities at 32 centres.
- **Education and Training in specialized IT areas**: Over 10000 students trained.

- **e-Learning**: Walk in Labs for Open Source e-Learning Tools, Personalized instruction Delivery, Content Quality assurance Framework are in progress.

- **Tech Sangam**: C-DAC - Academia Collaboration Initiative, covers 300 engineering colleges across the country.

- **Prepare Future (Faculty Updation Programme)**: 631 faculty members from 19 States and 220 engineering colleges in India were trained under this programme.

- **Signed MoU with Computer Society of India (CSI)** for joint educational programmes.

**Special Initiatives for North-East India**

Number of vital projects have been initiated by C-DAC in partnership with various stakeholders. These North East projects are an integral part of the initiative to proliferate the benefits of information and communication technologies to the society and effectively bridge the digital divide. These projects cover a bouquet of advanced technologies ranging from High Performance Computing (HPC), multilingual technologies, health informatics, geomatics, agri-electronics etc., which will play a key role in the upliftment of the region, as well as create new opportunities for the local populace to exploit the benefits of IT in terms of infrastructure and employability.

C-DAC has completed a few development projects during the year, which include:

- **Cure@Home**, an Integrative Medical Informatics Solutions for A Common Man, deployed at 11 model e-villages in Arunachal Pradesh.
● Early Warning System for Dissemination of Scientific Data to Publicize hazard related information on a Real - Time Basis (NEIST): Workshop on Parallel Computing and Multi-core Programming has been conducted

● Developed and installed Five ENV systems in the following North East Tea Industries / Organizations:
  – Central Tea Processing Factory under Tripura Tea Development Corporation Ltd. at Durgabari, Agartala, Tripura (1 No.)
  – Tea Research Association, Tocklai, Jorhat, Assam (2 Nos.)
  – Tezpur University, Tezpur, Assam (1 No.)
  – Dhalai Tea Processing Co-op. Society Ltd., Kamalpur, Dhalai, Tripura (1 No.)

Post installation training (Operation, Data Collection, Correlations, Data Back up process, Maintenance, etc.) has been imparted.

● PARAM based High Performance Computing Facility at North - Eastern Hill University, Shillong (NEHU):
  – Ported scientific & engineering applications across atmospheric sciences, oceanography, bioinformatics, materials science, mathematics, etc. Installation of visualization tools required by the applications for these domains.
  – Customized deployment of CHReME (C-DAC HPC Resource Management Engine) Portal.

● Awards/Recognition

"Excellence Award" of Government of Sikkim was received by C-DAC, Kolkata for the pioneering initiatives in using "IT for Poverty Alleviation Program for Handicrafts and Handloom section development" for the year 2010 during the Sikite 2010 event.

Software Technology Parks of India (STPI)

Background

Software Technology Parks (STP) of India was established and registered as an Autonomous Society under the Societies Registration Act 1860, under the Department on 5th June 1991 with an objective to implement STP/EHTP Scheme, set-up and manage infrastructure facilities and provide other services like technology assessment and professional training.

Objectives of the Society

The objectives of the Software Technology Parks of India are:

● To promote the development and export of software and software services including Information Technology (IT) enabled services/ Bio-IT.

● To provide statutory and other promotional services to the exporters by implementing Software Technology Parks (STP)/ Electronics and Hardware Technology Parks (EHTP) Schemes and other such schemes which may be formulated and entrusted by the Government from time to time.

● To provide data communication services including value added services to IT/IT enabled Services (ITeS) related industries.

● To promote micro, small and medium entrepreneurs by creating conducive environment for entrepreneurship in the field of IT-ITeS.

Achievements during 2010-11

Promotion of Development of Software and Software Services

The exports made by STP registered units have grown manifold over the years. Up to the year 2009-10 more than 10,000 units were registered under STP scheme. As on 31st March 2010, 7007 units were operative out of which 5814 units were exporting. During the year from April to December, 2010, 170 new units were registered under the scheme.

As of now a total of 52 STPI centres/Sub-centres are operational across the country, out of which 45 centres are in Tier II and Tier III cities.

Provision of Data Communication Services

One of STPI’s remarkable contributions to the software-exporting sector is provision of High-Speed Data Communication (HSDC) services. SoftNET, state-of-the-art HSDC network, designed and developed by STPI is available to software exporters at internationally competitive prices at all centres.
STPI provides through its network, the Shared Internet Services, VSAT Services, Value added services and collocation services. Following services fall under the data communication services.

**SoftPOINT**

The SoftPOINT service is the provisioning of “International Private Leased Circuit” (IPLC). IPLC’s are digital circuits available for international data communications, which are used for data transmission, communication etc. Secure and exclusive to the user, IPLC’s are ideal for companies that have high volume of International data transmission.

**SoftLINK**

SoftLink is a service offering Internet access on a shared and dedicated basis. The service was launched to cater to the rising demands of the industry for better quality and committed services. Today SoftLink services enjoy a large customer base amongst STPI’s datacom services.

**Last Mile Connectivity (Local Loop)**

STPI has set up its own digital Microwave networks using Point-to-Point and Point-to-Multipoint microwave networks, which cater to the primary needs of the customers. With the addition of Point-to-Point radio networks, the network was further strengthened enabling the delivery of 2 Mbps, NxE1 links over the last mile under the STPI’s overall control.

**Project Management and Consultancy Services**

STPI is also providing project management consultancy services to the Central/State Governments and their organizations. Currently major consultancy projects undertaken are MP SWAN, Chhattisgarh SWAN, J & K SWAN, computerization of Employment Exchanges for Government of Assam and IT Park Imphal project for Government of Manipur.

**Promotion of small and medium entrepreneurs by creating a conducive environment in the field of information technology**

Historically STPI has been promoting SMEs and their cause by offering incubation services, organizing events, sponsoring/co-sponsoring events,
participation in events, human resource development and export promotion efforts as follows:

**Incubation Services**

STPI has been providing incubation facilities to start-up units at its various centres. This has been of immense help to start up companies and entrepreneurs.

**Organization of events**

- STPI Co-Hosted E-revolution 2010 from 29-30 September, 2010 at Chandigarh.

**Sponsorship/co-sponsorship of events**

- Sponsored TiE Entrepreneurship Summit (TES), December 21-23, 2010 at New Delhi.
- Sponsored “Connect 2010” from 8th to 9th September, 2010 at Chennai.
- Sponsored “TiECon-2010 on 24th November 2010” at Chennai.
- Co-sponsored 14th National Expo from 3rd to 8th September, 2010 at Kolkata.
- Co-sponsored ICT East 2010 conference from 3rd to 4th August, 2010 at Kolkata.
- Sponsored NICT 2010 from 2nd to 3rd September, 2010 at Guwahati.

**Participation in events**

- ICT 2010 at Brussels, Belgium for facilitating the IT Export business growth.
- e-India 2010 from 4-6 August, 2010 at Hyderabad.
- NASSCOM Emerge Forum on 5th May 2010 at Bhubaneswar.
- National workshop on recent trend in object oriented (R-Toost), NIT-RKL from 12th to 14th April, 2010 at Rourkela.
- Seminar by NASSCOM on challenge & risk faced by IT-TiE SME Units on 6th May, 2010 at Rourkela.
- CII, ICT Jharkhand 2010 creating ICT opportunities on 25th April, 2010 at Jamshedpur.
- India International Trade Fair, 2010 from 14th to 27th November, 2010 at New Delhi.
- India Telecom 2010 from 9th to 11th December, 2010 at New Delhi.

**Society for Applied Microwave Electronics Engineering and Research (SAMEER)**

Society for Applied Microwave Electronics Engineering and Research is a Society of the Department with a broad mandate to undertake R&D work in the areas of RF/Microwave electronics, Electromagnetics and Millimeter wave technologies. It has centres at Mumbai, Chennai and Kolkata.

**Achievements during 2010-11**

SAMEER continues to contribute to the health care programme of the Government of India under the Jai Vigyan Programme by developing and building Medical Linear Accelerators for cancer treatment. In phase II, four medical Linac machines are to be installed in Hospitals. The system integration and testing of the Linacs is in progress. SAMEER is interacting with the hospitals for site preparation of the machines. SAMEER has invited Expression of Interest (EOI) from industries for the batch production and subsequent Transfer of Technology (TOT) of the 6 MV Medical Linac. The necessary infrastructure for the batch fabrication of Linac tubes and linac system is being established at SAMEER, Kharghar, Navi Mumbai. This facility includes the radiation shielded rooms for test and evaluation of the medical Linac machines and the process equipments to fabricate the linear accelerator tubes.

SAMEER has taken up the development of dual photon and multiple electron energy integrated oncology system. This is an advanced version of linear accelerator used for cancer therapy. The system design and development activity is in progress.

SAMEER also has a strong presence in atmospheric instrumentations. A 1680MHz Radio Theodolite for tracking radiosonde for regular upper air monitoring has been designed and developed. The system has been installed at RSRW station at Santacruz, Mumbai for field trials and performance evaluation.

SAMEER has designed and developed mobile SODARs used for Atmospheric boundary layer studies and environmental applications. It measures wind velocity in three directions up to a height of 1000 meters with 20 meter resolution. This unit was custom built for environmental monitoring application and being used by BARC, VSSC ISRO, IGCAR etc.
SAMEER has made advances in the area of Communication systems. A two way communication link for telemetry of air-borne platforms has been designed, developed and supplied for secured strategic application. Telemetry, tracking and control transponders in C and S bands were developed and supplied to ISRO for their communication and remote sensing program. Additionally, projects like design and supply of Circularly polarized transmit and receive antennas with better isolation in C band for distance measurement application & development and supply of sleeve monopole antennas for silencing explosive devices were completed.

SAMEER has taken up a number of challenging R&D activities in the millimeter wave and microwave frequency ranges. A project has been undertaken for indigenous design and development of a millimeter wave radar front-end. Different subsystems such as frequency multiplier, Injection locked amplifier, power combiner, switches, mixers, pulsed oscillators, hybrids, filters to be used in the radar have been designed and developed. Research work on LHM (Left Handed Maxwell) material (also known as metamaterial) in the microwave and millimeter wave frequency bands for novel applications in different fields has been undertaken. A Compact Antenna Test Range (CATR) facility has been established and is being used for providing a number of testing services to Government and private industries.

In the field of EMI/EMC, a Project has been completed for design, development and validation of time domain based Electromagnetic Interference (EMI) measurements for the impulsive noise emitters in the conducted mode. Second Phase of the project development for radiated noise emission measurements in the frequency range 30MHz to 1000MHz is in progress.

SAMEER has provided state-of-the-art services in the area of EMI/EMC test, measurement and consultancy. Its facilities are accredited by several national and international bodies. During this period it has provided EMI/EMC services to more than 400 industries through several hundreds of assignments to qualify their products for national and international markets.

DOEACC Society

DOEACC Society, an Autonomous Scientific Society under the administrative control of the Department was set up to carry out Human Resource Development and related activities in the area of Information Electronics & Communications Technology (IECT). The Society has 15 Centres at RIELIT Agartala, Aizawl, Aurangabad, Calicut (with Southern Regional Office at Pudukkottai), Chandigarh (with 3 branches at Shimla, Lucknow & New Delhi), Chennai, Gangtok, Gorakhpur (with Eastern Regional Office at Patna), Imphal, Itanagar, Srinagar/Jammu, RIELIT Kohima (with extension Centre at Chuchuyimlang), Kolkata, Shillong and Tezpur/Guwahati with its Headquarter at New Delhi. The Department has also approved setting up of RIELIT at Ajmer.

The Society is engaged both in the Formal & Non-Formal Education in the area of IECT besides
development of Industry oriented quality education and training in the state-of-the-art areas and to establish standards to be the country’s premier institution for Examination and Certification in the field of IECT. It is also a National Examination Body, which accredits institutes/organizations for conducting courses in the non-formal sector of IT Education & Training.

DOEACC Centres are conducting long-term courses at Post-Graduate level (M.Tech) in Electronics Design & Technology, Embedded Systems etc., which are normally not offered by Universities/Institutions in the formal sector. Other long term courses conducted by the Centres are Diploma Level courses in Electronics Production & Maintenance, Electronic Engineering, Computer Science & Engineering, Masters in Computer Application and Bachelor in Computer Applications etc., which are affiliated to respective State Universities/Technical Boards. As for non-formal Sector, the Centres are conducting various long term courses offered under DOEACC Scheme for O/A/B/C level IT courses, O & A level Courses in Computer Hardware & Maintenance and O/A/B level courses in Bio-informatics, Entrepreneurship development, etc., depending upon the demand in respective areas. The DOEACC Centres are also imparting training in Short Term Courses in the areas of Information Technology, Electronics Design & Technology, Manufacturing Technology, Maintenance Engineering, ITES-BPO etc. Besides the training activities, DOEACC Centres are offering consultancy services and undertaking software development projects in addition to Government sponsored projects in the area of Education & Training, R&D, etc.

The Centres are also undertaking government sponsored projects in the field of ICT & related activities and also embarking upon training programme to develop entrepreneurs and provide ICT based services to users.

DOEACC Scheme on Computer Courses

In the Non-Formal Sector, the Society is implementing the DOEACC Scheme on Computer Courses, a joint scheme of the then Department of Electronics (DoE), now Department of Information Technology and AICTE at the National Level by utilizing the facilities and infrastructure available with the institutions/organizations in the non-formal sector. Under the Scheme, ‘O’ Level (equivalent to Foundation Level), ‘A’ Level (equivalent to Advanced Diploma), ‘B’ Level (equivalent to MCA level) and ‘C’ Level (designed to be at M.Tech Level) are being offered. O/A/B Level courses are recognized by MHRD for the purpose of employment. Since introduction of the Scheme more than 8.1 lakhs candidates have been registered and about 1.53 lakh candidates have qualified the various DOEACC Computer Courses at O/A/B & C Levels.

**IT Literacy Programme - Course on Computer Concepts (CCC)**

DOEACC Society has been conducting Courses on Computer Concepts (CCC) since the year 1999. The course is designed to aim at imparting a basic level computer appreciation programme for the common man. Owing to the quality of the course and centralized examination system, the course has been recognised by State Governments of Gujarat, Maharashtra and also by various other Government Departments for new appointments/promotions. The CCC examination is currently being conducted online thrice in a year. Approximately 4.35 lakh candidates have appeared for the examination through online as well as offline mode (CD based) and more than 3.14 lakhs have been certified. CCC course content has been made available in 10 Indian Languages through a dedicated web portal for free access to the candidates.

**IT Literacy Programme - Basic Computer Course (BCC)**

DOEACC has launched a new IT Literacy Programme namely, Basic Computer Course (BCC), in view of the demand for such a course from Ministry of Labour & Employment for introducing IT Literacy programme to the ITI/ITC candidates and also from Government of Sikkim.

**Courses offered by DOEACC Centres are given below:-**

**Formal Courses**

- M.Tech in Electronics Design & Technology (2 years duration at Aurangabad, & Gorakhpur Centres)
- M.Tech in Embedded Systems (2 years duration at Calicut Centre)
- MCA (3 years duration at Calicut, Srinagar, Aizawl & Imphal Centres)
- BCA (3 years duration at Aizawl, Imphal, Kohima Centres)
- Diploma in Electronics Production & Maintenance (3 years duration at Aurangabad Centre)
Diploma in Electronic Engineering (3 years duration at Imphal Centre)
Diploma in Computer Science & Engineering (3 years duration at Imphal, Aizawl Centres)
Diploma in Electronic Engineering & Telecommunication Engineering (3 years duration at Aizawl Centre)

Non-Formal Courses
DOEACC 'O' / 'A' / 'B' / 'C' level IT Courses
DOEACC 'CHM-O' / 'CHM-A' level H/W course
Bio-Informatics 'O' / 'A' / 'B' level
Certification Scheme in Information Security (Level 1)
ITES-BPO customer care / Banking
Course on Computer Concepts (CCC)

Short-Term Courses on the following topics:

Electronics Design Technology
- Embedded System
- VLSI Design
- PCB Design and Fabrication
- Surface Mounted Device Technologies
- Fiber Optics
- VHDL Programming

Information Technology
- Computer Science and Applications
- Computer Hardware & Networking
- C, C++, Core JAVA & VB programming
- Internet & Web Page Designing
- Basic Multimedia
- Cyber Law

Manufacturing Technologies
- CAD and 3D Modelling
- CAM / CAE Tools
- Maintenance Engineering
- Consumer Electronics
- Telecom and Office Automation
- Process Control etc.

Entrepreneurship Development Programme

New Initiatives

- Development of CCC course contents in Regional Languages
  The CCC course contents in Ten Indian languages namely; Hindi, Tamil, Marathi, Malayalam, Bengali, Mizo, Urdu, Assamese, Manipuri and Punjabi in addition to English language have been developed and made available in a dedicated e-learning portal for free access to the candidates.

- Introduction of Basic Computer Course (BCC)
  M/o Labour & Employment has made IT literacy certificate mandatory for the students of ITI/ITC from August, 2011 onwards. In view of the specific demand for an IT literacy course from M/o Labour & Employment and also from a few State Governments, DOEACC Society has launched a new course viz., Basic Computer Course (BCC). The syllabus for the BCC course has been approved by Standing Syllabus Committee.

- Launching of Certification Scheme in Information Security
  As part of launching a National Level Certification Scheme in Information Security under the ISEA Project of the Department, the training for Level 1-Certified System Security Analyst (CSSA) has been commenced from July, 2010. The examination for the first batch was completed in December, 2010.

- MoU with ERNET
  An MoU has been signed with ERNET India for setting up of Intranet and Video Conferencing facility among DOEACC Centres and Headquarters.

- MoU with Computer Society of India (CSI)
  An MoU has been signed with Computer Society of India (CSI) for using the CSI Chapters as study centres for the direct candidates of DOEACC ‘O’ Level course and to conduct the training/examination for students of CCC course.

- Project for Establishment of Computer Forensic Lab and Training Facility in the J&K State
  DOEACC Centre, Srinagar/Jammu is implementing a project to establish Computer Forensic Lab & Training Facility in J&K State with the financial assistance of the Department.
● **Project for Capacity Building for improving the Employability of Women in ICT area at Cuttack and Puri in Orissa**

DOEACC Centre, Gorakhpur is implementing a project for Capacity Building for improving the Employability of Women in ICT area at Cuttack and Puri in Orissa. Under the project, a total of 1380 women candidates are targeted for training in Elementary Computer Education (Computer Applications and Office Practices) and DOEACC ‘O’ Level.

● **Project for Course on Computer Education in Rural India**

DOEACC Society is implementing a project for Training and Certification of 1 lakh Common Service Centre (CSC) Operators/Village Level Entrepreneurs (VLE) in Course on Computer Concepts (CCC) of DOEACC.

● **Digitisation of National Population Register**

DOEACC Society is the Nodal Implementing Agency on behalf of the Department for executing the National Population Register (NPR) in both urban and rural areas of the 21 assigned States and UTs.

● **Opening of New DOEACC Centres**

  - **Setting up of DOEACC Centre, Itanagar (Arunachal Pradesh) with financial support of the Department:** The Department has approved setting up of DOEACC Centre, Itanagar at a total estimated cost of ₹836.15 lakh with Department’s contribution of ₹747.43 lakhs over a period of 4 years. Building space has been hired on rent and renovation is going on. The Centre is expected to start its academic activities shortly.

  - **Setting up of RIELIT, Ajmer:** The Department has approved setting up of RIELIT, Ajmer at a total estimated cost of ₹3544.32 lakhs with Department’s contribution of ₹3224.52 lakh over a period of 4 years in October, 2010. The State Government has allotted about 40 acres of land in Ajmer District. Action has been initiated for hiring of built-up area for starting the academic activities.

**Programmes for SC/ST and other Economically Weaker Sections of the Society**

Various training programmes were conducted at DOEACC Centre, Calicut and DOEACC Regional Office (South) at Pudukkottai for the students belonging to minority communities, with funding of Rs.16.69 Lakh from Ministry of Minority Affairs, Government of India. Total 71 students were trained under this scheme.

**Training to SC/ST job seekers**

DOEACC Society is continuing to provide training to SC/ST job seekers registered with employment exchanges for DOEACC ‘O’ Level course to increase their employability with the financial assistance of DGE&T. The third batch of training program for about 1000 candidates is being offered at 20 locations throughout the country.

**DOEACC Scholarship Scheme for SC/ST/ Female/Physically Handicapped candidates**

The DOEACC Society has got a large number of enrollment of candidates belonging to the SC/ST/Physically Handicapped including female candidates. Keeping in view the demand of the courses among the weaker sections of the society, DOEACC Society has a Scholarship Scheme for SC/ST/Physically Handicapped and female students who are pursuing O/A/B/C level courses of the DOEACC Society as a full time course through an Accredited Institute authorized to conduct the DOEACC Courses. As per the scheme, the candidates shall have to clear all the papers in the first attempt and the income of the parents of the students should not be more than ₹1 lakh per year from all sources.

Details of SC/ST and female candidates registered for DOEACC IT Software Scheme during 2010-11 are as under:-

<table>
<thead>
<tr>
<th>Category</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Registered</td>
<td>27546</td>
</tr>
<tr>
<td>No. of Female Students</td>
<td>10705</td>
</tr>
<tr>
<td>No. of SC Students</td>
<td>490</td>
</tr>
<tr>
<td>No. of ST Students</td>
<td>234</td>
</tr>
</tbody>
</table>

During 2010-11, a total of 560 candidates have been provided scholarship in respect of January 2009 & July 2009 exam. Scholarship applications for another 312 candidates of January 2010 exam are under process.

