

Information Technology

Annual Report

2006-07



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

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Overview

The year 2006 witnessed a revalidation of the Indian Information Technology – Business Process Outsourcing (IT-BPO) growth story, driven by a maturing appreciation of India's role and growing importance in global services trade. Industry performance was marked by sustained double-digit revenue growth, steady expansion into newer service-lines and increased geographic penetration, and an unprecedented rise in investments by Multinational Corporations (MNCs) – in spite of lingering concerns about gaps in talent and infrastructure impacting India's cost competitiveness. The sector looks set to close the year at record levels, with the revenue aggregate growing by nearly ten times over the past 10 years.

The software and ITES exports from India grew from US\$ 12.9 billion in the year 2003-04 to US\$ 23.6 billion in 2005-06. It is estimated that total software and ITES exports from India will exceed US\$ 31.3 billion during the year 2006-07. Software and services exports are likely to beat forecasts and exceed 32 per cent in dollar terms during the year 2006-07.

While the US and the UK remain the dominant markets for software and ITES exports, contributing to 67 per cent and 15 per cent of total exports respectively, firms are also keenly exploring new geographies for business development, and to strengthen their global delivery footprint. Banking, Financial Services and Insurance, and Technology (Hi-tech//telecom) are the main verticals, accounting for nearly 60 per cent of the total; Manufacturing, Retail, Media, Utilities, Healthcare and Transportation follow-also growing rapidly.

India offers a unique combination of attributes that have established it as the preferred offshore destination for IT-BPO. Over 2001-06, India's share in global sourcing is estimated to have grown from 62 per cent to

65 per cent for IT and 39 per cent to 45 per cent for BPO. The visibly higher preference for India is driven by its unmatched superiority when measured across a range of parameters that determine the attractiveness of a sourcing location.

The outlook for Indian IT-BPO remains bright, and the sector well on track to achieve its aspired target of US\$ 60 billion in export revenues by 2010. Key factors underlying this optimism include the growing impact of technology-led innovation, leading the increasing demand for global sourcing and the gradually evolving socio-political attitudes.

The process quality and expertise in service delivery has been a key factor driving India's sustained leadership in global service delivery. Since the inception of the industry in India, players within the country have been focusing on quality initiatives, to align themselves with international standards. Over the years, the industry has built robust processes and procedures to offer world class IT software and technology related services. Today, India-based centres (both Indian firms as well as MNC-owned captives) constitute the largest number of quality certifications achieved by any single country. As of December 2006, over 440 Indian companies had acquired quality certifications with 90 companies certified at SEI CMM Level 5 – higher than any other country in the world.

The Indian IT-BPO sector is committed to extending its unmatched reputation in quality, to information security and is working on a four-pronged programme to achieve this objective. This comprises: a) engaging key stakeholders (policy makers, industry players, enforcement agencies, etc.) to build a common understanding of the key issues relating to information security – in the context of global service delivery; b) educating industry constituents about developments in information security policies and practices; c) enactment of policy reform required to ensure compliance; and d) addicting in the effective enforcement of policy frameworks by encouraging the practice of periodic security audits and certification, developing and maintaining an incident response database and facilitating greater cooperation with enforcement agencies.

Notwithstanding the strong fundamentals (of large talent pool), there has been growing concern about parts of the available pool being unsuitable for employment. The Indian IT-BPO sector has taken the leads in ensuring that requisite remedial actions are undertaken in time to avoid any form of a talent crisis.

Training has become a regular and significant component in the induction process of all IT-BPO firms. Several firms have also established dedicated facilities and terms, for employee skill enhancement initiatives.

The total number of IT and ITES-BPO professionals employed in India is estimated to have grown from 284,000 in 1999-2000 to 1,630,000 in 2005-06, growing by over 340,000 in the last year alone. In addition, Indian IT-ITES is estimated to have helped create an additional 3 million job opportunities through indirect and induced employment. Indirect employment includes expenditure on vendors including telecom, power, construction, facility management, IT transportation, catering and other services.

The domestic software market is also picking-up, showing definite signs of braking out of the trend of hardware linked growth with the contribution of software and services exceeding that of hardware for the first time in 2005-06. The total size of the domestic market is expected to cross to Rs. 37,800 crore in 2006-07, a growth of 28 per cent over 2005-06. Indian firms are gradually gaining ground and are in neck-to-neck pace with the MNCs. The Indian IT and ITES sector contribution to the national GDP is estimated to rise from 1.2 per cent during the year 1999-2000 to 5.4 per cent during 2006-07.

National e-Governance Plan (NeGP)

The National Common Minimum Programme adopted by the Government accords high priority to improving the quality of basic governance and in that context has proposed to promote e-Governance on a massive scale in areas of concern to the common man.

In accordance with this mandate on June 14, 2006, the Department of Information Technology in a major initiative unveiled various components of the ambitious National e-Governance Plan (NeGP) covering 27 Mission Mode Projects and eight support components to be implemented at Central, State and Local Government levels, at an estimated cost of Rs. 23,000 crore over the next five years. At the State-level the Mission Mode Projects (MMP) would include services around road transport, land records, commercial taxes, employment exchanges, agriculture, civil supplies, treasuries, land registration, policy and education, while at Central level, it will cover areas such as insurance, Central Excise, National ID, pensions, e-Posts, banking, passport, visa and income-tax.

Common Service Centres (CSCs)

The Government has approved a scheme, as part of NeGP, to establish 100,000 broadband-enabled Internet Common Services Centres (CSCs) in rural areas of the country to connect the citizens of rural India to the World Wide Web. The scheme has been approved with a total outlay of Rs. 5,742 crore and is being implemented in Public Private Partnership (PPP) model and is expected to create one lakh direct jobs and 2-3 lakh additional indirect jobs. The CSCs are one of the infrastructure pillars of the National e-Governance Plan and would serve as the physical front for delivering government and private services at the doorstep of the citizen.

State Data Centre

State Data Centre (SDC) has been identified as another important element of the core infrastructure for supporting e-Governance initiatives of NeGP. Under NeGP, it is proposed to create State Data Centres for the States to consolidate services, applications and infrastructure to provide efficient electronic delivery of G2G, G2C and G2B services. These services can be rendered by the States through common delivery platform seamlessly supported by core Connectivity Infrastructure such as State Wide Area Network (SWAN) and Common Service Centre (CSC) connectivity extended up to village level. Revised guidelines for technical and financial support for establishment of State Data Centre (SDC) were issued during January 2007.

State Wide Area Network (SWAN)

Government has already approved a scheme for the establishment of State Wide Area Networks (SWANs) at a total outlay of Rs.3,334 crore over a period of 5 years. These SWANs will extend data connectivity of 2 Mega bits per second up-to the block level in all States and Union Territories in the country. The block level nodes in turn, will have a provision to extend connectivity further to the village level using contemporary wireless technology. Under the scheme, proposals from 24 States/UTs have already been sanctioned.

E-District

In the budget of 2006-07, it was announced that 'It is Government's intention to bring a number of services online'. Most of these services are provided at the district level and they serve as the primary interface between citizens and the Government. Accordingly, the Department has approved 2 pilot e-District projects covering 6 Districts in UP and 2 Districts in Assam. The objective is computerize the backend workflows at the

District level with appropriate Business Process Re-engineering (BPR), to reduce the work load at the district level, ensure fast processing of cases/grievances, enable better monitoring of various government schemes.

Special Incentive Package Scheme for Semiconductor Fabrication and Micro and Nanotechnology Manufacture Industry

The Government has accorded approval to the Special Incentive Package Scheme to attract investments for setting up semiconductor fabrication and other micro and nanotechnology manufacture industries in India. The incentive would be 20% of the capital expenditure if the units are set up in the Special Economic Zones (SEZs). For units set up outside SEZ, the incentive would be 25% of the capital expenditure plus exemption from countervailing duty (CVD). 'Fab units' with threshold Net Present Value (NPV) investment of Rs. 2,500 crore would be covered by the Special Incentive Package Scheme. For other units in the ecosystem, there would be a threshold NPV investment of Rs. 1,000 crore. The details to implement the scheme are being finalized.

Integrated Modern Townships for IT/ ITES / Electronic hardware industries

A Group consisting of Secretary IT, Secretary Urban Development, Secretary, Department of Industrial Policy and Promotion (DIPP) and Joint Secretary (PMO) has been set up to draw up a scheme for setting up Integrated Modern Townships in consultation with NASSCOM.

Review of Information Technology Act

The Information Technology Act, 2000 provided a legal framework for transactions carried out using computers and the internet technologies. As the technology is an ever-evolving process for providing efficient and cost effective options, it was felt that a fresh look to the technology driven law needs to be given. With proliferation of e-governance and other Information Technology applications, security practices and procedures relating to such applications need to be strengthened.

There is also an emerging view that IT laws should be technologically neutral in line with the recommendations made by UNCITRAL Model Law on Electronic Signature. Such approach will promote development of alternative technologies for authentication of electronic records and will not warrant legislative changes each time a new and equally effective technology is evolved.



Industry Profile

The Department of Information Technology (DIT) in the Ministry of Communications and Information Technology is inter-alia responsible for formulation, implementation and review of national policies in the field of Information Technology. All policy matters relating to silicon facility, computer based information technology and processing including hardware and software, standardization of procedures and matters relating to international bodies, promotion of knowledge based enterprises, internet, e-commerce and information technology education and development of electronics and coordination amongst its various users are also addressed by the Department.

Policy Measures

The Department of Information Technology has been making continuous efforts to make India a front-runner in the age of Information revolution. The Indian software and services Industry has given India formidable brand equity in the global markets. The industry has been moving up the value chain as well.

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The Information Technology Amendment Bill was introduced in the Parliament on 15 December 2006 and has been referred to the Parliament Standing Committee.

Indian Language Technologies

India is a multilingual and multi script country. There is, therefore, a need to provide user friendly and cost-effective tools, applications and contents that enable access to ICT infrastructure in Indian languages. The Department is addressing the issues relating to linguistic data resource, content creation, language processing tools, and such technologies as optical character recognition, text-to-speech, speech recognition, cross-lingual information retrieval, and machine translation in multi-lingual environment. To make available the fruits of IT development to the common man in all Indian languages, the Department has launched a process of dedicating in phased manner the tools and fonts for public use in Indian languages. As a step in this direction, software tools and fonts for ten Indian languages namely Hindi, Tamil, Telugu Assamese, Kannada, Malayalam, Marathi, Oriya, Punjabi and Urdu languages were released in public domain for free use by the masses. Similar software tools and fonts for other languages are likely to be released during 2007.

e-Readiness Index of the States and the Government Departments

The Department of Information Technology has been publishing the e-Readiness Reports on the Index of the States and the Government Departments for the past two years to enable informed decision making and policy formation. The e-Readiness Assessment Study 2005, which was conducted through the National Council of Applied Economic Research (NCEAR), has been submitted and released. The report incorporates output and employment multipliers of the IT sector at the State level. It also does an inter-temporal analysis of the State rankings and provides state wise suggestions to help states improve capacities to utilize ICTs.

Medical Linear Accelerator

The indigenous 6MeV Medical Linear Accelerator (LINAC) developed by SAMEER, Mumbai in collaboration with CSIO, Chandigarh and two industrial partners has been installed and commissioned at the Mahatma Gandhi Institute for Medical Sciences, Wardha, Maharashtra. Foundation stone for establishment of laboratory and batch

fabrication facility for Linear Accelerator (LINAC) tubes and linear accelerator machines for treatment of cancer patients with radiotherapy has been laid at SAMEER Campus, Kharghar, Navi Mumbai on 22nd May, 2006.

Internet Promotion

The Governmental Advisory Committee (GAC) Secretariat of the Internet Corporation for Assigned Names and Numbers (ICANN) has been set up in the Department of Information Technology and is operational from July 1, 2006. The GAC is an Advisory Committee comprising representatives of national governments, multinational governmental and treaty organizations, and distinct economies. The GAC is the key forum to discuss the public policy issues relating to the Internet (standardization, protocols and technology) and affecting the social and economic life of the countries.

ELITEX 2007

Electronics and Information Technology Exposition 2007 (ELITEX 2007), an exhibition and seminar to showcase technologies, products and services developed under the aegis of the Department of Information Technology, was held during 10-11 January 2007 at India Habitat Centre, New Delhi. This event provided an opportunity for close interaction between academia, R&D institutions and industries. Three technologies developed by the Department institutions were transferred to industries for commercialization and 16 new products/technologies were released during the Exposition.

National Informatics Centre (NIC)

For faster and timely delivery/retrieval of information, NIC has connected all the State Centres with leased line / fiber optics of capacity ranging from 2-45 Mbps with backup links in 19 States. The districts have been provided 2MBPS leased lines. e-Filing of cases has been started in the Supreme Court. IT based Attendance Recording System has also been implemented for all Supreme Court employees. AGMARKNET portal (<http://agmarknet.nic.in>) provides daily market information on commodity prices and arrivals in respect of about 300 commodities and 2,000 varieties from over 2,700 markets. NIC has extended computerization of land records to 582 districts and 4536 tehsils. NIC has created portal for all Central and State government agencies to host their data related to public information.

Electronics/IT Hardware Manufacturing

India has the potential to develop and manufacture Electronics/IT Hardware for the global markets and gain higher global share besides meeting the country's future requirement in the converging areas of information, communication and entertainment. However, the growth of Indian Electronics/IT Hardware industry has not been consistent with the market potential. The industry suffers disability factors on account of high incidence of duties/ taxes; inadequate infrastructure; high cost of finance, transaction cost, freight and power; low volumes of production and inverted customs duty structure in some products, etc., In view of the special characteristics of Electronics/IT Hardware and the implementation of ITA-1 of WTO, this sector needs a special sectoral treatment rather than being governed by general policy framework.

The Government has identified growth of Electronics and IT Hardware manufacturing sector as a thrust area. In order to address the concerns of manufacturing sector, in general and IT Hardware, in particular, the Government has set up National Manufacturing Competitiveness Council.

Department of Information Technology had prepared "A Discussion Paper on the Conceptual Policy Framework to Promote Growth of Electronics/IT Hardware Manufacturing Industry" in consultation with the stakeholders.

The main objectives of the proposed package of incentives for the Electronics/IT Hardware Manufacturing Sector are as follows:

- To make the industry globally competitive
- To attract more FDI in the industry
- To bring down the prices of the end products
 - To bring down the production cost
 - To increase volumes to take advantage of economies and efficiencies of scale
- To increase the demand
- To compensate for disabilities until the basic infrastructure constraints that the nation faces are removed, and
- To move towards total taxation level of 12 - 15% over a period of 3 years.

A Task Force was set up by the PMO to examine the

proposals/ suggestions contained in the above Discussion Paper and the existing Government policies/ procedures and recommend suitable amendments/ measures/ incentives so as to make India a Hub for Electronics/IT Hardware manufacturing. The Task Force constituted a small Group under the Chairmanship of Member Secretary, Planning Commission to look into all relevant aspects of the matter and give its recommendations regarding appropriate fiscal as well as other benefits for the Electronics/IT Hardware Industry for consideration of the Task Force. The Group met a number of times and also took a presentation from the Electronics/IT industry associations. The Group is in the process of finalizing its report for consideration of the Task Force.

Customs

- Peak rate of customs duty is 10%.
- India is a signatory to the Information Technology Agreement (ITA-1) of the World Trade Organization and w.e.f. 1st March, 2005, the customs duty on all the specified 217 tariff lines has been eliminated.
- All goods required in the manufacture of ITA-1 items have been exempted from customs duty subject to Actual user condition.
- Information Technology (IT) Software is exempted from customs duty.
- Customs duty on specified raw materials / inputs used for manufacture of electronic components or optical fibres / cables is 0%.
- Customs duty on specified capital goods used for manufacture of electronic goods is 0%.
- Customs duty on MP3 players and MPEG4 players is 5%.

Central Excise

- Excise duty on computers is 12%.
- Microprocessors, Hard Disc Drives, Floppy Disc Drives, CD ROM Drives, DVD Drives / DVD Writers, Flash Memory and Combo-Drives are exempted from excise duty.
- Parts, components and accessories of mobile handsets including cellular phones are exempted from excise duty.
- Excise duty on MP3 players and MPEG4 players is 8%.

Other Policy Measures

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)/ Special Economic Zone (SEZ) units are counted for the purpose of fulfillment of positive Net Foreign Exchange Earnings (NFE).

Special Economic Zones (SEZs) are being set up to enable hassle free manufacturing and trading 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% Income Tax exemption on export profits is available to Special Economic Zone (SEZ) Units for 5 years, 50% for next 5 years and 50% of ploughed back profits for 5 years thereafter.

Impact of Promotional Measures

As a result of various steps taken by the Government on a continuing basis, India is now very high on the agenda of several leading global Electronics and IT hardware manufacturers. To capitalize on the growth potential, a number of reputed companies in Electronics/IT/Telecom hardware manufacturing have either set up their units or are coming forward to invest in the country. These include world-renowned companies like Nokia, Motorola, FoxConn, Flextronics, Aspcorn, Samsung, LG, Elcoteq, Ericsson, Alcatel, Tessolve and DELL.

Production Profile

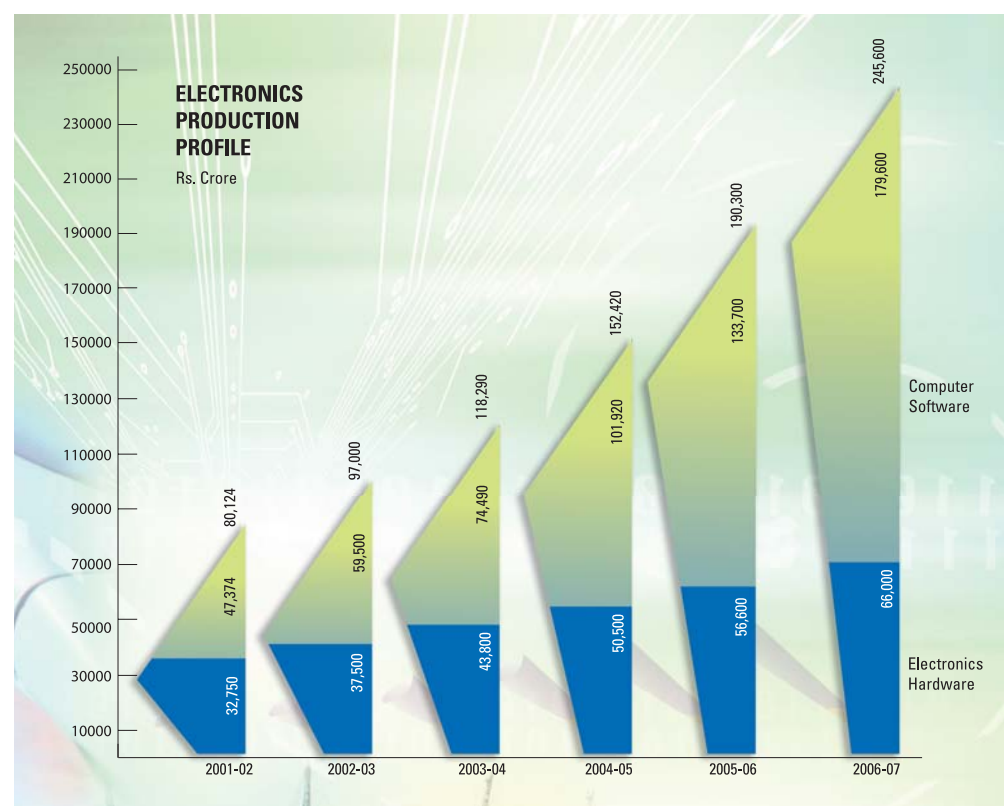
The software and services industry continue to be the dominating factor in the overall growth of the Indian industry. In 2005-06, the Indian software and services industry exports witnessed a healthy growth, its total exports reaching Rs. 104,100 crore (US\$ 23.6 billion), an increase of 33 per cent in dollar terms and 30 per cent in rupee terms over the previous financial year. This segment will continue to show a robust growth and the total value of software and services export is estimated at Rs. 141,800 crore (US\$ 31.3 billion) in 2006-07, an increase of 36 per cent in rupee terms and over 32 per cent in dollar terms. The Business Process Outsourcing (ITES-BPO) sector has emerged as a key driver of growth for the Indian software and services Industry. As export revenues from ITES-BPO estimated to grew from US \$ 6.3 billion in year 2005-

06 to US \$ 8.3 billion in year 2006-07, a year-on-year growth of over 31 per cent was achieved. Consumer electronics sector is estimated to achieve a production level of Rs. 20,000 crore during 2006-07, as compared to Rs. 18,000 crore in the year 2005-06, thus achieving a growth over 11 per cent. The fast growing segments during the year were colour TV, DVD players, home theatre systems. The colour TV production has shoot up to over 12 million units during the year 2006-07. The flat segment CTVs now accounts for more than 50% of the total domestic TV production. The PC sales are expected cross 6.5 million units during the year 2006-07. The high growth in PC sales was attributed to increased consumption by Industry verticals such as Telecom, Banking and Financial Services, Manufacturing, Education, Retail and BPO/IT-enabled services as well as major e-Governance initiatives of the Central and State Governments. The production and growth trends during the last 5 year have been as follows:

Year	Production (Rs. Crore)	Growth (%)
2001-02	80,124	16.4
2002-03	97,000	21.1
2003-04	118,290	18.2
2004-05	152,420	28.8
2005-06	190,300	24.9
2006-07	245,600	29.1

Consumer Electronics

During the year 2006-07, the consumer electronics industry continued its growth path. The total production of consumer electronics is projected to increase to over Rs. 20,000 crore during the year 2006-07, registering a growth of about 11 per cent, compared to the previous year. Consumer electronics is a major sector and it contributes to more than 35% of the total electronic hardware production in the country. The Colour TV segment is the largest contributor. During the financial year 2006-07, the domestic market of CTV is expected to cross 12 million units. The total production of CTV sets is also projected to be about 12 million. The healthy growth in CTV segment is because of growth of DTH broadcasting and also because of sports events such as Cricket and Football World cups during the current Financial Year. The flat segment CTVs now accounts for more than 50% of the total domestic TV



production. The Hi-end products, particularly Liquid Crystal Display (LCD) TVs have registered 400% growth in this financial year, though on a smaller base, in 2006-07. Total market for the LCD TV is projected to be over 150,000 and the Plasma TV 50,000 in the financial year 2006-07. The LCD TV prices have continued to fall sharply in this year. As the prices are falling, the sale of bigger sizes LCD TVs is increasing. The popular size in this financial year was 32" LCD TV against 26" in last year and it is expected that the next year the popular size would be 42" LCD TVs. Though, no production of LCD TVs is taking place presently, some of the MNCs and Indian companies have announced their intention to start production of LCD TV in India, because of rapidly increasing sale of this product.

There has been a good growth in the Home Theater segment. This has also been fueled by the introduction of DTH by one more private operator, in the country. We expect this trend to continue.

There has been exponential growth in the STB market, due to introduction of CAS and DTH in the country. However there is a very little production of STB taking place in the country and most of the requirement is being imported. Presently, customs duty on STB has been made zero, against recommendation of the industry. Industry has

recommended customs duty on STBs at par with other consumer electronic products. If this recommendation is accepted, STB production in the country will take off and we expect that in 2007-08 more than 2.5 million STBs would be produced in the country.

Black and white TV continues to register negative growth. Most of manufacturing has now shifted to grey market due to high level of taxation on this product which is meant for rural masses.

Analog Audio segment also continues with negative growth due to explosive growth of DVD/VCD/CD Players. DVD Players segment continued to grow, though the rate of growth has slowed down. DVD Player market is estimated at about 6 million sets.

Some investment has taken place in tax exempted regions, mostly by SMEs doing OEM work for reputed Brands. Samsung Electronics is setting up production unit for Colour TVs and Monitors in Tamil Nadu. LG Electronics has also announced investment and making India hub for exports.

Computer Industry

The Desktop PC market (including Notebooks) grossed 2.96 million units in the first half of 2006-07 (April-September 2006), registering a growth of 19%

over the same period last fiscal. The buoyant mood in IT consumption was led by significant growth in notebook sales, which grew by 180 per cent, while consumption of desktops grew by 8 per cent. PC sales are projected to cross 6.5 million units in fiscal 2006-07, given the strong macroeconomic conditions and buoyant buying sentiment in the market, led by demand from various industry verticals.

The high growth in PC sales was attributed to increased consumption by Industry verticals such as Telecom, Banking and Financial Services, Manufacturing, Education, Retail and BPO/IT-enabled services as well as major e-Governance initiatives of the Central and State Governments.

The southward trend in pricing continued during the year due to technology reasons. Further, significant consumption in the small and medium enterprises contributed to the industry growth and consumption in the home market remained buoyant.

Software and Services

Global trade in services has entered a new era, with the growing and widespread acceptance of the IT-based global delivery model. International bandwidth and powerful workflow management IT software and services sector today is more easily penetrating into the fabrics of the society than ever before. IT is now possible to disaggregate any business process, execute the sub-processes in multiple centers around the world, and reassemble it, in near –real time, at another location. India has already registered its mark on the globe in ITES-BPO sector.

These developments are driving fundamental changes in the global IT services scenario. Vendors and customers are redefining the levels of value creation in the industry. Keeping pace with the global advances in technology applications, India's Information Technology (IT) and IT-enabled services (ITES-BPO) continue to chart remarkable growth.

The Indian software and services exports including ITES-BPO is estimated at US\$ 31.3 billion (Rs. 141,800 crore) in 2006-07, as compared to US\$ 23.6 billion (Rs. 104, 100 crore) in 2005-06, an increase of 36 per cent in rupee terms and over 32 per cent in dollar terms. This segment will continue to show robust growth in future also.

The Indian ITES-BPO sector also continues to grow from strength to strength, witnessing high levels of activity – both onshore as well as offshore. Last year witnessed vendors moving up the value-chain to offer higher – end research and analytics services to their clients. Attrition levels also remained high, between 25-40 per cent, as demand for trained talent outpaced supply.

As export revenues from ITES-BPO estimated to grew from US \$ 6.3 billion in year 2005-06 to US \$ 8.3 billion in year 2006-07, a year-on-year growth of over 31 per cent was achieved.

High offshore component of delivery and superior execution in multi-location delivery continue to be key differentiators. Broad-based industry structure; IT led by large Indian firms, BPO by a mix of Indian and MNC third-party providers and captives, reflects the depth of the supply-base. While the larger players continue to lead growth, gradually increasing their share in the industry aggregate; several high-performing SMEs also stand out.

India offers a unique combination of attributes that have established it as the preferred offshore destination for IT-BPO. Over FY2001-2006, India's share in global sourcing is estimated to have grown from 62 per cent to 65 per cent for IT and 39 per cent to 45 per cent for BPO. With the BPO going strong for the past few years, the Knowledge Process Outsourcing (KPO) – which maybe be called the highest level of the BPO – is still at a nascent stage of development in the country. This evolution of the market to the KPO will drive trends that will ensure very high-value services, in off-shoring. These opportunities in the KPO will help the Indian market climb the global value and knowledge chain.