**Refund of Examination fee to the SC/ST candidates**

DOEACC Society is also providing examination fee refund to the SC/ST candidates on successful completion of DOEACC O/A/B/C level.
Achievements during 2010-11

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Activities</th>
<th>Target (2010-11) No. of Students to be trained</th>
<th>Achievements during the year 2010-11 (upto 30.12.2010) No. of students (Trained / Undergoing training)</th>
</tr>
</thead>
<tbody>
<tr>
<td>DOEACC Scheme</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.</td>
<td>O/A/B &amp; C Levels (Non-formal Sector of IT Education &amp; Training) Half Yearly Examinations</td>
<td>20,000</td>
<td>5,823 (July, 2010 exam)</td>
</tr>
<tr>
<td>DOEACC Centres</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>To Conduct Training for formal sector Long Term Courses (M. Tech, MCA, BCA, PGDCA, Diploma, Diploma in Electronics Engg. &amp; Computer Science etc.)</td>
<td>1,700</td>
<td>1,748</td>
</tr>
<tr>
<td>3.</td>
<td>To conduct training for non-formal Sector Long Term Courses O/A/B Level Course, Bio-informatics O/A Level Courses, Hardware Courses O/A Level</td>
<td>13,500</td>
<td>3,876</td>
</tr>
<tr>
<td>4.</td>
<td>Training under Short Term Courses of less than 1 year duration</td>
<td>11,500</td>
<td>7,946</td>
</tr>
<tr>
<td>5.</td>
<td>IT Literacy Programme (CCC course)</td>
<td>90,000</td>
<td>91,869 (appeared) 68,527 (qualified)</td>
</tr>
</tbody>
</table>

Other Major Achievements

- DOEACC Centre, Calicut has conducted Staff Development Programme on “Digital System Design using Verilog HDL” from 19 to 30 April 2010, under the sponsorship of AICTE.
- Started new PG Diploma program in Embedded Wireless & Mobile Applications at DOEACC Centre, Calicut, in addition to 4 other PG Diploma programmes.
- Approval received from State Government and AICTE for starting M.Tech program in Electronics Design & Technology at DOEACC Centre, Calicut.
- Online Courses in .NET Technologies and J2ME started at DOEACC Centre, Calicut.
- Computerization of more than 30 temples in the Malabar Region, Kerala.
- DOEACC Society, Gorakhpur has launched web site http://eshiksha.edu.in for web based education and launched following Certification programmes through E-Learning mode:
  - Certificate Course in VHDL Programming
  - Certificate Course in VB.Net
  - Certificate Course in Embedded System Design
  - Certificate Course in Bioinformatics
  - Certificate Course in C#
- Virtual Training Environment (VTE) facility for imparting hands on training in Information Security was setup by DOEACC Centre Gorakhpur at ISEA Lab. A training programme on Information Security was conducted for a batch of 18 candidates in the ISEA Lab.
- Workshops on Information Security Awareness were conducted by DOEACC Centre, Gorakhpur, Patna and Puri.

Centre for Materials for Electronics Technology (C-MET)

Centre for Materials for Electronics Technology (C-MET) has been set up as a Registered Scientific
Society in March 1990 under Department of Information Technology as a unique concept for development of viable technologies in the area of electronics materials. C-MET is operating with its laboratories with well carved out programs at Pune, Hyderabad and Thrissur.

The main objectives of C-MET are:

- To establish technology up to pilot scale for a range of electronics materials and transfer the same to the industry for commercialization.
- To establish routine characterization facilities.
- To undertake applied research activities in the areas of operation.
- To establish National Data Base on Electronics Materials.

The mission of C-MET is to develop knowledge base in the electronic materials and their processing technology for the Indian industry and become a source of critical electronic materials, know-how and technical services for the industry and other sectors of the economy.

Achievements during 2010-11

Integrated Electronics Packaging

- Optimization of photolithography process is in progress
- Several batches of three types of ferrites were prepared and characterized for their dielectric properties, VSM studies, Squid and XRD analysis.
- Optimization of soldering process was done for connecting/soldering the kovar pins and the seal ring to the conductor pads of the LTCC package

Nanomaterials and devices

- Al nano particles were synthesized by varying the quench conditions and reactor pressure and characterized by using SEM, AFM and XRD.
- The development of CdSe QDs has been completed
- A small scale process for preparation of Ag_{2}Se and its characterization by IR, XRD, TEM has been completed.
- Fabricated p type copper aluminium oxide transparent films by dip coating technique
- Prepared samples of sheet type NTC thermal sensors
- 25-30 nm sized Bi_{2}S_{3} doped phosphate and silicate based glass nanocomposite has been optimized.
- Phosphate based composition was found to be unstable hence silicate based composition was used for further testing of X-ray absorption measurements.
- Polymer nanocomposite with 50-60 nm sized spherical BaSO_{4} particles have been synthesized and optimized. The nanocomposite film showed good X-ray absorption (tested by using Dentist’s X-ray source).
- Initial trials for hydrogen generation were performed using nanostructured marigold shaped CdIn_{2}S_{4} as a Photocatalyst.
- Quantitative X-ray absorption study of BaBi_{2}S_{4} coated apron was carried out.
- Three types of Chip thermistors of five different B-values were made and samples submitted to Sowparnika Thermistors, Kerala for testing and evaluation.

Ultra high purity materials

- 1.5 Kg/batch, vacuum refined gallium was zone refined by using horizontal rotating type zone refining system.
- 6N pure Zn was prepared by vacuum distillation.
- One Kg of 4N pure Bi was zone refined.
- Ti-Sn oxide composite nano powder prepared by chemical route. XRD and SEM analysis was carried out.
- Annealing done in nitrogen atmosphere and in vacuum at 600°C for FePt nano particles and Nickel nano particles with different compositions synthesized.
- Received NABL accreditation certificate (No: T-1780) for Atomic absorption spectrophotometer received from NABL Secretariat, New Delhi.

Materials for Renewable Energy

- Fabricated active electrodes for supercapacitors using carbon aerogel.
- Fabricated prototype aerogel supercapacitors.
Promotion Council (ESC) is mandated to promote India’s exports of Electronics, Telecom, Computer Software and IT Enabled Services. ESC offers a varied set of services to its members for accelerating exports.

Some of the services of ESC are as follows:

- Facilitates participation in Global Trade Shows / Expositions and Conferences.
- Undertakes Market Research / Studies and publicity Campaigns in overseas markets.
- ESC facilitates business interface between Indian and foreign companies through Buyers - Seller Meets, and locates new business partners for Indian electronics, computer software and IT companies.
- For facilitating foreign trade, ESC provides on-line facility for Data Search.

### Piezo sensors and Actuators

- Fabricated bender actuators.
- Fabricated PZT 5H thin film unimorph and evaluated its piezoelectric properties.

### Research Performance Indicator during year 2010-11

<table>
<thead>
<tr>
<th>S.No.</th>
<th>Activity</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Research publications in journals</td>
<td>35</td>
</tr>
<tr>
<td>2</td>
<td>Conference presentations</td>
<td>55</td>
</tr>
<tr>
<td>3</td>
<td>Invited talks</td>
<td>25</td>
</tr>
<tr>
<td>4</td>
<td>Fellowships/visits (Abroad)</td>
<td>06</td>
</tr>
<tr>
<td>5</td>
<td>International/National conferences organized</td>
<td>04</td>
</tr>
</tbody>
</table>

### Electronics and Computer Software Export Promotion Council

Electronics and Computer Software Export

### Target & Achievements during the year 2010-11

<table>
<thead>
<tr>
<th>Targets</th>
<th>Achievements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Participation in Global Expositions</td>
<td>The council has organised participation of Indian Companies in the following major international events abroad. They are:</td>
</tr>
<tr>
<td></td>
<td>- ICT EXPO 13-16 April, 2010, Hong Kong.</td>
</tr>
<tr>
<td></td>
<td>- The Internet Show 25-26 September, 2010, Abu Dhabi, UAE.</td>
</tr>
<tr>
<td></td>
<td>- Outsource World, New York, 13-14, October, 2010, New York, US.</td>
</tr>
<tr>
<td></td>
<td>- ELECTRONICA 2010, 9-12, November, 2010, Germany.</td>
</tr>
<tr>
<td></td>
<td>- CeBIT 2010, 1-5 March, 2011, Hannover, Germany.</td>
</tr>
<tr>
<td></td>
<td>- Electronic Americas 28th March - 1st April, 2011, Sao Paulo, Brazil.</td>
</tr>
<tr>
<td>Buyer Seller Meets : Abroad</td>
<td>Delegation visit to Egypt and Ethiopia 29th November - 5th December, 2010.</td>
</tr>
<tr>
<td></td>
<td>Delegation visit to Malaysia and Indonesia, 29th November - 2nd December 2010.</td>
</tr>
<tr>
<td>Incoming Delegations</td>
<td>Argentina, 29th October, 2010.</td>
</tr>
</tbody>
</table>
Interactive Meetings

- The Council organized an interactive meeting with the Secretary, Ministry of Corporate Affairs on 16th August 2010 in New Delhi. The Council briefed the Chief Guest regarding the challenges, exports pertaining to ICT sector. The meeting was attended by several COA & other ESC members and several senior Government officials.
- The Council organised a meeting of Eastern Region Member exporters on 15th December 2011 in Kolkata, which was graced by the Principal Secretary, Department of IT, Government of West Bengal. The Executive Director, ESC gave a brief presentation on the status of ICT exports from India to global markets and highlighted the efforts needed to mobilize further impetus in exports growth. The meeting was attended by several members.

Seminars / Colloquiums

- ESC organized a seminar on ICT Export Opportunities in Calicut, Kerala with the assistance of Cyber Park, Calicut Information Technology Industry Association (CITI) on 27th November 2010.

Honours & Awards

- The Council's trade promotion efforts have been continuously recognized by the Federation of Indian Export Organisation (FIEO). The Council has already been awarded Exports Gold Trophy consecutively by FIEO for 8 times. ESC has been awarded again the "Niryat Bandhu" awards for the year 2008-09 for achieving excellence in ICT export promotion for the 9th time.

Publications

- ELSOFTEX, the monthly newsletter of ESC contains features of market surveys, developments in the international trade, business opportunities, changes in Government policies and procedures.
- ESC publishes annual Statistical Year Book which gives details of India’s exports in the Electronics, Telecom and Software services sector.
- ESC brings out reports of market surveys, importers’ listings, directories, country reports, etc., for the benefit of its members.

ESC is a member of World Electronics Forum (WEF) and South East Asia Information Technology Organization (SITO). ESC has extensive network of counterpart organizations world over to leverage member companies export interests in these markets. In the ESC network, there are over 50 world trade development bodies.

ERNET India

ERNET India is serving academic and research institutions in the country by innovatively connecting them on Intranet and Internet using appropriate state-of-the-art technologies. Institutions anywhere in the country can be connected to ERNET network. Focus of ERNET is not limited to just providing connectivity, but to meet the entire needs of the educational and research institutions by hosting and providing relevant information to their users. Research and Development and Training are integral parts of ERNET activities.

Network Infrastructure & Services

The ERNET network is a judicious mix of terrestrial and satellite based wide area network. ERNET India provides services through its 15 Points of Presence (PoPs) located across the country. ERNET network supports IPv4 and IPv6 Internet Protocol in native mode – dual stack, unicast and multicast. IPv6 routing protocol OSPFv3, end-to-end Ethernet services, QoS (DiffServ), video conferencing, authentication and authorization have also been implemented on ERNET Network.

ERNET provide four types of services, namely, Network Access Services, Network Applications
Services, Hosting Services and Operations Support Services. ERNET, over a period of a decade, has completed the four stages in the development, namely, initiation, growth, control and maturity. It has grown in size, range and quality of service and is connected to the educational and research networks worldwide.

A key mandate of ERNET India is to provide a reliable and robust network infrastructure to facilitate the target user community to develop and disseminate related applications and contents. To meet the aspirations and demands of the users, the network infrastructure is being upgraded both in terms of technology and capacity. ERNET India has initiated the process of upgrading select Points-of-Presence (PoPs) with high-end servers, routers, switches and other appliances with anti-spamming, antivirus and security features. The aggregate internet bandwidth was upgraded to more than 600 Mbps. More than 1300 user institutions covering diverse application domains are now connected to ERNET network. A total of 5610 '.in' domains under edu.in, ac.in and res.in have been registered. It has also been hosting websites for the academic and research community.

Research Activities and ICT Projects

Connectivity with European Research Network GEANT

Under the Indo-European Collaboration in the area of ICT, ERNET is connected with the European Research Network GEANT through a dedicated IPLC link on 175 Mbps in July, 2009. This connectivity has facilitated Indian Universities, Colleges and other educational institutions connected to ERNET India to collaborate with their counterparts in Europe to share information and also undertake collaborative research and development.

For participation in the Large Hydron Collider (LHC) experiment through the International Connectivity, ERNET India has provided layer 3 VPN connectivity from TIFR to Punjab University, Delhi University, Aligarh Muslim University, University of Rajasthan, Jammu University and Viswa Bharti Shanti Niketan. The connectivity to GEANT is used by researchers for high speed data transfer between Tier 2 centres in India and Tier 1 centre outside India.

Trans Eurasia Information Network - TEIN3

Under phase 3 of Trans-Eurasia Information Network (TEIN3), National Education and Research Networks (NREN) in 18 countries in Asia Pacific region are connected with Pan-European research network GEANT.

TEIN3 Point of Presence (PoP) has been co-located at ERNET PoP at Mumbai. Two high speed links of 2.5 Gbps each have been commissioned to Europe and Singapore providing direct connectivity to India to GEANT in Europe and TEIN3 PoP at Singapore.

EU-India Grid2-Sustainable e-Infrastructures across Europe and India

This two year project was initiated with a kick-off meeting in January, 2010 at New Delhi. There are six European partners and 10 Indian partners in this new project. The role of ERNET India in the project is to provide network infrastructure support using ERNET-GEANT link and subsequently provide network infrastructure support using TEIN3.

BELIEF II - Bringing Europe’s eLectronics Infrastructures to Expanding Frontiers

BELIEF2 is an EU project spanning over 25 months, (starting April 2008), with the aim of supporting the goals of e-Infrastructure projects to maximise synergies in specific application areas between research, scientific and industrial communities. It is a consortium project of 7 institutions including ERNET India; Metaware SpA, Italy; CNR- ISTI, Italy; University of Athens, Greece; Escola Politécnica da Universidade de São Paulo (PUSP), Brazil; Brunel University, UK and Meraka Institute, South Africa. BELIEF-II coordinated the efforts of many e-Infrastructure projects to further enlarge the e-Infrastructure Community.

6 CHOICE - India Europe Cooperation to promote IPv6 adoption

European Commission has sanctioned a consortium project titled “6 Choice- India Europe Cooperation to promote IPv6 adoption” comprising of eight members including ERNET India. The aim of the project is to promote close cooperation between the Indian research network ERNET, European research network GEANT as well as between Indian grid initiative GARUDA and European Grid initiative EGEE. 6 CHOICE project supports the cooperation through joint network interconnection, service planning and experiments with the middleware jointly developed in the project. ERNET India has established IPv6 peering with SIFY and is carrying out various tests on IPv6. It has also set up IPv6 test bed to host IPv6 applications.
Mobile IPv6 Test bed - Mobility between heterogeneous access networks

The Department has funded ERNET India and Indian Institute of Science, beginning November 2009 for duration of 18 months, to establish Mobile IPv6 test bed and to study Network Layer mobility management issues between heterogeneous access networks. The initial phase would involve design and simulation of different mobility scenarios in hybrid network platform. The test bed comprising WiMAX, WiFi and cellular networks will be deployed and the mobility scenarios will be tested on real test bed. Considering the IPv6 support in ERNET backbone, the mobility demonstration between IPv4 and IPv6 networks will also be carried out.

6 LoWPAN - Management and Monitoring of Wireless Sensor Networks

6LoWPAN is a joint project between ERNET India and IISc, funded by the Department for a duration of 24 months from January 2010. IEEE 802.15.4 Low-rate Wireless Personal Area Network (LoWPAN) standard supports wireless connectivity in low-cost devices that operate with limited battery power. LoWPAN networks enable emerging application functions such as agricultural field measurements, monitoring structural health of buildings, patient health monitoring and home/industrial automation. The support for IPv6 over 802.15.4 links enables integration of LoWPANs into the existing IP infrastructure. Also, the large IPv6 address space will meet the requirements of numerous LoWPAN nodes with address assignment using auto-configuration protocols. The 6LoWPAN layer performs header compression, fragmentation and layer 2 forwarding functions to adapt IPv6 packets to the resource constrained LoWPAN networks.

Hi-tech Cyber Crime Investigation Centre at CBI Academy

The global dependency on technology combined with the expanding presence of Internet has increased the threat of cyber attacks. To prepare ourselves to meet these cyber threats, the Department has funded ERNET India to establish a first-of-its-kind Cyber Forensic Lab equipped with advanced forensic tools at CBI Academy. The project envisages imparting high quality computer forensics training to the CBI Officials.

e-Linkage of Jawahar Navodaya Vidyalayas

ERNET India has provided Broadband VSAT connectivity of 128Kbps to 101 Navodaya Vidyalayas in Phase I and connectivity of 256Kbps to 200 Vidyalayas in Phase II & phase III.

MoU with Kendriya Vidyalaya Sangthan

ERNET India has established Broadband VSAT Internet connectivity of 128 Kbps to 25 remote Kendriya Vidyalayas spread throughout the country. Connectivity to the other remote Vidyalayas is in progress.

ICT Vocational Centres for Children with Disabilities-Phase II

50 ICT Vocational centres have been setup across the country for the disabled students with special IT assistive tools and technologies. Further 50 more schools are identified and setting up of ICT infrastructure is in progress.

Each Centre is being equipped with computer furniture, uninterruptible power supply, LAN environment, desktop computers, servers and assistive tools for the disabled children. The schools are also bring provided with internet and intranet access, applications, contents and instructors for imparting training to the disabled children. Special courses including models on computers, usage of assistive devices, English language, personality development and skill development on job oriented applications are being designed.

e-Linkage of Krishi Vigyan Kendras under Indian Council of Agricultural Research

ERNET India has established a captive VSAT Network for ICAR and deployed Information Technology Infrastructure with Broadband at 200 Krishi Vigyan Kendras (KVKs)/ Zonal Project Directorates (ZPDs) under ICAR to develop them into Information Hubs. E-Linkage of the remote 200 KVKs/ZPDs has been established with the VSAT Hub at ICAR Headquarters in New Delhi. The facility is being used for scheduling talks and lectures delivered from the Hub by domain experts on weekly basis for officials of the KVKs/ZPDs.
National Informatics Centre

National Informatics Centre (NIC), an attached office of the Department, is at the forefront for active promotion and implementation of Information and Communication Technology (ICT) solutions in the Government. NIC has spearheaded the e-Governance drive in the country for the last few decades. As a major step in ushering e-Governance, NIC has been involved in supporting the Government in areas of Internet/Intranet Infrastructure and IT empowerment of officers at all levels, preparing IT Plans for Sectoral Development and developing IT based Services including G2G, G2B, G2C and G2E portals.

NICNET, the Pan India, computer communication network of NIC has been the backbone for e-Governance applications. The network operations incorporate Cyber Security, Data Centres, Disaster Recovery Centres, Network Operations facility, Certifying Authority, Video-Conferencing and capacity building set up across the country. ICT support in terms of planning, software design, development and roll out is provided to all Central Government Ministries, Departments, State Governments and District Administrations. NIC has also been designated as the Implementing Agency for National Knowledge Network (NKN) which aims at connecting institutions/organizations in Science & Technology, Higher Education, Research & Development and Governance with speed of the order of multi Gigabits per second.

A number of major initiatives have been undertaken for strengthening backend automation and implementation of citizen centric services. E-payment for various government services, SMS service for sending alerts and updates, e-tendering, e-office, web based counseling for admission into professional courses are some such activities.

E-Governance Infrastructure

NICNET – E-Governance Network Backbone

NICNET, a nationwide computer and communication network of NIC, utilizes state-of-the-art network technologies to provide connectivity to Central Government Ministries/Departments and all 35 States and 616 Districts of India.

NICNET utilizes variety of technologies including terrestrial, wireless and VSAT networking to provide connectivity across the country and is now extending to the grassroots level. Mode of connectivity is decided based on suitability depending on factors such as user requirement and terrain. State Wide Area Networks (SWAN) in a number of States are also being integrated with NICNET. Wireless Metropolitan Area Networks (WMANs) and Local Area Networks (LANs) have also been established in various Government organizations to access NICNET services.

State Government secretariats are connected to the Central Government by very high speed links on Optical Fibre Cable (OFC). Districts are connected to respective State capitals through leased lines. 550 Districts have 34 mbps WAN connectivity from their respective State capitals. These are also equipped with Channelised STM-1 for aggregating various other departments/organizations at district level. Leased circuit connectivity has been provided to 1318 Post Offices across the country. Over 50,000 nodes of Local Area
Networks in Central Government offices and State Government Secretariats are operational including 6500 nodes in NE States. The Integrated Network Operations Centre (INOC) at Delhi manages and monitors all NIC Centres in States, Districts & Bhavans. INOC has been equipped with a Video Wall for effective monitoring of the network services. Facility Management Services are provided at NIC H.Qrs., States, Districts and Bhavans.