With a large pool of skilled manpower – chartered accountants, doctors, MBAs, lawyers, research analysis – India would be able to 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, among others. Skilled manpower and multi lingual capabilities combined with the advantages of lower costs, can help the country emerge as a front runner in KPO, globally.

There is always a 'first mover' advantage. Countries like Ukraine, Hungary, Belgium, the Czech Republic and the Philippines offer BPO services at lower rates; and it is probable that India may lose its low cost advantage. So developing KPO becomes imperative – it will not only ensure that we move up the value chain but also increase marginal revenue vis-à-vis the BPO units.

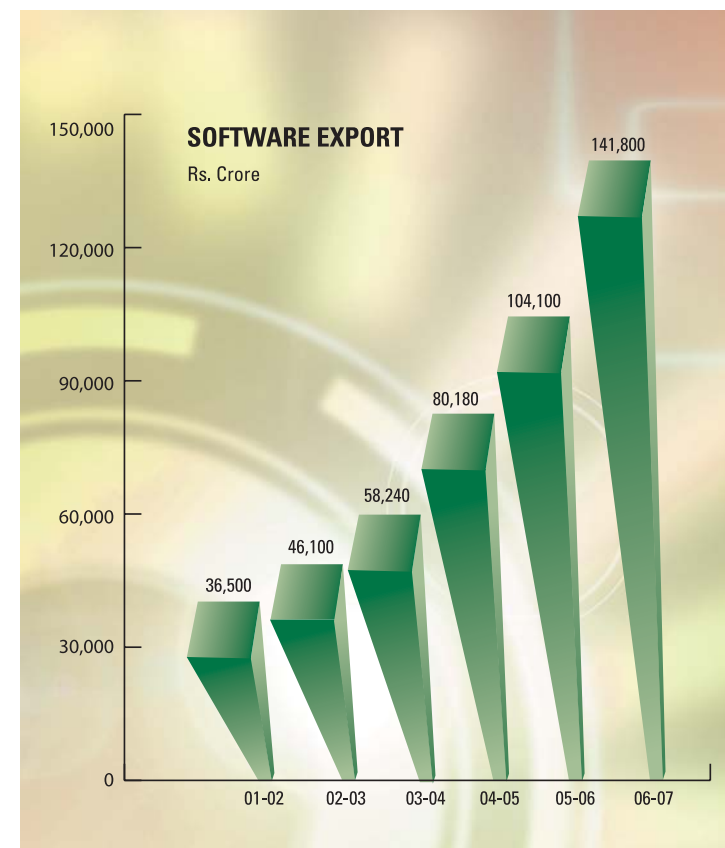
The transition from the BPO to the KPO offering a high quality of human capital and ICT enablement, can be relatively smooth. Since out IT-ITES companies are already very well established.

The overall Indian IT success story has also highlighted India's attractiveness as an investment destination. Another key impact of the global sourcing model popularized by the growth of IT-ITES has been the reversal of the brain drain – as people of Indian origin (who were earlier constrained to go abroad in pursuit of their careers), as well as young expatriates, now feel motivated to work in India itself.

The growth of software exports also has trickle down effect in the domestic market as well. The revenue from the domestic market (IT software and ITES-BPO)

is also expected to grow to about Rs. 37,800 crore (US \$ 8.335 billion) in the year 2006-07, as compared to Rs. 29,600 crore (US\$ 6.72 billion) in 2005-06, an anticipated growth of about 24 per cent. The growth forecast for the domestic market is relatively lower as compared to exports. However, with progressive deregulation and rising competition, companies are increasing their focus on the domestic market; especially on emerging sectors such as retail, logistics, telecommunications and SMEs. There is still significant untapped potential exists in the domestic market. The rapid adoption of IT services and small base likely to result in high growth (rate) in domestic BPO as well.

Indeed, the phenomenal growth of the Indian IT Software and Services and ITES-BPO sector has had a perceptible multiplier effect on the Indian economy as a whole. In addition to the direct positive impact on National Income and Employment generation, the sector has spawned the mushrooming of several ancillary industries, triggered a rise in direct-tax collections and propelled an increase in consumer spending, thanks to the significantly higher disposable incomes.



The rapid expansion of ITES-BPO services, and the IT industry as a whole, has had a profound impact on the socio-economic dynamics of the country. The sector has grown to become the biggest employment generator with the number of jobs added each year almost doubling, has catalyzed the growth of a number of ancillary businesses such as transportation, real estate and catering, and has created a rising class of young consumers with high disposable incomes.

Over the past six years, the industry's contribution to the national economic estimated to increased from 4.8 per cent in the year 2005-06 to 5.4 per cent in 2006-07. The total number of IT and ITES-BPO professionals employed in India has grown from 284,000 in 1999-2000 to over 1.287 million in 2005-06. The total IT Software and Services employment to reach 1.63 million mark as of March 2007. The indirect employment attributed by the sector is about 3.0 million.

Control, Instrumentation and Industrial Sector

This area continues to be a very major one for application of electronics and information technology. Manufacturing of related hardware in technology areas like PLC, Distributed Control

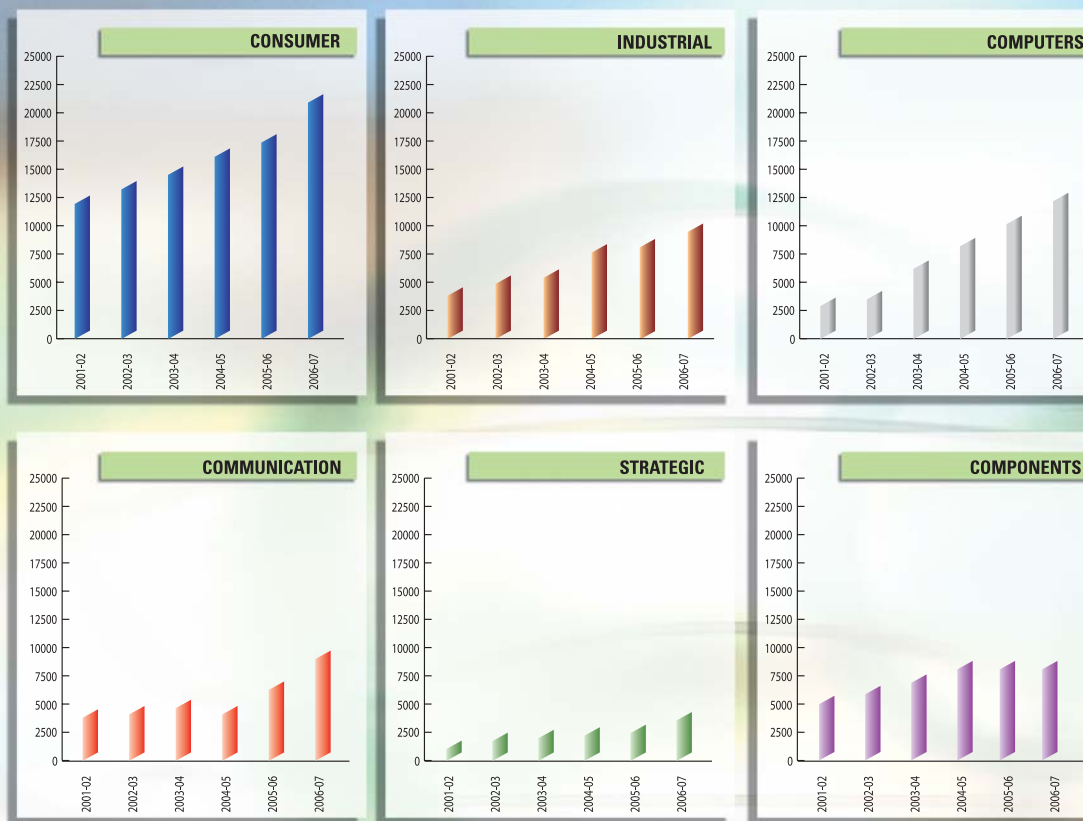
Systems, UPS, various Power Electronic equipment and systems has been increasing in the country. Newer technologies involving wireless sensors and sensor networking are rapidly emerging as potential application in the field of industrial automation technologies because these are inexpensive and easy to install.

However, still there is almost complete dependence on imported hardware and software for this sector. Many of the subsystems that constitute a knowledge enabled enterprise control system are available today in the country as independent packages, but lack of inter-operability is a major problem when integrating these modules that have been developed by different vendors using varied interfacing and communication standards.

Realizing this, the Department has conceptualized and planned for a national collaborative development initiative on next generation Automation Technologies to bring out an open standards based flexible control system, in a holistic manner.

During the year 2006-07, production in this sector is estimated to be Rs. 10,500 crore, as compared to Rs. 8,600 crore in 2005-06, showing a phenomenal growth of over 22 per cent.

ELECTRONICS PRODUCTION



Communication and Broadcasting Sector

The communication technology has taken a big leap forward and received the national recognition as the key driver for development and growth. The gross telephone subscribers in the country reached to about 190 million as of December 2006. (mobile telephone subscribes about 150 million) The over all tele-density reached 17.16% in December 2006. India is now one of the largest in the world and second largest in Asia. During the year 2006, more than 65 million subscribers were added. Broadband connections have continued to grow since beginning of 2006. Total broadband connections in the country have reached 2.10 million by December 2006. A target of 250 million telephones (tele-density of about 22%) and broadband connectivity of 10 million subscribers have been set to be achieved by end of 2007. The expectation by 2010 for broadband subscribers is around 20 million.

India has taken a leading position in the mobile handsets market. Some of the world renowned mobile set manufacturers have set up production base for mobile hand sets in the country and many others are planning to set up their manufacturing base in India to meet local demands and service international markets.

DTH (Direct to Home) broadcast service grew further during 2006 as compared to 2005. It is available through National Broadcaster and private DTH service providers/TV broadcasters. For better quality of TV reception (Digital Video Broadcasting – DVB) is

available to the people of India on their TV sets just by adding a small dish antenna and a DTH Set Top Box (STB).

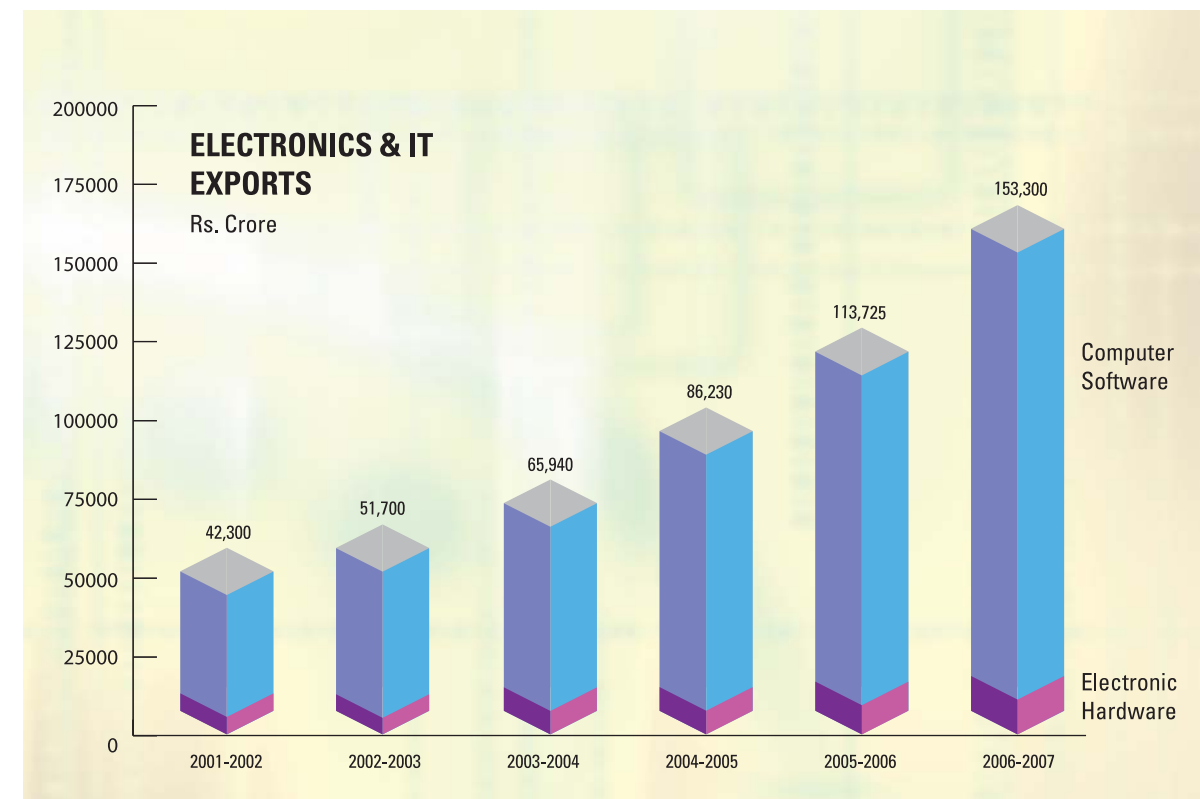
Strategic Electronics

In today's scenario, technology applicable to Strategic sector as well as strategic technology for civilian and defence sector are not available off the shelf and in most of the cases, there is technology denial. In order to ensure acquisition of the state-of-the-art technology, it is desirable to focus on production in the strategic electronics sector and there has been a consistent growth in production annually and it is estimated that during the year 2006-07, production is expected to be about Rs. 4, 500 crore.

Electronic Components

The total production of components is expected to be Rs. 8, 800 crore during 2006-07. The components with major share in the exports are CD-R, CPTs, PCBs, DVD-R, connectors, semiconductor devices, ferrites and resistors.

The world's top five mobile handset makers - Nokia, Motorola, Samsung, Sony-Ericsson and LG have started their manufacturing in India. Presence of Global EMS Majors like Flextronics, Jabil, Elcoteq, is creating potential for a quantum jump in Hardware Manufacturing in India and should have a downstream effect by greater demand for components and assemblies. Companies like Flextronics, Nokia and Jabil Circuit have committed investments to the tune of \$100 - 150 mn over the



next 2-3 years which will largely cater to domestic demand for Communication and IT products. The average sales of mobile handsets are about 5 million per month. This huge demand is expected to sustain for a long period because of the great Indian middle class which has already crossed the US population.

After announcing its plans to enter in the high growth Photo Voltaic business in 2005, Moser Baer has made initial investment of US\$ 75 million (Rs. 339 crore) to set up a PV cell and module manufacturing project with an 80 MW capacity in India's first renewable energy SEZ at Greater Noida, UP.

One of the manufacturers of LEDs has developed a series of high power LEDs. The released UNIVA and POLYVA series of LEDs were a long time demand of Indian solid state lighting market. These LEDs of 1 watt, 3 watt and 5 watt are tailor made for use in solar lamps for home lighting and ideally positioned to meet the Remote Villages Electrification program.

One of the manufacturer of speakers for television has developed Neodenum Magnets which are ten times more powerful compared to the conventional ferrite magnets, consequently magnet system sizes is much reduced. It is the demand of continuously shrinking size of color television to have slimmer speaker system.

An Indian research house has developed a hardware chip for realizing the functions of a remote terminal and bus controller in FPGAs for MIL STD 1553B interface and communication. This product increases efficiency by consuming 20% less energy and costs half as compared to other commercial products.

A low cost 5.5 inch B/W TV with AM/FM radio has been developed by a domestic company for the mass market and this product can be used for cars and other vehicles and is cost competitive as compared to other international models.

A PC based Flyback Transformer Tester has been developed which costs about 1/3rd of imported technology being used for this process.

Electronics Exports

During the year 2006-07, electronics and IT exports are estimated to be Rs. 153, 300 crore, as compared to Rs. 113,725 crore in 2005-06, showing a phenomenal growth of about 35 per cent. The software and services industry continues to show a robust growth and the total value of software and services export are estimated at Rs. 141,800 crore (US\$ 31.3 billion) in 2006-07, as compared to Rs. 104,100 crore (US\$ 23.6 billion) in the year 2005-06, an increase of over 32 per cent in dollar terms and 36 per cent in rupee terms.



Initiatives in Information Technology Sector

E-Governance

e-Government denotes a paradigm shift in the interactions government has with its citizens, business and even within government itself. One of the areas in which ICT is having a profound impact is the way Governments function and the manner in which Government services are made available to citizens. As such e-Governance projects are expected to harness the capabilities of ICT to increase efficiency, enhance effectiveness and improve quality of the government services. Adoption of e-Governance is a highly complex process requiring provisioning of hardware and software, networking, process re-engineering and change management. In that context, the Government approved the vision, approach, strategy, key components and implementation framework for National e- Governance Plan (NeGP), comprising of 27 Mission Mode Projects (MMPS) and 10 components, with the following vision:

'Make all Government services accessible to the common man in his locality, through common service delivery outlets and ensure efficiency, transparency and reliability of such services at affordable costs to realise the basic needs of the common man'

National e-Governance Plan (NeGP)

The Government's National Common Minimum Programme (NCMP) accords priority to improving the quality of basic governance and in that

context proposes to promote e-Governance on a massive scale in areas of concern to the common man. As part of the NCMP commitment towards introducing e governance on a massive scale, the Government has approved the National e-Governance Plan (NeGP). An Apex Committee, headed by the Cabinet Secretary, is constantly monitoring the progress of implementation of all the mission mode projects (MMPs) and the Department of Information Technology is serving as the secretariat of the Apex Committee.

State Wide Area Networks- SWAN

The Government has approved a scheme for establishing State Wide Area Networks (SWANs) across the country in 29 States / 6 UTs at a total outlay of Rs. 3,334 crore with Central Assistance component of Rs. 2,005 crore over a period of five years. The scheme envisages to provide Central Assistance to States / UTs for establishing SWANs from State / UTs Headquarters upto the Block level with a minimum bandwidth capacity of 2 Mbps. SWAN proposals from 24 States / UTs have been sanctioned so far, with a total outlay of Rs. 1,738 crore and Rs. 361 crore has been released. 15 States have already initiated the action for identifying Network Operator by floating Request for Proposal (RFP) on SWAN. Feasibility study and preparation of SWAN proposals for remaining States/UTs are in progress.

State Data Centres

State Data Centres has been identified as one of the important element of the core infrastructure for supporting e-Governance initiatives under NeGP. It is proposed to create data repositories/data centres in various States 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 the Data Centres have been formulated. Necessary Government approvals for the Scheme are being processed and Scheme will be taken up for implementation during 2007-08. It is proposed to establish and operationalise Data Centres in 20 States across the country within a period of one year.

Common Service Centres (CSCs)

The Government has approved a scheme for facilitating establishment of 100,000 broadband internet enabled CSCs in rural areas of the country. With a total cost of Rs 5,742 crore to be implemented in Public Private Partnership, the CSCs are one of the

three infrastructure pillars of the National e Governance Plan and would serve as the physical front end for delivering government and private services at the doorstep of the citizen. Proposals for 11 States have been sanctioned by the Empowered Committee at a total cost of Rs. 877.63 crore and the first installment of Government of India contribution of Rs 109.71 crore has been released to these States. Three States have floated the Request for Proposal (RFP) for selection of Service Centre Agencies (SCAs) and the other States are in the process of finalizing the RFPs.

Unique ID for BPL Families

The UID Project is a Planning Commission initiative which is being currently being implemented by the NIC under the overall supervision of the Department of Information Technology. The objective of the first phase of the project is to create a core database of all residents of the country and assign a unique ID number to all such residents over 18 years, in order to facilitate better targeting of government social welfare schemes and poverty alleviation initiatives. Under the project, the Electoral Roll database is being used as the initial database which would be used to form the core database. The project has been sanctioned at a total cost of Rs 46.7 crore and is under implementation.

e-District

In the budget of 2006-07, it was announced that 'It is Government's intention to bring a number of services online, in a web-based mode, including applications under the Right to Information Act, applications for house sites, ration cards, transfers of teachers, inclusion in the electoral roll, filing of police complaint, and issue of birth/death certificates and copies of land records'. Most of these services are provided at the district level and they serve as the primary interface between citizens and the Government. Accordingly, the Department has approved 2 pilot e District projects covering 6 Districts in UP and 2 Districts in Assam. The objective is to computerize the backend workflows at the District level with appropriate Business Process Re-engineering (BPR), to reduce the work load at the district level, ensure fast processing of cases / grievances, enable better monitoring of various government schemes. The backend computerization would also enable these services to be provided through the Common Service Centre Scheme. The proposal for UP has been approved at a total cost of Rs. 18.91 crore and for Assam for Rs 6.56 crore. The

project consultant selection process for the e-District project is currently under way.

Capacity Building for Implementing National e-Governance Plan

The States and UTs are the prime stakeholder for taking forward, the National e-Governance Plan. Therefore, the important issue is whether States are adequately equipped in terms of personnel and the skill-sets needed to handle the challenges that are likely to face as a consequence of Mission Mode Projects implementation under NeGP. A team of experts in areas like Change Management, Technology, Financial Management and Programme Management are considered to be essential for providing technical support to the Policy Makers, Executive Bodies and Implementing Authorities at a State level.

The Government has taken initiative in capacity building for States and UTs. The Department of Expenditure has released Rs 17 crore and Rs 21 crore grants during 2004-05 and 2005-06, respectively as Additional Central Assistance (ACA) to all the States for taking Capacity Building initiative. Under the National e-Governance Plan (NeGP) for facilitating such initiative, this Department in consultation with Planning Commission, has issued the Capacity Building and Institutional Framework Guidelines to all the States and UTs. While States utilized ACA fund allocated to them, DIT provided financial support to all UTs for preparation of Capacity Building proposal including e-Governance Road Map.

The Capacity Building Scheme covering all States and UTs has been submitted for obtaining Government approval.

Horizontal Transfer of Successful e-Governance Initiatives

The Department of Information Technology 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 up as they have potential for improving significantly Government-to-Citizen services. The details are as follows:

- Land Records Computerization Projects : Pilot Project implementations have been completed in

the State of West Bengal, Tripura, Himachal Pradesh, Punjab, Pondicherry and Gujarat. Rollout in PPP model is being carried out in the entire State of West Bengal, Punjab and Pondicherry. Implementation of computerization process has been progressing well in the States of Uttranchal, Orissa, Haryana, Sikkim, Assam, Kerala, Madhya Pradesh and Rajasthan. New pilot project has been initiated in Mizoram and Jharkhand.

- Computerization of Property Registration : Pilot Project implementations have been completed in the state of West Bengal, Punjab, Himachal Pradesh, Tripura, Pondicherry and Rajasthan. Rollout in entire state on PPP model is being carried out in West Bengal, Pondicherry and Punjab. Implementation of computerization process has been progressing well in the States of Orissa, Uttranchal, Sikkim, Assam, and Goa. New pilot project has been initiated in Mizoram.
- Computerization of Transport System at RTOs : Pilot Project implementations have been completed in the state of Himachal Pradesh, Kerala, West Bengal, Tripura and Punjab, Pilot project is working satisfactorily and rollout in entire state on PPP model is being carried out in Kerala, and Punjab. Pilot site has gone operational in Delhi.

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 G2C services to be electronically delivered from all state sector institutions and organizations.

The first version of the Portal was launched by the Hon'ble Union Minister for Communications and IT, Thiru Dayanidhi Maran in a public function on 10th November 2005. The National Portal of India is a Citizen Centric portal catering to all the citizens of India, hence the information and services provided through the portal also caters to the women, SC/ST, weaker sections and North-East region.

The achievements made under this project during 2006-07 are summarized below:

- Awards: The National Portal (<http://india.gov.in>) received the Best e-Governance Award in Technology at national level announced by Computer Society of India (CSI) 2006.

- National Portal Coordinators (NPCs) have been identified from 32 States and 63 Central Ministries/Dept who are responsible for the content development, compilation and maintenance.
- A web based Content Management System (CMS) interface has been developed to facilitate the contribution of government information and services on to the National Portal by the National Portal Coordinators (NPCs) for the contents in their respective domains.
- India Portal would be providing Multilingual content. The Hindi version of the India Portal is ready for the launch and the other language would follow subsequently.
- Live web-cast of all national events and other important functions done.
- Online Services: There has been an attempt by the National Portal to bring together all online services offered by the Central and State Government under a single umbrella for different categories of services like G2G, G2E, G2C and G2B. Around 296 new services offered by different State Governments have been added.
- Rules/ACTS: About 145 new rules/Acts of various States have been contributed to the National Portal.
- One of the major mandates of the Portal is to provide a platform for inviting public participation in the process of governance. The following initiatives were added on to the National Portal catering to the public participation:
 - Sixth Central Pay Commission - Through the portal the Commission has invited all interested persons/people to send their views, suggestions and comments. A number of reports are also generated online to facilitate the Commission efficiently and conveniently analyze the responses.
 - Draft Public Service Bill - A new sub-section has been added under Citizen Module of the portal. Citizens are enabled to participate in sending their suggestions and comments on the draft bill to the Department of Personnel and Training for further action to be taken by DOPT.

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.

The achievements made under this project during 2006-07 are summarized below:

- An 'e-Governance Standards Division' has been constituted in NIC and STQC to steer the process of evolving the standards.
- Portal on e-Governance Standards has been developed and hosted at <http://egovstandards.gov.in/>.
- An Apex Body and PRSG have been constituted under the chairmanship of Secretary, DIT.
- The 6 Working Groups have been constituted, namely, i) Network and Information Security, ii) Metadata and Data Standards for Application Domains, iii) Quality and Documentation, iv) Localization and Language Technology Standards, v) Technical Standards and E-Governance Architecture, vi) Legal Enablement of ICT Systems
- Constitution of Task Force on 'E-Forms' and 'Identity Management' to evolve policy guidelines.
- Formulation of initial set of standards under progress. Drafts on Standards Formulation Procedure, Network and Information Security, Generic Data Elements, Enterprise Architecture for e-Governance Applications and Gateway Messaging Standards are ready.

National e-Governance Service Delivery Gateway (NSDG)

NSDG is one of the 27 Mission Mode Projects under the National e-Governance Plan (NeGP). The Gateway will enforce standards based messaging enabling Integrated Service Delivery and Interoperability.

The pilot implementation of the Gateway has been successfully completed. The following Gateway Standards and specifications based on XML and SOAP have been evolved:

- Interoperability Interface Specification (IIS)
- Interoperability Interface Protocol (IIP)
- Gateway Interconnect Specification (IGIS)
- Gateway Common Services Specification (GCSS)

These are the messaging standards for a core infrastructure, which will enable Integrated Service Delivery (ISD) and sharing of data across the backend departments and front-end in various public domains through a Secure Message Delivery format.