NICNET is providing data services through 900 DVB VSATs at various NIC districts, and blocks of North East and Jammu and Kashmir for running the e-Governance applications and transferring their State data. It also provides video, voice & data services through 560 SCPC DAMA VSATs at various NIC districts. NICNET is providing data services through 231 DVB VSATs at blocks of Chhattisgarh and through 359 DVB VSATs at the block level in Orissa for running e-governance applications. NICNET is providing uninterrupted VSAT services from the Disaster Recovery Centre established at NIC Hyderabad when there is service disruption from main VSAT HUB at Delhi.

National Data Centres

NIC has setup National Data Centres at Delhi, Hyderabad and Pune which provide shared hosting and co-location facilities to the Government across India. Besides this, mini Data Centres are also operational in all NIC State Centres to cater to the e-Governance requirements at the State level. The Internet Data Centre (IDC) at Delhi is equipped with more than 450 servers, state of art storage infrastructure and high speed network connectivity. The Data Centre has got ISO/ IEC 27001:2005 ISMS (Information Security Management System) certification for Web Hosting Service, Database Hosting Service, Co-location Service, Storage Service, Backup Service and Webcast Service. The Storage Capacity has been upgraded from 260TB to 500TB during the current financial year. Server virtualization has been implemented for some of the web applications. Remote management devices have been installed to provide remote administration of Servers collocated in IDC. New generation LAN switches have been commissioned in IDC. The National Data Centre at Pune built over 1000 square feet was commissioned in March 2010 and is now fully operational with 137 Server Racks and 150 TB of storage. The centre offers a virtualized environment for hosting application systems. This centre is also acting as Disaster recovery site for some of the State Centers and organizations. The centre is connected to NICNET and Internet through Mumbai, Bengaluru and Hyderabad using 2.5 gbps links. National Data Centre at Hyderabad acts as a Disaster Recovery site for IDC, Delhi and some of the State Centres, apart from hosting large number of critical applications. It is also the DR site for the Messaging Services offered by NIC. The storage capacity at this centre was upgraded during the current year by adding additional 350 TB SAN storage. The power and cooling infrastructure have also been upgraded by installing additional high capacity Generators, Precision AC Units and a Transformer unit. The facilities at most of the NIC Mini Data centres at State Centres were also augmented during this year with the addition of new Automatic Tape Libraries and SAN storage units.

National Knowledge Network

In the initial phase of implementation, a core Backbone consisting of 18 Points of Presence has been established with 2.5 Gbps capacity. 104 Institutes have been connected to NKN and 15 virtual classrooms have been setup at mentoring and mentored IITs. MoU has been signed with service providers i.e. BSNL, Railtel, PGCIL & MTNL to ensure connectivity for the high speed backbone within the country. Trans Eurasia Information Network link (TEIN3) has been integrated with NKN for providing international connectivity for global collaborative research. MoU has been signed between GLORIAD (The Global Ring network for advanced Applications Development), the National Knowledge Network (NKN) and Tata Institute of Fundamental Research (TIFR). A local ring connecting NIPGR, NIPFP, ICGEB, IUAC, NII, and IIMC with JNU has been established. Network Sanitation Lab is being setup at IIT Bombay, for sanitization of network equipment to be deployed in NKN.

Cyber Security

NIC provides necessary security for network, servers, applications and client systems by introducing security appliances at the critical network segments of NICNET using network firewalls, Intrusion Detection Systems/Intrusion Prevention Systems, Application Firewalls, etc. Additionally, work is being done in the areas of Formulation of NICNET Security Policies, Restructuring of the network, Patch Management, Anti-virus Services, Secure Communication Establishment using VPN/ SSL, Scanning of servers for vulnerabilities and hardening, Security Auditing...
of networks and applications, Log analysis, Security Incident monitoring, Analysis and Response, Development of PKI enabled applications, etc. NIC has formulated and circulated Cyber Security Policies, guidelines and SOPs for Government Offices/Ministries.

Certifying Authority

The NIC CA infrastructure has issued about 17,000 Digital Signature Certificates during this year. The Disaster Recovery (DR) system is operational which enables NICCA to recover and renew all critical business processes using the Disaster Recovery site at Hyderabad. Three new Registration Authorities have been established at NIC State Centres in Assam, Andhra Pradesh and Chhattisgarh.

Web Services

NIC is extending comprehensive World Wide Web services to Central and State Governments’ Ministries & Departments in the areas of consultancy, web design and development, web hosting, value added web services for promotion of websites, enhancement of web sites & training. Hosting infrastructure is being provided to a large number of large scale e-Governance projects like CGHS, Panchayat Portal, Government accounting, Exam Results Portal, Online Counseling for Admission to various professional courses across the country. Live webcast services are being provided for various programmes, events and conferences.

NIC Messaging Services

A comprehensive web based Messaging Service has been extended to all the Ministries and Departments of the Government. A Disaster Recovery site has been set up for this service at National Data Centre, Hyderabad. All the NIC messaging domains across India have been consolidated into a single domain i.e. userid@nic.in. Today the service gives messaging cover to over 450 virtual domains. An SMS gateway has been setup to integrate the various applications hosted by NIC for sending alerts and updates. Since its launch in May 2010, over 80 applications have been integrated with the gateway.

Video Conferencing (VC) Services

Multipoint Video Conferencing (VC) services are provided over NICNET from 631 existing studios spread across India. NIC has deployed 41 Multipoint Control Units on NICNET and approximately 8500 multisite conferences with total of more than 1,50,000 site hours of VC Services were decentralized by providing Multipoint Control Units to all States. Web based VC services were launched in January-2011. Any user connected over NICNET or Internet can conduct high definition quality VC in point to point or multipoint conference using their Laptop/PCs. Virtual Class Room was setup over National Knowledge Network (NKN). Total 43 Virtual Class Rooms are being constructed with latest state-of-art technology at 15 IITs and 5 NIC Centres. Similar facilities are being setup at 13 NITs, 5 IIISERs, IIsc, Chennai Mathematical Institute and TIFR. Executive VC Systems (EVCS) network has been extended to the office of Director General of Police (DGP) of all States.

Capacity Building

Training Division at NIC Headquarters conducted update training programmes in PostgreSQL clustering & Replication, Ms Visual Studio 2010, SQL Server 2008, Windows Axure, SQL Azure, Version Control (Subversion), Change Management (Mantis) Web Hosting Services using Virtual Classroom technology, in which over 225 NIC officers from all over India participated. A series of Training Programmes on Software Engineering with emphasis on Requirements and Design were conducted which were attended by over 240 NIC Officers. The programme focused on skill building in creating good quality Requirement and Design Documents using IEEE Standards. Management Development Programmes on Leadership development, Organisational Behaviour Project management were conducted at IIM Indore, IIM Lucknow and LBSNAA Mussoorie which were attended by 90 NIC Middle and Senior level officers. Sponsored programmes included workshops on e-Governance and Trainers Training programme in Hindi. Various components for eForm technology like Code Generator, digital signature and application with workflow have also been developed.

NIC Training Unit (NICTU), Lal Bahadur Shastri National Academy of Administration, Mussoorie provides ICT related training to the officers of All India Services during all the training programmes conducted at the Academy. During year 2010, seven courses conducted for officers of IAS and other services in which more than 300 sessions of training were conducted and training was imparted to about 900 officials.
The NIC eLearning services over NICNET has been upgraded to higher version with better video quality with bigger size and stabilized across NIC. Over 1500 Live Sessions have been conducted over the NIC Web Connect E-learning Services.

**Products and Services**

**Analytics & Modeling**

Services using Business Intelligence systems are being provided at Central and State level. A Business Intelligence (BI) System on Foreign Tourists Arrival and Departure has been developed and implemented for Ministry of Tourism. Proof of Concept was developed and demonstrated to Planning Commission for Bharat Nirman Projects catering to the Left Wing Extremists affected districts. Proof of Concept was also developed on Mother and Child Tracking system for the Ministry of Health and Family Welfare.

**Cooperative Core Banking**

An integrated web based Cooperative Core Banking Solution (CCBS) has been developed to provide core banking facilities to State Cooperative Banks (SCBs), District Central Cooperative Banks (DCCBs) and about 1 lakh Primary Agricultural Cooperative Societies (PACS) across the Country as per NABARD and RBI Guidelines. The CCBS caters to the need of all the three tier of cooperative structure and will also provide monitoring mechanism for State Cooperative Departments and NABARD. The application has been implemented on pilot basis at Hathoj PACS of Jaipur district of Rajasthan and MoH has been signed between NICSI, NABARD and Sikkim State Cooperative Bank for CCBS implementation in SISCO Bank, its branches and village level cooperative societies.

**CollabCAD**

As a process of inducting CollabCAD in the design process at VSSC, advanced training, benchmarking and testing have been conducted during November-December 2010. Three major CollabCAD releases have been made during this year. An Enterprise Edition of CollabCAD along with a quantitative tracking system has also been implemented. The 64 bit version of CollabCAD was released. The extension of CollabCAD to biomedical applications has been accepted as a model project for demonstrating the capability of the NKN. CollabCAD Support and Training Centres have been established in various educational institutions. CollabCAD Marketing and Support centres have also been set up in different centres for the promotion of CollabCAD to educational institutions and industry including SMEs. CBSE has introduced CollabCAD in the course curriculum of the Engineering Graphics course for XII from the 2010-2011 session onwards. Master Training Workshops were conducted for the CBSE faculty at New Delhi, Chennai and Ranchi in March/April 2010.

**Digital Archiving and Management**

NIC is providing Digital Archiving services using DSpace, a tool which captures, stores, indexes, preserves and redistributes content in digital formats. This tool is being used to develop repositories of digital records for several Government Departments/Agencies. 2,21,000 records of debates from 1992 to 2008 have been uploaded. Users can conduct multilingual full text search on these records. NIC has set up Digital Herbarium (DH) for Botanical Survey of India (BSI). Also, an Indian Virtual Herbarium (IVH) has been developed at a central location with high speed Internet connectivity. Knowledge Repository of Inter-State Council of India contains the Report on Centre-State Relations of the Sarkaria Commission. The Judgments Information System comprising the Judgments of the Supreme Court of India, several High Courts and district courts of India and a digital archive of the same has been created. A digital repository for India Code Information System containing all Central Acts of Parliament right from 1836 onwards has been developed.

**e-Governance Standards**

Policy on Open Standards was released by the Department in November 2010. The Metadata and Data Standards in Person Identification and Land Region Codification Version 1.0 have been notified and released by the Department. The documents on Face Image data standards and Fingerprint Image and Minutiae Data Standards for Indian e-Governance applications have been released and published in November 2010. Phase I report on identified Technical Standards as per the Policy on Open Standards has been prepared for the areas identified by the Department. It is web published for Public review. Two documents were prepared by Expert Committee as base documents. Using them, CCA, the Department issued the following documents for use by e-Governance applications:

(i) Interoperability Guidelines for Digital Signature
Certificates issued under Information Technology Act and (ii) Guidelines for Usage of Digital Signatures in e-Governance for Information Security.

A tool has been designed for uploading, managing and version controls of e-forms at server using xforms as standard. The task force has developed sample e-forms using x-forms technology, and working on evaluation of available latest technology tools in this area. Quality Assurance Framework (QAF) and Conformity Assessment Requirements (CARE) documents were prepared and released.

**e-Hospital**

e-Hospital@NIC consists of more than 14 core modules that cover major functional areas of the Hospital viz., Out Patient Department, In Patient Department, Casualty, Ward Management, Operation Theatre Management, Clinic Information, Path Laboratories, Radiology, Blood Bank, MRD, Stores & Inventory Control Management, Accounts, Personnel Management, etc. The product is available for roll out through NICSI. This has been implemented in 12 major hospitals including RML Hospital, Delhi and State Referral Hospital, Agartala.

**e-Office**

e-Office has been developed as a standard reusable product amenable to replication across the Governments, both at the Central and the State levels. Transforming the paper based office processes into electronic processes to minimize and eventually eliminate paper forms and manual forwarding is an important aspect in e-Office. The main services offered through e-Office, which is an Open architecture based product, are e-File, Knowledge Management System(KMS), e-Leave, e-Tour, Personal Information System, Collaboration and Messaging Services, etc. e-Office MMP pilots in Department of Administrative Reforms & Public Grievances(DARPG), e-Governance Division of the Department and Department of Personnel & Training (Training Division) are under implementation. e-Office has been implemented in Planning Commission, Ministry of Finance, Ministry of HRD, Lal Bahadur Shastri National Academy of Administration (LBSNAA), Ministry of Rural Development, etc. File tracking system based on the Central Secretariat Manual of Office Procedures has been implemented in more than 25 Ministries/Departments.

e-Service Book has been implemented in collaboration with Department of Personnel & Training for Central Government employees. 78 Central Ministries/Departments and Apex organizations are participating in e-Service Book project. Basic employee details in respect of about 26,500 employees at Delhi have been created. MIS has been generated to help in retirement, recruitment planning, policy compliance and other HR policy planning.

**GIS and Remote Sensing Services**

National GIS Web Portal has emerged as single window system for delivering of Spatial Data Infrastructure & Services. Activities include leveraging Framework Spatial Data Infrastructure to States. GIS Services Roll-out in States include Transformation of Spatial Data from Everest Datum to WGS 84 Datum for bringing data in Open Series Map format for citizen/public services, Enhancement of Ground Verified Village Boundaries and village/habitation location, Spatial Data procurement, enhancement, updates, development and building re-usable GIS products for deployment in application services. State Spatial Data Infrastructure Initiatives have been undertaken in Bihar, U.P., Tamil Nadu and Rajasthan. GIS services have been deployed at National, State and District Level using spatial and non-spatial data available with NIC for e-Governance and planning purpose for critical sectors such as Telecom (OFC Mapping), GIS mapping of Rural Post Offices and Pin Code Area Mapping, education, Election, water, soil, agriculture and environment. Ground Water Information System from CGWB and Sports Infrastructure Mapping for Common Wealth Games are some significant achievements. Telecom Infrastructure has been mapped to facilitate high speed broadband connectivity to Panchayats in Rural Areas.

**Government e-Procurement Solution of NIC (GePNIC)**

GePNIC provides secure online tender creation, publishing, Bid Submission, Bid Opening, Technical Evaluation (Offline), SOR Based Financial Evaluation, Communication and Publication of Award of Contract Information. The solution is generic in nature and has been adopted for all kinds of procurement by government offices, particularly for works related tenders. Since the inception of the system, 48,294 tenders worth ₹ 66,864.79 Crore have been processed. The new users during this year include Government of UT, Chandigarh, PWD, Punjab and Government of Jharkhand.

e-Procurement for PMGSY was extended to
cover 21 States during the current year. New features added during the year were provision for Multi-Currency, SMS integration for Orissa GepNIC, publishing of first e-auction in Tamil Nadu Government from Ambttur Municipality.

**Smart Card**

Smart Card based applications are implemented for a number of National and State level projects. Driving License & Vehicle Registration Certificate (DL/RC), Multi-Purpose National Identity Card (MNIC), Rashtriya Swasthya Bima Yojana (RSBY), e-Passport and PDS respectively are some of the major projects implemented across the country. Key Management System (KMS) of DL/RC for the States of Goa, Delhi, Andhra Pradesh, Assam, Gujarat and Uttar Pradesh have been done this year and approximately 1182 number of authority cards were issued to the State nodal offices. MNIC (Multipurpose National Identity Card) is an initiative of the Ministry of Home Affairs and Office of Registrar General, India to create a national ID for every Indian citizen with the objective of obviating the need for multiple documentary proofs. It is desired to allow multiple applications integrated onto a single smart card. Ministry of Labour and Employment has entrusted NIC to design and develop KMS software for the Rashtriya Swasthya Bima Yojana (RSBY) project. The System should provide the mechanism, so that only authorized agencies are able to perform the card data modification to complete the field transactions. Software for implementing these requirements has been developed. Maintenance and updation in the applications for SCOSTA-CL cards has been carried out for the year 2010-11. e-Passport, a biometric passport uses contactless smart card technology, embedded in the back cover for Indian passport. Under Public Distribution System Project, existing Paper based Ration Cards have been replaced with Smart Cards having all biometric, demographic and personal information details of people. The pilot project for PDS is running in Haryana and Chandigarh.

**Utility Mapping**

Under the Computer Aided Digital Mapping Project for Six Cities, the map compilation and attribute data collection in the field and its linkage to the corresponding base map features for Bengaluru and Kolkata has been completed. The utility agencies of Ahmedabad, Chennai, Hyderabad and Mumbai city are able to access the base map data, compiled earlier and located at the central map server, to overlay their utility network such as water, sewage, electricity, telephone on the digital base map using location identification. Linking of assets data of Chennai Corporation is completed. Under the Computer Aided Digital Mapping Project (Delhi), base map updating for south-west Delhi and 30% of central Delhi has been completed from aerial photography of the year 2002. The digital base map is being accessed by Delhi Jal Board, Delhi Police and Delhi Traffic Police on 24 X 7 basis.

**Web based Admission Counseling**

NIC is undertaking web based counseling for admission into professional courses for Central and State counseling Boards across the country under the Ministry of Human Resources Development. National Projects undertaken during the current year include AIEEE based counseling for Central Counseling Board for admission to B.E./B.Arch, and admissions for National Council for Hotel Management & Catering Technology. Similarly, counseling for Andhra Pradesh, Delhi (Polytechnic & NSIT), Gujarat, Haryana, Punjab (DTE & PTU), Chandigarh (PEC), Orissa (DTE & OJEE), Uttar Pradesh (Engineering, Medical, Diploma & B.Ed.), Uttarakhand (B.E. & Diploma) was also carried out. In all, for 82,91,730 eligible candidates, 11,43,689 seats were offered. Around 3,700 Centres have been established which acted as Admission/Help/ Counseling Centres helping the candidates for smooth counseling process.

**Website Guidelines**

Guidelines for Indian Government Websites (GIGW) have been created for Consistency in navigation, Identity issue, Layout, Content structure, Document formats, Copyright, Privacy and Management policies etc. The GIGW has been mandated by the Government and become an integral part of the CSMOP. Initiatives such as empanelment of vendors for providing GIGW compliant website development services & demand based training are being conducted.

**Major National Level Projects**

**Common Integrated Police Application (CIPA)**

CIPA Software, developed in Java and deployed using Open Source Software tools viz., Linux, PostGreSQL, OpenOffice etc., has been rollout at 4000+ Police Stations across all the States/UTs.
CIPA Software also provides Indian language support by facilitating the users to enter the contents, by local languages. Consolidation of the Police Stations databases at the State level has been implemented by Tamil Nadu and Puducherry, besides Delhi. Web-based software interfaces based on the consolidated State Database for use by the higher authorities have also been developed by these States.

**Commercial Tax Computerisation**

The Value Added Tax (VAT) system has been introduced from 1st of April 2005 and most of the States have computerized it to provide better services to the business community efficiently with greater transparency. NIC has been implementing VAT computerization in 12 States for the last few years; providing eServices like e-filing of VAT returns, e-filing of CST returns, e-Payment of Challan amount, etc. During this year, NIC was asked to implement the same in all North Eastern States. Accordingly, Gap Analysis between the existing and proposed systems has been carried out. The NE States have approved the proposal and are in the process of releasing funds to NICSI.

**Courts Information Systems (COURTIS)**

Site preparation activity has been completed at 755 district and subordinate court complexes. Local Area Network has been established at 142 district and subordinate court complexes. Computer hardware has been installed at 376 district and subordinate court complexes. Application software has been deployed at 783 district and subordinate court complexes in the current financial year, including the court complexes where computer hardware had been procured through previous schemes. As Technical manpower, 9 System Officers and 192 Systems Assistants have been deployed at judicial districts in this year. Generator Sets have been procured to provide power backup at 228 district and subordinate court complexes. Laptops have been procured and delivered to 945 Judicial Officers of district and subordinate courts.

**India Image**

India Image Programme is aimed at establishing Government presence on the web. NIC offers Design, Development and Consultancy on Government Websites and Portals. Consultancy and support is given to Government Departments in designing new sites as well as enhancing existing websites. Number of existing websites of the Government were reviewed & redesigned to make them compliant with Guidelines for Government websites. These included Ministry of Finance, NIC Home portal, Department of Information Technology, Department of Social Justice etc.

**Immigration, Visa, Foreigner’s Registration & Tracking (IVFRT)**

The project aims at developing an integrated system across the functions of immigration, visa and foreigner’s registration and tracking as part of a broader emphasis on immigration control. IT infrastructure and services are being set up at 77 immigration check posts, 170 Indian Missions abroad, 7 FRROs and about 600 FROs. During the first phase of implementation, NIC has implemented the project “Indian Visa online”. NIC has completed implementation at Bangladesh, United Kingdom and Pakistan.

**Land Records Computerization Project**

The basic service of distributing computerized Record of Rights (RoR) is operational in around 4000 tehsils of the country. The Bhunakha software for integration of Record of Rights (RoR) and Maps has also been implemented in the States of Chhattisgarh and Haryana where RoR and map abstract are being distributed from computers. The training on Bhunakha System has been given to officials of Tripura and pilot run is being done for one Revenue Circle. The customization of system is being done for Orissa and Himachal Pradesh. NLRMP training of trainers has been given to 621 Revenue Officials at 31 locations. This has been instrumental to prepare trained manpower to further train field level survey and revenue officials.

**National Portal of India**

National Portal of India, provides one stop source of Government information & services both in English and Hindi and it acts as a Gateway to over 6700 Indian Government websites. National Portal Coordinators (NPCs) at the level of Joint Secretary have been nominated in each State & CSPs are engaged at the local level to further strengthen the NPCs with content contribution. Portal Content Framework developed to ensure that the contributors, belonging to any constituent of the Government at any level, contribute content in a pre-set standardized format through a CMS. Institutionalization of Web Ratna Awards to promote exemplary e-Gov Initiative, undertaken by Ministries/Departments/States instituted under the
categories of Citizen Centric Service, Public Participation Initiatives, Outstanding Web Content, Innovative Use of Technology etc. The portal is Compliant to National & International standards with ISO certification against Quality Characteristics-functionality, reliability, usability, efficiency, maintainability & portability, Website Quality Certificate Level 1, complies with priority 2 (level AA) of the Web Content Accessibility Guidelines (WCAG) 2.0 laid down by the W3C.