The project has been approved by Standing Finance Committee (SFC) in August 2006. DIT is now implementing the functional gateway (NSDG) at

national level. C-DAC has been identified as the implementing agency along with a consortium of partners.

e-Governance Conformity Assessment Centre (eGCA)

The eGCA project envisage to create a national infrastructure (region-wise) in terms of skills, knowledge and experience with technical and legal expertise in the areas of Information Security, Software Quality, IT Service Quality, Legal and ethical issues of web sites etc. Also with Conformity Assessment Framework in place, compliance with applicable requirements and regulations can be assessed by independent Third Party rather than relying solely on the assertion of developers and service providers.

The project has been approved by Standing Finance Committee (SFC) in March 2006 and is being implemented by STQC IT Centre at Chennai as Headquarter and Bangalore, Hyderabad, Delhi, Kolkata, and Pune/Mumbai as Satellite Centres.

- **Testing of e-Governance Solutions for Municipalities:** Software packages from 11 different suppliers have been received in various eGCA centres. The testing for the same has begun.
- **Trainings:** Trainings on End-to-End testing of the National e-Governance Service Delivery Gateway and Testing and Test Control Notation (TTCN) required for testing of protocol compliance have been held.

e-Assessment and e-Readiness

e-Assessment is one of the important components of NeGP. It is planned to list out all the e-Governance projects running across various States and at National level and undertake summary assessment of these projects in respect of their impact on citizens. A Working Group has been constituted to provide overall guidance and steer the e-Assessment programme. Summary Assessment of 39 identified e-Governance projects has been compiled and the report has been put up in public domain on the DIT website.

e-Readiness Assessment Study (Report) 2005 for the States and Union Territories has been compiled.

For the first time, output and employment multipliers of the key States in India for the software, hardware and ICT composite segments have been calculated to



assess the catalytic effect of ICT on economic development in those States. The report also brings out the comparative analysis of e-Readiness status of the States over a three year period (2003 to 2005). The key findings of the e-Readiness Assessment Study (Report) 2005 for the States and Union Territories are:

Our analysis of the e-readiness of the states reveals that the southern states like Andhra Pradesh, Karnataka, Tamil Nadu and Kerala have remained leaders over the three-year period, while the northern states of Chandigarh, Haryana, and Rajasthan have shown vast improvements. Apart from these, Sikkim from the north eastern region has done exceedingly well.

The output and employment multipliers calculated for key Indian states show that ICT plays an important role in states, irrespective of their stage of development. Developing states like Rajasthan and Madhya Pradesh have a high employment multiplier and low output multiplier indicating the existence of high involvement of skilled labour in the IT services area, whereas the high "vertical linkages" in the developed states of Maharashtra and Gujarat is shown by the high output multiplier and low employment multipliers.

Another important observation is that old technologies are demand driven and take time to penetrate whereas new technologies like ICT are more supply driven in the sense that the rate of diffusion is very high in this technology in both developed and developing regions and thus proactive role of government in all states will yield positive results in economic development. Therefore, there is greater scope in these technologies for diffusion agents to influence the diffusion process, implying that the outlay for the ICT sector should be increased substantially in order to achieve maximum benefits of ICT.

The Department has also initiated e-Readiness exercise for the year 2006 by National Council of Applied Economic Research.

Awareness and Communications

Common man in the country is largely unaware of the benefits and potential of ICT in his day-to-day life. The benefits of e-Government applications are generally unknown. There is a tremendous need to update the citizens to demand better services from the Government. The challenge is to build awareness amongst people regarding the Common Goals of NeGP and as such increased participation from people.

A massive awareness campaign has therefore been planned to educate people about what NeGP can do to improve their lives as well as empower them. The main objectives of the National NeGP campaign are i) create awareness about NeGP and its components; ii) to undertake a national level Behaviour Change Communication campaign on various aspects of the e-governance in India.

UNDP

Under the UNDP sponsored project ICT for Development (ICTD), four themes for ICT applications in development sector were identified, namely, integrated citizen services, enhancing rural livelihoods, transforming governance and women's empowerment. In line with these themes, 12 pilot projects were approved and provided initial financial support. These projects are now at advanced stages and a few of them are in implementation stage. One of the projects viz. Bangalore One (B1) has already been commissioned and is providing various Government services to local citizens through its network of 16 B1 centres spread across Bangalore. This initiative has been conferred the CSI Nihilent e-Governance award in 2006 for being best e-governance project in service orientation. The other pilot initiatives are scheduled to be completed by December 2007.

India Development Gateway (InDG)

India Development Gateway (InDG) project is funded by the Development Gateway Foundation (DGF) and Department of Information Technology and is being

implemented by C-DAC. InDG seeks to provide responsive and credible information products and services in local languages catering to the needs of rural communities. It catalyzes the use of Information and Communication Technologies for collaboration and information sharing among stakeholders from Government, civil society, academia and private sector through a portal developed for this purpose.

Other Projects

Rural Area Development Monitoring and Information Systems (RAIMS)

This system implemented at Pudukkottai District, Tamil Nadu that has been developed and executed by Maduri Kamaraj University Maduri under the active guidance of Rural Development Department, The systems are working satisfactorily at various sites of Taluka and District Head Quarter. It is basically Multipurpose Information System and Spatial Decision Support System built in GIS environment with advanced Geodatabase.

LAN/WAN in UP Secretariat Buildings

The project has been completed to integrate all secretariat building with Yojana Bhavan as a control center for UP NICNET. It is expected to bring the efficiency and transparency in government with the help of Local Area Network established in various Secretariat buildings.

Setting up of Nine Computer Laboratory in UP Secretariat

The project has been completed for training of government employee, which would help the Government of Uttar Pradesh to implement e-governance in the state.

Creation of citizen-ID and database for Rural Digital Services (RDS) in Karnataka

This has initiated on pilot scale in two talukas Maddur and Mandya in Karnataka for database creation to provide a friendly, speedier, greater transparency,



efficient interface between the Government and the public with a cost effective and self-sustainable model as well to provide a single window for Government services at village level.

Land Resources Information System (LRIS) in Mysore district, Karnataka

This is being implemented by Karnataka State Remote Sensing Application Center, Bangalore in collaboration with Department of IT and Biotechnology, Government of Karnataka for demonstration at Mysore district. In this project a parcel level up-to-date comprehensive land information system and digital cadastral map will be prepared in support of a broad range for developmental and managerial requirements. Presently digital cadastral map of few villages with the help of Quick Bird Satellite imagery has been prepared.

Setting up of LAN and Biometric Identification System at Ahmedabad and Vadodara Central Jails

This is being implemented by NIC in collaboration with Jail Department, Government of Gujarat to make foolproof of prisoners entry and outgoing in the jail and bring transparency/ efficiency in prison inmate information handling system for all the prisoners lodged in its prison complex.

Panchayat Empowerment and communication with the Government in Local Language in Sikkim

This has been completed for sending and receiving the message/information in local language i.e. Nepali, Bhutia and Lepcha in Sikkim towards empowerment of Panchayat.

eG- SWARAJ

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.

e-Kalyan

This is an e-Governance initiative for welfare Department in Jharkhand State for development of web based Management Information System (MIS) and Budget Creation System.

Computerization of Finance, Revenue and Expenditure Department of Government of Sikkim

This has been initiated to computerize the Finance, Revenue and Expenditure Department with aim to have centralized processing for the final accounts of the State and preparation of consolidated monthly report.

Cyber Security

The operational stability and security of critical information infrastructure is vital for economic security of the country. The IT infrastructure's interconnected computers, servers, storage devices, routers, switches, and wire line, wireless, and hybrid links increasingly support the functioning of critical national capabilities such as power grids, emergency communications systems, financial systems, and air traffic control networks. As the fabric of connectivity has broadened, the volume of electronic information exchanged through what is popularly known as "cyberspace" has also grown dramatically and expanded beyond traditional traffic to include multimedia data, process control signals, and other forms of data. New applications and services that use IT infrastructure capabilities are constantly emerging.

Department of Information Technology's initiatives to secure cyberspace are essentially Promotional/ Advisory/ Regulatory in nature and include strengthening of cyber laws, early watch and warnings, protection of networks and systems critical to national security, protection against organized attacks capable of inflicting debilitating damage to the economy, skills/competence development, user awareness and forensics and attack attribution, research and development of new concepts, technologies, prototypes, and trained personnel needed to spur on security solutions. DIT's achievements in this emerging area are briefly described below.

Indian Computer Emergency Response Team (CERT-In)

CERT-In is a functional organisation of Department of Information Technology with the objective of securing Indian cyber space. CERT-In provides incident prevention and response services as well as security quality management services. CERT-In provides:

- Proactive services in the nature of Advisories, Security Alerts, Vulnerability Notes, and Security Guidelines to help organisations secure their systems and networks
- Reactive services when security incidents occur so as to minimize damage

CERT-In creates awareness on security issues through dissemination of information on its website (www.cert-in.org.in) and operates 24X7 Incident Response Help Desk. CERT-In is establishing the National Cyber Security Assurance Framework for protection of critical information infrastructure. As part of this, CERT-In has empanelled 57 'Security Auditors' for auditing, including vulnerability assessment and penetration testing of computer systems and networks of various organisations of the government, critical infrastructure organisations and those in other sectors of the Indian economy. These audits enable CERT-In to assess the vulnerabilities in Critical Information Infrastructure systems and devise suitable corrective actions and response capabilities. Implementation of security measures as per ISO 27001 has been mandated for all government organisations. A comprehensive database of CIOs of Critical Infrastructure organisations has been developed and training programs have been conducted to form a network of CIOs and encourage them to implement best practices to secure their systems.

The activities carried out by CERT-In comprises:

Activities	2006
Security Incidents handled	557
Security Alerts issued	48
Advisories Published	50
Vulnerability Notes Published	138
Security Guidelines Published	1
White papers Published	2
Trainings Organized	7
Indian Website Defacements tracked	4175
Open Proxy Servers tracked	1885

CERT-In plays the role of mother CERT in the country and helping formulation of sectoral CERTs in various sectors such as Defense, Transportation, Finance. CERT-In is regularly interacting with the cyber security officers of sectoral CERTs to advise them in the matter related to cyber security.

To facilitate its tasks, CERT-In has initiated steps to collaborate with IT product vendors and security vendors in the country. Security Cooperation agreements and MoUs have been signed with Microsoft, Redhat, Cisco, eBay, Computer Associates and Trendmicro. This collaboration will facilitate exchange of information on vulnerabilities in relevant products, developing suitable countermeasures to protect these systems and providing training on latest products and technologies.

CERT-In is collaborating with international security organisations and CERTs to facilitate exchange of information related to latest cyber security threats and international best practices. CERT-In became member of Asia Pacific CERT (APCERT) and Forum of Incident Response and Security Teams (FIRST) and is a part of the international CERT community. As part of this collaboration, CERT-In participated in the APCERT International Incident Handling Drill 2006, which held on 19th December, 2006 involving CERTs from 13 countries of Asia Pacific region. CERT-In 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. To create awareness and to enable them to implementing best practices, CERT-In is organising workshops and training programmes on focused topics for targeted audience such as CIOs, financial and banking sector officers, ISPs, etc. Experts from industry are delivering lectures in these workshops apart from CERT-In. CERT-In has conducted training program on Information Systems Security for System Administrators of ASEAN countries in August 2006. CERT-In has also organised the ASEAN Regional Forum (ARF) Cyber Security Workshop in September 2006 involving participants from 20 ARF countries.

Future Outlook

The thrust is to make CERT-In the most trusted referral agency in the area of information security in the country. CERT-In will focus on building a network of CIOs of Critical Infrastructure Organisations and interacting with them to ensure security of the critical systems, collaboration with IT product and security vendors to mitigate the vulnerabilities in various systems, providing guidance for developing and



augmenting sectoral CERTs, 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. CERT-In is developing a mechanism to issue advance warnings and alerts on cyber attacks and provide countermeasures by analyzing Internet traffic pattern. CERT-In is also developing separate security web portal for Government and Critical information infrastructure organisations and home users. This web portal will publish information on latest threats and their countermeasures alongwith security best practices.

IT Act /Certification

The Information Technology Act 2000 was enacted, primarily to create an enabling environment for e-Governance and to boost e-Commerce in the country. The Act provides a legal framework for transactions carried out electronically, creating trust in the electronic environment.

Over the last couple of years, with several new forms of computer crime, misuse and fraud taking place, concerns have been raised, both within the country as well as by the customers abroad, regarding the adequacy of the Act. A need was felt to strengthen legislation pertaining to data protection and privacy as well as security practices and procedures followed by body corporate and other organizations relating to such applications. There was also an emerging view that IT laws should be technologically neutral, in-line with the recommendations made by UNCITRAL Model Law on Electronic Signature, to promote development of alternative technologies for authentication of electronic records so that legislative

changes will not be warranted each time a new and equally effective technology is evolved.

Keeping the above in view, the Department of Information Technology had set up an Expert Committee under the Chairmanship of Secretary, DIT with members from Government, legal experts, representatives of IT Industry, service providers, etc. The recommendations of the Expert Committee, after due analysis and based on the suggestions and comments received from others, were finalized and the IT Act (Amendment) Bill, 2000 was drafted making new legislative provisions for new types of cyber crimes, strengthening the existing legal framework and addressing various other issues. With the approval of the Cabinet, the Information Technology (Amendment) Bill, 2006 was introduced in the Lok Sabha on 15th December, 2006 during the Winter Session of the Parliament. The Bill has been referred to the Parliamentary Standing Committee.

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 activities in the country. Seven Certifying Authorities (CA) licensed under the IT Act, 2000 issue Digital Signature Certificates, which are used for authenticating digitally signed electronic records. The seven CAs include Safescrypt, Institute for Development and Research in Banking Technology (IDRBT), National Informatics Centre (NIC), Tata Consultancy Services (TCS), Mahanagar Telephone Nigam Ltd (MTNL), Central Board of Excise and Customs (CBEC) and (n) Code Solutions – a division of Gujarat Narmada Fertilizers Corporation.

The Public Key Infrastructure (PKI) in the country has the Root Certifying Authority of India (RCAI) set up by the Controller of Certifying Authorities (CCA) as the root of trust for authentication of electronic transactions. The National Repository of Digital Signatures Certificates (NRDC) which hosts the Digital Signature Certificates issued by the licensed CAs and the website cca.gov.in are the technical infrastructure that has been established and is being operated by the CCA. The total number of Digital Signature Certificates issued in the country grew from around 70,000 in 2005-06 to about 3,50,000 by the end of 2006.

Efforts were continued to promote the use of digital signatures. Special focus was given to the integration of digital signatures in the MCA'21 project of the



Ministry of Company Affairs, more so after the launch of the project in March 2006. Digital Signature Certificates are also being used in a number of other applications including Income Tax, e-procurement and Import-Export licensing by the Directorate General of Foreign Trade (DGFT).

.IN Internet Domain Name

In order to bring about a substantially increased proliferation of .IN Domain Name, a new .IN Internet domain REGISTRY HAS BEEN SET UP IN January, 2005. The opening of the .IN Registry has significantly improved and broadened the availability of the domain names. The registration of the .IN domains has crossed 200,000 names by December, 2006. Presently, more than 45 Registrars have been accredited to offer .IN domain name registration worldwide to customers.

Internationalized Domain Names – Implementation for Indian Languages

In order to proliferate Internet to the common masses, there is a dire need to broaden the scope of Domain Names supporting local languages and scripts in the Internet Domain Names. The process of implementation of Internationalized Domain Names in Indian Languages includes the tasks of drawing out

the Language character Tables, Variant Tables, Normalization Tables and language rule sets in addition to the formulation of registration policies. These tasks have been completed for Tamil and Malayalam languages (respective Scripts) and will soon be launched. Similar tasks for the domain name registration in the languages of Hindi-Marathi, Urdu Bangla and Assamese languages (respective scripts of Devnagari, Perso-Arabic, Bangla and Assamese) are underway. Similar activities for implementation of Multilingual Domain Names known as Internationalized Domain Names (IDN) for all other Indian Languages (Scripts) are underway.

Migration to IPv6 from IPv4

The Department has initiated several steps towards IPv6 readiness among the network and service providers and related IT industry experts, technologists and users. As part of demonstrating the IPv6 implementation benefits, the Education Research Network (ERNET) backbone connecting premier academia has been upgraded to support IPv6. Applications like Mail Relay, Domain Name Server have been installed and trial run of applications on E-mail and Multicasting on IPv6 has been carried out. The ERNET network and a project for examining IPv6 for mobility, security and Quality of Service as well as for interoperability aspects is underway.

Establishment of Nationwide Quality of Service (QoS) Network Test Bed

The project envisages Establishment of a Nationwide Quality of Service (QoS) Network Test bed that will provide Quality of Service (QoS) assurances to various applications. The network topology of the ERNET backbone has been upgraded and configured to Multi Protocol Level Switching (MPLS) and DiffServ based for the Quality of Service (QoS) Test bed run QoS enabled applications and services to offer services to users. This will demonstrate the advantage of statistical multiplexing or MPLS traffic Engineering i.e, Congestion avoidance based on Weighted random early detection (WRED); Congestion Management based on bandwidth and bounded delay; MPLS Class of Service networks; VPN configuration, etc, for applications viz., Voice over Internet Protocol (VoIP), Distance Learning and Video Conferencing are underway. The test bed will be used by ERNET to provide IP based QoS services and will also serve as a vehicle for collaborative R&D among the academia and for distance education.

Indo-EU Proposal: Connecting ERNET India with European Research Network GEANT

An agreement has been signed under India EU Cooperation on Information Society Technologies (IST) Programme, for 34 Mbps connectivity between India and GEANT Network in Europe for collaboration between ERNET and Delivery of Advanced Network Technology to Europe Limited (DANTE) to produce a reliable and efficient connectivity between the two research communities so that the various network resources can be shared. Presently a bandwidth of 45 Mbps connectivity was made operational from August, 06 and providing partnership in the area of Information Technology, Life sciences, genomic, biotechnology, material science, environmental science, etc.

India's active participation and visibility in International forums and its related agencies

The Department has dealt with World Summit on Information Society (WSIS) relating to various aspects of Internet Governance, Intellectual Property, Cyber Security, ICT for bridging Digital Divide; International Corporation for Assigned Names and Numbers (ICANN); is a member of the Governmental Advisory Committee (GAC); Asia Pacific Network Information Centre (APNIC)-setting up of Root servers; Component of Internet and Internet based services in International Telecommunication Union (ITU); UNICT Task Force for development and deployment of ICT tools for bridging the Digital Divide, etc.

Awareness programmes

Various Workshops and training programmes on the issues of for Registrars, Internet Service Providers, Network Service Providers, Technology developers, Human-Machine interface developers, Users have been organized, etc.

Programmes related to the following have also been organized to spread awareness.

- i) IPv6 concerning deployment and application oriented projects,
- ii) National Internet Registry establishment in the country,
- iii) .IN Domain Name Registration – registry process and policies, dispute resolution policy, etc.
- iv) Domain Names in Indian Languages - registry process and policies, dispute resolution policy, etc.

Establishment of Governmental Advisory Committee (GAC) Secretariat in DIT, New Delhi

A Governmental Advisory Committee (GAC) Secretariat of the Internet Corporation for Assigned Names and Numbers (ICANN) has been set up in the Department of Information Technology. The GAC is an Advisory Committee comprising representatives of national governments, multinational governmental organizations and treaty organizations, and distinct economies. 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.

The Semiconductor Integrated Circuits Layout-Design Act 2000

The Semiconductor Integrated Circuits Layout-Design Act (SICLDA) 2000 provides for protection of Semiconductor Integrated Circuits Layout-Designs and for the matters connected therewith or incidental thereto. As per the provisions made under SICLDA, a Registry known as the Semiconductor Integrated Circuits Layout-Design Registry (SICLDR) has to be established to facilitate examining the received chip layout-design, IPR applications and issuing the registration to qualifying layout-designs.

During the year, further work on establishing of SICLDR progressed. The civil utilities and electrical works of the new office set up were tested and put in to operation. PC network connectivity was commissioned. The office equipment procured for Registry office were installed and made operational. Technical equipment needed for creation of new SICLDR resource- Inspection and Verification Facility - were identified and procurement actions started. Diffusion of information on Act matters was given to academic, R&D and industrial groups and one workshop on chip IP matters seeded. Queries from M/o Commerce and Industry on WTO/TRIP matters were attended to. Interfaced with DIT XI Plan study team on R&D on setting new mission activity "National Institute on IPR Semiconductor Layout Designs" and strengthening the Registry statutory activities and these were recommended in XI Plan R&D report of the Department.



Technology and Application Development

Media Lab Asia

Media Lab Asia was set up by Government of India as a not-for-profit organization under Section 25 of Companies Act with a vision of leveraging the information and communication technologies and other advanced technologies for the benefit of the common man. Media Lab Asia works with academic and Rand D institutions, industry, NGOs and Governments in the endeavor. In addition, research, development and deployment projects have been taken up. Media Lab Asia is also establishing field test sites near the research organizations and other locations and working with State and local governments, NGOs, and other organizations in this endeavor.

Media Lab Asia's application development is focused on use of ICT for healthcare, education, livelihood generation, empowerment of the disabled and providing rural connectivity. The Media Lab Asia projects are generally centered around these themes. The research themes of Media Lab Asia include technologies for broadband rural connectivity, affordable computing and access devices, and advanced interfaces.

Achievements during the year 2006-07

Media Lab Asia initiated several projects in the identified thrust areas at its research hubs at IITs, NGOs, IIIT and its lab at Delhi. Some of the projects have been taken for the field trial and pilot deployments. Highlights of some of the projects are described below:

ICT for Healthcare

Ca:Sh: The system aims at developing a model for IT based health services at grass root level by strengthening the health data collection and information systems. Handheld device based data collection methods are being developed and tested in this project. The health

modules have been designed and the development activity is in progress.

Digital Health at Every Door Step-Using Wireless Communication Network: The system aims to develop affordable, biomedical and public healthcare diagnostic devices for rural healthcare. The project will address the issues of bandwidth constrained compression, standards-compliant formatting and integrated multimedia transmission, etc. The project will test deploy these devices in a WiFi wireless network for providing rural medical services using a mobile telemedicine vehicle. This project has been recently initiated.

Adaptive Automatic Insulin Pump: The system aims to develop low-cost technologies for infusion of drugs and medication to patients using MEMS (Micro-Electro-Mechanical-Systems) based micro-fluidic delivery system. The objective is to make available drug delivery system like insulin pumps, etc., at a lower cost. This project has been recently initiated.

Sehat Saathi: This project is developing a rural telemedicine platform for Primary Healthcare delivery. A modular development approach with an interface builder kit was adapted in the project where the users can select/create modules as per their requirement. The dermatology and ophthalmology modules are ready. The dermatology module is being tested with Hallet Hospital in Kanpur. Discussions are underway with Ministry of Health and Family Welfare for adoption of the technology for tele-ophthalmology. Test deployment of Sehat Saathi is being undertaken jointly with NGOs and other organizations.

Polysensors: Poly Sensor is a portable, easy to use, low cost water quality monitoring instrument which can tell whether water is fit for consumption by human being. Currently, it can measure seven types of impurities in water viz. pH, Chloride ion, Nitrate ion, Electrical Conductance (EC), Total Dissolved Solids (TDS), Fluoride and Salinity (amount of NaCl).

The instrument is a direct read out and little technical expertise is required for determining the water quality and its contamination. The instrument is battery operated and can be easily taken to remote sites in rural areas. This is one instrument, which can measure many parameters. This instrument is fully indigenous and easily repairable (any technician can

repair). It has 64 KB EEPROM and serial data upload facility. The lower limit of sensitivity of the instrument is as low as specified by WHO. The instrument is under field trial at several places.

ICT for Livelihood Generation

Digital Ecosystem for Agriculture and Rural Livelihood: The project is providing a multimedia platform for creation, sharing and dissemination of agricultural information among farmers and experts. It has created an ontology based agricultural vocabulary database in Hindi with more than 28,000 agricultural terms. This agricultural knowledge repository can be utilized by agricultural extension scientists and farmers on various matters related to agriculture and also by the research Engineers for enhancing the relevance of research results in the agricultural sector. A Kisan Blog for accessing of farming information by farmers including an Audio blog has been developed. Digital Agronomy Portal for decision support is being developed. Testing of the technologies in field is being done in collaboration with ICAR, KVK's, entrepreneurs and NGO's.

e-Sagu: The project is an IT-based personalized agricultural advisory system. The advice by the experts is provided at the farmers door step on regular basis from sowing to harvesting. This helps to reduce the cost of cultivation and increases the farm productivity as well as quality of agro commodities. At present the system is deployed in Andhra Pradesh covering 5000 farms in 38 villages for crops such as cotton, chillies, rice, groundnut, castor, red gram and fish. A revenue model with collection of subscription from farmers has been implemented for testing sustainability. The project evaluation was done by third party organization and found that the farmer gains Rs 3850/- per acre on average. A project has been taken up for optimization, productization of the e-Sagu and development of a business model. Pilot deployment of e-Sagu in the Ashwini infrastructure has been taken up at about 32 centres covering about more than 75 villages. An ISO model is being developed. An application has been filed for patenting the technology. e-Sagu has been awarded 'The Best e-Governance Project' award by the CSI-Nihilent e-Governance Awards for 2005-06. e-Sagu is selected as one of the worldwide latest novel Internet applications in the book 'Innovative Application Case study 2006' by Institute for Information Industry, Ministry of Economic Affairs, Taiwan.

Digital Craft Revival: CHIC focuses on the Lucknow Chikan Embroidery and uses Computer Aided Design (CAD) to develop a library of traditional and new motifs and composition of past Indian and Persian design motifs. CHIC is 'cost-effective' and less 'time-consuming' as compared to the existing traditional methods and can help in creation of better designs. This system is being field tested in Uttar Pradesh in collaboration with an NGO. A project is taken up for development of CAD based tools for carpet design to help the people involved in the carpet industry. This project is developing user-friendly software in which designers can develop new designs based on the basic motifs stored in the library and compose maintaining the spirit of the tradition of their own.

aAQUA: aAQUA (almost All Question Answered) is a smart, effectively an online, yet archived, web-based discussion forum, allowing users to create, view and manage content in their native language. It provides easy and fast retrieval of contextual information, documents and images using various keyword search strategies with the help of query expansion and indexing techniques. Using this, a farmer can ask a question on aAqua from a kiosk (cyber-café); experts view the question and answer back, providing solutions to the problem. It is available in English, Hindi and Marathi. Being Unicode compliant system, it can support other languages also.

aAQUA has been deployed at many kiosks in Pabal and Rajguru, Shirur and Haveli taluka region in Maharashtra. It has been developed at Media Lab Asia research hub at IIT Bombay. The development is complete and is ready for deployment.