National Consumer Call Preference (NCCP) Portal

In order to enforce the mechanism to stop Unsolicited Commercial Communications (UCC) to telecom subscribers, Telecom Regulatory Authority of India (TRAI) has brought in new UCC Regulation to enforce stringent penalties and blacklisting of Telemarketers (TMs) making UCC calls. The provisions of the regulation are implemented through National Commercial Communications Customer Preference in place of existing National Do Not Call Registry (NDNC) Portal. The presently registered 95 million customers in the NDNC Registry database have been migrated to the new registry. The customer can now register to receive calls only on his/her preferred services and block rest of the telemarketing calls/SMSe. The TMs can now register with TRAI online by paying registration fee through payment gateway.

NREGAsoft

Workflow based, transaction level, local language enabled MIS has been developed for MGNREGA. NREGAsoft has introduced the concept ICT for masses, transparent system, exchange of data among various other applications etc. The system provides G2G, G2B, G2C, C2G services through the portal. Presently e-system has around 11 crore job cards having names of around 24 crore workers and the details of when they demand jobs, when and which worksite is allocated to them and when they have actually worked on the worksite and the amount they earned. The system has been designed to overcome the barriers of internet connectivity, language and illiteracy.

OncoNET India

This project envisages connecting of 27 Regional Cancer Centres with associated Peripheral Cancer Centres to provide early cancer diagnosis/detection, treatment and follow up for cancer patients. The project has been implemented in 4 Regional Cancer Centres and 4 Peripheral Cancer Centres at present till date.
Postal Life Insurance

Web based Postal Life Insurance software has been implemented to automate the workflow for issuance of policies and managing the accounts for each policy holder starting from acceptance of proposal till exit of the policy. This system is being used by 23 circles, 45 regions, 450 divisions and 850 Head Post offices across the country. Various modules incorporated in the software during the current year are Proposal entry and incentive calculation for agents, SMS integration for sending alerts/ acknowledgements to policy holders, Premium payment by insurant anywhere in the country, Instant transfer of policy, Assignment, conversion and Lapse policy, etc. Online fund position is provided to the PLI Directorate on a daily basis so that it can be invested in the market. Presently there are more than 51 lakh and 146 lakh active policies in the Postal Life Insurance (PLI) and Rural Postal Life Insurance respectively (RPLI).

Property Registration

The property registration has been computerized in around 3000 sub-registrar offices of the country enabling better citizen services and generation of various statistical reports for departments purpose. e-Stamping system has been implemented in the States of Assam, Gujarat and Delhi. The property registration system has been further integrated with land records mutation process in the States of Maharashtra and Himachal Pradesh.

Transport

VAHAN and SARATHI software services were extended through RTOs/DTOs at various States. Smart Card based Driving Licenses (DLs) and RCs are being issued. Creation of State and National Registers is in progress. The National Permit portal is now operational and is being used by a number of States. Workshops have been arranged to increase awareness in various regions.

Sea Port Project

An Enterprise-wide Port Business Applications system for Indian Sea Ports supporting G2B and G2G e-Governance mission has been developed by NIC. Port Operations Management System (POMS) for sea-ports, a product supporting Vessel, Cargo, Container, Berth, Railway, CFS & Billing operations having seamless integration with respective Customs as well as Port Business Stakeholder (Agents) message through Port Community System Portal of IPA has been implemented. “POMS” is operational in Kolkata Dock System and Ennore Port Limited, Chennai. The same is being initiated for Chennai Port Trust.

SMART Card based Public Distribution System

A pilot project has been initiated to replace paper based Ration Cards with SCbPDS in Haryana and Chandigarh. Generic software has been developed by NIC and tested by the respective State Governments. The project envisages Introduction of SCOSTA compliant Smart Cards for all the stakeholders, Web enabled, role and workflow based Application Software on Open Source platform and Distribution of commodities at FPS through PoS terminals using biometric authentication to check genuineness of beneficiary.

NIC Services to Central Ministries and Departments

Accounts Informatics

A website has been developed to work as a middleware to facilitate electronic payments and act as a gateway between PAOs, Pr AOs and Accredited Banks. Already 195 PAOs of Civil Accounts Organization have been extended NICNET connectivity to form an Intra-CGA VPN. About another 100 PAOs are also going to be covered. A File Movement System has been developed for CBDT to facilitate movement of Challans, Error Challans, Refunds and Bank Scrolls electronically from different bank locations to the Central Server and Interface with the Revenue Zonal Account Offices. The CompDDO package has been implemented in number of Government offices. NIC has developed Central Plan Scheme Monitoring System (CPSMS), a web enabled application, to track the fund disbursement from Government to various levels down below under Plan Schemes till the last level of utilization on a real time basis. This portal is operational in States of Madhya Pradesh, Punjab, Bihar and Mizoram for 4 major schemes viz. Sarva Shiksha Abhiyan, National Rural Health Mission, Pradhan Mantri Grameen Sadak Yojana and Mahatma Gandhi National Rural Employment Guarantee Scheme. The system is interfaced with Core Banking Server of 10 major banks.

Agriculture

With the expanding reach of the AGMARKNET portal to over 3000+ Agricultural Produce Wholesale Markets (APWMs) spread across the country, a gap
analysis has been performed in consultation with
internal and external stakeholders. An e-Alert system
has been introduced to keep informed the registered
users about the prices to general public and
anomalous price to project implementers for
corrective measures. Prices are also being
disseminated through SMS for the use of internal
users. NIC is executing the computerization of
Agricultural Census 2005-06 and Input Survey
2006-07 in 3 phases. The data processing of
characteristics of
operational holdings like
tenancy, land use, irrigation
status, sources of
irrigation, area under
different crops (irrigated
and unirrigated) etc., has
been completed in all the
States/UTs except the
State of Madhya Pradesh.
The National Food Security
Mission (NFSM) Portal
giving information base for
scheme monitoring,
decision-support and also
database on Area, Production and Yield (APY),
Baseline survey, NFSM Crop varieties, NFSM Crop
calendar, etc., was developed and Seednet India
Portal, a national initiative for information on Quality
seeds, was further enriched. MIS for various national
level schemes have been developed for effective
monitoring, implementation, and generation of
baseline data for further enrichment of schemes. The Retail Prices Monitoring System and Pest
Disease Information System are operational.

**Audit**

Augmentation of application
software for On-line submission of
application of Chartered Accountant
Firms, Empanelment of CA Firms and
Allotment of PSU Audit for the year
2011-12. Development of Draft Audit
Para (DAP)/Action Taken Notes (ATN)
Monitoring System for Indirect Tax
Wing of CAG Office, Guest House
Management System for the CAG
office, Uploading and watching of
Circulars on web has been developed
and implemented for Commercial Wing
of CAG Office.

**Cabinet Secretariat**

The Results Framework Management System
has been developed for the Cabinet Secretariat. The
system allows the 62 Departments of the Central
Government to enter the RFD and Sevottam
Compliant Citizen Charter. The system allows the
achievements to be updated for the performance
monitoring. MIS and Analysis Reports, Graphical
Analysis, role based privileges and calculation of
Composite Scores and Trend Values are some of
the salient features of the application.

**Civil Aviation**

Crisis Management Plan has been prepared for
Rajiv Gandhi Bhawan, Ministry of Civil Aviation
dealing with cyber related incidents. Necessary
remedial actions to mitigate & recover from malicious
cyber related incidents impacting critical
organization processes. It also includes Business Impact Analysis (BIA), Disaster Recovery Solution (DRS) & Business Continuity Solution (BCS). IT Plan has been formulated for Bureau of Civil Aviation Security. A website has been designed for Airport Economic Regulatory Authority.

**Commerce and Industry**

The revised Wholesale Price Index (WPI) series (base year 2004-05) was implemented and released. First time, on-line WPI prices are being collected amongst Developing Countries.

**Customs and Central Excise**

Indian Customs EDI system is a workflow automation system for processing of documents submitted for clearance of cargo meant for international trade. ICES Version 1.5 was implemented in more than 80 customs location. Centralised Directory Management module was designed and developed. New modules like baggage, transhipment were designed/developed and integrated with ICES 1.5. Centralized Port Community System (PCS) is an initiative by Indian Ports Association (IPA) intended to provide a single window system for the Port communities in India to securely exchange the documents and information electronically.

**Doordarshan**

Booking cum Information Office activities web portal for Commonwealth Games Delhi 2010 was completed for Doordarshan. The Bihar Assembly election Result analysis Program for Doordarshan News to publish online data directly coming from the counting centres on 24th November, 2010 was provided. All the News Bulletins for Doordarshan are prepared, telecast and archived using the Newsroom Automation System.

**Election Commission**

Dissemination of election results to public/citizens during General Election to Bihar Legislative Assembly, 2010 was carried out using NICs Integrated Data Centre, Delhi and Disaster Recovery Centre, Hyderabad. Communication Plan for Election Tracking (ComET) for State Legislative Assembly of Bihar was designed and developed by NIC. GIS based thematic maps were prepared for election planning to visualize the field parameters. During the year, all the ECIs websites were audited and hosted at NDC, Pune. NIC field units were involved in providing support for pre-election and post-election activities. Video Streaming of Online poll day activities from sensitive polling booths during Bihar Assembly Election was carried out using NICNET for ECI. Coordinating for Composite Payroll System implemented at ECI.

**Energy, Pharmaceuticals & Chemicals**

Websites for the newly established Department of Pharmaceuticals and Jan Aushadhi Scheme were developed. Portals for Rajiv Gandhi Grameen Vidyutikaran Yojana (RGGVY), Jawaharlal Nehru National Solar Mission (JNNSM) were enhanced. Online Systems were developed for directory of generic medicines and branded medicines. e-Declarations System for online submission of various declarations under Chemical Weapons Convention Act for Department of Chemicals and Petrochemicals, Development of Work-flow based Integrated MIS to automate work processes for National Pharmaceutical & Pricing Authority (NPPA). Development of a web enabled system for Department of Chemicals & Petro-Chemicals to facilitate online capturing of production data of various chemicals and Petrochemical products, Development and implementation of a web based application of Overseas Projects Information System (OPIS) for monitoring of physical and financial progress of overseas projects taken up by the Oil Sector PSUs.

**Employees Provident Fund Organization**

NIC is involved in design, development and implementation of the EPFO (Employees Provident Fund Organization) Modernization project under Ministry of Labour. This system was implemented at SRO Karnal and rolled out at over 80 offices during the year. The new software automates the service area of EPFO for speedy claim settlement, timely issue of annual accounts and disbursement of pension to pensioners. Members have been provided with facility of payment through ECS/NEFT. During the year Tatkal service counter was also started at one of the EPFO office at EPFO, Faridabad.

**Environment and Forests**

GIS Based Emergency Planning and Response System (GEPR) completed for fourteen States of the country. Phase-III of the project has been implemented in Gujarat and Maharashtra with enhanced features. Chemical Accident Information and Reporting System (CAIRS) facilitates faster
reporting of chemical accidents and trend analysis of the accidents. National Hazardous Waste Information System (Phase-II) keeps the inventory of more than 36,000 various hazardous waste generating industries. It also monitors and reports their compliance status to State/Centre Pollution Control Board and Ministry of Environment & Forests Officials. GIS for National River Conservation Plan (NRCP) covers the major seven States of Ganga river basin viz., Uttarakhand, Haryana, Delhi, Uttar Pradesh, Bihar, Jharkhand and West Bengal and the major five rivers Ganga, Yamuna, Gomti, Damodar and Hugli. GIS Analysis tool uses various GIS Layers for spatial analysis and can generate static/dynamic thematic maps. Analysis through Satellite Imagery is also possible.

**External Affairs**

Missions Support centre was started for giving support to RPO, Missions and Headquarters for Information Technology related issues of Passport, Visa, Overseas Citizen of India card and Emergency certificates. Indian Council of World Affairs has been computerized and digitization of newspapers and rare books is being done. A new GUI based Passport Management system has been implemented in Passport Offices at Mumbai. Outsourcing of Passport and Visa applications were computerized at Indian Missions at Dhaka. Emergency certificate module was implemented in Kuala Lumpur. Online Visa application registration system developed and implemented on pilot basis at London, Edinburg, Birmingham, Dhaka, Rajshahi. A web site for online registration of the yatris applications for Kailash Manasarvor Yatra was created and selection of Yatris was done through computerized random selection. Integrated Mission Accounting System software was implemented in 130 Missions. The official Web Site of Ministry of External Affairs was modified and maintained.

**Fertilizers**

ICT Based Enterprise wide Solution for Fertilizer Management (G2G, G2C) has been formulated in consultation with Department of Fertilizers to ensure timely fertilizer availability and management of subsidy payments. A DPR to undertake this is being prepared.

**Finance**

e-Office was implemented in Ministry of Finance during April, 2010 along with the migration to the new FTS of NIC. Web based Budget Information System was developed to capture the data in respect of SBEs of various Ministries/Departments and compile the same for generation of Expenditure Budget Volume I & II, Demands for Grants, Receipt Budget and Annual Financial Statement. The web site of Ministry of Finance was redeveloped to comply with the guidelines of DARPG and make it universally accessible. SRS was completed and submitted to the Central Bureau of Narcotics (Department of Revenue) for development of monitoring system on usage of Psychotropic Substances.

**Food Processing**

Database on Food Technology & related courses being run in around 250 institutions all over India has been developed and made available to the public through the Ministry of Food Processing Industries Website. For effective implementation of various plan schemes of the Ministry of Food Processing Industries (MoFPI), web based systems are being evolved for the benefit of various stakeholders.

**Food, Public Distribution and Consumer Affairs**

A pilot project has been initiated to replace paper based Ration Cards with Smart Card in Haryana and Chandigarh. Integrated Information System for Foodgrains Management (G2G) for Food Corporation of India (FCI) is a flagship project which operates through a country-wide network of 5 Zonal Offices, 23 Regional Offices and 170 District Offices. It captures stock position of grains stored in around 1700 depots managed by FCI. Through this, the latest stock position and trend analysis on off take and availability of grains etc., is made available to the planners and decision makers over the web.

**Health and Family Welfare**

An online Mother and Child Tracking System (MCTS) has been made operational for all the States and UTs. An offline version of the MCTS system has also been developed for Primary Health Care centres which do not have internet connectivity. All India roll out is in progress. Computerization of all functions of the dispensary under the Central Government Health Scheme (CGHS) has been implemented in all the 24 CGHS cities including Delhi/NCR covering 248 allopathic Wellness Centres (WCs). The introduction of plastic cards for every individual CGHS beneficiary with the barcoded number has been implemented in Delhi/NCR. A web
based Inventory management system for Medical Stores Organization (MSO) and General Medical Stores Depots (GMSDs) has been developed and implemented at all locations in India. Under the system for Online allotment and Display System of Central Quota of UG/PG Medical/Dental seats, VC based on-line allotment is being done at Delhi, Kolkata, Chennai and Mumbai, through NICNET. More than 2250 MBBS and around 200 BDS Seats are allotted at the undergraduate level in 127 colleges across India. At post graduate level 4250 MD/MS/Diploma in 106 disciplines and 154 PG Dental seats in 28 Dental Colleges across India are being allotted.

**Home Affairs**

The first phase of the Immigration, Visa and Foreigners Registration & Tracking (IVFRT) has been completed at Bangladesh, United Kingdom and Pakistan. Under the first phase, NIC has implemented the project “Indian Visa online”. MIS for Border Area Development Programme (BADP) for Baseline survey, Annual action and progress of BADP has been implemented for MHA. It covers 387 border blocks, which are located along international border and come under 96 border districts of 17 States and 28000 villages. This system helps for monitoring, fund-release and communication between MHA, States, districts and executing agencies. NIC has developed and implemented the Indian Citizenship online application software based on the provisions of various sections of Indian Citizenship Act, 1955.

**Housing and Urban Poverty Alleviation**

JNNURM MIS was developed for monitoring the projects of BSUP & IHSDP for the JNNURM scheme. SJSRY Monitoring Information System is developed to monitor the five different major components, namely: Urban Self Employment Programme (USEP); Urban Women Self-help Programme (UWSP); Skill Training for Employment Promotion amongst poor (STEP-UP); Urban Wage Employment Programme (UWEP); and Urban Community Development Network (UCDN). MoHUPA Website was redesigned. Several Videoconference sessions had been arranged to monitor the progress of various schemes of the Ministry. Direct Fibre connectivity has been provided to the JNNURM Mission Directorate from the NIC Data centre, Nirman Bhavan and with back up line from the MoUD computer centre, Nirman Bhavan to eliminate the cascading.

**Human Resource Development**

Online Entrance Test has been conducted for MCA, B.E. & B.Pharm for Haryana State Counseling Society, in which 10,646 candidates have appeared. Web Counseling for admission for under graduate and post graduate technical courses was carried out across the country. National Portal for Sarva Shiksha Abhiyan has been developed and launched and is being updated regularly by a majority of districts. Intranet portal for the Ministry has been customized and implemented for more than 300 officials of the Ministry, having file tracking system, document management and personal management system etc.

**Information Technology**

An enhanced version of the Intra-DIT portal for the G2G and G2E services was implemented in the Department with new features and applications. A new application for generating Security pass for all contractual employees and Visitor pass for the visitors has been implemented. An upgraded version of the File Tracking System (FTS) in the open source technology was implemented. Some of the useful applications implemented are Record Management, online work flow based Leave Application, Project Monitoring, Expenditure Monitoring, Parliament question and answer, Knowledge Management (Library, E-magazine, Newspaper/News), Online Complain Monitoring System, On line IT Proforma and IT calculation sheet, e-Profile containing the complete details of the employee, EDB system, work flow application for the Inventory of Consumable and Non-consumable items in the store, UC Report, Payment Details, Telephone Bill, etc.

**Information & Broadcasting**

NIC has developed and implemented software for DAVP for Automatic Media list generation and for Audio Visual Billing. The NewsOnair Portal was modified and two new features of Podcasting and News on mobile were introduced. The PIB website was revamped. From this year the process of accreditation and renewal of the same for all the eligible Indian and foreign journalists based in Delhi and its vicinity is now completely automated from receiving application to printing card. The databank thus created also used to facilitate accreditation for special events like election, Parvasti Bhartiya Divas etc. MIS software was designed, developed & implemented for TV Channels, TV Teleports, FM
Channels & Community Radio Station, Main Secretariat and Ministry of Information and Broadcasting. This software facilitates tracking of application during granting permission to new channels, recovery of revenue in the form of annual license fee, generates automatic reminders for the defaulters etc. SMS gateway has been setup through which bulk SMSs are being sent to the corresponding media.

**Library Services**

e-Granthalaya, a low cost Library Management Software has been developed by NIC for automation and networking of libraries. Installation base has gone up to 2000 by December 2010, which includes Police and Prison Libraries, Schools Libraries, Universities/ Colleges Libraries, Public and Government Libraries. NIC Library has subscribed to e-Books collection from renowned publishers. NIC Library also provides Current Awareness, SDI, document lending, Inter Library Loan, and Reference services. Online services like Research Reports, Newspaper Clippings Service-NEWSNIC, and Web browser access to Books Catalogue, Articles database, Journals holdings are provided.

**Labour and Employment**

Rashtriya Swasthya Bima Yojna (RSBY) has been launched to provide health insurance coverage for Below Poverty Line (BPL) families. NIC is providing total IT solution for Smart Card Standardization (SCOSTA Compliance), designing, maintenance and hosting of dynamic RSBY, database management of enrollment, transactions of BPL data, software development and management of various activities.

**Minority Affairs**

Web based Monitoring System for Schemes under Multi-sectoral Development Plan (MsDP) has been developed. The DPR for computerization of WAKF Records was prepared.

**National Human Rights Commission (NHRC)**

National Human Rights Institutions [NHRIs] website was launched. The hardware and other logistics for Human Rights Complaint Network [HRCNet] were procured, commissioned and made operational at four SHRRCs namely Uttar Pradesh, Madhya Pradesh, West Bengal and Assam. Complaint Management System (CMS) was also customised and installed at Orissa State Human Rights Commission, Bhubaneshwar. The NHRC has extended its reach by accepting the complaints through internet. The CMS has been converted into a web based system for SHRCs.

**North East Projects**

The tele-education service in the senior secondary schools of North East States started last year is being continued. Specially designed Crash Course is being delivered in virtual mode for two hours a day and five days a week. Over 2100 students from 49 schools have registered for this service. SMS alerts on sessions, Study Skills, Examination strategies are being sent on daily basis to students and their parents. The subject-wise recorded sessions are also available over website (as well as on CDs for offline access by schools/students.

**Official Language**

A web-based Hindi enabled Office Procedure Automation (OPA) package for Document and File Tracking has been implemented. Regular technical support has been provided for Quarterly Progress Report Monitoring Systems to monitor the progress of use of Hindi in Ministries/Departments, computerized result processing of various examinations, implementation of IntraGOV for Central Hindi Training Institute, implementation of CompDDO package in Central Translation Bureau and in development of Hindi related software systems.

**Parliament**

For Rajya Sabha Secretariat, Web accessibility features in English and Hindi website of Rajya Sabha have been incorporated. Online Digital Archives of Rajya Sabha Debates since 1952 using DSpace application. Flash webcasting for Lok Sabha TV and Rajya Sabha Proceedings undertaken. Digital Audio Recording of Rajya Sabha Proceedings, MIS for Media and AV Unit of Rajya Sabha Secretariat and Webpage of Hon’ble Deputy Chairman, Rajya Sabha are some of the other Projects. For Lok Sabha Secretariat, Development of new website for Speaker, Lok Sabha in Hindi, Website of Bureau of Parliamentary Studies and Training, Website of Parliament Library, Website of CPA, for Ministry of Parliamentary Affairs Enhancement of MPA’s website for accessibility features has been done. For Vice President’s Secretariat Enhancement of Bilingual Website of Hon’ble Vice President of India has been done and Intranet application has been developed.
to keep record of Representations received by HVP for grievances.

**Panchayat Informatics**

PlanPlus, an e-Governance solution designed to facilitate decentralized planning, is already online and fully functional for the past two years in all the 27 BRGF States (and 250 BRGF districts) of the country. State level workshops and a National workshop were conducted to assess the needs of the end users. PRIASoft, an accounting software, was launched this year. Training is under way in many States. The software is being used by many States including Andhra Pradesh, Assam, Madhya Pradesh, Orissa, Punjab and Uttar Pradesh. Computer-Based Tutorials for PlanPlus and PRIASoft are being prepared in 10 languages. Under ePanchayat Software Development, SRS preparation for all 12 Software applications has been completed.

**Pension and Pensioners welfare**

CPAO Website restructured to provide single window interface for pensioners of Central Civil Government. It has G2G, G2C and G2B Interfaces with PAOs/Ministries, Pensioners and Banks. Its data is updated on a daily basis including all circulars issued by CPAO and DPPW. Web based Grievance Monitoring System designed, developed and implemented. A pilot project on e-Scrolls with 3 banks, State Bank of India, Axis Bank and Bank of Baroda has been undertaken. The SRS of a new project NPS-AR (New Pension Fund Additional Relief) is under preparation.

**Personnel and Administrative Reforms**

Version 4.0 for Centralized Public Grievances Redress and Monitoring System (CPGRAMS) which is being used by more than 1500 organizations has been released. State versions of CPGRAMS for Haryana and Orissa were launched. Telecom Consumer Grievance Monitoring System (TCQMS) for Telecom Regulatory Authority of India (TRAI) and SEBI Complaints Redress System (SCORES) for Securities Exchange Board of India (SEBI) have been developed. e-Service Book facility has been extended to 78 Ministries / Departments (H.Qrs.) to facilitate electronic maintenance of service books of over 26,000 Delhi-based employees. Centralized Circular Management Information System, Court Cases Monitoring System, Delhi Official Directory (DOD) and a system for online submission of applications for Domestic Funding of Foreign Training (DFFT) was developed. Workshops/training on Pensioners Portal, CPGRAMS, RTI-MIS, Recruitment Rules Formulation and Amendments Management System (RRFAMS) and Annual Performance Appraisal Report (APAR) Monitoring System were conducted. Applications/websites such as Pensioners Portal, IntraMOP portal, RTI Portal, RTI-MIS, AVMS, ACR Digitization of IAS officers, Service and Cadre Allocation Decision Support System were enhanced and maintained. VC facilities were setup in the chambers of all Information Commissioners and Court Room of CIC and over 2000 VC-based hearings for CIC were carried out.

**Planning Commission**

MIS for Central Plan (MIS-CPLAN), a web-based Monitoring Information System being used for online-data entry/ updation by 71 Ministries/Departments for their Annual Plan 2011-12 has been implemented. Web-based applications to facilitate online monitoring of various programmes i.e. MIS on Left Wing Extremism Districts (MIS-LWE) and MIS for Integrated Action Plan for selected Tribal and Backward Districts (IAP-MIS) are implemented. An application has been designed and developed to implement the Strategy Matrix, an innovative tool to prepare approach Paper for 12th Five Year Plan in a collaborative environment for Project Monitoring of 340 Cells. Implemented CDDO Package and Payment gateway through ECS System. A web-based application Payroll Package for Consultants/Members of the Planning Commission was developed. E-office has been implemented as a step towards less paper office system. Non-Government Organization Partnership System is a web-based portal for Voluntary Organizations & NGOs. As on date, about 34,000 NGOs have registered with the portal.

**Posts**

The web based Project Arrow Monitoring System has been extended to cover 10,000 post offices. Besides online data entry by the Arrow Post Offices, transaction details are also captured from Meghdoot through data extraction tool and consolidated at central server. Online Dashboard and Key Performance Indicator data is available to Project Arrow project offices. A portal has been developed for Central Statistical Organisation through which prices and dwelling units data from around 310 towns across the country are being collected. Online Logistics system has been implemented to monitor movement of Census 2010 material. Instant Money
Order (IMO) services have been extended to more than 5000 post offices. Corporate ePost service has been extended to Life Insurance Corporation and HFL in Tamil Nadu circle for sending premium notices to the insurants. Pin code areas in Rural India have been delineated based on village boundaries. As a pilot project, boundaries of all divisions and Pin Codes of all post offices in Delhi and Kolkata Municipality have been mapped. Web based Philately Inventory Management system has been implemented in all Head Post offices, Circle & Regional Stamp Depots across the country.

**Prisons**

The Prisons Management System [PMS] has been security audited for implementation at Tihar Jail. The application software was replicated at 24 Central & District jails of West Bengal and at West Bengal Institute of Correctional Administration after customization. The system has been rolled out in Central Jail, Ludhiana as a pilot for final implementation in all jails in Punjab. Information Kiosk was installed in Central Jail-2, Tihar to provide information to prisoners about their Remission earned / revoked, Parole, Punishment details and Probable Date of Release. New website of Tihar Prisons department to showcase products manufactured at Tihar was launched.

**Programme Implementation and Statistics**

The GDPWAN for strengthening necessary ICT infrastructure and connecting all the 35 State/ UT Directorates of Economics & Statistics as part of NICNET was completed. The Member of Parliament Local Area Development Scheme (MPLADS) Automated System was revamped for Fund Release and distribution of MPLADS Fund. Various project monitoring systems such as Infrastructure Monitoring System, Twenty Point Programme Monitoring System were enhanced for capturing targetable/non-targetable items for monitoring various performance indicators including the generation of regular reports.

**Rural Development**

The Internet portal of the Ministry is continuously being updated and acts as a single point of access for around 150 websites in the rural domain. The portal host Rural household survey BPL Census 2002 up to individual level. File tracking and biometric attendance system has been introduced and implemented within the Department. Ministry has Grant remittance system through which proposals can be submitted and processed online by the various sections. AWAASSoft, Management Information System was designed for rural housing scheme of the Ministry. Disksha has been developed as a training portal. Training institutes register themselves on the portal and can prepare their training calendar, upload training material like CBTs, e-Books, Videos, etc. Various organizations/ institutions at State, District, Block and Panchayat level can use this portal to nominate persons for training. The system generates a Gap Analysis report in terms of persons requiring training, faculty required by various institutes and new courses required.

NIC has developed the National Rural Drinking Water (NRDWP) online Integrated MIS. The database contains the latest position of water supply status and the quality of drinking water in 16,00,000 rural habitations of the country. Total Sanitation Campaign (TSC) online MIS enables monitoring of sanitation coverage at the gram panchayat level. The system enables monitoring of coverage of rural schools with stand alone water purification systems. Habitation wise installation of water purification system is available in this system. Key Resource Centres (KRC) is a software for uploading of Training calendars by the State Departments and the Key Resources Centres, which are institutes for imparting training to officers/staff of State line departments, NGOs, PRIs etc. Online acceptance, registration and rejection of nominations is facilitated by this software.

**Science and Technology, Biotechnology and Ocean Development**

Project Management System of Nano mission was implemented which captures, manages and monitors the complete life cycle of proposals and approved projects. It provides workflow capabilities in order to process all project related tasks through the organization hierarchy. The S&T Division, Ministry of Earth Sciences had developed Online Quiz Gallery application to test the knowledge of people in the area of Earth Sciences, Atmospheric Science and Ocean Science, which encourages and brings awareness amongst school children.

**Shipping, Road Transport and Highways**

Regional Offices (ROs) of the Roads Wing, Ministry of Road Transport and Highways were integrated with the Ministry at Transport Bhavan on NICNET. Monitoring system was tested and
implemented at 4 ROs on pilot basis. Intra-office Portal for BRO covering all Directorates was implemented. Officials of the Ministries of Shipping as well as Road Transport & Highways were trained on various aspects of IT including CAD. New Bilingual website of Ministry of Shipping was designed. SRS was carried out for development of Integrated Inland Waterways Portal.

**Social Justice and Empowerment**

Website for the Ministry having accessibility features has been developed and being updated on a regular basis. NGO Grant-in-Aid Monitoring System for tracking the schemes including implementation of e-Scholarship has been taken up.

**Telecommunications**

Web based claim settlement management system for Universal Service Obligation Fund (USOF), has been developed. USOF web site has also been developed. Software for the Licensing Finance (LF) Branch is developed and operational. A workflow based Software is developed for Other Service Providers (OSPs) on-line registration, enhancement of facilities, updation of registration details, etc.

**Textiles**

Online Export Registration of Cotton was launched for issuing Export Authorization Registration Certificate (EARC) for cotton exporters. About 1400 applications were registered within a period of 45 days for 55 lakh bales. System Study and design of e-Ship, an on-line system for Handicrafts Schemes has been completed. Monitoring System for Integrated Handloom Development Scheme is designed and developed for Handloom Sector.

**Tribal Affairs**

The system is being effectively used by 16 States to enter the details of claimants, approval process and printing of title certificates for distribution to the Schedule Tribes and other forest dwellers. Details of around 6 lakhs titles, location details and title holders are available on the online system.

**Union Public Service Commission**

Online Recruitment Application (ORA) was developed for applying online for different vacancies/recruitment cases advertised by UPSC. UPSC and SSC System for Online Application Processing (SOAP) was developed for data capture where applicants can submit the application online for the 14 scheduled examinations of UPSC.

**Water Resources Informatics**

NIC is executing 4th Minor Irrigation Census Project for 20 Million Minor Irrigation structures in the country. An e-Governance application for monitoring of physical and financial progress of Command Area Development & Water Management (CADWM) program has been developed. A GIS based application has been developed for Ground water development in India. The Ground Water Information System provides access to various thematic layers as well as the nationwide database on ground water level and water quality monitoring by CGWB. Hydrological Observation Information System has been developed for the implementation of the Indus Water Treaty between India & Pakistan Governments. There are six common rivers and around 290 sites for data observations. The system generates reports as per Indus Water Treaty agreement and also generates a water year book. The various graphical views are generated to aid to the analysis of the discharge data.

**Women and Child Development**

National Portal on e-Awedan was launched for tracking and monitoring of NGO proposals supporting online submission, uploading of essential documents, backend processing at various sections for scrutiny, approval, sanction and release of budget etc. National Portal on Missing Children was implemented for West Bengal State unit covering Police Stations, Child Welfare Homes, NGOs etc. and is being customized for National roll out.

**Youth Affairs and Sports**

National Portal on PRIMES has been developed to cover performances of Sports persons in National and International events and in training and coaching camps vis-a-vis National and World Records. This was launched during training for Common Wealth Games. GIS based interface for searching and locating the sports facilities across the country has been developed and launched. A national portal on flagship programme “Panchayat Yuva Krida and Khel Abhiyan” (PYKKA), has been developed and launched for monitoring the creation of sports infrastructure facilities at village level and the
conduct of sports competitions from Block level onwards, which includes tracking of financial releases and utilization thereon.

**NIC Services to State and Union Territories**

**Andaman and Nicobar Islands**

The “e-Tehsil” project comprising Electronic Citizens Services (ECS), Kiosk based dissemination and website for online delivery of services has been launched. The Kiosk based public dissemination systems were launched for Tourism Department and Cellular Jail. The web enabled database of widow pension beneficiaries of Social Welfare Department was computerized with workflow automation and published in the internet. The BIRDS project for web based registration of births, deaths and issuance of certificates through internet was implemented across A & N Islands achieving 100 percent coverage of project. The website for Industries Department was revamped. The website for Planned Family Trust of Health Department with beneficiary level database was launched. The web based system allotment of Government Guest Houses to applicants was launched at Protocol Section, Secretariat.

**Andhra Pradesh**

Network facilities under NKN Project were extended to University of Hyderabad. A Web based counseling for admission of students to various Engineering, MCA, MBA and Polytechnics, Medical (PG) colleges was conducted covering about 4.8 lakhs of students. Issue of Pattadar Pass Books and Title Deeds was tested in 56 Tehsils. Issuance of all Land related Certificates have started from Mandal of Warrangal district. Pilot implementation of e-Court software was completed in Guntur. Online scholarship management system was developed for Welfare Department. Some important applications implemented were web based GIS School Mapping tool for Rajiv Vidy Mission, web based Works Monitoring system for Rural Water and Sanitation Department, Financial Accounting System for Civil Supplies Corporation and Tribal Welfare Girl child protection scheme for Women & Child Welfare. Workflow system was implemented for Horticultural Department. In Pension settlement package for AG office inward and outward sections are covered and 6 CPC recommendations incorporated. Karmika Samkshem Nidhi Paryavekshana for AP Labour Welfare Board covering approx 1.6 lakh establishments was developed and hosted. SMS based complaints on PDS and SMS based indenting system for Women & Child Welfare was implemented. Workflow Automation of Judicial Registry Case information of AP High Court has been provided through the Website. SMS and IVRS services are available to the public. Computerization of Service cases has been completed for AP Administrative Tribunal. Seeds production monitoring has been implemented for Seeds Development Corporation and ReALcraft was implemented for Department of Fisheries.

**Arunchal Pradesh**

Jansuvidha software, a single window certificate issuance system has been implemented in 4 additional districts. Sarathi and Vahan Software have been extended to 12 sites and State Registrar has also been established. The TreasuryNet-Arunachal Pradesh software has been implemented at Itanagar treasury office, on pilot basis. The IDSP project has been implemented at 17 locations in the State. Training has been given on GePNIC to the department officers and potential bidders of PMGSY works under e-Procurement project. Tele-Education Project is implemented for Class-XII students in 3 Government Higher Secondary Schools. The present student enrollment is 150. The software for School Education Survey Project has been developed. CIPA Project has been implemented in 41 Police Stations in various districts.

**Assam**

Modules for initial conversion of Electoral Roll Data (font-based) to Unicode and its subsequent editing and printing implemented in all districts have been developed. Workshop was conducted on the Electoral Roll Management System software. Four training programmes on land records software (Dharitree) were conducted to train sixty Circle Officers. The modifications proposed by the stakeholders have been incorporated in Dharitree in the Assamese and the Bengali versions Data porting services from Jamabandi to Chitha have been provided to districts. Dharitree was rolled out at circle-level in Bongaigaon, Dibrugarh, Kamrup, Jorhat, Sivasagar, Nagaon and Nalbari Districts and roadmap was prepared in collaboration with the Revenue Department for roll out in all 76 Sub-Registrar Offices (SRO) within the current year. Database of more than 68000 small tea growers was prepared. District Court software was installed at a number of locations. VAHAN & SARTHI was extended to DTOs of Karimganj, Karbi Anglong,
Dibrugarh, NC Hills, Chirang, Sonitpur & Udalguri. NE Regional Workshop arranged on National Permit module. State and National Registers have been created. National-level Workshop organized at Guwahati for all major NIC State Centres on National Knowledge Network. Eucalyptus-based Cloud Computing infrastructure implemented at NIC, Guwahati. Websites were designed, developed and hosted for Doordarshan Kendra Guwahati and National Institute of Rural Development.

**Bihar**

Advocate-on-Record Information System was developed and implemented for Patna High Court. e-Lokayukta System (Computerized Lokayukta Information Management System) has also been implemented. E-Certificates e.g., caste, income, residential, land ownership are being delivered through Block Informatics Centre. G-FACTS (Government Financial Accounting System) has been in implementation at DRDAs and Block level for financial transactions. All districts of Bihar have Computerized Registration of Vehicle and Driving license facilities and Dealer-point-Registration. Biometric based Attendance system was implemented in two Government Colleges. Chanakya (Registration & Examination Module) has been implemented in Patna University and Maulana Mazharul Haque Arabic and Persian University. The software solution ELECON 9.0 was used by all districts of Bihar for Bihar Legislative Assembly General Election 2010. Web GIS module generated Districtwise, Blockwise and assembly constituency wise maps; Naxal Affected Areas mapping, Election Phases with timing, Mapping of Polling stations, linking maps with communication plan etc. Training to Bidders on e-Procurement for PMGSY was organized. 79 e-Tenders have been published. NIC District Centres are extending technical support in the implementation of projects of the various Departments.

**Chandigarh**

Chandigarh Administration implemented GePNIC (eProcurement solution from NIC) in all its departments for tenders over ₹10 lakh. Around 500 tenders have so far been floated and processed using this solution. Smart Card based PDS was also rolled out this year. Horizontal connectivity was extended under Chandigarh State Wide Area Network (CSWAN). National Knowledge Network with 6 nodes has been commissioned. The process of creation of State Consolidation Register, State Register and National register has been completed. National Permit Portal has also been deployed. Integration of Budget MIS with Treasury systems was done. Around 54 websites of various Departments/Boards/Corporations/Offices are being maintained and development of new websites has been undertaken.

**Chhattisgarh**

e-Courts project has been implemented along with District judge entry level computerization. Applications have been developed for clerical recruitment computerization and Cooperative bank computerization. A module was added for generating weekly and monthly reports in passport office and Police Verification Report (PVR) searching facility. Government officials visits to people in the rural areas have been computerised and portal launched. E-return software for commercial Tax Department for filing of quarterly, annual returns by dealers was launched. Paddy procurement in Kharif Marketing Season 2009-10 has been completed through computerised system added to Food Inspector module of PDS computerisation. Online works sanctioning/allocation system for Department of Urban Administration was developed and implemented. Online works accounting system for Public Works Department was implemented. e-Payment system implemented through online payroll software. Computerized Draw of lots software for Excise Department was implemented.

**Delhi**

Web Based Counseling System was implemented for Netaji Subhas Institute of Technology for admission to B.E programme and for Board of Technical Education, Government of NCT of Delhi for admission to diploma level programme. Service Level Agreement system for monitoring of delivery of citizen centric services of Delhi Government was developed and under implementation. Support provided for Pulse Polio Immunisation programme of Delhi Government through software, which helped in deployment of manpower across 70 Assembly segments and approximately 25,000 booths. e-pramanpatra (Issue of certificates) was implemented in SDM Office-Najafgarh. File Monitoring System & Letter Monitoring System implemented in Lt. Governors office. LAN of Delhi Secretariat restructured with optical fibre as backbone and Delhi Government SWAN Connectivity increased to 79 locations with 2 Mbps Leased lines. Delhi Government has been
provided connectivity with secured and authenticated broadband (Tri Band-DG) facility (increased to 730 locations).

**Goa**

File Management System implemented in Secretariat and 20 Departments. Implemented Real Craft System, Vahan & Sarathi in all the 7 RTOs in Goa, e-Services module(for payment of Taxes and filing of Returns) of VATSoft., Crop Survey, ECS payment in respect of Salary, Institution and Contractor payments. Software for e-Ticketing was developed and implemented for International Film Festival of India 2010. Software to deliver 43 e-Services was implemented.

**Gujarat**

XGN – Xtended Green Node is a web enabled software developed in consultation with GPCB for the day to day operations of any State Pollution Control Boards in India. XGN has been replicated in 3 States namely H.P, Uttaranchal & Goa in last one year and requests have been received from 3 more States to have XGN implemented. Online Job Application System (OJAS) offers end-to-end candidate selection process using ICT. e-Jamin Centralized system for Land Records and Property Registration is operational in 200 talukas. State Data Centre made operational with e-Jamin application. FDCA Manufacturing Licenses & Certificate with products and technical manpower details have been implemented. Ration Card module is implemented across the state. Ration cards entered approximately 1.2 crores covering approximately 5 crores population. SWAGAT (State Wide Attention on Grievances by Application of Technology) is now being made available at Taluka & Village level. e-Mamta (Name based Mother and Child Tracking System) is in the process of being replicated in all the other States of India. Other useful applications implemented are Gujarat State Counseling (BE/ Pharmacy /MBA /MCA /Diploma Enng.), CRS (Civil Registration System), School Health Program (SHP) and Provisional Data of Urban BPL Families

**Haryana**

e-Tourism has been implemented with payment gateway. Haryana was the first State to implement IntraGov Haryana Portal with Integrated e-Office Suite for the Secretariat. All ICT enabled processes of General Elections 2010 were implemented at Municipalities and Panchayats. Integrated On-line Entrance Exam and On-line Off-Campus Counseling Project for Admission to professional courses of Haryana received software product quality certification from STQC. HALRIS - Dynamically Integrated system of Property Registration and Land Records Management was implemented across Haryana, and integrated with Cadastral Maps. This was declared as the best practice and a national role model under NLRMP by DoLR, Ministry of Rural Development. Smart Card based Public Distribution System (e-PDS) Project was launched for 3 Fair Price Shops in Panchkula district as a sub-pilot. Under Government electronic Procurement (GePNIC) System more than 450 live tenders of Supply and Disposal Department were processed for more than ₹ 5000 crore. e-Court Project was implemented at High Court of Punjab, Haryana and District Court Complex. Under e-Transport - VAHAN and SARATHI are now operational at 71 and 65 offices and all authorities are issuing National Permits through Portal. More than 32500 National Permits were issued from Haryana. Harsamadhan -Centralized Public Grievance Redressal and Monitoring System of Haryana was launched. Web enabled Treasuries Workflow Integration: Web enabled Budget Allocation System for all DDOs and EPS (Electronic Payment System) for all Government payments implemented. On-line Reservation and e-Ticketing web portal for booking of tickets of Volvo buses in Haryana Roadways was launched. Property Dealers Registration Certificate Issuance System was launched.