ICT for Empowerment of the Disabled

Sanyog: Sanyog is a multilingual augmentative communication system to serve individuals with speech impairment and neuro-motor disorders. It allows the individuals to form and vocalize their own messages. A prototype system is being tested at the (IICP), Kolkata and at Action for Abilities, Development and inclusion (AADI), Delhi. The system provides i) facility to construct simple sentences by selection of icons, ii) creation of more complex messages using on-screen soft alpha-numeric keyboard iii) provides a facility to easily access pre-stored messages, and iv) to personalize the icons with associated meaning, reflected in iconic interface. The

natural language processing techniques are used to generate grammatically correct sentences and the Text to Speech engine produces speech output. The system has been tested in Bengali, English and Hindi languages.

Shruti: A TTS engine in Hindi and Bengali has been developed at MLAsia hub at IIT, Kharagpur. This is available for WINDOWS, LINUX and embedded system running WINCE and ARM Linux. Facility has been provided to enter text in ITRANS using which the Indian language text can be entered using Roman characters. Shruti is being used and field-tested with Sanyog. Shruti and Sanyog have been deployed at IICP-Kolkata, AADI-New Delhi, Monovikas Kendra-Kolkata and NIMH-Hyderabad for field trials.

VAANI: VAANI is an iconic communication device that provides simple navigation mechanisms to serve individuals suffering with cerebral palsy. The idea of VAANI came up with a target of developing an easy to operate, portable hand held device with a facility to store and play a large number of audio messages and display images which can be partitioned in different contexts. The device has a graphic LCD display, configurable keyboard, suitable indicators and USB support. It comes with user friendly Graphical User Interface to customize the device according to need of different users. It has been developed at Media Lab Asia, Delhi and test deployed at 'Action for Abilities, Development and Inclusion (AADI), New Delhi'.

Virtual Physics Lab: The objective of the project is to design and develop Virtual Physics Lab for the rural school children, which do not have access to the Physics lab infrastructure in their schools. The project includes training the teachers of rural schools in creating multimedia content for Physics lab. More than 100 teachers have been trained through this program. Virtual experiments have been developed so far include Ideal and Compound Pendulum, Bouncing Ball, Simple Harmonic Motion, Pulley, 2D Collision, Inclined Plane, Lever, Rotation and Optics.

Samvidha: The project 'Samvidha' is a personalized content access and presentation for education and literacy for adults and rural children. Samvidha provides functional literacy in a non-functional way, it may be used to provide supplementary education to rural school children, healthcare, environmental awareness and general awareness contents and as a

scope of participatory authoring, self test support. The following features have been incorporated in the project:

- Offline Internet Access
- Personalized Information Filtering
 - Ontology Representation and Population
 - User Modeling
- Local Search
- Multi-lingual Search Interface

The project has been deployed at Bhalopahar, Galudihi, Purulia, whereas deployment is in progress at Bankura and Ashok Nagar districts of West Bengal.

Shravan: It is an empowering tool for visually impaired to enable them to read/write electronic documents through listening using computers. Shravan (a low cost PC for visually impaired) is an in-house project of Media Lab Asia. It has a standard mother board, 40 Gb hard-disk, standard CD-ROM, normal key board and a specially designed Shravan Box which can give the status of the PC in case of power failures and malfunctioning of hard-disk.

Screen Access for All (SAFA): A screen reading software in Hindi and English to enable the visually impaired persons to use PC is developed in collaboration with National Association for the Blind. SAFA is currently being field tested at a number of schools and is ready for deployment.

Content Generation for Capacity Building of Persons with Blindness or Low Vision: The project aims to generate e-text, Braille, large print and audio books at graduate/post graduate level in English and Hindi for visually impaired persons. The project is being implemented by National Association for the Blind. The conversion of 700 books into e-Text and audio recording is in progress.

ICT for Education

Multimodal Participatory tutoring system for the Rural Children: The objective is to develop an intelligent tutoring system (ITS) and authoring system that will provide the teachers with a facility to author the content in accordance with local needs. IIT-Bombay has developed a sample courseware for class 8 students. IIT-Bombay has also conducted a faculty development programs to train the teachers, develop courseware websites to help knowledge transfer, and ITS to adapt itself according to the needs of the student.

ICT enabled Teaching in Rural Schools: The objective of the project is to deploy ICT in classroom teaching on a pilot basis in a few selected schools in Karnataka and to evaluate the effectiveness of the same for improving the quality of classroom teaching. The teachers of 15 rural schools were trained on the use of software content for teaching science subjects. The project has been undertaken in collaboration with Sarva Shiksha Abhiyan.

Rural Connectivity

Ruralnet (Digital Gangetic Plains II): The project aims development of a robust, cost-effective, high performance solution for point to multipoint and mesh networks based on broadband wireless technology for rural internet connectivity. Technologies for modification of MAC layer protocols of IEEE 802.11b standard appropriate for long distance broadband wireless connectivity and fault tolerant mechanisms have been developed to automatically route the transmissions through alternate antennae and to ensure the link connection's always ON in case of failure of particular critical links. The technologies developed in these projects are being used/tested in the Ashwini project deployment.

Ashwini: The project is establishing a broadband wireless network based on 802.11 b/g technology connecting about 32 village centres in East Godavari and West Godaviri districts of Andhra Pradesh with a hub at Bhimavaram town in point to multi-point and mesh configurations. This project is delivering high quality services such as agriculture, healthcare, education, livelihoods training and e-governance to about 5 lakh people in villages and is providing connectivity backbone for rural BPO's in GramIT project and e-Sagu project in this region. Multi-site video conferencing is effectively used on this network to provide expert interaction with the people in the villages in the areas of healthcare and agriculture and provide high quality education to the students, conduct literacy and spoken English programs for women and provide training to livelihood generation. H.E., the President of India visited the project and appreciated the work and value of the project. e-Sagu project is adapted to deploy in project Ashwini covering more than 75 villages. A revenue model is being implemented in the Ashwini project.

Peer-to-Peer Mesh Networks: A three channel broadband wireless router card has been developed. Prototypes of the device have been fabricated and are

being tested at IIT-Madras. Plans are made for testing of these devices for crating wireless mesh networks in villages. The technology is being transferred to Industry.

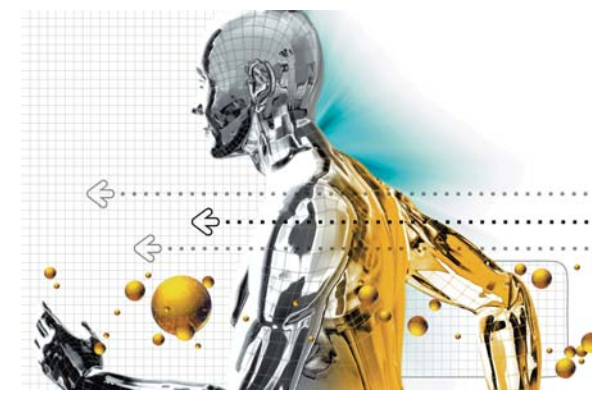
GramPatra: GramPatra is a asynchronous store and forward message delivery system for remote rural locations where on-line connectivity is not available. A prototype system has been developed and is being field tested in Karnataka in collaboration with Bhoomi project. This Technology was presented at the IFIP World Information Technology Forum 2005 (WITFOR 2005) at GARBORNE, Botswana. WITFOR 2005 GABORONE declaration included GramPatra as an example technology for infrastructure creation where online internet is not available.

Gramin Gyan Kendra: A project has been taken up to develop 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. Multimedia programs would be developed for applications in agriculture, carpet industry, local art and craft, horticulture, chunar ceramic works, cultural heritage, Banarasi saree, embroidery, primary healthcare, i) stone sculpture, ayurvedic and traditional medicines, folk literature/music and local culture, looms and weaving. The multimedia programs would contain video content and text based material covering the aspects of raw material, sources, technical know-how, potential markets and various cost components.

Gramin Gyan Kendra's (GGK) would be established using self help groups in rural areas of Vindhya region around Mirzapur district for creating access to information and aspects of self-sustainability of GGKs would be looking into by setting up business models. The content would be disseminated through web enabled services.

Technology Development for Indian Languages Programme (TDIL)

The world is in the midst of a technological revolution nucleated around Information and Communication Technology (ICT). Advances in Human Language Technology will offer nearly universal access to information and services for more and more people in their own language. India is multilingual country with 22 official languages and 10 scripts. It is therefore essential that tools for information processing in local languages are developed and be made available for



wider proliferation of ICT to benefit the people at large and thus paving the way towards 'Digital Unite and Knowledge for all' and arrest the sprawling Digital Divide.

Language technology development in India has today reached a stage, where it has a potential to generate utility applications, benefiting the masses, which will enable people to access and use IT solutions in their common language. Department of Information Technology (DIT) has further encouraged users and developers of Language Technology solutions by providing certain basic information processing tools like fonts, open office, e-mail client, internet browser, dictionary, conversion utilities, etc., free of cost, which will motivate users to use them to solve their basic problems and help developers to build advanced solutions. This will definitely boost up and leapfrog Indian language technology development and their deployment in a very fast way. So far, CDs containing such software tools for ten languages viz., Hindi, Tamil, Telugu, Punjabi, Urdu, Kannada, Malayalam, Marathi, Assamese and Oriya languages have been released in public domain. These software and tools are also free-downloadable from the website <http://www.ildc.gov.in>. Similar fonts and software tools for other Indian languages are being developed /consolidated and expected to be released during the next year.

TDIL Programme

Technology Development for Indian Languages (TDIL) is a programme with vision as 'Enabling masses to build knowledge society'. This programme envisages to achieve 'Communication without language barrier and moving up the knowledge chain'. The major objectives of the programme are:

- To develop information processing tools to facilitate human machine interaction in Indian languages and to create and access multilingual knowledge resources/content.

- To promote the use of information processing tools for language studies and research.
- To promote use of Information processing tools in Socio-economic sectors e.g. e-governance, e-rural prosperity and e-learning.
- To consolidate the developed Indian languages technologies into innovative user products and services.
- To promote collaborative development of futuristic technologies leading to innovative products and services.

Focus Areas

- **Translation Systems**
 - English to Indian Languages (E-IL) and Indian Language to English Machine Translation System (MT)
 - Indian Language to Indian Language (IL-IL) Machine Translation System
- **Cross Lingual Information Access and Retrieval**
 - Development of Cross Lingual Information access and retrieval in Indian languages and English
- **Linguistic Resources such as**
 - Parallel corpora, multilingual dictionaries, Word-Net, speech corpora, glossaries, etc.
- **Human Machine Interface systems**
 - Printed Text Document Recognition
 - On line Handwriting Recognition
 - Speech Processing i) Speech to Text system, ii) Text to Speech System
- **Language Processing and Web Tools**
 - Fonts, Key-board Drivers, Word Processors and Office Suite, Spell Checkers, Transliteration Tools, Converters, Browser Plug-ins, E-mail clients etc.
- **Localization and Content Creation**
 - Adapting IT tools and solutions in Indian languages , digital library

Standardization

- ISCII (Indian Script Code for Information Interchange), UNICODE, World Wide Web Consortium (W3C)

Achievements during 2006-07

Technology Development through Mission Mode Projects

Mission Mode projects were conceptualized in the Roadmap for Technology Development for Indian

languages to develop time-bound development of critical technologies.

Five Mission mode projects in consortium approach have been initiated for the development of:

- English to Indian Languages Machine Translation System (Domains: Tourism and Health). The languages pairs involved will be English-Hindi, English-Marathi, English-Bengali, English-Oriya, English-Tamil and English-Urdu.
- Indian Language to Indian Language Machine Translation System (Domains: Tourism and Health). The language pairs are Tamil-Hindi, Telugu-Hindi, Marathi-Hindi, Bengali-Hindi, Tamil-Telugu, Urdu-Hindi, Kannada-Hindi, Punjabi-Hindi, Malayalam-Tamil.
- Cross-lingual Information Access (Domains: Tourism and Health). The languages involved will be Bengali, Hindi, Marathi, Punjabi, Tamil, Telugu and English.
- Printed Text OCR for Indian Languages for Bengali, Devnagari, Malayalam, Gujarati, Telugu, Tamil, Oriya, Tibetan/Nepali, Gurmukhi, Kannada with Font and point-size independent recognition capability.
- On-line handwriting recognition system for Devnagari, Bengali, Tamil, Telugu, Kannada, Malayalam scripts.

The mission mode projects would result in development of prototype technologies in these areas with the potential for further evolution towards mass-market products by industry.

National Roll-Out Plan

Under National Roll-out Plan, software tools and fonts for Indian Languages are being released in public domain for free use by the masses. So-far CDs containing such software tools for Hindi, Tamil, Telugu, Punjabi, Urdu, Kannada, Malayalam, Marathi, Assamese and Oriya languages have been released in public domain. These software and tools are also free-downloadable from the website <http://www.ildc.gov.in>. Similar fonts and software tools for other Indian languages are being developed /consolidated and expected to be covered during 2007.

Human Machine Interface System

Speech Corpora: Annotated Speech Corpora of approximately 50 hours has been developed for 6

Indian languages namely Hindi , Marathi , Punjabi, Bengali, Assamese and Manipuri. Speech Corpora for 4 South Indian languages namely Tamil, Malayalam, Telugu and Kannada are under development. Using the speech corpora, TTS for various Indian Languages are being developed.

Text to Speech (TTS) : Text-to-Speech system is available for Hindi with natural speech output. TTS prototype for Bengali has been developed by C-DAC, Kolkata. Prototypes of Text-to-Speech for Assamese, Tamil, Malayalam, Bangla, Telugu and Kannada are under development.

Development of Open-Type fonts

A project to develop open type fonts for 11 Indian languages has been initiated. So far, 227 open type fonts for various Indian languages have been developed under the project. Under this project, unique font entitled 'sakal-bharati' has been developed which maintains font-size and shape in Indian languages.

Human Resource Development in Language Technology

Under this programme, masters level programme in the domain of Knowledge Engineering / Computational Linguistics has been introduced and being conducted at four national level institutions namely , IIIT-Hyderabad, Anna University, Utkal

University and C-DAC-Noida (in collaboation with Mahatma Gandhi Aantarashtriya Hindi Vishwavidyalaya) and Post Graduate Diploma programme in localization are being conducted at four institutions namely BIT-Mesra , C-DAC-Noida, C-DAC-Kolkata and C-DAC-Thiruvananthapuram.

Localization efforts

Based on the recommendations of Parliamentary Committee on Official Languages Rajbhasha Information Technology Application Programme (RITAP) has been initiated. Under the project, C-DAC-Pune has localized the dynamic National Train Enquiry System website of Railways (<http://www.trainenquiry.com/Hindi>) in close coordination with CRIS.

C-DAC Noida is developing customized Machine Translation System (Anglabharti) for official domain of Department of Information Technology.

Standardization

W3C : The Project 'Web Internationalization Initiative' has been initiated with the objective of adequate representation of Indic scripts in the Web Technology Standards being evolved by World Wide Web Consortium (W3C). DIT, C-DAC and MAIT-CoLL Tech are members of W3C. With DIT support and guidance W3C Office has been set-up in India at C-DAC-Noida. Efforts have been taken to incorporate



adequate representation of Indic scripts in the emerging web technology standards.

An International Conferences on Web Technologies' was organized during August 2006 at New Delhi and Bangalore to create awareness about the futuristic development in the web technologies amongst Indian IT community, researchers and institutions to leapfrog to products and services based on W3C Standards accepted internationally.

UNICODE : Unicode Standard is a 16-bit encoding standard, which is widely being used internationally by the Industry for the development of multilingual software. Department of Information Technology is the voting member of the Unicode Consortium to ensure the adequate representation of Indic scripts in the Unicode Standards. DIT finalized the changes in the Unicode Standard and majority of changes have been accepted and incorporated in Unicode Standards version 4.0. Initiatives have been taken to incorporate additional languages/ scripts such as Lepcha and additional characters and symbols of Vedic Sanskrit.

Information Dissemination

TDIL Web-site : The TDIL website (<http://tdil.mit.gov.in>) is bi-lingual UNICODE compliant (English and Hindi) and provides access to Indian scriptures, standards (Indian scripts, keyboard layout, font layout, etc., articles and reviews. The website also provides downloadable software and tools in Indian Languages.

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. It serves as a means of sharing ideas among technology developers and creates awareness in the society of the language technology resources available in the country. All the issues are accessible through TDIL web site.

Convergence Communication and Broadband Technologies

Convergence is an emerging revolutionary phenomena and has become the prime catalyst for creating major changes and new value for the end users in the Information, Communication, Broadband and Strategic sectors. The convergent technologies of



voice, data and visual communication offer a wide range of possibilities for delivering e-commerce, e-governance, e-learning, tele-medicine and e-entertainment services effectively. The growing communication needs and business processes demand for faster Internet access and innovative interactive content which is being enabled through reliable and efficient Broadband infrastructure. The year 2007 has been declared as the Year of Broadband in India. Broadband penetration in the country has a direct bearing on its GDP. Efforts are being made to increase the Broadband penetration through introduction of affordable technologies, reduction in the price of PC, availability of rich content and applications, which are important constituents for overall growth of broadband services in the country. The deployment of Next Generation Networks (NGN) based predominantly on IP Technology, will also mark the beginning of phase out of legacy networks. The migration to NGN will also herald the emergence of new business models and new revenue streams (value added services). With NGN triple play may become a basic service. At the same time, globally efforts are to ensure that the benefits of ICT reach the largest section of the population. Rand D is the driving force in harnessing the technologies and facilitating cost effective deployment of ICTE for the benefit of economy and society.

The programme is aimed at supporting and developing capability in Rand D in Convergence Communications, Broadband technologies and mission critical applications. The indigenous efforts are aimed at facilitating developments in emerging, next generation wired/wireless broadband network,

broadcast and strategic technologies leading to their cost effective deployment bringing not only economic benefits but also contribute to e-inclusion, provide safety, security and improve life.

Achievements

A number of technology development projects supported at various institutions across the country in the areas of Communication, Networking and Broadcasting were successfully completed. Some of these are TETRA Based Digital Mobile Radio, Blue Tooth Adapters, Set Top Box for conditional access, Tele TV Conferencing System, Call Centre Equipment and application software with multilingual capability, and Voice over IP (VoIP) telephone. A number of other strategic applications products like Global Positioning System (GPS), Differential GPS, Non-linear Junction Detector Multienergy Conveyorised parcel viewer were also developed. Wi-Fi campus wide networks with managed security services as test bed was established.

As part of India Wireless initiative, a Centre for Excellence in Wireless Technology (CEWiT) for developing Next Generation Mobile wireless system was set up in collaboration with IIT-Chennai. Issues like standards, protocols, and spectrum requirement will be considered for indigenously designed system manufacture and deployment. Phase-I of the activity is likely to be completed by March 2007.

Under strategic electronics, projects have been evolved at various R & D institutions in the area of Ocean water column parameter detection, intelligent buoy system for detection and identification of physical presence of an object in ocean and autonomous explosive handling robotic vehicle. Besides, action have been initiated regarding compact antenna test range establishment and millimeter wave system/ subsystem testing/validation facilities at Sameer-Kolkata in the mission mode.

Ongoing R & D Activities

Following are the on-going projects in progress:

- TETRA radio network for Kerala Police.
- RF shield for the mobile handset.
- Decision support system for district planning.
- Secure decentralized disaster management information network.
- RF Bug Detector.
- Wireless communication for underground mines.

- Assessment of WiMax technology for performance, interoperability on campus area test bed.
- Development of autonomous buoy system for radio acoustic positioning and Tracking.
- Design and development of wireless sensor network for real time remote monitoring.
- Development of autonomous vertical profiler for water columns in coastal areas.
- Establishment of MMW facility.
- Establishment of compact antenna test range facility.
- Establishment of electronic design centre for SoP.
- Development of server driven video messaging applications.

Future Outlook

R&D projects proposed to be undertaken during the next year will be in the following areas:

- Next generation communication, broadcast and convergence technologies (e.g B3G/4G wireless communication, MIMO/OFDM technologies, software defined radio/software radio, ultra wide band transceiver and antenna, smart antennas)
- Wireless sensor networks (e.g. communication algorithms, protocols, RFID applications)
- Fixed mobile convergence, consumer premises equipment and converged access devices
- Affordable broadband connectivity for urban-rural masses (WiFi, WiMax, broadband on power line, optical/hybrid networks),
- Development of IP based products/ services (e.g VoIP/IPTV, SIP based IP telephone) and net appliances
- ICT applications in strategic/ mission mode activities with focus on safety, security, and surveillance and navigational aids on land/air/under water communications during emergencies
- Setting up Centre of Excellence in sensor network technologies (to be explored)
- Advanced robotics for defence/strategic applications
- Initiate studies in cutting edge technologies and development of road map for the country
- Support to next phase of Centre of Excellence in Wireless Technology (CEWiT)
- Convergence of fixed/mobile networks

- Affordable broadband connectivity for urban-rural masses - Broadband on power line (BPL) modem development
- Development of IP based products/ services (e.g VoIP/IPTV, SIP based IP telephone and multimedia over IP)
- UWB chipset with Applications, UWB networking
- Fibre to Home Access technologies
- Development of low cost SIP server
- Development of convergent technologies for strategic application.

Strategic Electronics Technology Development

Under this programme, development of integrated ICT technologies are pursued catering to Strategic applications as well as impetus is made to achieve excellence in development of ICT enabled strategic technologies for civilian as well as defence sector. Major area of focus are as follows : -

- Secure communication and networking
- Navigational aides (air/land/underwater)
- Surveillance (air/land/underwater)
- Application of Linac (medical/nuclear/testing)
- Application of Electro-magnetics
- Advanced robotics
- Development of Intelligence systems for surveillance
- Development of Intelligent sensors using bio-metrics lasers etc.
- Development of underwater data collection which has application in naval communication systems, validation of satellite mapping system as well as pollution monitoring etc.
- Development of fibre-optic sensors for safety and security application
- Strategic application of RFID
- State-of-the-art technology development for modern warfare systems

Keeping in view the aforesaid thrust areas, some of the specific projects evolved are as follows :

- Development of RF Bug Detector for detecting any active device in a particular enclosed space, by CSIO, New Delhi
- Development of Autonomous Vertical Profiler for Water Columns in Coastal Waters by NIO-Goa

- Development of Autonomous Mobile Vehicle for handling hazardous objects by C-DAC, Thiruvananthapuram
- Development of Autonomous Buoy System for Radio Acoustic Positioning and Tracking by CUSAT – Cochin
- Development of Compact Antenna Test Range Facility (Testing Calibration and Development of different types of Antennas) at SAMEER – Kolkata
- Development of Millimeter wave Testing Calibration and Development Facility at SAMEER – Kolkata
- Establishment of Electronics Design Centre for System on Package at SAMEER – Chennai

Technology Development Council (TDC)

The aim of Technology Development Council (TDC) is to promote applications of Emerging IT technologies for indigenous, efficient and cost effective solutions for product and processes developments in the industrial sectors. Other areas considered and supported under TDC includes FOSS and Bio-informatics. Some of the projects completed during the year are:

Ayusoft

Ayusoft deals with knowledge capture from four classical Samhitas and other accepted Ayurvedic Granthas with a decision support system using data mining techniques. Ayusoft deals with eight branches of specialities called Ashtang Ayurveda, which includes Kaya Chikitsa (Internal medicine), Kaumar Bhartiya (Paediatrics), Grah Chikitsa (Psychiatry), Shalkya (Eye and ENT), Shalya Tantra Surgery), Visha Tantrta (Toxicology), Rasayana (Geriatrics) and Vajkarana (Science of Virility). The system provides constitution assessment, disease diagnosis and life style advice.

This system can act as a diagnostic and research tool for medical practitioners, patient information system with provision of easy consultancy and exchange of data. The system is available in three forms i.e Internet based, Intranet based for use by hospitals and on a CD for use by private clinics.

The system has been given to various hospitals and clinics in India and field trials have been conducted. These results and other feedback responses are being compiled.

Under Vehicle Scanning System

This system has been developed to be used by security agencies for installation in sensitive areas to safeguard against the entry of unauthorized vehicles and also to detect any dangerous device planned under the vehicle. During the year, technology has been transferred to industry.

Ongoing projects include Innovation/ Incubation Support Scheme. This is being implemented at six premier institutions in the country i.e., five IITs (Delhi, Madras, Kanpur, Kharagpur, Bombay) and IISc-Bangalore. Support to start up companies is provided as part of this program. As a result, so far 23 start up companies have been set up. These companies have state of the art innovative technologies in their product profile such as strategic equipment, software for structures, computational fluid dynamics, RFID, anti piracy solutions, simulation software, data mining, library automation software, etc.

A pilot project on RFID has been recently initiated at C-DAC Noida and IIT-Kanpur for joint development and deployment of one pilot application using RFID technology. As a part of this project, preliminary work on setting up of a state of the art RFID lab in the country will be progressed with an objective to make this lab as the 8th auto ID lab in the world. Another project initiated is on software of Schwartz distributions.

Industrial Electronics Promotion Programme (IEPP)

For the benefit of the textile industry, a novel Electronics Aid for Maintenance of Spindles in Textile Spinning Mills has been successfully developed and field tested at the Ahmedabad Textile Industry Research Association (ATIRA). The technology has also been transferred to a prospective manufacturer.

A low cost Supply Chain Management System meant particularly for the SME sector has been successfully developed and completed after several industry trials. The product has been released for commercial use.

Problem of quality of electric power is well known in the country and many important users like critical process industries, IT installations, medical equipment users, etc., find it difficult even to assess the quality of power that they are getting. A low cost state-of-art Power Quality Analyser has been successfully developed and packaged suitably at CSIO, Chennai.

This will enable to assess the quality of electric power before the remedies are decided upon.

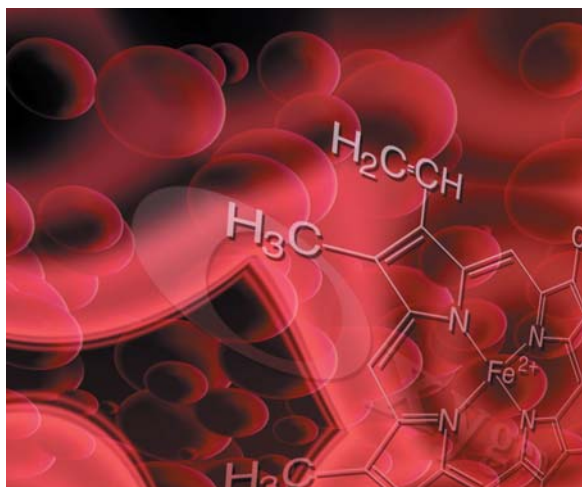
A challenging project on design and development of an Autonomous Underwater Vehicle (AUV) at NIO, Goa has been successfully completed after the required sea trials. The scientists involved in the development have shown tremendous ability to design such a critical hardware and control systems in the field of marine robotics. This autonomous vehicle is expected to help in the study of ocean-bed near the coast.

During the year, the project on WebNC, which is basically an engineering software meant for internet based collaborative design and manufacturing utilizing a remote CNC facility has been successfully completed and demonstrated at IIT-Bombay.

Transport and Power Electronics Programme

The project, on Area Traffic Control System (ATCS) for Pune city, demonstrating the benefits of IT has been successfully completed during the year. 38 busy junctions of the city are being controlled by indigenously developed traffic controller hardware from a remote Central Control Room where data communication takes place through leased telephone lines. The unique feature of the system is that the signal timings are optimized through detection of volume of the traffic by embedded detectors under the road. Indigenously developed application software controls all the aspects of signalling ensuring synchronized traffic flow. An independent evaluation carried out both before and after the implementation of the new system has indicated various improvements like reduction in delay/stoppage time, expected fuel saving, etc. The same technology is now being replicated at Jaipur and Shillong. Some other cities are also exploring adoption of the same. The Department has successfully transferred the technology to prospective manufacturing companies.

The National Mission on Power Electronics Technology (NaMPET) has progressed further. The High Power Electronics Laboratory at the nodal agency, i.e., C-DAC, Trivandrum has been fully upgraded and is operational now. Such upgradation of infrastructure at the selected academic institutes is also nearing completion. The second Industry-Academic meet was held at IIT-Kanpur with very satisfactory participation from industry and user



agencies. The first hardware outcome of the project, i.e., the Universal IGBT Gate Driver, has entered marketing phase after thorough testings done. The development of the Real Time Full Spectrum Power Electronics Simulator has progressed considerably and the first prototype is expected shortly for evaluation tests.

Bioinformatics

Bioinformatics has gained the status of an independent and indispensable discipline in Life Sciences. Due to the overwhelming progress that has been made in the fields of Bioinformatics and Biotechnology, various sub disciplines like genomics, proteomics, pharmacogenomics, and cellinomics have developed. Developments in these fields have direct implications on key issues related to health care, medicine, discovery of next generation drugs, development of agricultural products, renewable energy, environment protection, etc.

Alterations in the genome at specific positions can be associated with particular disease states, reduced or increased sensitivity to particular drugs etc. Bioinformatics experts are at the forefront of efforts to collect and analyze such data thus facilitating fast drug discovery. In the Asia Pacific region agricultural biotechnology has a major role to play for crop improvement and production.

This growth of Bioinformatics as a discipline has made it necessary to have state of art research in Bioinformatics and to have trained Bioinformaticians with specialized skills to further and assert India's potential as a Global player in Post Genomic Research leveraging India's IT Advantage.

Achievement upto 2006-07

- A project Bioinformatics Resource and Application Facility (BRAF phase II) has been launched at CDAC, Pune wherein Bioinformatics applications would be developed to utilize the Garuda grid infrastructure and a grid-enabled Bioinformatics Resources (Computing Power, Databases and the Software) will be provided to industry, academia as well as Research Community with teraflop computing power, terabyte storage and 10 Mbps bandwidth BRAF The project has been launched in March 2006.
- Conceptualization of Centres of Excellence for Research Areas- Software Tools for Genomic Research, target based drug designing, biodiversity preservation and databases for biodiversity preservation and drug designing.
- A project for development of A Web-enabled Protein Structure Prediction Software has been launched at IIT Delhi. Since most of the drug targets for clinically important diseases are protein molecules, protein folding problem occupies the centre stage in the field of therapeutic medicine. The cost and time limitations of experimental techniques for the determination of three dimensional structures of proteins serve to highlight the importance of in silico methods. Computational methods/algorithms have now reached the point where they can predict the structure of a small protein with a relatively high degree of accuracy. The project provides for creation of a 128 processor Bhageerath web server for protein folding.
- A project has been launched for developing web base software tools for digitization and identification of RET (Rare Endangered and Threatened species) and varieties at National Botanical Research institute, Lucknow. It aims to (i) update and upgrade web enabled Indian Botanic Garden Network. (ii) finalize standards, compile, data on medicinal and RET plant varieties growing in Indian Botanic Gardens. (iii) develop OS (Operating System) independent software for digitization of data base on rare endangered and threatened (RET) species and varieties. (iv) develop tools for automated identification of medicinal and RET plant species and varieties and (v) facilitate exchange of information among Indian Botanic Gardens.

- A project has been conceptualized for development of Computational Workflow for High throughput Genome based Drug Discovery to be implemented by CDAC, Pune. The objective of this project is to build a high-throughput drug discovery pipeline using workflow environment. This software workflow would consist of bioinformatics software that will be loosely tied together in a coordinated system to execute a set of analyses tools in series or in parallel.
- Initiation of Research Projects in areas
 - Algorithm for Sequence Alignment of Proteins and RNAs
 - Tool based on Chaos game theory for sequence visualization
 - Developing a software to predict expression pattern of specific genes
- Conceptualization of Agri-bioinformatics Initiative to be jointly implemented with ICAR for agricultural product conservation and product enhancement.

IPR Promotion Program

Intellectual Property Rights (IPRs) in Electronics and Information Technology sector have become of great concern to all concerned in view of their increasing importance for enhancing the inventiveness, creativity and business entrepreneurship leading to enhancement in the meaningful new products and services and thus the national economy.

The Patents and IPR Division of the Department of Information Technology is engaged in creating awareness, providing facilitation services and conducting special IPR Clinics, Seminars, Symposia to enable the country to absorb modern IPR culture and its benefits. The IPR clinics are organized 4 times in a year at premier R&D Centres wherein across the table discussions are made to clarify all points of IPR confusions of the Scientists/Engineers and guidance is provided for timely IPR protections of their IPRs. Similarly, the facilitation services are being provided by filing Patents (including International Patents), Copyrights, Designs and Trademarks in respect of creativities / innovations of DIT scientific societies and institutions implementing R&D projects.

Outcome

- 4 IPR Clinics were held in different part of the country. These include, IIT-Kanpur, IBDRT-

Hyderabad, CDAC- Thiruvanthapuram and Anna University- Chennai.

- Lectures on IPR were delivered at various national/international platforms. These include High Court Judges Refresher Course on IPR Adjudications, National Judicial Academy Bhopal; Refresher Course for Archival Professionals- National Archives, New Delhi; National Workshop on IPR and Broadcasting - IIIT Allahabad; The Knowledge Summit - CII Bangalore; International Conference on Digital Libraries TERI New Delhi, IPR and the Development Agenda - WIPO, Geneva, etc.
- 18 ICT patents were filed making the total nos filed so far 80, Out of these 3 patents have been granted during the year making the total 11.
- 15 software copyrights have been filed making the total as 160. Out of these 53 have been obtained including 15 during this year.
- The total no of designs filed so far has been 4 out of which 2 have been obtained. The total number of Trademarks filed so far were 32 out of which 9 were obtained so far including 2 during the year.
- A project on providing e-Prompt to concerned Indian Parties the watch reports on National and International ICT Patents have been completed by CDAC, Pune.
- A digital video-watermarking algorithm has been developed at IIIT& M, Gwalior.

Free Open Source Software

As a part of initiatives in Free and Open Source Software (FOSS) area, a National Resource Centre for Free and Open Source Software (NRCFOSS) has been set up in Chennai jointly with C-DAC and Anna University (KBC Research Centre). The Centre is engaged in contributing to the growth of Free/Open Source Software in India through research and development, human resource development, networking and entrepreneurship development, as well as to serve as the reference point for all FOSS related activities in the country. The Centre is pursuing design and development of FOSS products and technologies with emphasis in the areas of e-governance, school education and SMEs. NRCFOSS portal is operational with domain name www.nrcfoss.org.in. Towards developing human resources (HR) in this area, a number of training programs/ workshops have been organized including five Teachers' Training programs.

NRCFOSS has developed a localized Indian distribution of GNU/Linux called Bharat Operating System Solutions (BOSS) with an objective to enable people of India to work on Free/Open source platform with a variety of languages in addition to English. BOSS Linux is certified by Free Standards Group, USA. The BOSS CD has been released during Elitex 2007 at Delhi. BOSS Linux is expected to meet various needs including development of e-governance applications on BOSS.

As a part of NRCFOSS objectives of cooperation and collaboration with national/international institutions and research labs, MOUs have been signed with leading industry partners namely INTEL, Free Standards Group (FSG), International Business Machines (IBM), Satyam and United Nations Development Programme (UNDP), International Open Source Network.

Medical Electronics Program

6 MV Integrated Medical Linac System for Cancer Treatment

The first 6 MV medical linac which was fabricated and installed in Mahatma Gandhi Institute of Medical Sciences, Wardha under 1st phase of Jai Vigyan Mission project has got the type approval from Atomic Energy Regulatory Board (AERB). Treatment of cancer patients has been started on this machine.

The second unit of the type approved 6MV medical linac is due for installation at Cancer Institute, Adyar, Chennai. As a part of quality assurance plan, the diligent operation of the machine and stability of dose and other parameters have been tested over a period of two months. Beam profile measurements and mechanical QA tests have been carried.

Facility for Batch Fabrication of Linac Tube and Linear Accelerator Machine

The project has been initiated to establish a facility for batch fabrication of linac tube and linear accelerator machines to meet the demand of linac tubes which will be needed for the manufacture of indigenously developed linear accelerator machines for cancer treatment. The land for the project has been acquired and the activities for setting up the facilities in SAMEER, Kharghar, Navi Mumbai have been initiated.

Hand Held Scanner Based Hindi and English Text Reading Machine for Visually Impaired Persons

The project is being implemented by Central Scientific Instrument Organization (CSIO), Chandigarh and C-DAC, Noida.

The hand held scanner has been developed and English Optical Character Recognition (OCR) and English Text to Speech (TTS) has been integrated. The prototype was demonstrated in an exhibition held in Chandigarh in November 2006 organized by Ministry of Social Justice and Empowerment. The integration of the scanner with other Indian languages is in progress.

Re-design and fabrication of Motor Wheel Chair

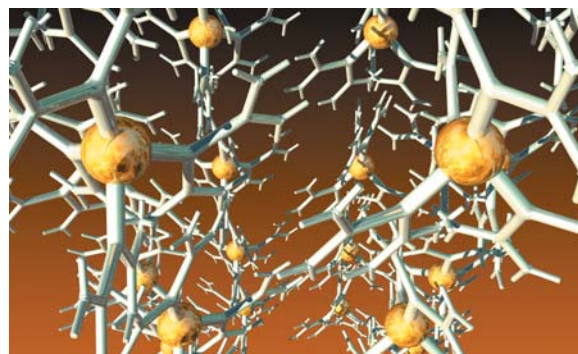
The electronically controlled motor wheel chair is being developed by C-DAC, Thiruvananthapuram in collaboration with M/s Webel Mediatronics Ltd., Kolkata. Presently, electronically controlled motor wheel chairs that are imported are costly. The electronically controlled motor wheel chair that is being developed will be available commercially at a much lower price. The wheel chair will be field tested shortly at National Instruments for Orthopaedically Handicapped (NIOH), Kolkata.

Internet Access and Rehabilitation for Visually Handicapped

Text to Speech system for Bangla and Hindi has been integrated with the screen reader developed by WML, Kolkata for Internet access and various other applications. The software is being tested at National Association for the Blind (NAB), Delhi.

Development of High Speed Interpoint Braille Embosser

The high speed interpoint Braille embosser is required by the blind schools for preparing large volume of



reading material for the education of visually impaired children. At present, high-speed interpoint Braille embossers are not available indigenously and the imported ones are costly. The indigenous development and manufacture of high speed Braille embosser would make them available at an affordable price. The project has been initiated in the current year.

Feasibility study, design and development of proof-of-concept for a compact camera along with image acquisition and processing system for medical endoscopic application.

This project has been initiated in the current year for the development of swallowable pill camera for acquisition of images of those portions of gastro intestinal tract, which are presently difficult to visualize directly and cause discomfort. The system will help in the early diagnosis of GI pathology. The project has been initiated in the current year.

Telemedicine

The telemedicine facilities set up under DIT sponsored projects in various parts of the country such as West Bengal, Tripura, Kerala, Nagaland, Mizoram, Sikkim and Himachal Pradesh are being utilized by the doctors for consultation with the specialists for treatment of patients. The project on the development of advanced hospital management system has been completed. The system is being used by Mahatma Gandhi Institute of Medical Sciences, Wardha.

Some of the ongoing projects are listed below :

- Setting up Telemedicine and Tele-education facilities in Kerala.
- Deployment of Telemedicine facilities at five referral hospitals and nine district hospitals of West Bengal.
- Development and Implementation of Human Resources Portal for Department of Health, Government of Kerala jointly funded by government of Kerala and DIT.
- Customised development and implementation of Telemedicine application for rural and remote areas of Himachal Pradesh.
- Setting up of Telemedicine centres in the capitals of North Eastern states (Mizoram and Sikkim) connecting super speciality Apollo Hospital, Delhi with hospitals in the states.

- Setting up a telemedicine network in the state of Tripura using the technology already developed by Webel, Kolkata.
- Advanced Hospital Management System including PACS for Regional Institute of Medical Sciences, Imphal.

The following projects have been initiated in the current year :

- A web based image processing system and setting up of Telemedicine Network for Cancer Institute (WIA), Adyar, Chennai.
- Setting up of Telemedicine facilities in Tamil Nadu.
- Customized development and implementation of Telemedicine Application for rural areas of Punjab.

The Department is involved in deliberations of the National Task Force on Telemedicine in India set up by Ministry of Health and Family Welfare and contributed significantly in the preparation of the report on Telemedicine Standards.

Electronics Components and Materials Development Programme

In today's highly competitive electronic and IT industry, manufacturers are constantly challenged to find ways to cost-effectively make faster and smaller electronic devices. One of the most important aspects of achieving these challenges is to depend on the development of advanced materials and related process technologies. Nowhere is the ability to produce new materials more crucial than in the electronics and IT industry. Electronic components and critical materials are the key elements of continued scientific and technological advances in the 21st century. Many of these materials have already been used and will be the most important components of the semiconductors and photonics industries, information processing and storage devices, solar cells, batteries, light-emitting diodes, flat panel displays including liquid crystal displays, magneto-optic memories, recordable compact discs, molecular electronic devices as well as other emerging cutting edge technologies. The rapid progress in the area of development of components and materials has entered an era of designed materials/multi function miniaturized components. The development of multi-functional and adaptable material's new technologies is finding ways to reduce energy, and material inputs.

The level of scientific understanding and the availability of research tools are facilitating comprehensive research in many areas such as organic opto-electronic materials. Research frontiers include development of artificially structured materials with tailor-made optical properties enabled by epitaxial growth, micro lithography, and self-assembly. Concerted efforts are also underway to develop and commercialize organic/polymer-based LEDs, thin film transistors, photovoltaic, and electrically-pumped laser diodes for which high-quality electrical contact and materials stability will be critical.

The electronics components industry uses a large variety of materials and there is continuous up-gradation required in technology for the development of these materials to meet the stringent quality requirement. This necessitates advanced materials development and processing technologies to be developed to keep pace with the advancement in the electronics and IT hardware sector. The Rand D on electronics components and materials has thus been focused mainly to consolidate and strengthen activities where capability and infrastructure have already been developed to bring the sub-optimal Rand D efforts to pilot/commercial level. Beside this emphasis is also to carry out basic fundamental research on futuristic materials leading to technology up-gradation.

Nine ongoing projects are in different stages of implementation. During the year, a project on development of liquid crystalline polymers at Institute of Advanced Study in Science and Technology-Guwahati has been initiated and few new projects have been recommended for funding by the Working Group set up by the Department.

Microelectronics and Nanotechnology Development Programme

Invention of the transistor in 1948 and integrated circuits in 1959 both Nobel Prize winning efforts marked the beginning of Microelectronics. The development of microprocessor in 1971 with 10 micron technology made microelectronics heart of the ongoing IT revolution. The technology has since progressed as per Moore's Law which states that number of components per chip doubles every 18-24 months. The present 65-nanometer technology is offering new challenges to the chip designers for packing more and more applications in a single chip

such as cell phones, iPods, etc. Microelectronics Development Programme has played a major role in development of capabilities in the country in the field of Micro Electro Mechanical Systems (MEMS), VLSI (chip) design, fabrication and testing. Today, India has emerged as a significant player in VLSI and embedded system design with most of the leading global companies having established their Design Centres in the country and has reached the threshold of attracting global foundries to set up their manufacturing facilities in India. The programme also supports specific application oriented Rand D projects. Currently, the projects 'Design and Development of a Digital Programmable Hearing Aid', 'Design, Simulation, Development and Fabrication of secured 32 KB ROM Microcontroller for Electronic Voting Machine (EVM)' and 'Development and Fabrication of Gas Sensors based on MEMS Technology' are at various stages of implementation. Further, siliconization support has also been extended to various chip designers in the country through 'India Chip Programme'. Besides the above ongoing projects, six new projects have been evolved and recommended by the 'Working Group on Microelectronics' for initiation in the areas of Application Specific Instructions Set Processor, Embedded Processor for Smart Camera Systems, VLSI Circuit Testing, Cooling Strategy for Electronics Components and Routing of High-Performance Circuit Interconnects.

Nanotechnology is an emerging, disruptive and interdisciplinary technology involving development of nanomaterials, devices and systems, finds revolutionary applications in almost all fields of science and engineering. Widely regarded as the next technological revolution, Nanotechnology has attracted the attention of scientists and engineers all over the world and is likely to have a profound effect on almost all industry sectors and application areas. It is expected that the nanoscale manufacturing technologies in due course will allow us to arrange atoms and molecules to create materials, devices and systems of desired functionalities. Cognizant of the potential of nanotechnology, governments in the developed countries have been funding Rand D in this area for quite some time.

Starting in the year 2004, DIT has initiated ten projects with a total budget outlay of over Rs. 126 crore so far. These include two major research projects at national level : i) Nanoelectronics Centres

– a joint project at IISc-Bangalore and IIT-Bombay with an outlay of Rs.99.80 crore for a duration of 5 years; and ii) Nanometrology Centre at NPL, New Delhi with an outlay of Rs.11.308 crore for a duration of 4 years. At Nanoelectronics Centres 55 multidisciplinary faculty members would work together on different components of the project. The project also includes teaching and research at PhD, M.Tech and B.Tech level. The Nanometrology Centre at NPL, New Delhi will provide calibration and traceability for line width, step height, surface texture measurement; and calibration of low voltage [nV(nano Volt), n=10-9] low current [pA(pico Ampere); p= 10-12] and electric charge[fC(femto Coulomb); f=10-15]. The centre will participate in international intercomparisons and round-robin tests. The facilities available at these Centres would also be available to other researchers, institutions and industry.

Besides these, eight medium and small projects namely: investigations and development of nano silver oxide for optical memories; development of technology for quantum structures and their applications in futuristic silicon based nanoelectronic devices; fabrication of organic thin film transistors; synthesis of nanoparticles of noble and transition metals for application in electronic packaging and optoelectronics; large-scale generation of nanosized metals/metal-oxides/metal-nitrides in a transferred arc plasma reactor; development of quantum-well infrared photodetectors in wavelength range 8-14 μm using Si/SiGe nanotechnology; development of nanocrystalline silicon MEMS pressure sensor for vacuum and low pressure applications; and investigation of alignment and characterization of carbon nanotubes for targeted drug delivery have been started at various institutions. These projects are progressing well and three patent applications have been filed. One new project namely synthesis of nanocrystalline SnO₂ by ultrasonic spray pyrolysis technique and fabrication of nanostructured SnO₂ based gas sensors has been approved for initiation.

Photonics Development Programme

The short-term objective of Photonics Development Program is to nurture photonic technologies, including those which have special relevance in Information Technology and optical communication such as optical fibers, optical amplifiers, optoelectronic packaging, WDM sources, etc. The long-term objective of the programme is to ensure

that India has a presence as a technology developer in the broader application domains of photonics that include polymers for photonics, biophotonics, nanophotonics, photonic crystal fibers, etc., besides having a presence as an optical communication technology developer.

The project on optical amplifier (EDFA) being carried out jointly by IIT-Delhi and Tejas Networks India Limited has been completed. Optiwave Photonics Ltd., Hyderabad has shown interest in building up the EDFA module based on the designs developed under this project. A prototype module was exhibited at the Photonics 2006 International Conference held in December 2006 at Hyderabad.

The application of photonics for medical diagnostic and therapy has become a very important area of photonics. A project 'Development of Elastographic Imaging System for Early Detection of Cancers in Human Breast' has been initiated at IISc-Bangalore. The work aims to build up prototype instruments to map the linear visco-elastic properties of the human breast through interrogation by laser beam. Theoretical studies and simulation work have been taken up. Experimental work including construction of the phantom made of Poly Viny Alcohol (PVA) has been carried out and intensity auto correlation measurements done. Further work is in progress.

Based on the discussions at the Specialist Group on Polymers for Photonics, several projects were evolved. The projects in the area of polymer for photonics initiated, so far, include Polymers based Photodetectors and Development of Pixelated Line Sensor Phase-II at Jawaharlal Nehru Centre for Advanced Scientific Research (JNCASR) Bangalore; Doped Polymer Materials for NLO Applications at National Institute of Technology, Surathkal, Karnataka and Polymer Waveguide Based Optical Power Splitters at Birla Institute of Technology and Science, Pilani. Under the project at JNCASR devices having various geometries including patterned top metal electrode, patterned bottom ITO electrode, patterned polymer device, etc., have been fabricated and tested. Various active organic materials such as p-type conjugated polymers and bulk heterojunction with n-type polymer have been made. Measurements and data analysis as well as discrete circuit element modeling for simulation of Schottky interface using spreading impedance approach has been carried out. The pixel specifications are comparable at present to existing low-end commercial sensors. Under the

project at BITS, Pilani the investigation of design of single mode channel waveguides on polymers and design of 1xN powers splitters has been carried out and some of the results obtain in the design were presented at the Photonics 2006 Conference.

In the area of III-V materials, under the projects at Tata Institute of Fundamental Research (TIFR), Mumbai; the MOVPE System capable of growing two-inch wafers has been operationalised. InGaAs strained quantum well structure has been successfully grown, laser action obtained and device characterized. At Calcutta University, besides the GaSb and GaSbN layers grown earlier, layers of GaInAsSb have been grown successfully at growth temperature of 5300C. Characterization has been carried out and technology for LPE growth standardized.

The complete equipment required for the National Centre for Packaging of Photonic Devices at SAMEER-Mumbai has been procured and installed. The activities under phase-I have been completed and the automated fibre pigtailling of passive devices is being carried out. There has been interaction for packaging with users such as CEERI-Pilani, C-DOT-Delhi, NeST-Cochin, IIT-Chennai, C-MET-Pune, CELETRON-Mumbai, etc. Besides glass and lithium niobate based devices the packaging technology has been extended for Silica-on-Silicon power splitters of CEERI-Pilani. The environmental testing facility has been operationalised. The active device packaging facility based on laser welding is in the last stages of testing and will be made available to users very shortly.

VBG (Volume Bragg Gratings) combine the advantage of simplicity of fabrication and economy as found in thin film filters with the accuracies of FBG. A collaborative project 'Design and Development of VBG for Optical Communication' is ongoing at C-DIT, Trivandrum with NeST, Cochin as the industry partner. The theoretical simulation of a uniform sinusoidal grating has been completed. The Design of a 4 - channel CWDM using uniform type sinusoidal VBG has been completed, Procurement and installation of frequency-doubled Ar-ion laser, vibration isolation table, opto-mechanical components, electronic shutter and coated optics have been completed.

To spread the knowledge about FBG and its various applications among students at engineering college level, a project entitled 'Fiber Bragg Grating Sensor For Engineering Measurements' was supported at

NIT, Warangal. NIT, Warangal has demonstrated an approach for simultaneously measuring strain and temperature using a hybrid sensor consisting of a long period grating (LPG) and two FBGs in series on a SM fiber. Efforts were also made to develop a software for simulation of the above effects. Five PG students as well as two research scholars were trained. The project exposed several members of the faculty to this type of work.

A project entitled 'Long Period Waveguide Grating Based Integrated Optic Wideband Tunable Notch Filter using Silica-on-Silicon' has been initiated at CEERI, Pilani. The targeted specifications of the proposed device have been chosen for importance of C and L-band wavelength region of optical window and depending on choice and property of silica-on-silicon materials and characterization of the device.

While FBG are commercially available, they are still very expensive and this has been the reason for them not been used as would be expected. It is felt that the economics of fabrication can be improved upon by 'development of an unified approach for realizing Fiber Bragg Grating with long term stability' The project being executed jointly by IIT-Madras and IISc-Bangalore aims at developing of a model that describes the decay behavior of Fiber Bragg Grating (FBG) by observing the growth of refractive index during FBG fabrication. Accelerated aging experiments will be performed to determine the long-term stability of gratings and deduce the distribution of the defects as a function of their activation energy. Using such information, pathways for achieving thermally stable FBGs are expected to be realized either through modified fabrication processes or optimization of material parameter or both.

A project 'Development of Index Guided Photonic Crystal Fibres for Special Applications' is being carried out at Central Glass Ceramics Research Institute, Kolkata. The aim of the project is theoretical study and design and fabrication of Index Guided Photonic Crystal Fibres (PCF) with realization of process steps. Attempts would be made to characterize developed fibers. The aim is to work out methodology to incorporate a variety of co-dopants into core for applications in PCF based fiber amplifiers and lasers.

The experimental set up including gas arrangements for drawing of PCF, the stacking of the capillaries inside the silica tube, placement of the perform



assembly inside the furnace, etc., has been completed. Some preliminary PCFs using these arrangements have been drawn. In the first few run several problems were faced such as collapse of the capillaries, non-circular profile etc. These samples were studied and analysed to obtain feedback regarding pressure, drawn speed etc. To validate the characterization set up PCF fibres have been obtained from JENA and have been characterized at CGCRI.

The development of an improved and more reliable process of making rare earth (RE) doped optical fiber is of great interest in view of the increasing demand of the fibers for applications in amplifiers, fiber lasers and sensors. Fibers with high concentration of REs, especially Er, Yb and Nd are the key components of high power amplifiers and lasers. Large mode area (LMA) fibers containing the RE are the best choice for high power lasers with output to the tune of a few KWs.

The project 'Fabrication of Rare-Earth Doped Fibers needed for Fiber Lasers' was initiated at CGCRI. The project proposes to carry out fabrication of optical perform/fibers doped with high concentration (~5000 ppm) of rare-earth (Er/Yb) in the core and work out the selection of suitable codopants/host

glass composition for reduced clustering and imperfections in the doped region. This development would be a step towards fabrication of cladding pumped RE doped fibres.

e-Commerce and Information Security

Information Technology (IT) has been growing steadily in India as a powerful agent for socio-economic transformation and has become an integral part of every enterprise including critical infrastructures. Information Security, i.e., security of information assets, processes and data, communication network and devices, assumed a greater importance and is of concern to every organization using IT. Indigenous Rand D is an essential component of national information security measure due to various reasons: a) export restrictions on sophisticated products by advanced countries, b) to build confidence that an imported IT/security product itself does not turn out to be a veiled security threat, c) creation of knowledge and expertise to face new and emerging security challenges, d) to produce cost-effective tailor-made indigenous security solutions.