**Himachal Pradesh**

e-Procurement solution was implemented for PWD, I&PH and Controller of Stores. e-Samadhan Services were extended through CSCs i.e. LokMitra Kendras. RoR were also made available through these centres. 65 Employment exchanges were made online. Preparation of Sarthi & Vahan State and National Register is in progress. PathKar (Time Table and SRT Calculation) has been implemented in all RTOs. Unified Payment Gateway has been developed for all payment related to e-Governance Services. A Web Enabled System has been implemented for distribution of all types of certificates for the Department of Revenue, Home and Personnel. Workflow system has been developed for PWD Department. eSamkeesha for online monitoring of all plan/non-plan schemes has been implemented.

**Jammu and Kashmir**

Single Window system e-Sahauliyat was
implemented at Kathua District. At present 8 different types of services are being given to citizens of Kathua. Software for computerization of State Vigilance Organization was developed. Under Transport Project Vahan & Sarathi software implemented at 2 additional locations; State Register was completed for Vahan and Sarathi. Electoral Rolls were prepared for conduct of Panchayat and Urban Local Bodies elections. Under the e-Courts project, 20 out of 22 District & Sessions courts have been provided with hardware, software and LAN infrastructure. Training has been conducted for judicial officers. Under project for automation/networking of 140 Public Libraries in J&K, 4 main libraries are being computerized in the pilot phase. Challan monitoring system as a part of Traffic Police Management Information System was implemented at 6 locations. Software implemented for Jammu Municipal Corporation include receipt and payment module of Double Entry Accounting System and Public Grievances Monitoring. JKRACE has been implemented in 75 Sub Divisions of PDD J&K. e-Procurement Implementation training was imparted to officers of PMGSY and PWD. Plan Plus, a decentralization software tool facilitating PRIs has been implemented and development plan and capacity building plans up to year 2012 have been uploaded and approved.

Jharkhand

e-Procurement services were made operational for PMGSY-Road sector of Jharkhand and are also being implemented for 18 major Departments. The Integrated Treasury Computerization has been enriched with significant value additions like AG interface, several new MIS features, Budget interface for the Departments etc. Online GPF has been integrated with Treasury system and is under pilot run in 5 districts. Under VAT Computerisation project, E-filing module for CSCs is completed. Module for posting of the payment transactions to the cyber treasury and Commercial taxes database is completed. State level workshop on AGMARKNET, Organisation of Common Wealth Train- IT Exhibition in August, 2010 at Ranchi & Dhanbad, and Workshop on the Guidelines for the Government of India website (GIGW) were conducted.

Karnataka

NEMMADI application for delivering Rural Digital Services to the citizens on an average handles more than 40,000 transactions per day from 800 telecentres in the State. The application is being scaled up for delivering services from 5000 additional CSCs. The VATSoft application for the Commercial Taxes Department has been enhanced to deliver E-Services to the dealers. The return filing has been made mandatory and more than 2 lakh dealers are filing the returns on-line. The E-Payment and way Bill, C-Form etc., have been implemented. The Double Entry accounting for Gram Panchayats to cover more than 2000 Gram Panchayats has been started and many of the Gram Panchayats have started generating the annual balance sheets from this system. The software developed for the Bengaluru city corporation has been enhanced to handle the on-line payment for property taxes. Birth registration including digitally signed certificates being issued through the counters, Trade licence system etc., have been made operational. The Sarathi and Vahan software for delivery of Driving Licence and Registration Certificate along with ODI replication for State Level and National Registry has been completed and more than 11 lakh smart card based DLs and 11 lakh smart card RCs have been issued during the year. The Permit Management System is being used for issue of permits for transportation of minerals from the mines. Establishment of LAN at High Court of Karnataka and in 6 districts has been completed. The judgments for the last 8 years i.e. approximately 4.5 lakh have been hosted using digital library software D-space. The newly developed High Court Litigant Management System is being extensively used for all the activities of High Court. The letter tracking and file tracking software viz., Sachivalaya Vahini has been replaced with state-of-art LPO system and more than 3 lakh files are monitored in the State Secretariat using this system and hosted in the data server.

Kerala

Websites for State Excise Department, Thiruvananthapuram district court were developed and hosted. School, Engineering/Medical entrance exams results were published through web and mobile. National level rollout of FISHNET Real Craft application was carried out and 400 officials were trained at State level. SMART transport is an SMS based service to public and to empower the enforcement officers. EMLI is a web based application developed for Finance Department for automating the Issuance of Letter of Credit (LoC). Under Service and Payroll Administrative Repository for Kerala (SPARK), 4.25 lakh employees’ data has been digitised so far. Other applications
implemented are Integrated Service Delivery for Revenue and Registration, IDEALS, a software to computerize the Field Register prepared by the Survey Department at the time of resurvey, Examination Management System for 2827 schools for SSLC/DHSE/ VHSE/TTC exams candidate registration and result tabulation, e-Services of ration cards, Online scholarship, etc. E-Courts has been implemented in all district courts. eDROP for posting of polling personnel and TREND for result dissemination were used by all the districts for the local body elections held in the State in October 2010. Revenue Recovery Online project has been implemented in all the districts during the year. Using this, requisition authorities like banks, Government Departments are able to file the request online to the district collector. NKN links were commissioned for VSSC, RCC and CDAC.

**Lakshadweep**

SMS services were launched for voyage alert and ticket cancellation on the ship ticketing software. Plan Monitoring Information System (PLAN MIS) generates monthly progress report and other statistical report for various Departments involved in PLAN implementation. State Wide Area Network (SWAN) of Lakshadweep is being implemented. Online Tapal Management Solution (OTMS) is developed with LAMP architecture. The application facilitates the management of Tapals and provides options to forward, process and upload the tapals in soft copy. Web-based Birth and Death MIS is used for registering birth and death and to generate certificates. The Registration Cum Membership Certificate System (RCMC) and e-Pension was launched during 2010.

**Madhya Pradesh**

Computerisation of district and sub-ordinate Courts under e-Court Project is in progress. Integrated Forest Financial & Works Management System (IFFWMS) for Forest Department, Bank Recovery Incentive Schemes for Institution of Finance, ePrashna a workflow based system for Vidhan Sabha are some of the services available. Support was provided for Mantralaya Computerisation comprising of Samadhan Online, Parakh, Samadhan Ek Din and other applications. Horticulture Schemes Progress Monitoring System (e-HSPMIS) was implemented. Extension of NICNET internet services to around 1500 users of various Government Departments Network Support Services provided for around 4000 clients including various Departments. 50 Forest locations, 69 Post Offices, Commissioners, High Court of M.P., National Judicial Academy amongst others. CIPA was implemented in around 355 police stations in 18 Districts. About 25 websites were hosted for Government Departments/Directorates/Institutions/Organisations.

**Maharashtra**

NLRMP was implemented in 6 Pilot districts. Computerised Driving licence system was rolled out in 45 RTOs in Maharashtra. Consumer Forum Networking was carried out in 43 locations of Maharashtra. Allotment of food grains project was implemented. Some important projects include Web services for State and Central Government Departments (State Secretariat and 35 districts), Mumbai Utility mapping project, Digital Signature Certificate Services, Tender Account creation for Publishing Government tenders, Website Development, Hosting and e-mail creation services, VC services to State and Central Government Departments. e-file software was implemented along with Panchayat accounting system & Library Information System (E-Granthalaya). NICNET connectivity was extended to CGHS, Department of Posts, PAO and passport and immigration networks. Technical support was extended to State Government for CCTNS in Police stations of Maharashtra. Computerisation of Land records in 357 Tehsils and display of Record of Rights on the central Website was carried out.

**Meghalaya**

Online services implemented in the State include ST/SC Certificates, Domicile Certificates, PRC, Senior Citizen Certificate, application for inclusion in the electoral rolls, correction of voters details, e-Payment, e-Waybill etc. E-payment of Taxes and SMS service has been launched and hosted. The online Treasury Computerisation (TreasuryNET) has been implemented in all Treasuries and Sub-Treasuries in Meghalaya. The Pension Payment system has also been implemented. E-learning services have been extended to 10 schools in Shillong and Tura. Land record & Land Registration computerisation projects were implemented on a pilot basis at East Khasi Hills District. IFMS, a Financial Management & Information Portal has been further improved to meet the requirement of HODs, DDOs, Finance Department etc. Personal Leave Attendance Salary Management Application (PLASMA) has been implemented in Personal
Department, Agriculture Department etc. Technical support is provided to the Shillong Bench of Guwahati High Court in the implementation of e-Court project. Website of the Shillong Bench and the e-Kiosk was launched. The Court information System has been implemented. The implementation of Schedule of Rate (SoR) for East Khasi Hills District to automate the estimate preparation of schemes and programmes have been implemented. VAHAN and SARATHI have been implemented in all DTO offices in the State. The consolidation of data of the Registers and State Register from 5 districts has also been completed. The Energy Billing System has been rolled out at six sites viz. Cherrapunji, Khliehriat, Nongstoin, Tura, Williamnagar and Baghmara. Hospital Management System (HMIS) has been implemented in Ganesh Das Hospital, Shillong.

**Manipur**

The applications implemented in the year were e-Tendering for PMGSY works, File Tracking System (FTS) for Manipur Secretariat covering 60 Departments with more than 400 nodes, VAHAN & SARATHI software in all 6 RTOs of Transport Department, Exam Processing in the Council of Higher Secondary Education, Computerisation of Land Records in 6 SDC Circles of Manipur, Computerisation of Registration of Documents (CORD) in 4 Sub-Registrar Office, Tele-education in 5 Higher Secondary Schools, computerisation of Personnel Information Systems in Finance Department, computerisation of 3 Employment Exchanges. IAY Activities of Department of RD, BRF, Wafk Board, Old Age Pension of Social Welfare Departments, were computerized. SMS services were provided to pensioners.

**Mizoram**

The services implemented in the State were e-Tendering for PMGSY works, Birth and Death Registration for Economic & Statistics Department, Old age pension for Social Welfare Department, e-Mamta for Health Ministry, Vahan, Sarathi and smart card under Transport Project, NREGA, JSY, IAY, E-court and .CONFONET.

**Nagaland**

Online Inventory Management was developed. Online registration system has been implemented at Regional Employment Exchange. All 8 Transport Registering Authorities sites of Nagaland have been computerized. Sarathi and Vahan have been commissioned and implemented in all the sites. Smart Card DL and RC are being issued. State Consolidated Register and State Register have been set up and data of Vahan (Registration of Vehicle) has been completed. Official Website of the Guwahati High Court, Kohima bench was launched; CIS Software deployed and Court Information Kiosk made functional. The 4th Minor Irrigation Census (2006-07): Data entry work completed. Tele Education project was implemented in seven districts.

**Orissa**

Under GePNIC e-Procurement System of NIC, implemented for Government of Orissa, 10070 tenders of ₹7925.32 crore have been hosted in the year. 1697 tenders of ₹2187.74 Crore have been hosted by Mahanadi Coalfields Limited for Works, Services & Goods. Chief Minister’s Grievance Redressal Monitoring System has been rolled out across the State. ONLINE off Campus Counselling for admissions to DET-2010 & OJEE-2010 including Diploma, Engineering, Medical seats have been conducted. e-Advertisement for Information & Public Relations Department has been implemented for online monitoring of the flow of advertisements to various local/national newspapers. e-Bhabisyanidhi is implemented to deal with provident fund issues of around 2 lakh teachers. Paddy Procurement System to provide information for planning and monitoring the activities of the same in the State has been implemented by OSCSC, NAFED, FCI. Monitoring for Rural Infrastructure Development Fund, Plan & Expenditure, MP & MLA LAD etc., have been rolled out. Under Forest Rights Act project 2,30,304 cases have been processed & Patta have been handed over to beneficiaries in regional language.

**Puducherry**

Mission Mode Projects like Sarathi, Vahan, CIPA, Fisheries, etc., were implemented. Monitoring systems for welfare schemes like IGNAPS, IGNWPS, IAY and NREGA were implemented. Under PDS system citizen centric services like issue of new ration cards, alteration of existing cards, and the allied activities have been automated. An on-line expenditure monitoring system is available for Puducherry UT. Additional modules to the VAT system in 2010 include online renewal of registration facility, Online filing of returns (VAT, Non VAT and CST dealer) and Online issue of
Statutory forms to the registered dealers. SARATHI and VAHAN are implemented in all the four RTO offices and the data is replicated to the State Consolidation Register and then to State Register and subsequently to National Register. A web enabled application was developed for Puducherry Pollution Control Committee (PPCC). A centralized admission process has been developed for admission to Higher Secondary Course based on the marks and categories. Through this system software counseling was done for 5800 students in about 2 weeks. PSWAN is now operational.

**Punjab**

GePNIC has been initiated for Public Works Department (PWD). Tenders for more than ₹1000 crore floated. Result Framework Document (RFD) Management system was implemented across all Departments. CCMS (Court Cases Monitoring System) which facilitates Departments in maintaining and monitoring court cases pending in different courts has been implemented in more than 15 Departments. e-File in NIC Punjab State Unit and district centres has been implemented. Under VAHAN project, data has been consolidated into State and National Register for 24 sites (17 DTOs and 7 SDMs). Under SARTTHI project, data consolidation into State and National Register was completed for three sites. Web-based Off-Campus Counseling for Boards/Universities has been implemented for the admissions in all the Diploma/Engineering streams. An integrated web application was developed for Department of Water Supply and Sanitation. File Tracking System was implemented in six locations of Department of Local Government and all branches of Punjab Police Headquarters. A data generator module for treasury database was replicated in all district treasuries of Punjab. A web based application, Pregnant Mother and Child Tracking System (MCTS) has been implemented. Plan Plus, a decentralization software tool facilitating PRIs has been implemented. Website for Punjab Census Department was developed and hosted.

**Rajasthan**

The US President, during his visit to India, interacted through VC with local villagers from the e-Panchayat established at Kanpura Village in Ajmer district. High level delegation from US visited Gram Panchayat Kanpura, Rajasthan and was given demonstration about the IT Services provided at Panchayat level. Answering Information System was launched on pilot basis for 15 Departments for Assembly Questions. Online Election Management system was used in all districts during elections of Local bodies. Web based application for Sarva Shiksha Abhiyan (SSA) project & Child Tracking Survey has been implemented in the State. Web based system for B.Ed Entrance 2010 (PTET-2010) was used for more than 700 institutions. Pseudo Core Banking solution has been implemented at three Primary Agriculture Cooperative Societies of District Central Cooperative Bank. Pregnancy, Child Tracking and Health services management system has been used for more than 13000 Government health institutions. Digital signatures have been issued to more than 400 users. High speed 1Gbps connectivity has been extended to University of Rajasthan at Jaipur under NKN (National Knowledge Network) project. Video conference was extensively used by all Departments. Budget Estimation (Non Plan) module was implemented as part of Integrated Financial Management System.

**Sikkim**

The SWAN project has been extended to 38 blocks. The SISCO cooperative bank computerisation has been implemented at the headquarters and at one branch. Online Property Registration Information System has been implemented in all subdivisions. VAHAN and SARATHI have been implemented in all the RTOs of Sikkim.

**Tamil Nadu**

On-line filing of VAT Return and e-payment through SBI has been implemented for Dealers of Department of Commercial Taxes. More than 197000 dealers are filing return monthly and ₹1454 Crore of taxes is being collected through e-Payment. e-Request of saleable forms issue is also implemented. eDistrict Scholarship System for application and issue of scholarships for the BC, MBC and Adi Dravidar students has been implemented. More than 3.7 lakhs students applied in 1100 Institutions. Under eDistrict project for Social Welfare the 5 Marriage Assistance schemes have been implemented. e-District Revenue facilitates submission of application through CSC. VVT Kalaignar Housing Scheme online services helped in allocating around 22 lakh houses. Government e-Procurement system implemented in 9 States and 2 PSUs and under 18 States in PMGSY. Online filing of Applications for New Vehicle Registration by Dealers, Learners Licence applications by citizens & e-payment facility through National Permit Portal
has also been implemented. Besides these, an online system for arriving at monthly PDS Allotments for all Fair Price Shops in the State has been implemented. The system is used by all 232 Taluk Supply Offices. e-Pension a system covering all the steps from receipt of PPO from AGs office till the sanction of pension has been implemented.

Tripura

A workflow based backend application RuralSoft@Tripura on MNERGA Works Execution has been implemented in West Tripura District. Campus Area Network has been completed and integrated with NICNET. Physically Challenged Persons Information System has been deployed for differently abled persons helping in application, identification and online issue of disability certificate. Vahan and Sarathi Statewide Rollout has been completed. State Registers on Driving license and Vehicle Registration are completed & operational. Common software interface is implemented for delivery of SMS based services across various e-Governance applications namely Complaint Monitoring System of Tripura Police, Weather Forecasting and Energy Billing System.

Uttarakhand

Under e-District, 7 services rolled out in Kotdwar Tehsil of District Pauri as a pilot. UK-SWAN was completed in the State covering all Tehsils/Blocks, Districts/State Headquarters. 29 Treasuries and 14 offices of Commercial Tax Department connected horizontally. Under UKPSC project, 140 nodes LAN/ internet connectivity was setup for office automation, online processing of applications for various exams. CIPA was implemented in 38 Police Stations. Ekosh web portal was deployed connecting all the 29 treasuries across the State. SMS alerts of Pay/Pension disbursement are being sent to all employees/pensioners every month. GPF Online System implemented for approx. 1 lakh subscribers of State Government. ACTNIC (Automation of Commercial tax by NIC) had been scaled up under MMP. e-Tendering under PMGSY project has been started. Websites for Investment in Uttarakhand, Doon University, Complaint Redressal System for CM Office were developed and hosted. Offline data processing module for Water Billing System was developed for Jal Sansthan. ICT support in School Education Department extended in Class rooms, SSA, e-learning. X-GEN implemented in UEPPCB, e-Janadhar in 9 Tehsils of the State for delivery of different types of certificates online by administration.

Uttar Pradesh

e-District Services were extended through CSC & Lokvani centres. More than 15 lakh digitally signed certificates/ services were delivered to the citizens from the e-District centres, tehsil computer centres & CSCs established right up to the village level. In addition to the 23 plus services being provided through the e-District, 70 more services have been identified by the State Government for electronic delivery. The Commercial Tax Computerisation (VYAS) was implemented with online facility for tax payment and other activities. ‘Nivesh Mitra’ – an online application for setting up Industrial Units in the State and online submission for UP PSC applications were also implemented. The Jhansi Jan Soochna Kendra model for handling public grievances using a simple telephone was re-modeled into a web based system and is under roll out in all the districts of the State. Another significant achievement was the digitization of more than 5 crore beneficiaries of the Ration Card System. The data was collected from the districts and is available on the web. e-Scholarship for electronic disbursement of scholarship directly to the bank account of beneficiaries, e-Procurement, Pension System (old age, widow, handicap etc.), transport computerisation etc., are some of the other IT based initiatives which were implemented. Many projects were also carried out in areas of Infrastructure improvement, change management, Government Process Re-engineering & simplifying the delivery channels of Government Services.

West Bengal

Under BHUCHITRA project, integration of land data and land map, RoR containing plot details and plot map was delivered. Query based market value service and same day delivery of registration deeds is now possible. In VAT Computerization project, E-services introduced were e-Registration under VAT/CST Acts, e-Return submission under VAT/CST, e-Delivery of dematerilised CST Forms/Waybills & dematerialized Goods Transit Forms. In the Agriculture Sector, e-Services were launched such as Registration Certificate to Fertilizer Manufacturers & Dealers, Fertilizer Quality Control System, Registration of Agencies for Seed Certification, Seed/Pesticide Testing & Licensing System, Web based Soil Health Card, Project Management System for Agricultural Projects. In VAHAN System, State Vehicle Register of 27 lakh vehicles was created, e-Services for National Permit were launched and e-Payment of MV taxes launched
for Kolkata and Alipur RTOs. Under Caste Certificate (OSCAR) Project, e-Services in the areas of filing applications, processing/viewing of such applications were started. Online education loan processing system for CS/ST/OBC students was introduced. In e-Court Project, infrastructure was created in 22 District Courts and operation of e-Court software started; infrastructure also created in 56 Taluka/Lower Courts, and application software deployed in District and Taluka/Lower Courts. A Missing Persons Portal launched containing details of missing persons, recovered persons, matching of missing & recovered persons, details of legal proceedings.

**Open Technology Centre (OTC)**

OTC has assisted development of the CMS & State Portal using Drupal for Tamil Nadu Government (TN) by NIC-TNSC. Hand holding support was provided on Drupal based projects at NIC-Pune, NIC-Karnataka. OTC developed sample applications which can run on Mobile Phones to collect Data and provide Information which can be retrieved from backend systems. Under implementation of Re-usable RESTful Web Services/Components for Service Delivery Platform (SDP), OTC has developed services for 2D Barcode, One Time Password Authentication, Digital Signature Verification and components for SMS-Push, LDAP authentication & Digital Signature. XForms was implemented for Online/Offline usage in projects like TN-VAT, TN-V-Serve (Marks verification system for Marks of 10th & 12th); XForms with Digital Signature has been completed. PoC on mobile based Offense booking for TN was completed. OTC has integrated Digital Signature with Web Applications by using OSS Library. 2D Barcode based application for issuance of Inner-Land Permit (ILP) for Arunachal Pradesh was developed. 2D barcode was used in online Verification of KVT (housing scheme of TN). Mobile-OTP enables strong authentication using mobile phones and standards based Protocol Time-based One-time Password Algorithm (TOTP). Pilot implementation using Mobile-OTP for WEB Applications has been done. OTC has created a e-Learning environment using Open Source Tool “Moodle”, implemented for Ordinance Factory Training Institute, Chennai. Training Programs for XForms, Drupal CMS-Portal, PostgreSQL, Applications for Mobile Phones and Digital Signature Implementation using OSS were conducted. Special training program on OSS for all the North Eastern States was conducted at Guwahati.

**Software Development Unit, Pune**

Infrastructural development of 10,000 Sq. ft., a Data centre, NDC, Pune was completed and services were operational since April 2010. Government Receipt Accounting System (GRAS) has been implemented for Finance Department (FD) to facilitate online payments of all taxes for State Government through internet banking service. Regional Transport Department started accepting new vehicle registration fees using this system. Dealers can log into this system and prepare the challan required for registering the vehicle. The GRAS system has being integrated with VAHAN software of RTO offices. 20,000 Challans were generated through this system since 24 June 2010 and an amount of ₹30 Crore is being collected using this system. ARTHWAHINI is an Integrated Financial Management System for the Finance Department, Government of Maharashtra. Fiscal TREASURYNET, a Web based software was developed for the Finance Department to computerize accounting for accuracy and speed at PAO, Treasury and sub treasuries and provide MIS. The software was implemented in Manipur, Meghalaya and Arunachal Pradesh treasuries; it was also customised for fiscal transaction processing for PWD Department of Meghalaya. Court Project Management System (CPMS) is used as mechanism to support varied needs of different States. e-Courts application is implemented in Kerala and Andhra Pradesh in this year. Web-portal using open source Drupal CMS is designed to create user accounts for Agro-met IMD division for administrator roles, AMFU units (Agriculture Meteorological Field Units) 130 in
number to upload agro-met bulletins, 23 State IMD offices to upload weather forecast. Web based License Management system for Department of Agriculture to issue license to Manufacturers and Dealers for pesticides, seed and fertilizer. It is in use at 7 districts. Knowledge Management portal is developed for State Resource Centres for Adult Education Department which facilitates upload and management of all types of training material. Under project for State and National Register for RTO offices, 36 out of 45 RTO offices across the State are connected over VPNoBB to the State Data Centre of NIC that in turn is connected to the National Data Centre.

National Informatics Centre Services Incorporated (NICSI)

National Informatics Centre Services Inc. (NICSI) was set up in 1995 as a section 25 Company under National Informatics Centre with an aim to provide total IT solutions to Government organizations. NICSI continued its IT services to the whole of the Government sectors across India. The emphasis in the current year progressed from IT enabled services to e-Governance services. NICSI's turnover increased in terms of value and number of projects. NICSI continued its services to the major projects like UP SWAN, Passport Office, computerization of CGHS dispensaries and introduction of plastic cards to the CGHS beneficiaries, National Knowledge Network, mission mode projects like e-Districts in a number of States. Comprehensive DDO SW, Office Procedure Automation (OPA) SW and File Tracking System (FTS) were implemented in a number of Government Departments.

Major projects undertaken during the year are Setting-up of high speed data processing centre in the various offices of Registrar General, India for Census-2011; Setting up of Lakhadweep SWAN; facilitating UIDAI, Community Participation Unit of UP Jal Nigam for data centre setup; VC networking in J&K; facilitation for setting up of National Knowledge Network; Integrated Finance Management System for Government of Rajasthan; Computerisation of Chief Election Office, Prisons in Punjab; NIC services to Doordarshan for Commonwealth Games etc. NICSI's e-Procurement software hitherto has been provided to Jharkhand, Himachal Pradesh and Punjab for implementation.

Highlights

NIC has leveraged ICT to provide a robust communication backbone and effective support for e-Governance at various levels including sub district level in many States. National Knowledge Network is a core Backbone consisting of 18 Points of Presence with 2.5 Gbps capacity. 104 institutes have been connected to NKN and 15 virtual classrooms have been setup. NIC has setup National Data Centres at Delhi, Hyderabad and Pune which provide shared hosting and co-location facilities to the Government across India.

Multipoint Video Conferencing (VC) services are provided over NICNET from 631 existing studios spread across India. For the US President Shri Obama, Video conference between Mumbai and a Panchayat of Ajmer district, Rajasthan was organized.

An SMS gateway has been setup to integrate the various applications hosted by NIC for sending alerts and updates. Over 80 applications at Central and State level have been integrated.

e-Office has been implemented in a number of Departments. File tracking system based on the Central Secretariat Manual of Office Procedures has been implemented in more than 25 Ministries/Departments. A scheme for maintenance of e-Service Book and other Service Records of Government of India Employees has been formulated by NIC and DoPT.

In the finance sector, Web based budget information system for compilation of Union Budget was developed. Ministry of Finance web site was made universally accessible as per web guidelines.

Planning Commission implemented MIS on Left Wing Extremism Districts Portal for monitoring schemes for 35 LWE districts. Project Management Process Tracker (PMPT) developed by NIC used to finalize the Approach to Twelfth Five Year Plan in a collaborative environment.

There was significant enhancement of National GIS services for various sectors such as environmental planning, election GIS services, post office mapping, Value-added NIC Map Services, Digital Vulnerability Atlas for disaster management and Ground Water Information System.

GePNIC, e-Tendering solution for various Departments was implemented in a number of States like Chandigarh, Haryana, Punjab, Orissa, Arunachal Pradesh, Uttarakhand, Manipur and Mizoram.
As part of NIC’s citizen centric e-governance initiatives, programmes for citizen service were enhanced in existing districts and new programmes launched in a number of districts. District level applications were rolled out in the States of Uttar Pradesh, Jharkhand, Kerala (Kannaur and Palakkad), Haryana and Himachal Pradesh etc. In Andaman & Nicobar Island, e-Tehsil kiosk based ECS for online delivery of services was launched.

Driving License & Vehicle Registration Certificate (DL/RC), Multi Purpose National Identity Card (MNIC), Rashtriya Swasthya Bima Yojana (RSBY), e-Passport and PDS respectively are some of the major smart card based projects implemented across the Country.

Dissemination of election results during General Election to Bihar Legislative Assembly, 2010 was carried out. Haryana State Unit implemented ICT enabled Processes of General Elections to Municipalities and Panchayats. A number of other States like Jammu & Kashmir, Jharkhand and Rajasthan were also provided support in elections.

NIC facilities were used for web based and VC based counseling across the country for engineering and medical admissions. Online Counseling for admissions in B-Tech, Diploma courses during 2010-11 was conducted for UTU and Uttarakhand Board of Technical Education. Web based counseling for admission of 4.8 lakh of students was conducted by Andhra Pradesh. CBSE has introduced CollabCAD in the course curriculum of the Engineering Graphics course for XII from the 2010-2011 session onwards.

Support for major MMP projects continued. Preparation of Sarthi and Vahan State and National Register is in progress and completed in many States. VAT computerization was implemented in a number of States. E-courts project is undertaken by SDU, Pune and is operational at Maharashtra, Kerala, Guajrat, Andhra Pradesh, Tamil Nadu, Meghalaya and Chhattisgarh.

Under Land Records Computerisation Project, integrated system for RoR and Maps in the States of Chhattisgarh and Haryana was implemented.

State Portal based on Drupal (TN, Karnataka, Pune), OSS Stack for use in e-Governance projects and training, Support Provisioning for OSS, 2D barcode for TN projects, XForms for data capture in e-Gov Projects (TN VAT), Support for Finger Print and Meta-data standards, Open Standards Policy and Device Driver Policy are some of the major projects undertaken by Open Technology Centre.

The Tele-education Project for Schools of North-Eastern States, Commonwealth Games Delhi 2010. Booking cum Information offices Web portal, UPSC Online Recruitment Application (ORA) UPSC/SSC System of Online Application Processing (SOAP) are some of the major projects implemented by the Telematics Division.

In Postal sector, Pin Code area mapping for Delhi and Kolkata has been done and also mapping for Rural India have been delineated based on village boundaries.

In Telecommunications sector, Online Registration of Other Service Providers (OSPs) has been implemented for DoT to facilitate G2B services. For Telecom Regulatory Authority of India, Telecom Commercial Communications Customer Preference Portal has been launched as per the new regulation brought in by TRAI for strict enforcement of stoppage of unsolicited calls and SMS.

Cooperative Core Banking Solution application has been developed to provide basic banking facilities and payment of Government schemes to rural people through State Cooperative Banks (SCBs), District Central Cooperative Banks (DCCBs) and Primary Agricultural Cooperative Societies (PACS) across the country. Pilot implementation has been taken up for Rajasthan and Sikkim.

Awards

A number of NIC Projects at National, State & District Level have been given awards for their contribution to e-Governance.

Online Scholarship Management System of Andhra Pradesh received National e-Governance award for Excellence in Government Process Reengineering 2009-10 and World is Open Award 2010.

e-India 2010 Award and mBillionth Award south Asia 2010 under m-Health category for Dr.SMS was received by Kerala while Andhra State Unit received the e-India-2010 jury award and public Choice Award for e-MEDLABS – IPM Diagnostic Centre Workflow Automation Solution.

e-India 2010 Award for Best project in Government to Business Category was received for e-Procurement implementation at Mahanadi Coalfields. The Pregnancy, Child Tracking & Health Services
Management System at Rajasthan also received e-INDIA 2010 award. Water Cess project for Rajasthan State Pollution Control was ranked 3rd in Government to Business Category. The Project Hospital Management for Mukhya Mantri Jeevan Rakshak Kosh Rajasthan was ranked 3rd in e-Health category.

A number of projects received Web Ratna awards in various categories. Chandigarh UT received three awards under Comprehensive Web Presence, NPC and NCNP categories. Himachal Pradesh State Unit received Best Web-Site for HimPOL, the police website as well as Best Content Provider. Jharkhand received for Video Conferencing between Court & Jail. The Government of Tamil Nadu won the Web Ratna for Most Comprehensive Web Presence. Department of Economic Affairs was awarded the Platinum Icon Web Ratna Award in the comprehensive web presence category and Best Accessible Web site.

Prime Minister's Award for Excellence in Public Administration was received for Department of Post Project Arrow. Computerisation of Paddy Procurement and PDS at Chhattisgarh also received this award.

National Award instituted by the Ministry of Social Justice and Empowerment was awarded to the website of Ministry of Finance.

CSI Nihilent e-Governance Awards were received for Energy Billing System at Tripura, Land Records Project at Goa, Police Web Portal at Himachal Pradesh and Xtended Green Node of Gujarat. Nawanshahr District in Punjab received CSI-Nihilent E-Governance award based on the NIC application SUWIDHA which is the centre stage of e-Governance in the district.

SWAGAT at Gujarat was 2nd place winner of the United Nations Public Service Awards 2010.

Skoch ICT Awards 2010 were also received for PlanPlus, e-Post, Open Source Implementation of GePNIC and HARIS Queue Management.

FISHnet REalCRaft project of Kerala received the MANTHAN AWARD 2010 under best e-Governance category. The Manthan appreciation award for e-lokshai IVRS was received by Maharashtra State Unit.

State e-Governance awards were received by Madhya Pradesh for Scholarship Portal and Kerala for the Nehru Trophy Boat Race website.

National e-Governanance awards were received by Madhya Pradesh for Integrated Forest Financial & Works Management System and i-GeoApproach.

NREGAsoft received the National award for e-Governance 2009-10 for Best Government Website.

NIC Orissa was conferred the Nagar Bandhu Samman Award for contribution towards Urban Governance.

Project Pay Manager received e-Rajasthan-2009 Public Choice award under G2C Category.

Indian Geomatics Award for outstanding contribution in Geomatics Applications was received by GIS & Remote Sensing Services of NIC. They also received the Geo-Spatial Excellence Award for National GIS Portal at Map World Forum Conference at Hyderabad.

PCQUEST Best IT Implementation of the Year was awarded to MIS-LWE developed for Planning Commission.
Promotional Matters

Client’s/Citizen’s Charter

In accordance with relevant guidelines, the Department prepared a Sevottam compliant Client’s/Citizen’s Charter and Grievance Redress Mechanism in February 2011. The Charter has nine sections and is hosted in Department’s website: www.mit.gov.in. The nine sections of the charter are as under:-

(1) Vision

e-Development of India as the engine for transition into a developed nation and an empowered society

(2) Mission

e-Development of India through multi pronged strategy of e-infrastructure creation to facilitate and promote e-governance, promotion of Electronics & Information Technology - Information Technology enabled Services (IT-ITeS) Industry, enabling creation of Innovation/Research & Development (R&D) infrastructure in ICT&E, building Knowledge network and securing India’s cyber space.

(3) Objectives

- e-Government: Providing e-infrastructure for delivery of e-services
- e-Industry: Promotion of electronics hardware manufacturing and IT-ITeS industry
- e-Innovation/R&D: Enabling creation of Innovation/R&D Infrastructure in emerging areas of ICT&E
- e-Learning: Providing support for development of e-Skills and Knowledge network
- e-Security: Securing India’s cyber space

(4) Service Standards

The Department has identified 19 services with relevant Service Standards whose details are available in the website of the Department.

(5) Public Grievances Redressal Mechanism

In the Client’s/Citizen’s Charter an officer of Joint Secretary level has been identified as Nodal Officer for Grievance Redressal and the Grievance Redressal process has also been stipulated.

As a part of implementing Public Grievances Redressal System, the Department has set up Public Grievances (PG) Cell for Grievances matters. The Centralized Public Grievances Redress System (CPGRAMS) is in operation in the Department. The cell is also addressing grievance relating to services assured by the Department under “Sevottam”. A link of PGPORTAL has been provided on the website of the Department. The portal also facilitates to receive the grievances lodged online through Internet by the citizens from any geographical location. This system besides providing a faster access offer the following facilities to citizens:-

- Lodging online grievances
- Lodging online reminders
- Viewing the online current status of the grievance.

The rate of disposal of grievances is 90%.

(6) Stakeholders / Clients

In the Charter the Department has identified the
stakeholders/clients. They are as under:-

- Autonomous Societies / Companies of the Department
- NIC and STQC - Attached Offices of the Department
- Ministries / Departments of Government of India
- State Governments/Union Territories, PSUs
- Universities/Academic Institutions, R&D Labs
- Industry / Industry Associations relating to IT, ITeS & Electronics
- Common Business Organizations (CBOs)
- Citizens of India.

(7) Responsibility Centres

In the charter the Responsibility Centres are listed as below:-

- National Informatics Centre (NIC)
- Standardization, Testing and Quality Certification (STQC)
- Society for Applied Microwave Electronics Engineering & Research (SAMEER)
- Centre for Development of Advanced Computing (C-DAC), Pune
- Software Technology Parks of India (STPI)
- Department of Electronics Accreditation of Computer Courses (DOEACC)
- Centre for Materials for Electronics Technology (C-MET)
- Education and Research Network (ERNET) India
- Electronics and Computer Software Export Promotion Council (ESC)
- Controller of Certifying Authorities (CCA)
- Cyber Appellate Tribunal (CAT)
- Semiconductor Integrated Circuits Layout-Design Registry (SICLDR)
- Indian Computer Emergency Response Team (ICERT)
- Media Lab Asia (MLAsia).

(8) Indicative Expectations from Services Recipients

In the Charter indicative Expectations from Services Recipients have also been identified and they are as under:-

- Submission of complete valid DPR/proposals/requests.
- Timely submission of UCs in prescribed format.
- Submission of Electronic copy of project document for Mission Mode Projects.
- Submission of complete R&D grant proposals in prescribed format including revised proposals.
- Submission of complete applications.
- Timely response to deficiencies pointed out in application forms.
- Submission of complete Security Incident Reporting form.

(9) Month and year for next review of the Charter

Next Charter review date: 30th November, 2011.

RTI Matters

The Department and its Attached/Subordinate Offices/Societies are separate “Public Authorities in terms of Section 2 (h) of RTI Act, 2005. They have their own websites and each of these Public Authorities has its own CPIOs/ AAs. For any information relating to these Authorities, applications need to be submitted to the concerned CPIO of these organizations as per provisions of RTI Act, 2005. There is an RTI Cell in the Department which is the receiving point for RTI applications and also deals with coordination of matters relating to RTI. All Public Authorities have also hosted relevant inputs/documents required under Section 4 of the RTI Act. The relevant contents are reviewed and updated periodically by the concerned Public Authorities.

International Co-operation and Bilateral Trade

The Department was actively involved in setting up of ICT projects in various countries. Some of the projects undertaken by the Department include - Kofi Annan Centre of Excellence in ICT at Accra,
Ghana, Cyber City Project at Ebene, Mauritius, Centre of Excellence in ICT at Dar es Salaam, Tanzania, Jawaharlal Nehru India Uzbekistan Centre for Information Technology (JNIUCIT) at Tashkent, Uzbekistan, Bedil India Tajik Centre of Information Technology at Dushanbe, Tajikistan and IT Centre for Enhancement of IT Skills (CEITS) in Myanmar.

The Hole-in-the-Wall (HiWEL) project, developed in India, has been deployed in African countries like Namibia, Zambia and Uganda. The projects depict that even uneducated rural children can learn information gathering, knowledge acquisition and skills development.

In the ICT sector, the Department has active Working Groups/G2G cooperation and collaboration with countries such as:-

- US - Philippines
- EU - Singapore
- Russia - Taiwan
- Bulgaria - Tanzania
- France - Seychelles
- Uzbekistan - Lesotho
- Egypt - Azerbaijan
- Tanzania - Armenia
- Kazakhstan - Ivory Coast
- South Korea - Belarus
- Malaysia - Madagascar
- Brunei - Turkmenistan
- Saudi Arabia - Uzbekistan
- Vietnam - Mauritius
- Myanmar - Ghana
- Bhutan - Antigua & Barbuda

The Working Groups broadly deliberate in areas like ICT policies and strategies, cyber security, techno parks, global workforce mobility, research collaboration in Free and Open Source Software, Ubiquitous Computing, RFID, Embedded System, New Generation Network, Smart Cards, e-Governance, etc., and Telecom and Media related issues for continual exchange of information and collaborative approach. The ICT industry actively participates in the Working Group meetings.

During the year 2010, the International cooperation division was engaged in steering many projects including setting up of IT centres, promoting training and employment, developing IT based solutions to improve socio-economic development, sharing of the best practices, etc. Various collaborative efforts have been made to encourage sustainable development and strengthening partnership to promote international cooperation in the emerging and frontier areas of information technology, explore ways to enhance investment and address the regulatory mechanism. The Working Groups meetings with US, Russia, Korea, Bulgaria, Brunei, Darussalam, Taiwan, etc., have witnessed enhanced government-to-government and industry-to-industry participation from respective sides.

The Indo-US ICT Working Group had two meetings, during the year, in May and December 2010 in New Delhi and discussed on various issues concerning investments, research collaborations and security issues in the area of Telecommunications, Information Technology and Media. The Working Group in the IT sector focused on - Cyber Security and Privacy, Encryption Policy, e-governance, Cloud Computing, Recent Legislative Measures on BPO, IT Act, Totalization/Visa issues, etc. In the Telecom sector issues focused were - Next Generation Network, Telecom Equipment Security, Telecom Regulation, etc. In Media and Broadcast sector issues pertaining to accessibility to U.S. market and digitalization of Cable sector were discussed. The sub groups of the Working Group also had a video conferencing meeting on 3rd November 2010 and shared information on issues related to cyber and telecom security.

The US side has representations from Federal Communications Commission, Department of Commerce, and Office of the U.S. Trade Representative as well as U.S. Industry Associations (Telecommunications Industry Association, Information Technology Association of America, and the US-India Business Council). The Industry Associations like NASSCOM, CII, FICCI, TEMA, COAI, MAIT and I&B Media Associations and Government agencies like NSCS, TRAI, MEA, DOC actively participated in the WG meeting from Indian side.

The issues of mutual interest and corresponding point of contacts both from India and USA were identified in September 2010 under the umbrella of JWG to establish a continuing dialogue on a regular basis in the IT, Telecom and Media and Broadcast sectors. Cyber security is an important issue for all countries and similar problems are encountered by them. It was desired that both the countries should work more closely in this area. It was stressed that US-CERT and Indian Computer Emergency Response Team should collaborate and work more closely in matters relating to sharing of information on cyber incidents and advance information on cyber threats.
The US side had offered five days training programme to five Indian officials at USTTR, Washington in May 2010. The Department of Homeland Security of USA facilitated India’s participation as “observer” during the “Cyber Strom” mock drill held in September 2010 and assured India’s participation as full member in the future drills.

Taiwan controls a significant portion of the global manufacturing in the area of electronics and IT hardware. A high level composite delegation of government and industry visited Taiwan from 31 May to 3 June, 2010 to have direct dialogue with Taiwanese electronic hardware manufacturers and creating awareness of Indian infrastructure, policies and demand in order to attract and accelerate Taiwanese investment in India. It was projected to the Taiwanese companies that Indian markets size now offers them economies of scale to undertake local production in India. It helped in promoting India as an important destination for investment in electronics hardware manufacturing by Taiwanese companies.

India, Brazil and South Africa (IBSA) Information Society Working Group is involved in sharing best practices in ICT among the member countries some of which includes, e-Readiness in IBSA countries, IBSA Website, standards in e-Governance and IBSA Digital Inclusion Award.