The programme on 'E-Commerce and Info Security' aims to promote indigenous technology development and test bed applications in identified thrust areas through specific projects at recognized Rand D organizations to develop national capability and skill. Broad research thrust categories identified to address e-security issues are a) Cryptography and Crypt analysis, b) Network and Systems Security, c) Security Architectures, d) Vulnerability and Assurance and e) Monitoring, Surveillance and Forensics.

During the year 2006-07, on-going projects falling under the thrust categories supported under the programme at various Rand D organisations progressed well. Seven projects have been completed resulting in the development of elliptic curve cryptography techniques, end system security solution for UDP based applications, prototype tools for network monitoring of data as well as VoIP, data mining techniques for cyber security, enterprise-wide intrusion detection system as well as prototype system for collection of electro- magnetic signatures from digital equipment. During this year, two new projects were initiated covering protocols for secure communication and dynamic fusion techniques for personal identification using multimodal biometrics.

The activities in the programme would be carried forward during 2007-08 to promote Rand D in the thrust categories specifically development of cryptography techniques, network security and protocols, malware research, security architectures, monitoring techniques and forensic tools, with focus on facilitating basic research, technology demonstration, proof -of-concept and R&D test bed projects.

E-Commerce has a significant potential to improve business efficiency and quality of life and started playing a major role following enactment of IT Act 2000. Major organizations include those in transport, communication and baking sectors have adopted various e-commerce technologies to meet the citizen aspirations and growing demand. The Department has taken up an initiative to promote mobile e-commerce (m-commerce) keeping in view the penetration of mobile phones in the country and its potential to benefit masses particularly in rural India.

Digital Library

Libraries are a storehouse of knowledge. 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 can be 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.

In the past, initiatives have been taken by various Ministries / Departments / Organizations for digitizing and preserving data available in physical form. However, this activity has been restricted mostly in the area of the work / interest of the Organization.

Department of Information Technology has supported projects in the past in the area of Digital Libraries. Books, manuscripts, theses etc., were digitized through 4 Mega Centres, 9 scanning centres and 7 other projects supported by DIT under the Digital Library Initiatives. This also includes initiatives taken in collaboration with Indian Institute of Science, Bangalore and Carnegie Melon University, USA, under Million Book Universal Digital Library Programme. Most of the data scanned under the projects supported by DIT has been web enabled and hyperlink to this data has been provided on DIT web site.



Human Resource Development

The fast growing IT sector has created a huge career opportunity in its wake. The profiles of the career opportunities keep dynamically changing as newer and newer technologies emerge and the global market requirements change.

All along at the initial stages of the growth of IT industry the formal sectors was predominantly meeting the manpower requirement of this sector. The formal sector education system focuses on the fundamentals, concepts in different subjects and bring-out engineers with excellent basics and strong foundation over which the super structure could be built. However, the need and demand placed by the fast technological changes and the emerging global market trends that are marking the growth of Indian IT industry brings out the demand for complementing and supplementing the formal sector through the non-formal sector of education and training. The need is in the form of continuing education for training the existing professionals and the teaching faculty to keep pace with the demands of the industry as well as technological changes. The burgeoning demand for the IT professionals has marked the growth of non-formal education sector.

To retain our position as a major player in the IT arena over a period of time, there is a need to address the human resource requirement of the industry on a continuous basis.

A Study Team was set up by the Department of Information Technology to give recommendations in the area of HRD pertaining to IT including Electronics to formulate the Eleventh Five Year Plan for IT Sector. The report discusses the opportunities arising out of demographic imbalances; strategy for providing highly skilled manpower; constraint in terms of shortage in supply of suitable talents; approach to supplement skills in existing pools; long term socio-economic and cultural impact of IT/ITES Sector growth; and new technology trends and need for

seamless continuum of formal and non-formal sectors of education. The report also discusses the transition of Business Process Outsourcing (BPO) to Knowledge Process Outsourcing (KPO), Human Resource needs of the Hardware sector, Embedded Systems and VLSI Design, etc.

The recommendations of the Study Team includes spreading the concept of Finishing Schools/Bridge Courses in various educational institutions across the country through a capacity building programme, promotion of e-learning – as a alternative mechanism, setting up of Centres of Excellence in emerging areas, introduction of vocational courses in ITIs, integration of formal and non-formal education system by introducing a concept of virtual university through introducing credit system and cross recognition of credits, inclusion of education in SEZ, institutionalization of industry-academia interaction, evolving of a common benchmarking system taking into account the quality of output from institutions, broadband connectivity at concessional rates to students, industry feedback, etc.

e-Learning

e-Learning is one of the thrust areas identified by the Department of Information Technology for imparting education using educational tools and communication media. The educational tools are used to enrich the courseware content with multimedia features ensuring better understanding and retention of the subject where as the delivery of this courseware is through communication media. Advances in digital electronics have made e-learning possible because digital data can be accessed randomly. It can be retrieved fast, manipulated and less storage space is required.

A number of academic Institutions / R&D Labs have been financially supported by DIT to carry out R&D projects in the field of e-Learning. DIT has provided grant-in-aid for R&D projects in the area of content development, R&D / technology development projects, human resource development projects and faculty training to improve literacy through distance education using information and communication technology (ICT) tools (computers, multimedia and the web). e-Learning facilitates the learning and delivery process for both the teachers and students. The vision of e-Learning is to bring high quality accessible e-learning to everyone in the country.

The following projects were completed during the year:

Multimodal Digital Distance Education for IT and Other Critical Technologies

The main objective of this project was to evolve appropriate engineering courseware methodology at reasonable cost in a short time to remove obstacle and carry out field experiment in distance education and to carry out field experiments with different modes of Digital Distance Education and hence obtain better insights about the suitability of different digital distance education modes leading to cost effective and academically rich multi-modal digital distance education systems. Keeping this as an objective, the following achievements were made:

- PG Course in 6-semester M.Tech. IT (Courseware Engineering) has been designed, developed and offered through Multimodal Digital distances Education format since January 2005
- 6 semester ME in “Software Engineering” course in Multimodal Digital distances Education format (Eleven module have been designed, developed)
- 4 semester M.Tech. IT (Courseware Engineering) course has been designed, developed and offered through face-to-face mode since July 2004
- 4 semester PG Diploma course on “Multimedia and Web Technology” has been designed, developed and offered through Multimodal Digital distances Education format since January 2005.

Training of Teachers in e-Learning at DOEACC Centres

The main objective of this project was to introduce fundamentals of e-learning, hardware and software and train teachers for implementing e-Learning for the better educational methodologies. For this project, the following achievements were made:

- 240 teachers trained (120 from each centre) in use of e-learning in education.
- Trained teachers will now be able to create their own content in e-learning and will act as master trainer for their parent institute.
- Create multiplier effect to use ICT technologies and create awareness about the usage of information tools, blending it with traditional

skills to enhance quality and productivity in education.

Enhancing Competency of IT Teachers and Industrial Professionals

The main objective of the project was to enhance quality of service in the remote/VSAT reception in order to enhance competency of IT Teachers and industry professionals i.e. to enhance quality of service (QoS) in the Remote/VSAT centre reception of live video/audio broadcast from central classroom studio in IIT's ongoing Distance Education Program. The Distance Education programme (DEP) has so far conducted 43 semester long courses, 14 short term courses and numerous guest lectures which have benefited over 6000 participants. The project implementation has led to the following:

- Improvement in the quality of visuals (sharpness, contrast, resolution) as well as quality of sound (audio). This resulted in better acceptability of programs both for live transmission as well as recorded version re-broadcast for students on demand.
- Currently, 9 organizations have requested to avail of this facility, which include Engineering Colleges as well as IT Industries.
- All India Institute of Speech and Hearing at Mysore under the Ministry of Health and Family Welfare has shown interest to replicate this programme.

Development of Content Delivery Tools

The main objective of this project was to augment an existing IT based education support system based on existing web technology to a much better and manageable system. For this project, the following achievements were made:

- Developed an open source free Learning Management System (LMS) named as Brihaspati.
- The project has been registered with sourceforge.net for using their high-speed server for distribution of code worldwide. Also registered with freshmeat.net and eduforge.org to give better visibility.
- At present, 72 institutes/organizations have either shown interest or have been using this software.

On-going Programmes

Data Compression Techniques and its Application to e-Learning/Education

The main objective of this project is to develop a group of data compression techniques that can be applied to images, scanned documents and videos; and hence creating a system that adapts itself to the quality of services (QoS) offered by the Internet (Network) connection instead of expecting a specific QoS on the Network. So far the following achievements have been made:

- Artificial Neural network, wavelet transform, Hybrid and standard based on color image compression methods have been completed.
- Also Statistical Theory based image compression, data coding, post decoding at decoder side, etc., have been completed.

Interactive Learning material on Animation and Multimedia

The main objective of this project is to develop interactive digital multimedia content on “Introduction to Animation and Multimedia” in response to the rapidly growing demand for utilization of self-paced learning material on animation and multimedia. So far, the following achievements have been made:

- Finalization of specification completed
- 85% of Software and Hardware procurement and installation completed
- Resource mobilization and storyboard preparation are in progress
- Content development is in progress.

Content Based Streaming and Real-Time-Regional Language Captioning of e-Learning Video Data

The main objective of this project is to develop new standards and algorithms for e-learning adaptive streaming applications to optimize the bandwidth utilization. A Regional language captioning is proposed for complementing the end user's comprehension of the lectures delivered in English. A standard Media Markup language will be designed to apply the principles of the Web to multimedia, creating continuous Media Web. In the project, main

technologies to be developed include a new e-learning video CODEC, providing a video interface for using the CODEC, developing standards for the streaming protocol and also providing framework for network bandwidth optimized content delivery solutions.

Quality Assurance Framework, Quality Metrics, and Prototype Tool for Evaluation

The main objective of this project is - to develop a framework for formal quality assurance of e-Learning content; develop quality metrics for quantifying quality parameters of e-learning tools and content; develop a prototype for deriving quality metrics to measure effectiveness of a tool; and training of teachers in e-Learning through one week training programs.

On recommendation of Working Group on e-learning R&D projects, the following two projects were recently approved by the competent authority for financial support from DIT :

- 1 Brihaspati phase-2: Development of Open source content delivery tools with advanced features at IIT, Kanpur
- 2 Design and Development of e-learning contents for e-security solution developers at C-DAC, Noida.

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. This activity is presently being implemented through 5 Resource Centres (RC) as mentoring institutions and 34 Participating Institutes (PI). The project also has a component on awareness programmes for the industry, educational institutes and the masses. The project also aims at imparting training to Government Officers on issues related to Cyber / Information Security.

So far, two Faculty Training Programmes for the PIs have been conducted. The syllabus and the course structure for various courses at the levels of B. Tech., M. Tech., etc., have been prepared and the RCs/PIs have taken action to launch these academic courses. A new M. Tech. course in Information Security has also been initiated at six institutions. The setting up of a Lab on Information Security at the RCs/PIs is

under process. Three batches of 20 candidates each have also undergone Master Trainers Programme. Short-term training programmes for Government officers are being organized.

Task Force on Human Resource Development on IT

Considering the strength of Indian ITeS industry and its potential to place India as global R&D hub as well as most favoured destination for Business Process Outsourcing (BPO) and contract research, a Task Force on Human Resource development in IT was constituted with the objective to analyse the present manpower delivery mechanism in terms of quantity and quality as well as skilled set vis-à-vis global ITeS requirement during the 10th and 11th Plan Period. The Task Force in its recommendations suggested measures for skill generation and deployment for both IT and non-IT professionals along with fiscal policy measure required. The recommendations are basically on the following lines:

- Attracting resources into IT/ITeS
- Educating/developing requisite skills
- Certifying Skill Levels of resources
- Deploying trained/certified resources
- Monitoring and guiding efforts related to IT/ITeS and R&D

During the year 2006-2007, the Sub-Committee of the Standing Syllabus Committee of the DOEACC for ITeS-BPO banking vertical has finalised the course structure and timelines for undertaking paper based examination in Phase-I. The learning material in print form has been initiated.

The outcome of these efforts would result in generating quality manpower to meet partial requirement of Banking vertical of ITeS-BPO sector.

Productivity and Employment Generation

ICT impacts Productivity. It generates productive workforce. Therefore, the Department endeavor to promote the penetration of ICT tools in different sectors of economy to enhance productivity and generate employment. The Department has initiated activities in manufacturing and service sectors including banking and tourism. In the service sector, new initiative has been taken by deploying consultancy software in the field of civil engineering and road/highway construction. Accordingly, the user agencies were approached and the software vendors

who have submitted their proposal to DIT have been requested to demonstrate the potential of these tools in respective sectors. In response, the department has received requests for consultancy and banking software from State Governments for providing one free demonstration package to establish its credibility. Once this has been proved, the State Government has agreed to deploy these packages at other locations at their own cost. Accordingly, department is establishing the first demonstration banking software in four State Governments. Efforts are being made for similar establishment in the consultancy software.

It is proposed to establish common facility centres in different States to effectively show the power of ICT tools and also to facilitate the users with these tools on pay to use basis.

With the active interest and promotional role played by DIT in the above programme, major ICT industrial houses like Microsoft, Intel, TCS and Oracle, etc., have responded very positively and announce a economical software tools and packages for SMEs. The financial institutions like SIDBI and ICICI are also promoting the same. SSI and NMCC have already announced a programme in collaboration with Microsoft India for the promotion of using ICT tools in SMEs.

Fresh proforma for vendors and Industrial/Cluster Associations has been developed internally. The same has been uploaded on the DIT Website for on-line registration of the companies and Industrial/Cluster Association.

Special Manpower Development for VLSI Design and Related Software

With a vision to make India high-end VLSI design destination, so as to access a larger share of the global market in this sector of knowledge-based industry, the Department has initiated a Special Manpower Development Programme in the area of VLSI Design and related software for generating the key-catalyst ingredient for this sector. This programme has been initiated at 7 Resource Centres (RCs) and 25 Participating Institutions (PIs) with a total outlay of Rs.49.98 crore for a period of five years. The major elements of the project are:

- a) Instruction Enhancement Programme (IEP) for the faculty of PIs.

- b) Establishing VLSI Design Laboratory equipped with contemporary Electronic Design Automation (EDA) Tools at all RCs and PIs.

- c) Creation of VLSI Design Resource website and Mirror sites at RCs.

- d) India Chip Project for siliconization of design done by students of RCs and PIs.

- e) To Introduce teaching of various courses on VLSI design and related software to generate various types of manpower as listed below:

- i Ph D in VLSI Design and related software (Type-I Manpower)
- ii ME/M.Tech programmes in VLSI Design (Type-II Manpower)
- iii ME/M.Tech Programmes in Electronics, Computer Science with VLSI elective (Type-III Manpower)
- iv BE/B.Tech Programme with VLSI electives (Type-IV Manpower)

During 2006-07, DIT initiated upgradation of VLSI Design Laboratory in all the 32 institutions by providing each institution with contemporary EDA Tools and Hardware platforms. In order to enhance the VLSI teaching activity at 25 PIs, DIT, through its 7 RCs, conducted IEP in the area of "Digital IC Design", "Low Power VLSI Design", "Semiconductor Device Modeling" and "RF IC Design". About 100 faculties of PIs were trained in the process. Information dissemination in the area of VLSI Design through a centralized website has been contemplated under the SMDP-II Programme. The Project Implementation Matrix will continue to be updated through conduction of ZOPP Workshop. Siliconization of designs undertaken at RCs have been supported.

DIT also supported the activity of conducting specialized workshop at RCs with the involvement of eminent international scientists and researchers. In this regard, the workshop involving eminent faculty from TU Delft University, The Netherlands, was invited as an International Expert to conduct five-day workshop in the area of Low Power Analog Designs covering 3 RCs.

Development of Weaker Section

The DOEACC Society is contributing towards upliftment of under privileged sections of the Society by encouraging women, SC/ST and other economically weaker sections candidates to undergo

the Society's courses. The society has got a large number of candidates belonging to the SC/ST/OBC and other weaker sections of the society including female candidates enrolled and qualified in the courses. DOEACC Society is following a scheme for financial assistance to the Women/SC/ST/OBC and other weaker sections of the Society.

Scholarship Scheme to SC/ST/Physically Handicapped and Female Students

The Society has introduced a Scholarship Scheme for SC/ST/Physically Handicapped and Female Students who are pursuing O/A/B/C Level of courses of the DOEACC Society as a full time course through an Accredited Institute authorized to conduct the DOEACC Courses. 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 Rs.1 lakh per year from all sources.

The amount of scholarship shall be four times of the examination fee paid per module paper i.e. Rs.350/- as at present as under:

- 'O' Level - Rs.5,600/- (in two installments)
- 'A' Level - Rs.14,000/- (in three installments)
- 'B' Level - Rs. 21,000/- (in four installments)
- 'C' Level - Rs. 21,000/- (in three installments)

The number of SC/ST and female candidates registered during April, 2006 to December, 2006 are 12,411 and 287, respectively.

Gender Issues

Under ITES-BPO Customer Support Programme, some of the DOEACC Centres including the Centres of NE Region offered a course of 160 hours duration consisting of Computer Skills, Soft Skills and English Language Skills. Till date, the Society has trained about 3,500 candidates including about 1,300

Women and about 1,350 including 675 Women have been placed. The DOEACC Centre, Aizawl has trained 210 Nurses in Soft and English Skills and Telemedicine concepts. 110 out of 210 have already been placed in the leading Hospitals in India and abroad.

Initiatives taken for the welfare of Disabled Persons

Vocational Centres for Skill Creation for the Children with Disabilities in the area of Information Technology: ERNET has set up 20 vocational centres in schools - 10 in State of Tamil Nadu and 10 in NCR Delhi region. These are for Differently-abled children to build high degrees of self-reliance, self-esteem and confidence and acquire life-long learning skills (learning to learn) in an environment that allows them to transfer this learning to real-life situations. The vocational training centres are to enhance computer skills of disabled children, personality development and provide job-oriented training for employment in IT and IT enabled service industry. Specialized agencies have been hired for providing the basic training as well as job-oriented training in association with the industry. An arrangement has been made with IT / ITES and BPO companies to provide BPO and ITES related training to the children with disabilities to enable these children to get employment. These centres have been equipped with computer peripherals which are specially designed for student with disabilities like blind and deaf to provide job-oriented training to disabled children – blind, low vision and deaf& dumb. These equipments include Talking Software, Screen Magnification, Talking Typing Teacher and Braille Embosser, OCR and Scanner, CCTV Print Magnifier device with TV for blind, and Assertive Listening Device and Hearing Amplification device for deaf. The infrastructure at schools is connected to LAN and Internet to explore the World Wide Web.



Infrastructure

Community Information Centres (CICs)

Department of Information Technology (DIT) has taken the initiative for setting up of Community Information Centres (CICs) in the hilly, far-flung rural areas of the country to bring the benefits of ICT to the people for socio-economic development of these regions and to bridge the digital divide between urban and non-urban areas. The initiative which was as a follow up to the special package announced by PM to the North Eastern States (487 CICs at Block Level with projected outlay of Rs 242 crore and additional 68 CICs at newly created Blocks with projected outlay of Rs 8.42 crore) has been extended to Jammu and Kashmir (135 CICs at Block Level with projected outlay of Rs 40.67 crore), Andaman and Nicobar Islands (41 CICs in Govt. Schools) and Lakshadweep Islands (30 CICs in Govt. Schools) with projected outlay of Rs 22.25 crore. The CIC project in North Eastern States and Jammu and Kashmir has been implemented by NIC / NICS while the project in Andaman and Nicobar and Lakshadweep Islands is being implemented by ERNET India.

CICs in North-Eastern (NE) States

555 CICs in 8 North Eastern States

Various State Governments have been pursued for operation and maintenance of CICs including providing citizen-centric services; development of local content, application development and customization to maximize the utilization of CICs for making them self-sustainable. 487 CICs established in the North Eastern States under the main project are providing service delivery. 68 additional CICs in the newly created blocks of North East include the CIC set up at Nathula Pass in Sikkim near the Indo-China border which is the highest internet

kiosk. These CICs are a citizen interface for IT enabled e-government services and training. The CICs provide e-mail, internet access, citizen centric services through CIC portal (www.cic.nic.in) and web-based services such as agri-market information, hospital bookings and board examination results. The various service facilitation softwares developed by NIC such as e-Suvidha (a one-stop service facilitation window application for G2C services), Block Community Portals (BCP) using Enrich framework, Rural Soft (web based monitoring system of community and rural development schemes), and Hospital Management Information System are being fully utilized by State Governments. ASHA agribusiness portal (<http://www.assamagribusiness.nic.in>) developed jointly by NIC and ASFAC (Assam Small Farmers Agri-business Consortium) using CICs was launched for facilitating agribusiness in the State of Assam.

Education and training are a major source of earning of CICs. 8,441 candidates have been trained through CLP (Computer Literacy Program) of IGNOU (Indira Gandhi National Open University) using CICs. 1,368 candidates were trained for appearing in the DOEACC CCC (Course on Computer Concepts) examination, out of which 983 have passed through 273 accredited CICs. A total of 974 persons were employed under the project. Average data transfer per month is 600 GB.

Evaluation of CICs was carried out by National Council for Applied Economic Research (NCAER) on 'Social cost-benefit analysis of CICs'. A two days workshop on 'Sustainability of CICs' was conducted at Gangtok, Sikkim. A meeting of the Inter-Ministerial Task Force on monitoring the utilization of CICs was also held at Gangtok, Sikkim.

CICs in Jammu and Kashmir

127 CICs in J&K have been made operational and are providing IT-enabled e-government services and training as in North Eastern States. Internet services, computer education and training is provided to local community, government officials and school children. Web portals of all CICs have been developed and hosted. CIC Operators have been trained and positioned to load local content and e-governance packages for providing citizen-centric services. 108 CICs have been approved for conducting CCC (Course on Computer Concepts) of DOEACC. A

revenue of Rs 35 lakhs has been generated during the year 2006. Average data transfer per month over CIC network is 120 GB. 246 persons have been employed under the project so far.

CICs in Andaman and Nicobar and Lakshadweep Islands

The CICs in these islands would serve the dual purpose of imparting ICT based education and training as well as citizen-centric services to the people of the region as in North East and J&K States. 41 CICs in Andaman and Nicobar islands and 30 CICs in Lakshadweep islands have been made operational. CICs at Car Nicobar and Campbell Bay in Andaman and Nicobar islands have been visited by His Excellency President of India.

Standardization, Testing and Quality Certification (STQC)

Introduction

Standardization, Testing and Quality Certification (STQC) Directorate has been a major infrastructure program of national importance and functions as an attached office of the Dept. of Information Technology. STQC has network of laboratories in the country, which provide test, calibration, training and certification services to industry in the field of electronics and IT. STQC has established itself as a premier organization for Quality Assurance and Management in Electronics and IT in the country. Many national and international accreditations / recognitions have made STQC services widely accepted at international level also.

Besides providing services in a professional manner, STQC also supports government policies, initiatives and programs concerning Standardization and Quality Assurance / Management. A number of projects sponsored by the Department of IT in the area of Software Quality Assurance, Information Security Management, Quality Assurance of Indian Language Technology and Products have been successfully executed because of which STQC Directorate is finding itself in a unique position within the Ministry/ Department, Electronics and IT industry and user organizations.

For setting up the STQC infrastructure, an Indo-German Technical Co-operation Programme has also made significant contribution. Under this co-operation programme, the German government

provided technical and financial support to STQC in establishing state of the art testing, calibration, training and certification infrastructure in the country and in achieving international accreditations. Based on the effective implementation of earlier projects, Govt. of Germany has agreed to contribute approx Rs 24 Crore (Euro 4 million) w.e.f. 1st January 2007 for four years for technical support of 'e-Governance for Business Development (TC)' project. The objective of this project is to promote SMEs through the use of e-Governance opportunities. The project will complement the large investment of Govt. of India and strategic decision to make intensive use of e-Governance.

STQC Infrastructure

To provide services related to Security and Quality in the IT area, six IT service centres at Kolkata, Delhi, Bangalore, Hyderabad, Pune and Chennai have been operational. In addition, the STQC Network at present has 14 testing and calibration laboratories (four Electronics Regional Test Laboratory and 10 Electronics Test and Development Centre), 5 Centres for Electronics Test Engineering (CETE), 4 Regional Certification Centres located at major cities all over the country. Besides, the Indian Institute of Quality Management (IIQM) at Jaipur and Centre for Reliability (CFR) at Chennai has been rendering specialized services in the respective areas.

Achievements During Financial Year 2006-07

The activity-wise achievements, both in terms of providing services as well as major technical contributions are enumerated below.

STQC IT Services

STQC IT services, which were conceptualized and initiated three years back, have been fully operationalized and a number of new projects and schemes have been initiated and executed. Some of the major achievements are as follows:

Software Testing and Evaluation

Software testing and evaluation activities have progressed significantly. Testing of e-Governance solutions and defense applications were the main achievements. Land Records Information Systems of Uttar Pradesh, Himachal Pradesh and Assam were tested and certified. Software Solutions from various

vendors for Municipalities were also tested. Critical Testing and verification of projects like Sanjay and Nishant for Ministry of Defence were undertaken.

Testing and audit of MCA 21 Project of Ministry of Company Affairs (e-Governance - MCA21 Project) for Quality and Security aspects has been completed. This is the first e-Governance service project where end-to-end assurance service was provided by STQC. Support to Naval Physical and Oceanographic Laboratory, DRDO, Kochi for software verification and validation activities was provided in respect of Design and Development of a SONAR.

Under DIT initiative of Indo-Asean Cooperation program for ASEAN countries, STQC provided inputs to develop training modules in Software Quality Engineering. Scope of smart card testing is expanded from transport sector applications to National ID Card testing.

Information Security

STQC is a pioneering organization in introducing Security Management System Certification concept in the country and is the first accredited Certification Body in India to introduce ISMS certification and has certified many organizations in India and abroad. Various Certified / training programmes have been designed and delivered for Information Security Professionals and Auditors. These courses are accredited by international agencies. The activities of application security audit, IT infrastructure audit, vulnerability assessment and penetration testing are being carried out for both govt. and private sector.

One of the STQC Scientists is a Permanent Member representing India, in the Security Audit Team (SAT) and is periodically conducting Information Security Audits of the Technical Secretariat of Organization for the Prohibition of Chemical Weapons (OPCW) located at Hague thus significantly contributing to the overall confidentiality regime of the Organization.