The Centre for Development of Advanced Computing (C-DAC) has established an IT centre at Damascus, Syria. The Centre is equipped to conduct various training and quality assurance programmes in IT. The Centre will provide training in IT to students from nearly 18 Universities in and around Damascus. The Centre can accommodate nearly 90 students at a time.

An MoU was signed between C-DAC & King Abdulaziz City for Science & Technology (KACST), Saudi Arabia on February 27, 2010 for cooperation in Information Technology and Services and setting up of India - Saudi Arabia Centre of Excellence in ICT at Riyadh. Thereafter, C-DAC & King Abdulaziz City for Science & Technology (KACST) had discussions to identify joint research program in information technology.

Similar Centres for skill development have also been taken up for Seychelles, Lesotho, Azerbaijan, Armenia, Turkmenistan, Uzbekistan, Ghana, Ivory Coast, Belarus, Madagascar, Vietnam, Montenegro and Antigua & Barbuda for which feasibility studies have been conducted and work is in progress.

To enhance bilateral cooperation in Information Technology and Services, MoU with the following countries were signed during the year:

- Russia on December 21, 2010 during the visit of President of Russian Federation to India. The Principal Secretary to Prime Minister has also led a high-level official and IT industry delegation to Russia from January 29 - February 1, 2011.
- Malaysia on October 27, 2010 during the visit of Indian Prime Minister to Malaysia.
- Uzbekistan on January 24, 2011.

Support for Conferences/Seminars

The Department provides financial support for organizing conferences/seminars/workshops/symposia, etc., at regional/national/international level to academia, research & development institutes, registered professional bodies and NGOs registered under the Societies Registration Act of 1860 to provide a platform for bringing together experts from industry/academia/R&D and other user community to discuss and share their expertise about technology trends in electronics and ICT sector. The information related to events, supported by the Department through Grants-in-aid has been listed on the Department’s website.

During the year, about forty three proposals from various organizations like R&D institutions and academia from all over the country were approved under the scheme. Through these events the latest information/trends in areas like Computational Science, Communication & Networking, Embedded Systems, Data Communication, Intelligent Information Retrieval, Medical Imaging, Lexical Resources and Applied Computational Techniques, Domain Data Mining, IT for Rural Development, Advances in Computer & Communication Technology and its Applications, Intelligent Interactive Techniques and Multimedia, Intelligent Data Analysis and Image Processing, Fiber Optics and Photonics, Telemedicine, Nanotechnology, Nanomaterials, etc., were shared by the experts and the papers were presented about the latest work being carried out in the related areas by International/National experts.

Office Automation

An enhanced version of the Intra-DIT portal for the G2G and G2E services has been implemented in the Department with new features and applications as per user requirements. It provides one-stop access point for integrating all employee-related services like Record Management,
e-HRAdm-online work flow Leave Application, Project Monitoring, Expenditure Monitoring, Parliament question and answer, Knowledge Management (Library, E-magazine, Newspaper/News), Online Complain Monitoring System, Online IT Proforma and IT calculation sheet, e-Profile containing the complete details of the employee, EDB system, e-AMS (General/Technical Inventory) work flow application for the Inventory of Consumable and Non-consumable items in the store, UC Report, Payment Details and Telephone Bills. This portal provides more interactive online Government and internal services.

A new application for generating the Security pass for the contractual employees and visitor’s pass (for meetings after office hours in the Department) has been developed and implemented. Visitor pass system has been hosted on the Department's website http://mit.gov.in.

A upgraded version of the File Tracking System (FTS) in the open source technology has been implemented with additional features like Flagging/Unflagging of Files/Receipts for follow up, Unifies “Query” for Files/Receipt, Customization of Report in Files/Receipts and Email subscription.

VLAN has been created. At present Eight hundred Forty Nodes are operational in the Department.

Electronics Information and Planning Journal

The bi-monthly techno-economic journal 'Electronics Information and Planning' published by the Department is in its 38th year of publication. The journal has a wider readership among the Industry and users. Its coverage in all includes aspects of promotion of Electronics, including technology developments, applications, policies and data.

During the year, the journal covered in-depth analysis reports/articles by professionals, on the latest technology, such as:-

- Impact Assessment of Sunset Clause, Sez Policy and the Global Recession on STP Units
- Guidelines for Indian Government Websites - Standards for enhancing web usability
- Self sustained model of Electronic Waste Management and Recycling
- eContent Development and Delivery
- Efficient Co-operative Caching for mobile ad-hoc networks
- A Microcomputer Based Automation of Electric Mining Shovel
- Performance Analysis of a PMSM Drive Using PID Controllers
- Green Photonics- A Broad Overview
- OECD E-Government Studies Belgium
- Supporting Reconfigurable Security Policies for Mobile programs
- Making Life Easy for Citizens and Business in Portugal (Administrative Simplification and E-Government), etc.

To streamline the distribution and accounting systems, a computerized data base for the subscribers is being maintained.

Information and Documentation Centre

The Department maintains a scientific library called Information and Documentation Centre (I&DC) with latest books and journals. It uses RFID based Library Information Management System to manage issue and return of books and journals. I&DC is also providing various services like inter-library loan facility to the officials of the Department through DELNET (Delhi Library Network). Services are also provided to the retired officials of the Department and trainees who undertake some projects in the Department.

Information & Documentation Centre (I&DC) contains approximately 29,900 books on subjects like electronics, computer, IT Network, Computer languages, Fiction, Hindi Books (Fiction), etc. I&DC is procuring journals on subjects like IT, Electronics, Network Security, Computers and some general magazines both in Hindi and English. I&DC is procuring around 200 books and approximately 100 journals per year.

The Department is spearheading the consortium comprising of the participants from National Informatics Centre, C-DAC, DOEACC, SAMEER, C-MET, STQC, STPI, CCA, ERNET India, C-DOT and Department of Posts.

Electronics & IT Industry Information System

The data received from Industries pertaining to production, exports, manufacturers and product directory and other statistics related to electronic IT industry are being maintained in an information system. A monthly summary report on Indian Economy and IT-ITeS Industry is being compiled.
IT in Parliament

During the year 2010, a number of Parliament Questions on various issues in Information Technology and Electronics Sectors were handled. They are:

- Exports in IT Sector
- Setting up of IT STPI Units
- Incentives to registered IT Companies
- Growth of domestic IT and ITeS Market
- Information Technology Hubs
- Provision of BPO facility
- Training to IT Professionals
- National e-Governance Plan
- Community Information Centres
- National Knowledge Network
- Hardware Industry in the Country
- Electronics in Health and Telemedicine Programmes
- IT Act, 2000 and its Amendment
- Check on Software Piracy
- Cyber Crime in India
- Porn websites
- Blocking of Information on Internet
- Spam Mail
- Satellite Town Programme
- Internet Subscribers
- Internet Surfing Centres
- IT in Education Sector
- Increase in Sale of Computers

The Annual Reports 2009-10 and Audited Accounts of all Societies under the Administrative Control of the Department were also laid on the Table of both the Houses of Parliament during the Winter Session, 2010 of Parliament.

Use of Hindi and Requisite Technology Development

During the year, the Committee of Parliament on Official Language visited the ERNET India, New Delhi; DOEACC Centre, Srinagar; Software Technology Parks of India, Nashik and DOEACC Society, New Delhi under the administrative control of the Department, to oversee the progress with regard to implementation of Official Language Policy of the Government. Various suggestions given by the Committee are being implemented by the respective organisations. Action taken reports on the inspections during the previous years received from different organizations were also reviewed and sent to the Committee in respect of Electronics Test & Development Centre, Chennai; Standardization Testing and Quality Certification (STQC) Headquarters, New Delhi and National Informatics Centre State Unit, Kochi.

After the general elections for the 15th Lok Sabha, action was initiated for reconstitution of the Hindi Salahakar Samiti and nominations for its non-official members were called for from various organizations. The Samiti has been re-constituted during the year.

Under the scheme of National Awards for original books on Electronics & IT in Hindi instituted by the Department, proposals were invited through advertisements in newspapers published from various parts of the country. One proposal for original writing of books on Electronics & IT under the Financial Assistance Scheme was approved and the author was requested to complete writing of the book. The proposals received under the National Award Scheme are being evaluated by the experts of concerned areas.

MoUs for cooperation in the field of Information Technology were continued to be signed during the year in bilingual/trilingual form with various countries.

Hindi fortnight was organized and various competitions were also conducted on the occasion and prizes awarded.

Subordinate offices of the Department were visited to review the progressive use of Hindi and guide them on implementation of various provisions of Official Language Act/Rules.
### Electronics & IT Production (Calendar Year) (₹ Crore)

<table>
<thead>
<tr>
<th>Item</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010*</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Consumer Electronics</td>
<td>17,500</td>
<td>19,500</td>
<td>21,950</td>
<td>24,810</td>
<td>28,140</td>
<td>32,300</td>
</tr>
<tr>
<td>2. Industrial Electronics</td>
<td>8,600</td>
<td>10,100</td>
<td>11,530</td>
<td>12,530</td>
<td>14,560</td>
<td>17,430</td>
</tr>
<tr>
<td>3. Computer Hardware</td>
<td>10,500</td>
<td>12,500</td>
<td>15,100</td>
<td>14,090</td>
<td>14,600</td>
<td>14,970</td>
</tr>
<tr>
<td>4. Communication &amp; Broadcast Equipments</td>
<td>6,300</td>
<td>9,200</td>
<td>16,400</td>
<td>24,630</td>
<td>29,900</td>
<td>32,160</td>
</tr>
<tr>
<td>5. Strategic Electronics</td>
<td>3,070</td>
<td>4,500</td>
<td>5,400</td>
<td>6,560</td>
<td>6,950</td>
<td>7,510</td>
</tr>
<tr>
<td>6. Electronic Components</td>
<td>8,530</td>
<td>8,600</td>
<td>9,420</td>
<td>11,440</td>
<td>13,220</td>
<td>14,630</td>
</tr>
<tr>
<td><strong>Sub-Total</strong></td>
<td>54,500</td>
<td>64,400</td>
<td>79,800</td>
<td>94,060</td>
<td>107,370</td>
<td>119,000</td>
</tr>
<tr>
<td>7. Software for Exports</td>
<td>97,000</td>
<td>132,025</td>
<td>158,550</td>
<td>203,240</td>
<td>231,800</td>
<td>261,470</td>
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<tr>
<td>8. Domestic Software</td>
<td>27,000</td>
<td>35,150</td>
<td>44,510</td>
<td>56,000</td>
<td>65,600</td>
<td>75,980</td>
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<tr>
<td><strong>Total</strong></td>
<td>178,500</td>
<td>231,575</td>
<td>282,860</td>
<td>353,300</td>
<td>404,770</td>
<td>456,450</td>
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* Estimated
### Electronics & IT Production (Financial Year) (₹ Crore)

<table>
<thead>
<tr>
<th>Item</th>
<th>2005-06</th>
<th>2006-07</th>
<th>2007-08</th>
<th>2008-09</th>
<th>2009-10</th>
<th>2010-11*</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Consumer Electronics</td>
<td>18,000</td>
<td>20,000</td>
<td>22,600</td>
<td>25,550</td>
<td>29,000</td>
<td>33,400</td>
</tr>
<tr>
<td>2. Industrial Electronics</td>
<td>8,800</td>
<td>10,400</td>
<td>11,910</td>
<td>12,740</td>
<td>15,160</td>
<td>18,190</td>
</tr>
<tr>
<td>3. Computer Hardware</td>
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<td>12,800</td>
<td>15,870</td>
<td>13,490</td>
<td>14,970</td>
<td>14,970</td>
</tr>
<tr>
<td>4. Communication &amp; Broadcast Equipments</td>
<td>7,000</td>
<td>9,500</td>
<td>18,700</td>
<td>26,600</td>
<td>31,000</td>
<td>32,550</td>
</tr>
<tr>
<td>5. Strategic Electronics</td>
<td>3,200</td>
<td>4,500</td>
<td>5,700</td>
<td>6,840</td>
<td>6,980</td>
<td>7,680</td>
</tr>
<tr>
<td>6. Electronic Components</td>
<td>8,800</td>
<td>8,800</td>
<td>9,630</td>
<td>12,040</td>
<td>13,610</td>
<td>14,970</td>
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<tr>
<td><strong>Sub-Total</strong></td>
<td><strong>56,600</strong></td>
<td><strong>66,000</strong></td>
<td><strong>84,410</strong></td>
<td><strong>97,260</strong></td>
<td><strong>110,720</strong></td>
<td><strong>121,760</strong></td>
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<td>7. Software for Exports</td>
<td>104,100</td>
<td>141,000</td>
<td>164,400</td>
<td>216,190</td>
<td>237,000</td>
<td>269,630</td>
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<tr>
<td>8. Domestic Software</td>
<td>29,600</td>
<td>37,000</td>
<td>47,010</td>
<td>59,000</td>
<td>67,800</td>
<td>78,700</td>
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<tr>
<td><strong>Total</strong></td>
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<td><strong>244,000</strong></td>
<td><strong>295,820</strong></td>
<td><strong>372,450</strong></td>
<td><strong>415,520</strong></td>
<td><strong>470,090</strong></td>
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* Estimated
## Electronics & IT Exports (₹ Crore)

<table>
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<tr>
<th>Item</th>
<th>2005-06</th>
<th>2006-07</th>
<th>2007-08</th>
<th>2008-09</th>
<th>2009-10</th>
<th>2010-11*</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Consumer Electronics</td>
<td>2,000</td>
<td>1,500</td>
<td>1,600</td>
<td>2,600</td>
<td>3,000</td>
<td></td>
</tr>
<tr>
<td>2. Industrial Electronics</td>
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<td>3,000</td>
<td>3,885</td>
<td>4,200</td>
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<tr>
<td>3. Computer Hardware</td>
<td>1,025</td>
<td>1,500</td>
<td>990</td>
<td>1,650</td>
<td>1,900</td>
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<tr>
<td>4. Communication &amp; Broadcast Equipments</td>
<td>500</td>
<td>650</td>
<td>625</td>
<td>12,280</td>
<td>7,800</td>
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<tr>
<td>5. Electronic Components</td>
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<td>5,850</td>
<td>6,100</td>
<td>10,500</td>
<td>9,700</td>
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</tr>
<tr>
<td><strong>Sub-Total</strong></td>
<td>9,625</td>
<td>12,500</td>
<td>13,200</td>
<td>31,230</td>
<td>25,900</td>
<td>25,900</td>
</tr>
<tr>
<td>6. Computer Software</td>
<td>104,100</td>
<td>141,000</td>
<td>164,400</td>
<td>216,190</td>
<td>237,000</td>
<td>269,630</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>113,725</td>
<td>153,500</td>
<td>177,600</td>
<td>247,420</td>
<td>262,900</td>
<td>295,530</td>
</tr>
</tbody>
</table>

* Estimated
### Summary of Audit Observations

**I. Summary of important Audit Observations for inclusion in the Annual Report of Financial Year 2010-2011 - NIL**

**II. The status of ATNs in respect of Audit Observations included in earlier Annual Reports:**

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Year</th>
<th>No. of Paras/PAC reports on which ATNs have been submitted to PAC after vetting by Audit</th>
<th>Details of the Paras/PAC reports on which ATNs are pending</th>
<th>No. of ATNs not sent by the Ministry even for the first time</th>
<th>No. of ATNs sent but returned with observations and Audit is awaiting their resubmission by the Ministry</th>
<th>No. of ATNs which have been finally vetted by audit but have not been submitted to the Ministry to PAC</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>2002-03</td>
<td>There are NIL</td>
<td>Nil</td>
<td>1</td>
<td>Nil</td>
<td>Nil</td>
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<tr>
<td>2.</td>
<td>2003-04</td>
<td>PAC reports in respect of DIT</td>
<td>Nil</td>
<td>1</td>
<td>Nil</td>
<td>Nil</td>
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<tr>
<td>3.</td>
<td>2004-05</td>
<td>which ATNs are to be submitted.</td>
<td>Nil</td>
<td>--</td>
<td>Nil</td>
<td>Nil</td>
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<tr>
<td>4.</td>
<td>2005-06</td>
<td></td>
<td>Nil</td>
<td>1*</td>
<td>Nil</td>
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<tr>
<td>5.</td>
<td>2006-07</td>
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<td>Nil</td>
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<tr>
<td>6.</td>
<td>2007-08</td>
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<td>Nil</td>
<td>--</td>
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<td>Nil</td>
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<tr>
<td>7.</td>
<td>2008-09</td>
<td></td>
<td>Nil</td>
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<td>Nil</td>
<td>Nil</td>
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<tr>
<td>8.</td>
<td>2009-10</td>
<td></td>
<td>Nil</td>
<td>1 $</td>
<td>Nil</td>
<td>Nil</td>
</tr>
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</table>

* Pertains to Commercial

$ Pertains to Civil
## Department of Information Technology - Annual Plan 2011-12

### (₹ Crore)

<table>
<thead>
<tr>
<th>S. No.</th>
<th>SCHEMES</th>
<th>Budgetary Support</th>
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</thead>
<tbody>
<tr>
<td><strong>I. R&amp;D PROGRAMMES</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>SAMEER</td>
<td>42.94</td>
</tr>
<tr>
<td>2</td>
<td>Microelectronics &amp; Nanotechnology Development Programme</td>
<td>100.00</td>
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<tr>
<td>3</td>
<td>Technology Development Council (incl. ITRA)</td>
<td>79.00</td>
</tr>
<tr>
<td>4</td>
<td>Convergence, Communications &amp; Strategic Electronics</td>
<td>25.00</td>
</tr>
<tr>
<td>5</td>
<td>Components &amp; Material Development Programme</td>
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<td>6</td>
<td>C-DAC</td>
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<td>7</td>
<td>Electronics in Health &amp; Telemedicine</td>
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<td>8</td>
<td>Technology Development for Indian Languages</td>
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<tr>
<td>9</td>
<td>IT for Masses (Gender, SC/ST)</td>
<td>16.94</td>
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<tr>
<td>10</td>
<td>Media Lab Asia</td>
<td>11.30</td>
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<tr>
<td><strong>R&amp;D Sub-Total</strong></td>
<td><strong>550.08</strong></td>
<td></td>
</tr>
<tr>
<td><strong>II. INFRASTRUCTURE DEVELOPMENT</strong></td>
<td></td>
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</tr>
<tr>
<td>11</td>
<td>STQC</td>
<td>120.00</td>
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<tr>
<td>12</td>
<td>STPI &amp; EHTP</td>
<td>2.50</td>
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<tr>
<td>13</td>
<td>Electronic Governance</td>
<td>1087.31*</td>
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<tr>
<td>14</td>
<td>Cyber Security (including ICERT, IT Act)</td>
<td>45.20</td>
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<tr>
<td>15</td>
<td>Controller of Certifying Authorities (CCA)</td>
<td>9.00</td>
</tr>
<tr>
<td>16</td>
<td>ERNET</td>
<td>0.01</td>
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<td>17</td>
<td>Promotion of Electronics/IT Hardware Manufacturing</td>
<td>2.83</td>
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<td>18</td>
<td>National Informatics Centre (NIC)</td>
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<tr>
<td>19</td>
<td>National Knowledge Network</td>
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<tr>
<td><strong>Infrastructure Sub-Total</strong></td>
<td><strong>2270.85</strong></td>
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<td><strong>III. HUMAN RESOURCE DEVELOPMENT</strong></td>
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<tr>
<td>20</td>
<td>DOEACC</td>
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<tr>
<td>21</td>
<td>Manpower Development(incl. Skill Development in IT)</td>
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<tr>
<td>22</td>
<td>Facilitation of Setting-up of Integrated Townships</td>
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<td><strong>HRD Sub-Total</strong></td>
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<td></td>
</tr>
<tr>
<td>23</td>
<td>Headquarter (Secretariat &amp; Building)</td>
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</tr>
<tr>
<td><strong>Grand Total</strong></td>
<td><strong>3000.00</strong></td>
<td></td>
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* Includes EAP component of ₹ 700.00 crore
## Employees Structure (Total and SC/ST) as on 1-1-2011

**Appendix – VI**

<table>
<thead>
<tr>
<th>Group/Class</th>
<th>Permanent / Temporary</th>
<th>Total No. of Employees</th>
<th>SC</th>
<th>%age of Total Employees</th>
<th>ST</th>
<th>%age of Total Employees</th>
</tr>
</thead>
<tbody>
<tr>
<td>GROUP A</td>
<td>Permanent:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(i) Other than lowest rung of Class – I</td>
<td>2622</td>
<td>172</td>
<td>6.56</td>
<td>67</td>
<td>2.55</td>
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<tr>
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<td>(ii) Lowest rung of Class - I</td>
<td>369</td>
<td>24</td>
<td>6.50</td>
<td>27</td>
<td>7.32</td>
</tr>
<tr>
<td></td>
<td>Temporary:</td>
<td></td>
<td></td>
<td></td>
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<td></td>
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<td></td>
<td>(i) Other than lowest rung of Class – I</td>
<td>2</td>
<td>0</td>
<td>-</td>
<td>0</td>
<td>-</td>
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<td>(ii) Lowest rung of Class - I</td>
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<td>1</td>
<td>11.11</td>
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<td>11.11</td>
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<td>17</td>
<td>4.97</td>
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<tr>
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<td>GROUP D (Excl. Sweeper &amp; Farash)</td>
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<td>138</td>
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<td>34</td>
<td>91.89</td>
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<td>-</td>
<td>0</td>
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<td>TOTAL</td>
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<td>5185</td>
<td>701</td>
<td>13.52%</td>
<td>227</td>
<td>4.38%</td>
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