A programme for setting up a Common Criteria Security Test/ Evaluation Laboratory as well as a Certification scheme based on Common Criteria (ISO 15408) standard has been initiated recently. India has become a signatory to Common Criteria Recognition Arrangements (CCRA). The project aims to meet the needs of the Government and industries for evaluation and certification of IT security products.

Indo US Cyber Security Forum (IUSCSF)

Under Indo US Cyber Security Forum, the Working Group on Information Security Assurance was co-chaired by the Director General, STQC along with Program Director, NIST, USA. STQC is working closely with NIST, USA for development and review of Security Standards and Guidelines. This will facilitate Indian Organizations to comply with US Information Security requirements for trade in network economy. The guest research joint program of STQC-NIST is planned in 2007 to study and work out the security control, auditing and risk assessment.

IT Services Management (ITSM)

With a view to improve the quality of IT services such as Web services, Facility Management, Internet, BPO Services and Telecom Services, a certification scheme, accredited by iTSMF, UK, based on international standard ISO / IEC 20000-1 has been introduced. Additionally, ITSMF accredited training programs for ISO 20000 auditors have also been conducted by STQC both in India and abroad.

STQC is the only Indian Agency proving both the accredited certification and the accredited training programs within the country. support services on ISO 20000 to DOHA Bank, Qatar and Training programs on software testing to Kofi-annan institute at Ghana were also provided.

Setting up e-Governance conformity Assessment Centres

Recognizing the importance and focus for e-Governance, an initiative has been launched to support DIT for assessing conformity with standards on quality and security. DIT has awarded a project entitled 'Establishing an e-Gov Conformity Assessment Centre' with an outlay of around Rs. 25 Crore for three years. Six conformity assessment centres have been established under this project. Infrastructure tools and test environment have been upgraded to meet the requirements of industry and the NEGP.

Workshop under NEGP Mission Mode Project – Municipalities was organized on 7th Nov 06 at Delhi to explain software testing and evaluation requirements to demonstrate conformity with Ministry of Urban Development (MoUD) requirement. The workshop was well attended by officials of DIT, MoUD and various solution providers like WIPRO, SAP, Oracle, e-Gov foundation, etc.

e-Governance - Standards Formulation

The responsibilities for standards formulation on quality and documentation were assigned to STQC. A working group has brought out procedure for standard formulation, guidelines for preparing RFP and guidelines for writing SLAs. Conformity Assessment Framework and Quality Assurance Framework are at finalisation stage.

Test and Calibration Services

Test and Calibration services have been provided to SMEs, Govt. organisations, industries and users in the areas of Electronics and IT. To meet the growing demand of users, facilities have been upgraded in the area of EMI / EMC, Safety, Climatic and Durability, High precision calibration and Fibre Optics / Opto-electronics.

Special emphasis has been given to invest in automation of test facilities to improve the quality of service and customer satisfaction. Major achievements of some of the laboratories are as follows.

ERTL (North) has established High Precision Dead Weight Tester for pressure measurement, upgraded GTEM Cell for radiated immunity measurements upto 3 GHz and automated the Energy Meter test facility. The Laboratory has developed competence for Safety testing of Laminated picture tube. NABL has accredited ERTL (North) against ISO / IEC 17025:2005 Standard. Further, the Laboratory has also



implemented STQC Laboratory Information Management (SLIM) software for efficient functioning and automation of its activities.

ERTL (W), Mumbai has established a 3 m anechoic chamber for compliance testing for emission and immunity measurement as per national / international EMC standards. Calibration facilities for Opto-electronic instruments such as Optical Power Meter, OTDR, Optical Source Power and Energy upto 50 ppm accuracy and for humidity meters have been added. Durability test facility related to Vibration testing upto two-ton capacity has been installed. The laboratory has provided services for CE mark to various Indian manufacturers as well as to BOSE, USA, and Marshall, UK by evaluating their products for CE compliance.

ERTL (East) carried out Fail Safety Assessment of LED Signal Lights for railway applications as per European Standards (EN) for several manufacturers in the country. The Laboratory entered into a prestigious Mutual Recognition Agreement with EXAM Germany, a reputed European Notified Body for ATEX Certification in Europe. This mechanism will allow Indian manufacturers of explosion-protected Electronic products to get ATEX certification for export to Europe. To support the rapidly expanding telecom industry, particularly the fiber optic networks, the laboratory provided on-site calibration services for fiber-optic measuring instruments at a number of industrial locations all over the country. Besides testing support to a number of manufacturers for CE marking of their products for export to Europe was also provided. Full testing facility for Self-ballasted Compact Fluorescent Lamps has been established at the laboratory and approval of Bureau of Indian Standards has been received. This will help the CFL industries to get BIS marking which is now mandatory in the country.

ETDC, Chennai has installed Combined environmental system comprising of 5-ton Vibration Machine and a Temperature Cyclic Chamber with a rate of change of 15° Celsius per minute. The facility is being used for carrying out highly accelerated life tests on products to bring out latent defects, the removal of which will lead to reliability improvement. The EMI/EMC facility established in the Centre has been utilized extensively both for testing as per standards as well as developing new products by the industries such as TCS Secunderabad, Satyam Infotech, Wipro Pondichery, Acer, TVSE, Ashok Leyland, etc.

CFR, Chennai has successfully conducted reliability studies for a project of NPOL, Kochi concerning software reliability modeling and analysis. Reliability improvement projects were taken up during the year for industries such as NIOT-Chennai, L&T - Mumbai, Crompton Greaves - Dhar (MP), Phillips Electronics - Bangalore, Merlin Hawk Aerospace - Bangalore, etc. The centre, jointly with IIT, Kharagpur has organized 3-day International Conference on Reliability and Safety Engineering - INCRESE 2006 at Chennai during Dec. 18-20, 2006. Eminent Reliability professionals from the country, Japan, USA, TAIWAN, Singapore and France attended the Conference. More than 100 participants attended the workshop. 15 invited talks and 65 papers were presented during the workshop.

ETDC, Bangalore has established a 3 m anechoic chamber for compliance testing for emission and immunity measurement as per national / international EMC standards. The laboratory has been accepted as test laboratory for CE mark by various Indian manufacturers as well as by BOSE, USA and Nokia USA for evaluation of their products for CE compliance. Laboratory has upgraded its Climate test facilities with rate of change of 5 Deg.C/min. to test Component/Equipment as per IEC, IS & MIL standards. International recognition for PV modules testing as per IEC 61215 and BIS approval for Energy meter testing has been obtained. HPCC Centre successfully organized PT programme on AC/DC Current in collaboration/ association with NABL wherein 18 laboratories participated.. The RF measurement capability of HPCC was augmented to 26.5 GHz and RF Impedance measurement facility to 40 GHz to facilitate the calibration of high end RF equipment such as Spectrum analyzer, Network analyzer etc. Optical Calibration facility for calibration of Optical source, Optical power meters, attenuators at 1310 nm and 1550 nm and Optical Time Domain Reflectometers was also established.

ETDC, Hyderabad established EMC facilities for testing as per National and International Standards. This centre has provided development assistance and testing of CNC machine to comply with the CE mark requirements. Technical solutions have been given to M/s ECIL for EMC compliance of Presidential Electronic Voting machine. Laboratory carried out the Crucial Tropical Exposure Test on spare parts of MIG aircraft to study ageing effect. Thermal Cycling test on equipment installed at Remote Sensing Satellite Earth Station, Algiers was also carried out.

ETDC PUNE has set up a state of art. EMC test laboratory It is equipped with GTEM cell and can carry out tests like Emissions (CE, RE) and Immunity (ESD, EFT, Surge, Dips, conducted RF, Magnetic field etc). Test support was extended to Siemens, Honeywell, Forbes Marshall, DB Power etc have availed these facilities. Laboratory also provides CE Marking assistance and safety testing /Evaluation.

ETDC, Goa organized Onsite calibration camps and training programs on Quality Management System, Environment Management System, statistical Process Control, Information security and LINUX Operating System.

ETDC Jaipur is providing Entrepreneurs Development training courses for the benefit of young entrepreneurs, in association with State Govt. in the area of maintenance of (i) PC Hardware and Networking and (ii) U.P.S, Inverter and Voltage Stabilizers. This has benefited unemployed youth and weaker sections of the society.

Training Services

“Knowledge-based skill-oriented”

CETEs established under the Indo-German Technical Cooperation programme provided training in the field of Electronics, Test Engineering and IT covering the areas like Industrial Automation, Electronic manufacturing Techniques, EMI / EMC, Networking, Agri-electronics etc. Special courses for the benefit of SC/ ST/OBC, weaker section of the society and women are also conducted. CETEs undertook following additional major activities.

A post-diploma course on “Advanced Biomedical Instrumentation” has been launched at CETE Kolkata in association with Kolkata University. “Project Based Training” in Industrial Automation and Embedded Software was provided to more than 300 Engineering students from 15 engineering colleges in West Bengal. In association with Quality Council of India series of courses on Six-Sigma, Laboratory Accreditation and Calibration System Management were also conducted.

CETE, Bangalore designed and organized one year (two semester) “Certified Computer Trainer” course by which 75 candidates are groomed to work as IT professionals for independent entrepreneurship. Two-month course on “Embedded Systems” and

Project works on embedded systems covering RTOS, ARMS and VX WORKS was launched by which 55 Engineering students / job seekers have been trained. Network laboratory has been established to conduct courses on Network management, Embedded systems, MCSE / CCNA / ORACLE / RHCE / Vx Works / ARMS and CCT (Certified Computer Trainer).

Training facilities for EMC and Agri electronics have been established at CETE Pune. GTEM based EMC training facilities upto 3 GHz have been upgraded at CETE Noida and Kolkata.

CETE, Noida extended training support on ‘Computer Networking’ and ‘Information Security Management’ to various Government Departments including Cabinet Secretariat, Intelligence Bureau, Ministry of Defence and CSIR etc. A new course on ‘Power Quality’ has also been introduced.”

Indian Institute of Quality Management (IIQM), Jaipur has been acting as an apex Institute to provide trainings in the area of Quality Management, Quality Technology, Laboratory and Environmental Management. The International Registrar of Certificated Auditors (IRCA), UK has, now approved IIQM for conducting ‘ISO 9000 Series Foundation and Internal Quality Auditor’ course, in addition to Lead Auditor courses, approved earlier, for ISO 9000 and Information Security Management Systems. IIQM is successfully conducting these three training courses. It is further striving to get approval for few more courses through IRCA, UK. Since 1998, IIQM has been conducting MSQM - two year off-campus post graduate Quality Management Program (MSQM) in collaboration with Birla Institute of Technology and Science (BITS), Pilani, for practicing engineers working in quality management and related areas. This course is becoming quite popular in industry, including software and IT sectors. Till date, nearly 400 students have successfully completed this course and have been awarded degrees by BITS, Pilani.

Certification Services

STQC Certification group is providing Internationally Accredited Certification services for ISO 9000 (Quality Management System), ISO 14000 (Environmental Management System) and Product Safety to about 850 customers in India and abroad. STQC is also offering International Certification services for safety of electrical products under IECEE-CB and for

electronics components under IECQ system. Some of the major Govt. clients/ PSUs served by STQC for certification services include ISRO, DRDO Laboratories, Bharat Sanchar Nigam Ltd. (BSNL), Telecom Training Centre, Military Engineering Services and Interim Test Range under DRDO apart from a number of private sector units and SMEs including Philips and Tata Group of companies.

Services in the North-East Region

STQC, through ETDC, Guwahati and ETDC, Agartala is providing test, calibration and training service to the industry in the North East region. With a high accuracy Power Energy Calibration System, sophisticated Power Energy Monitoring and Analyzing System, Poly-phase Relay Test System, Breaker test System, Power Analyzer, this laboratory is providing highly essential service to all Power departments, Power generating and transmitting stations, etc., as well as other industries.

Initiative has been taken to establish e-Governance Conformity Assessment Centre at ETDC, Guwahati. Facility for software testing with state of the art testing tools has been created. This conformity centre is in operation and has started providing service to the industry.

Calibration facility for Opto-electronic instruments upto to 50 ppm accuracy has been installed at ETDC, Guwahati and test facilities in the area of medical electronics has been upgraded. The office building at ETDC, Agartala is being renovated.

Organizations like ONGC Ltd., IOCL, NRL, BRPL, Oil India Ltd., NEEPCO Ltd., PGCIL, Airport Authority of India, HPCL, Hindustan Lever, Maruti Services Stations, Coca Cola and other MSI / SSI units have utilised the services of the two laboratories in the NE region.

STQC Overseas Services

STQC has been providing overseas services in the areas of Product Safety, EMI / EMC, Explosive Atmosphere Compatibility, Inspection and Certification, Calibration and Training on Quality Management and IT Services.

Officers of STQC have been recognized by CMU, USA for eSCM evaluation and by IRCA, UK for ISMS / QMS Lead auditor training courses. eSCM evaluation

services were provided for approx. 140 man days in South Korea and Singapore. Additionally, ISMS and ITSM facilitation and evaluation services were provided in DOHA Singapore and USA.

Testing, Calibration, Training and Certification services have been provided to various organizations in countries like USA, UK, Germany, France, South Korea, Mauritius, Bangladesh, Nepal, Sri Lanka, UAE, Qatar, etc.

Growth in Revenue Earning

One of the major initiatives taken during the financial Year 2006-07 was to gear up STQC IT services keeping the Policies and Programs of the Department of IT. These services included certification and training in the area of Information Security Management System, Software Quality Assurance and IT Service Management. At the same time conventional STQC services like testing, calibration, certification and training were consolidated and expanded. Due to these initiatives, revenue earning has continued to grow. The revenue earning, which was Rs.35 Crore during 2005-06 is expected to grow to Rs.40 Crore during 2006-07. This growth has been achieved in spite of reduction in manpower due to retirement and employee depletion through improvement in productivity, gearing up of IT service and upgradation of infrastructure and facilities.

National Internet Exchange of India (NIXI)

A state-of-the art National Internet Exchange of India (NIXI) has been set up to ensure that the Internet traffic which originates within India and also has destination in India, remains within the country, resulting in improved traffic latency, reduced bandwidth cost and better security. Four Internet Exchange Nodes have been operationalised at Noida (Delhi), Mumbai, Chennai and Kolkata, and as many as 28 ISPs connected with these nodes and traffic of 1.2 gigabit per second is exchanged.

Setting up of Bio-IT Park

The Department of Information Technology in conjunction with the Software Technology Parks of India (STPI) and Industry is setting up a state-of-the-art ‘Bio-IT Park’ at a total outlay of Rs.95.82 crore over a period of five years. The park would address the IT related needs of the global life sciences industry and is expected to attract investments (both domestic and foreign) in the related areas. Potential tenant group in

the park include Global pharmaceutical companies, Drug discovery companies, Healthcare organizations, Contract Research companies (Pre clinical and clinical), IT Software/tool companies, IT Hardware companies, Genomics and biotech companies. The Bio-IT Park would be equipped with adequate infrastructure and facilities to provide the required/desired services to its tenants by providing facilities of High end super computing; Wet lab; Data communications; Business Centre Services; National Resource Centre – Library (physical and virtual), Connectivity with global bio-informatics/life sciences centre of excellence across the globe; Team of global knowledge stewards; IPR Facilitation cell; Networking and consulting services; Service apartments and recreational facility, etc.

Establishment of Three (3) Root Servers in the Country

DIT and Internet Exchange of India (NIXI) has installed three mirror Internet Root Servers at Delhi, Mumbai and Chennai. The root servers form a critical part of

the global Internet infrastructure. The installation of these root servers in the country will help in reducing the expensive international bandwidth load, increase the internet resilience by bringing down our dependency on root servers hosted abroad and improve host name resolution from hundreds of millisecond to under-ten millisecond.

Campus Network at Arunachal University, Itanagar

DIT has set up Campus LAN at Arunachal University. The project has been completed and being used by the faculty and students of the University. Gigabit Fibre backbone has been laid connecting academic buildings/offices/admin spread across the Campus. Cat6 UTP cable has been laid within the buildings to provide connectivity to the users PCs. The conference rooms have connectivity through 802.11 g wireless technology. Hardware firewall and Server based Anti-virus system has been deployed to protect the network from unauthorized access and viruses.



Societies

Centre for Development of Advanced Computing (C-DAC)

Centre for Development of Advanced Computing (C-DAC) is the premier R&D organization of the Department of Information Technology (DIT), Ministry of Communications and Information Technology (MCIT) for carrying out R&D in IT, Electronics and associated areas. Having established itself as the premier national institution for high-end R&D in IT and Electronics area, C-DAC continues to constantly innovate and leverage its expertise to develop and deploy IT and electronics products and solutions for larger societal and economic benefits of the nation.

The core technology areas that C-DAC deals with include High Performance Computing and Grid Computing; Multilingual Computing; VLSI, Embedded and Real Time Systems; Software Technologies; Cyber Security; and Health Informatics. More than a decade and a half of R&D effort of C-DAC in these areas has resulted in several enabling technologies, which form the core of C-DAC's technical strength. These enabling technologies have been further used by C-DAC to develop a wide range of products and solutions, many of which have been successfully deployed and are in use in many key sectors of the economy like, Science and Engineering, Power, Defence, Telecom, Health Care, Agriculture, Industrial Control, Broadcasting, Entertainment, Education and e-Governance. Through its Education and Training programmes, C-DAC also actively contributes towards the nation's growing demand for trained IT professionals. It offers various Masters, Post-graduate Diploma, Diploma and Certificate courses in multiple disciplines of IT and Electronics.

The key achievements of C-DAC during the year are as follows:

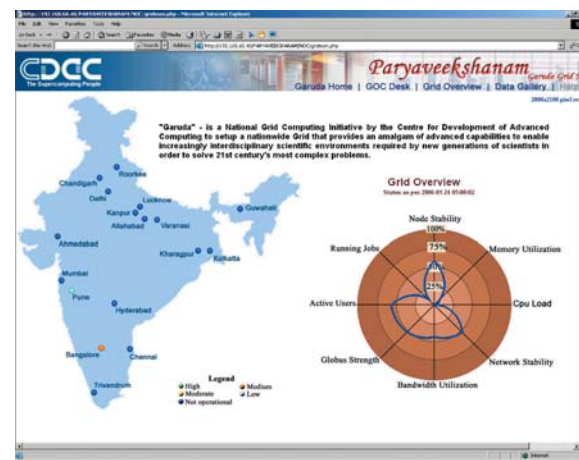
High Performance Computing (HPC) and Grid Computing

High Performance Computing (HPC) is now widely considered to be a strategic asset for the nation and the Supercomputing Institutes that created this capability are often a source of national pride. With its proven track record of having successfully completed its first three HPC Missions, C-DAC has matured as an R&D Institute for HPC Technology Development and HPC Solution Provider.

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 the area of High Performance Computing and Grid Computing include the following:

- An HPC system having peak computing power of half Teraflop was delivered to NCMRWF along with necessary application support. The system is being used by NCMRWF exclusively for atmospheric science applications.
- A PARAM system, named PARAM Sarita, was designed and developed for Video on Demand (VoD) services through Public-Private-Partnership with DiviNet Access Technologies Ltd. The system has been commissioned at the Network Operation Centre (NOC) in Pune and is currently under live testing.
- The performance speedup possible with the indigenously designed and developed RCS (Reconfigurable Computing System) platform was



demonstrated for Bioinformatics (Smith-Waterman algorithm for sequence search) and Cryptanalysis applications. Speedups of the order of 40 to 80 times were demonstrated.

- The design and development of 10 Gbps, PCI Express based System Area Network (SAN) including C-DAC's Communication coprocessor (CCP) reached an advanced stage. It will form an important indigenous component of next PARAM system that C-DAC will launch in 2007.
- Significant progress was made towards finalizing the system architecture of the next PARAM system to be launched by C-DAC in 2007.
- Atmospheric-Ocean coupled model was developed in collaboration with IISc.
- Commissioning of high-speed communication fabric with 100/10 Mbps access network connecting 45 institutions was completed.
- Grid middleware components were developed and packaged as "Garuda Sigma". The same has been implemented at various grid nodes including both C-DAC's own nodes and grid-partner nodes.
- Grid Monitoring and Management Centre (GMMC) was commissioned and made operational at C-DAC, Bangalore. State-of-the-art display wall and advanced software developed at C-DAC, like Paryaveekshanam, was deployed at the GMMC.
- Selected applications of national importance, including Disaster Management application (with SAC, Ahmedabad), and Bioinformatics application were demonstrated on the grid infrastructure.
- Grid Strategic Users Group has been set-up.
- Two Grid Partners meet were held and workshops and conferences conducted by C-DAC to

integrate, increase participation and collaborative efforts among participating institutes.

- C-DAC joined the EU-India Grid Consortium. The principal goal of EU-India Grid is to support interconnection between European and Indian grids.

Multilingual Computing

C-DAC's Language technology mission has helped to create a framework for the coexistence of the living languages of the world with diverse scripts on standard computers. In this initiative, C-DAC contributed towards proliferating the benefits of Information technology to the vast and diversified multilingual population of India.

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 for popular third party software on various operating platforms such as Windows, Linux, and so on, electronic mail in Indian languages, machine translation using artificial intelligence techniques, 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 multilingual computing include the following:

- After the successful launch of Tamil, Hindi and Telugu CDs containing fonts and software tools for these languages last year, C-DAC worked towards the preparation of similar CDs for other

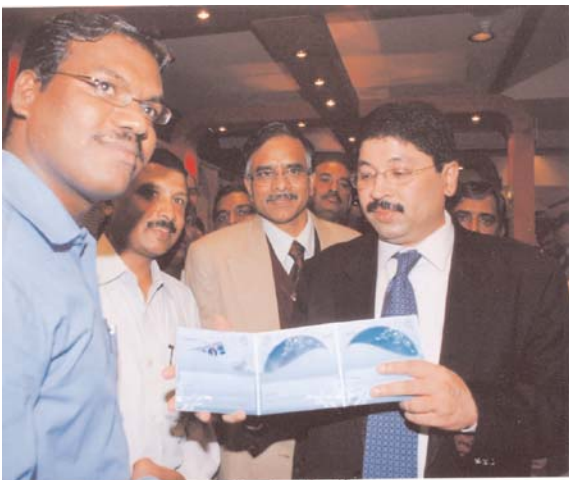


Indian languages during this year. The CDs for Punjabi, Urdu, Marathi, Malayalam, Kannada, Assamese, and Oriya were launched.

- IDN for .IN Registry-implementation support for Malayalam and Tamil has been completed.
- OCR tools for Hindi and Marathi were put in public domain.
- Urdu spellchecker prototype has been included in the Nashir product.
- Localisation of Central Railway Information System (CRIS) Website to Hindi under the aegis of RITAP Project. This involved development of localisation framework inclusive of dynamically converting database to Hindi.
- Urdu dictionaries for the administration, technical and general domain have been integrated in the Nashir product.
- LILA, Mantra and other commercial products were customized for mobile handsets. LILA Hindi Prabodh on Mobile Phone was launched by Home Minister in Official Hindi Day.
- Several language technology products were integrated into e-governance applications.
- Speech Corpora for Assamese, Bengali and Manipuri were completed and released at Elitex 2007.
- Commencement of Consortium mode delivery oriented research projects (OCR/OHR, MAT, CLIR) was announced.

VLSI and Embedded Systems, Real Time Systems and Professional Electronics

Initiatives in the area of VLSI Design and Embedded Systems, Power Electronics, Agro-electronics and Real Time Systems are targeted towards realizing the mission to make India a global player in the power electronics technology and to convert India's competitive advantage in agriculture and information technology to the prosperity of our farming community. In the area of power electronics, the technology development efforts are focused towards designing of tools and components for power distribution, power quality improvement, power supply modules, energy meters, 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 multilingual and industrial applications and next-generation controllers.

Significant achievements during the year in the area of VLSI and Embedded Systems, Real Time Systems and Professional Electronics include the following:

- Three wheeler hybrid vehicle prototype was completed and is currently under field testing.
- Vehicle Mounted and Hand portable TETRA Digital Mobile Radio with voice, data and direct mode capabilities has been developed.
- Development and testing of prototype of liquid level sensor has been completed.
- Prototype system development for intercepting the Voice over IP (VoIP) traffic on the Internet has been completed.
- Export of TETRA Protocol Stack Software for Mobile Stations to UK continued and export to China also got added.
- Electronic Nose and Electronic Vision for Tea quality assessment has been developed and consultation meeting with industry was held.
- Road Traffic Control System has been commissioned in Pune and technology has been transferred to Webel Mediatronics with signing of agreement and payment of first installment of fee at Elitex 2007. Technology Transfer to BEL and Keltron are also scheduled.

- Prototype development of Digital Programmable Hearing Aid has been completed.

Software Technologies

India's strength in software product development and offering of software services has already been proved and established globally. The IT software industry is largely manpower oriented and the skills of Indian software professionals are globally recognized. To capitalize on this skill set of Indian software professionals, software technologies is naturally a key focus area of C-DAC. C-DAC's initiatives in this area include, Free and Open Source Software (FOSS), software tools and applications, software products for addressing digital divide, software products and solutions for e-Governance.

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

- Under the newly set up National Resource Centre for Free/Open Source software (NRCFOSS) at C-DAC, Chennai, development of desk-top Operating System (BOSS), compliant to FSG certification, has been completed. Release of the same for Indian distribution was launched at Elitex 2007 by Honourable Minister for Communications and Information Technology, Thiru. Dayanidhi Maran.
- FOSS based Tools and Applications have been developed and put into initial use (e-Learning, e-Governance, SOA framework, Open Office, Browser and Mail Agent for Indian Languages).
- Several software products for addressing digital divide (such as Vyapar, ECKO, Vartalaap, CMS4C etc.) have been developed and deployed at multiple kiosks and MOUs signed for large deployment.
- GIR (Geographical Indication Registry) workflow automation and online transaction solution for IPO has been executed.
- Initiatives for development of several other e-Governance projects, some under Mission mode NeGP, were also continued or commenced.

Cyber Security

Department of Information Technology (DIT), Government of India has taken lot of R&D initiatives in this area of national importance. C-DAC with wide experience in R&D has chosen cyber security as one of

the priority areas and proposes to deliver multilevel/multilayered security solutions to safeguard the Government Infrastructure. Solutions already developed in this direction are Cyber Forensics tools, Adaptive Intrusion Detection System, End systems security solution, document security solutions, Steganographic tools etc. These solutions cannot be static as the attacks keep growing with changing times and technologies. Thus C-DAC continues to explore delivering the need of the hour (just-in-time) Cyber Security Solutions.

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

- Research Infrastructure for Stego-analysis was established.
- A security solution for steganography was developed and packaged as "stego-check v.2". The same was released during the year.



- Courseware design for one year diploma course on Cyber Security has been finalized. The course will be very useful for law-enforcement agencies.
- Development of Cybercheck v.2 tools were completed at the Cyber Forensics lab.
- Adaptive Intrusion Detection, analysis and response system product (N@G) was completed and deployed at strategic user locations including NIC, ERNET, and Garuda. N@G Enterprise Edition was released at Elitex 2007.
- Development of components of a framework for web services addressing security issues (authentication, authorization, privacy, trust and confidentiality) has been completed.

Health Informatics

Provisioning of good and economical health services for its citizens has always been a priority area for the Government in any nation. Health Informatics deals with the integrated usage of information, communication and electronics technologies for offering better health services. C-DAC being a premier R&D organization of Government of India, involved in the design, development and deployment of electronics and advanced information technology products and solutions, Health Informatics has naturally been a focus area of C-DAC's R&D agenda. During the last few years of its R&D efforts in this area, 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 Ayurveda, and Software Libraries for Medical Systems and Standards.

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

- The Onconet project for linking cancer centres in the state of Kerala was successfully completed.
- A project proposal for Onconet India, for linking of cancer centres across the nation, has been prepared and submitted for approval.
- Deployment of Mercury telemedicine solution was done at Addis-Ababa and Nekempt in Ethiopia, also connecting CARE hospital in Hyderabad for tele-consultancy and tele-diagnosis.
- A new project for the development of libraries for DICOM (Digital Imaging and Communications in Medicine) and HL7 (Health Level Seven) standards was initiated and has been started.
- The development of a Decision Support System (DSS) for Ayurveda has been completed and launched as a packed product named AyuSoft at World Ayurvedic Conference at Pune in 2006.

Education and Training

Indian software industry and IT industry in general are suffering from huge shortage of skilled manpower. This shortage is more prominently felt in specialized areas like VLSI, Embedded Systems, Mobile





Computing, Bioinformatics – to name a few, as Indian IT industry strives to move up the value chain. C-DAC's Education and Training divisions at its various centres continue to build and mobilize high quality and skilled manpower to address this requirement to the extent possible with its available resources. A range of specialized courses catering to the needs of the IT sectors including VLSI, Embedded Systems Design, Information Technology, Enterprise System Management, System and Database Administration, Electronic Product Design, Bioinformatics, Geoinformatics, Digital Multimedia, Internet Technologies, Software Technologies and Software Development are offered. C-DAC also conducts Post Graduate Degree programmes like M.Tech and MCA in affiliation with universities at select centres.

During the year, C-DAC continued to offer its Certificate, Diploma and Post Graduate Degree Programmes in the areas mentioned above. C-DAC has also set up state-of-the-art training Centres in IT in few countries abroad including those at Ghana, Uzbekistan, Tazekistan and Mauritius. The Jawaharalal Nehru Centre of Excellence in Tashkent, Uzbekistan was inaugurated by the Honourable Prime Minister in the year 2006.

C-DAC continues to strive hard to further establish and maintain its leadership position in R&D in the areas mentioned above. It also continuously explores new areas of R&D in IT and Electronics. In this endeavor, C-DAC is already spearheading several efforts at the national level in cutting-edge, futuristic technology areas such as Speech Technologies, Next Generation Internet Technologies, Grid Computing and Ubiquitous Computing.

Software Technology Parks of India (STPI)

The idea of setting up dedicated Software Technology Parks was born in the wake of the policy adopted in 1986 by the Government of India, identifying IT as a potential growth driver and focusing on "Software

Exports, Software Development and Training" as a key area for strategic development. Further identification of the constraints in the growth of the software industry, led to the announcement of the "Software Technology Park" (STP) scheme in order to encourage and enhance software exports from the country.

The policy framework of STPI covered the following key aspects :

- Simplification / rationalization of procedures;
- Providing single-point contact services to the industry;
- Providing basic amenities needed for export operations with very short gestation periods; and
- Sharing of captive infrastructure facilities like computing resources and data communication services in a cost-effective manner.

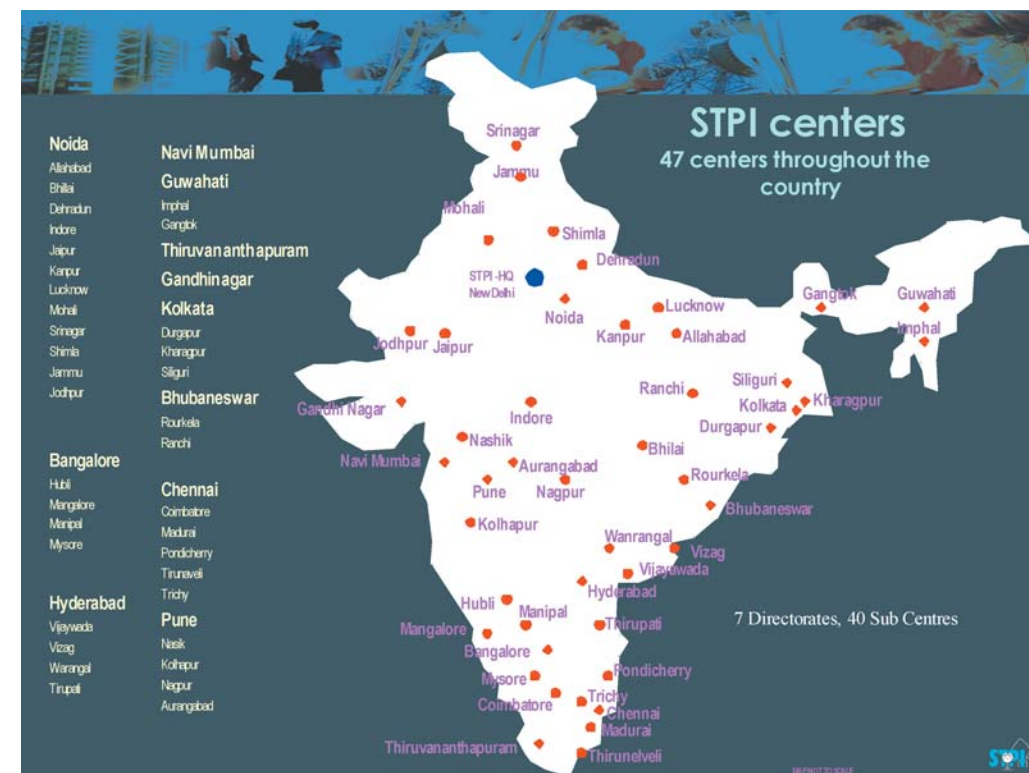
The framework evolved in a manner aimed at facilitating the software export industry in general and Small and Medium Enterprises (SMEs) in particular, thereby accelerating the economic growth of the country by maintaining a competitive edge in the global market. Software Technology Parks of India (STPI) was set up to implement the STP scheme for the promotion and development of software industry and enhancement of software exports by providing infrastructure facilities including High Speed Data Communication (HSDC) links.

Software Technology Parks of India was established and registered as an Autonomous Society under the Societies Registration Act 1860, under the Department of Information Technology, Ministry of Communications and Information Technology, Government of India on 5th June 1991 with the 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 Software Technology Parks of India are:

- To promote development of software and software services.
- To provide statutory services to the exporters by implementing STP/EHTP Scheme.



- To provide data communication services including various value added services to IT industries and corporate houses.
- To provide Project Management and Consultancy services both at national and international level.
- To promote small and medium entrepreneurs by creating a conducive environment in the field of Information Technology.
- To promote Bio-informatics/Bio-technology, Nano Technology, industries by providing incubation and other infrastructural and statutory support.

High Speed Data Communication Facility

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. STPI has set up its own International Gateways at 47 locations for providing HSDC links to the software industry.

Local access to International Gateways at STPI centres is provided through Point-to-Point and Point-to-Multipoint microwave radios for the local loop, which has overcome the last mile problem and enabled STPI to maintain an uptime in the tune of 99.99%. The terrestrial cables (fiber/copper) are also used wherever

feasible. These communication facilities immensely contribute to the development of offshore software activities and act as the backbone for the success of these enterprises.

STPI is having working arrangement with major international telecommunication operators, namely: AT&T, MCI, Sprint, British Telecom, IPSTAR, Thaicom and premium satellite service providers like Intelsat, New Skies Satellite, etc.

STPI provides the following HSDC services through its network:

- International Private Leased Circuits (IPLCs)
- Shared Internet Services
- VSAT Services
- Value added services.

SoftPOINT

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

It provides efficient, reliable and secure Point-to-Point connection to business clients 24 hours a day, anywhere in the world. Wide range of data transmission speeds further allow expanding the services as required. The services are also offered on Satellite and Fiber.

SoftLINK

Internet is now emerging globally as the principal medium of communications for every country. An exceptional growth can be seen in the percentage of people wanting to get connected to the web. Quality Internet connectivity has become a necessity for software exporters and many software enterprises work on a Global IP Platform.

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.

International Fiber Capacity

STPI has acquired International and Domestic fiber bandwidth, in order to meet the customer demands for the services on Fiber. With this, STPI is able to provide Internet Private Leased Circuit (IPLC) and IP services on fiber.

STPI is offering IPLCs on full circuit basis completely on fiber between Indian company and USA customers with attractive tariff. As it is one stop solution to the customer, it facilitates single point of contact, ease of coordination. Implementation or deployment of the service is faster when compared to conventional bilateral services. The up time in these services is very high with minimal restoration time. The bandwidth is provided in multiples of nx64Kbps, nxE1 or 1xDS3.

To provide better Quality of Service (QoS) to the customers in terms of latency and reliability, STPI is tied up with Tier – 1 Service providers in USA for Internet backbone. The customers who are availing STPI's Internet Service get connected to Tier – 1 Service provider's backbone in USA through STPI's Internet Gateway. The bandwidth is provided in multiples of nx64Kbps or nxE1.

Access Network/ Last Mile Connectivity (Local Loop)

With the evolution of the IT industry in the early days, there was an escalated demand for greater bandwidth. While international bandwidth was available, there was a shortfall in the last mile connectivity. To address this shortfall, 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 a 2 Mbps, Nx E1 links over the last mile under the STPI's overall control.

Besides last mile connectivity on radio, STPI also provides the last mile on fiber wherever feasible.

Leased Internet Access Using ISDN Lines

STPI also provides Internet Services to the customers through ISDN. This service is presently available for ISDN BRI and leased connection is for 64 Kbps or 128 Kbps. ISDN services are also sometimes used as a backup to the leased line connectivity.

Other Value Added Services

Web hosting services, Network Consultancy, Roof Top Solution, Collocation of Servers, etc., are some of the other value-added services provided by STPI to the constituent companies, apart from IPLC and Internet services.

Performance STP Units

During the year 2005-06, 1052 new units were registered under STP Scheme. As on 31st March 2006, 6383 units were operative out of which 5116 units were actually exporting. The remaining units are at various stages of gestation as the scheme allows three years for companies to start commercial production.

Exports

There has been an impressive 36.40 per cent increase in software exports through STPI units in the year under review, from Rs. 74, 019 crore in 2004-05 to Rs 100, 965 crore during 2005-06. At the national level, STPI units account for around 97% per cent of software exports – out of the total national figure of

Rs 104540 crore, STPI units exports accounted for Rs. 100,965 crore to the overall export revenue from software operations in the country. It is estimated that STP units software export would be about up to Rs 1,30,000 crore during the year 2006-07, registering a growth of about 28.75% above 2005-06.

Activity of the STPI Centres

STPI, Bangalore

CCC Network – Present Project

This project envisages networking of Check Posts belonging to various departments like Commercial Taxes, Forest Department, RTO and Department of Excise. Implementation will involve a setup of one pilot site further expanded to 26 locations across state. This integrated check post will reduce the time involved to inspect vehicle and to bring in the transparency in commodities checking.

Present Status

STPI is in the design stage of the network.

STPI's Role

- Project Management and consultation
- Identification of Infrastructure and their procurement
- Coordination for Licensing and Regulatory Activities
- Implementation of entire network
- Operations and Management of the network

'Nirmala Nagara' Project

'Nirmala Nagara' project envisages creation of e-governance system for the payment of Property Taxes, attending to Public Grievances, issue of Birth and Death certificates, collection of Water Tax, issue of Trade Licenses, monitoring ward works and accounts coming under the jurisdiction of various Municipal corporations across the state of Karnataka.

STPI's role

STPI-B has to provide Project Management Consultancy services for Data Centre for this project.

Current Status

STPI-Bangalore has submitted the proposal and received the order for carrying out feasibility analysis for WAN connectivity and the same was submitted to DMA. Further STPI was issued an order to provide offsite O&M support for the Mini data centre at Unity building where the pilot servers are maintained. Besides, DMA asked STPI to do POC (proof of concept) and analyze the online data.

Local and Wide Area Networks for Karnataka State Financial Corporation (KSFC)

Karnataka State Financial Corporation (KSFC), Bangalore is the premier fast track term lending financial institute in the country under state Government of Karnataka. KSFC gives financial assistance to set up tiny, small, medium and large scale industrial units in the Karnataka state.

Karnataka State Financial Corporation has requested STPI to provide the Consultancy services to revamp the building LAN, wireless LAN (optional), designing of WAN, video conferencing solution, IT infrastructure and related software application up gradation and UPS requirement.

STPI's role

STPI-B has to provide Project Management Consultancy services in identifying right technology and economical solution to revamp the building LAN, explore the possibility for wireless LAN, designing of the WAN network, video conferencing solution and IT infrastructure sizing and up gradation plans for software application and UPS at Head Office located in Bangalore.

Current Status

Currently STPI-B is in the process of preparing its feasibility study report and proposal.

National Institute for Smart Government (NISG)

National Institute for Smart Government (NISG), Hyderabad is a not-for-profit company incorporated in 2002 with NASSCOM (National Association of Software and Service Companies), Central and State governments being the principal promoters. NISG is being shaped as an institution of excellence in the area of e-Governance with focus on developing

appropriate architectures and standards, providing high-level consultancy services and capacity building at the national level. NISG is constituted under a Public Private Partnership model with a view to combine the immense potential and resources of the private sector with the principles of accountability and transparency of the public sector. The goal of NISG is to lead the nation to a preeminent position in providing integrated online services to the citizens and businesses.

National Institute for Smart Government (NISG), Hyderabad has requested STPI to provide consultancy services to set up Programme Management Unit (PMU) for the National e-Governance Plan at DIT, Electronics Niketan, New Delhi. This project has planned in two stages; one is general infrastructure and second is IT infrastructure.

STPI's role

STPI-B has to provide Project Management Consultancy services in identifying right technology and economical solution to procure IT infrastructures like Laptops, desktops, projectors, fax and printers, video conferencing solution, servers, software packages which includes project management tool. STPI will support in configuring the servers and identifying the servers and related applications along with the vendor.

Current Status

Currently this project is under progress, total project may get over by end of May 2006.

Karnataka State Wide Area Network (KSWAN)

The GOK has setup the state Data centre in Bangalore and intends to roll out e-governance applications upto the village/hobli level. In order to facilitate the rollout, GOK has identified setting up the core network connectivity as a mission mode project. The proposed state wide area network envisages establishing video, voice and data communication across the state, district and taluk using hybrid technologies like leased lines, VSAT, Wi-Fi, Wi-Max etc.

Current Status

STPI has bid for the Tender for consultancy services for Karnataka State Wide Area Network (KSWAN). The tender evaluations have been completed and STPI has been awarded the tender.

Bangalore IT.in 2006

Asia's largest IT and Telecom event – Bangalore IT.In 2006- an initiative of the Karnataka Government in partnership with Software Technology Parks of India Bangalore (STPI-B), was inaugurated by Shri Dharam Singh, then Chief Minister of Karnataka.

Software Technology Parks of India has been regularly participating in Bangalore IT.in since 1998. During the year 2006, STPI was the co-host of the event.

About 300+ companies, 15 countries and 15 states participated in the event. Around 160,000 general visitors and 50,000 business visitors visited the show.

STPI Pavilion at Bangalore IT.in

STPI had taken a whole pavilion under name "STPI" for STPI member units. The objective in doing so was to provide ample opportunity to the units, especially the SMEs, to grow and showcase their strengths and achievements and promote their products and services to the visiting Business Delegates and General Public.

Conferences and Trade Seminars

The event also featured 6 major conferences cover in 4 days which attracted over 1500 conference delegates for the sessions. STPI-B had coordinated for all these conferences in association with GOK. Highlights of this year's event was Conferences and Seminars on "Beyond Bangalore", "Emerging New IT Clusters", "IT Clustering in the UK", "IT Services Management", "HR in IT: Managing People – Driving Business", "Bridging Barcelona and India", "Innovating in India for India by India" in association with Tiecon and "Accelerating Technology Incubation in the Semiconductor Space" by Indian Semiconductor Associates (ISA).

STPI, Chennai

- STPI-Chennai has organized the preliminary discussions with the IT industry and the Department of Information Technology for the formation of IIIT (International Institute of Information Technology) in Chennai.
- Hon'ble Minister, MCIT has laid the foundation Stone for the STPI Facilities centre at Chennai on 10th February, 2006. Approximately 1.0 lakh sft. of state of the art incubation space is under construction and expected to be completed by December 2006.

- A two day seminar on Embedded System in Automotive and Industrial automation organized by STPI Chennai and ESAI, Embedded System Association of India (Formally EFI) on 24th and 25th February, 2006.
- STPI Chennai has coordinated the formation of eWit(Empowering Women in Information Technology) for better participation of Women in IT and organized a meeting on Enhancing the Share and sustainability of Women in Information Technology on 8th March, 2006 (World women's Day).
- STPI-Chennai has organized seminars on Enhancing Students Absorbability through PSP an Overview Seminar and Discussion on Industry – Institute Partnership was held in Trichy in association with Software Quality institute Chennai.
- Conducted a Seminar and Selection of students for Medical Transcription Business and e-Publishing at Chennai, Vizhupuram, Namakkal, Trichy in association with e-Mitraa and e-Lipi the consortium nurtured by STPI-Chennai.
- Organized a one day workshop for IT industry on "Towards Zero Defect delivery, the PSP/TSP way" in association with SQI on 23.03.06.
- Participated in India soft 06 conducted during the month of February, 2006.
- Visit of Mr. Robert Bosch to STPI IT Park Coimbatore and MOU signing of CTS to take up spaced in the IT Park.

STPI, Noida

- Development and Marketing Activities for "Trade Net Portal"
- STPI – Noida has launched TradeNet Portal in March-2006. STPI being neutral player has come up with idea of an electronics marketplace – TradeNet for SMEs in IT and ITES, so they can come together and share the benefits of the business delivery model. Trade Net provides a simple, convenient, and automated solution to find, evaluate, buy, sell bid online, manage and pay online for outsourced services, delivering compliance, visibility, performance improvement and savings.
- Publication of Quarterly Newsletter for promoting "Trade Net Portal"
- For dissemination of information among Trade Bodies, IT/ITES and STPI-Centers, a quarterly newsletter for promoting Trade Net is designed by

STPI-Noida. Its inaugural Volume – 1 is titled as "Future of SMEs in BPO" which is focused on those SMEs who are venturing into BPO Sector.

STPI, Hyderabad

- On 27th January 2006, a Road show was held at JNTU Kakinada to explore the potential of IT Industry at Kakinada, East Godavari district, Andhra Pradesh.
- Fourth Pravasi Bharatiya Divasa (PBD) was held in Hyderabad from 7-9 January 2006 at the Hyderabad International Convention Centre (HICC).
- STPI-Hyderabad participated in GITEX, held on 11-13th January 2006 at Hyderabad International Convention Centre (HICC).
- As a promotional and branding initiative STPI, Hyderabad in Association with the State Government of Andhra Pradesh has released a CD to highlight the IT Industries performance in the State of Andhra Pradesh. This would showcase the contribution made by STPI, Hyderabad for further investments and growth of IT Sector in the State.

STPI, Rourkela

The centre has been promoting IT in this region by organizing various seminars and workshops from time to time including Career fair with Internet mela, seminar on Looming Security Challenges, workshop on Cisco networking. The STPI Patna and STPI Ranchi project implementation is successfully looked after by this centre.

STPI, Ranchi

STPI Ranchi centre is operational since January 2004 with fully functional HSDC facility. Now the STPI International Incubation Facility Centre (IIFC) building construction is complete and the facility is ready for inauguration. The STPI Ranchi IIFC is having 150-seater incubation with modern computing facility, office automation, business centre and high-speed data communication.

The ready to use facility is in high demand as the unit gets high end computing facility, server facility, 24 hour electricity with DG backup, 24 hour security, common office facilities like all types/sizes color/black white printer/plotter, EPABX, Fax, Copier, Video conferencing, Fax, good working environment, refreshment and recreation facility under one roof.

Such modern infrastructure will enable the start up units to start their business with nearly zero capital investment and operate from day one.

STPI, Kolkata

Inauguration of STPI-Siliguri: STPI-Siliguri was inaugurated on 14th, February 2006 by Hon'ble Minister, Shri. Manabendra Mukharjee, Information Technology and Environment Depts, Govt. of West Bengal.

STPI, Bhubaneswar

- STPI-Bhubaneswar started first commercial VSAT services in the State and bagged a couple of prestigious VSAT projects. STPI has successfully implemented VSAT Networks at 15 locations of Orissa Mining Corporation (OMC), Bhubaneswar for roll out of their ERP Projects where all of their remote mines are connected with their Head Quarter, Bhubaneswar as per their "Go Live Project".
- STPI-Bhubaneswar has also successfully completed VSAT connectivity of connecting all 30 district Head Quarters of Orissa for Orissa Primary Education Program Authority (OPEPA) for their "e-Shishu Projects.
- Conducted Workshop on "International Call Centre and BPO" for facilitating SME and start up units during the year 2006.
- During this period, a new infrastructure was added in STPI facility. An Incubation Centre comprising 10 modules of different sizes equipped with Internet, UPS, EPABX, Access Control and other modern facilities was made operational at Fortune Towers Office. The facility got good response from industry as the Incubation Centre is 100% occupied by Small STP units.

New STPI Centres

STPI opened a new centre at Berhampur in Orissa in collaboration with Government of Orissa.

International Projects

National Data Centre Project- Lao PDR

Under the bilateral cooperation agreement on ICT between Government of India and Government of Lao PDR, various ICT projects have been taken up in

Lao PDR with financial and technical assistance from India. National Informatics Centre (NIC) was the nodal agency for establishing National data centre at Vientiane, Lao PDR which was one among the agreed cooperation.

STPI's Role

STPI acts as implementing agency to setup National Data Centre at Lao PDR.

Current status

STPI carried out the feasibility study at Lao PDR for establishing the Data Centre. Subsequent to the Feasibility Study and its acceptance by NIC, STPI initiated the procurement through International Tendering. The tendering was completed during the year 2004-05 and the project implementation was started in the month of March 2005. The project for setting up of National Data Centre at Lao PDR was completed and operational during the month of June 2006.

BIO – IT Park

- The Department of Information Technology (DIT) and the Department of Biotechnology (DBT), Government of India (GOI) are promoting India as a global hub for IT solutions (products and services) within the health sciences sector by encouraging activities in the Bio-IT sector.
- The objective of setting up the Bio-IT Park is to address the IT related needs of the health sciences industry and to attract investments (domestic and foreign) in the related fields. STPI has been identified as a nodal agency by DIT for implementation of the project.
- The Bio-IT Park is being implemented in the form of Public Private Partnership model. The private promoter would be a majority stakeholder in the park. The STPI on behalf of DIT and Dept of Biotechnology would be a minority stakeholder of the park. The concerned State Government would also be a stakeholder in the park. The park is proposed to be set up in an area of around 100 acres.
- The selection of the private promoter to partner with STPI for setting up of Bio-IT Park has been undertaken through a two stage selection process of RFQ(Request for Qualification) and RFP (Request for Proposal). The selection process has since been completed and the Evaluation

Committee has short listed the bidder to partner with STPI for setting up the park.

India. in

STPI is implementing the project for 'India.in' portal and associated services including free email and web hosting services. The free e-mail service under the India.in portal would be provided in Indian regional languages along with Hindi and English.

Objectives of India. in.

- To make www.india.in the portal of choice for all those seeking India related information. It will be a citizen centric portal offering citizen centric services like Free E-mail, Basic Web hosting services.
- To provide cyber identity to every citizen of India irrespective of English literacy.
- To provide free web-based my name@india.in email services that would give visibility and Indian identity to the Indians in cyberspace.
- Economic development of the SME Community by offering low-cost business mail services, information repository, web-hosting, application/data hosting, content provisioning etc.
- The services will be menu/template driven based applications Hosting, Communication tools, Shopping cart, Marketing tools, CRM making it hassle free for web business.
- The portal services would include menu / template driven based applications hosting, communication tools, shopping cart, marketing tools, CRM etc enabling it to provide hassle free environment for web business. The portal applications would include discussion forums, chat rooms, news updates, search engine and e-commerce functionality.
- STPI has formed a Joint Venture Company with Mahanagar Telephone Nigam Limited (MTNL), named MTNL-STPI IT Services Limited to implement the India.in portal and associated services. MTNL with its huge customer base would bring in the requisite expertise in management and servicing end users which is vital for the success of India.in.

The necessary formalities for the creation and the JV has been completed and STPI is working in close co-

ordination with MTNL to implement the portal and make it a success in achieving its objectives.

National Internet Exchange of India (NIXI)

A state-of-the art National Internet Exchange of India (NIXI) has been set up to ensure that the Internet traffic which originates within India and also has destination in India, remains within the country, resulting in improved traffic latency, reduced bandwidth cost and better security. Four Internet Exchange Nodes have been operationalised at Noida (Delhi), Mumbai, Chennai and Kolkata, and as many as 28 ISPs connected with these nodes and traffic of 1.2 gigabit per second is exchanged.

Society for Applied Microwave Electronics Engineering and Research (SAMEER)

SAMEER was set up in the year 1984 under the then Department of electronics, Government of India with a broad mandate to undertake R&D work in the areas of RF/Microwave Electronics, Electromagnetic Technology and its related areas.

At present SAMEER has three Centres – one each at Mumbai, Chennai and Kolkata specializing in the areas of RF and Microwaves, Communication, EMI/EMC, Antenna and Millimeter wave technology respectively. Since its inception, SAMEER has focused its activities in various areas of microwave engineering and electromagnetic technology. SAMEER has already been working in industry oriented developmental work on microwave and electromagnetic technology in the light of globalization policy of the Government of India.

It has been the endeavour of SAMEER to be a centre of excellence in the area of its interest. Its focus is on creating expertise in the area of core competence. It continues to focus on the core R&D through in-house technology development keeping abreast with technology in today's relevant global scenario. At the same time the expertise attained is put to use by taking up sponsored activities for generation of wealth for the nation.

Some of the state of art areas of research includes High energy Linear Accelerators, Radar Systems Microwave and RF Systems, High Power Systems, Communications, Atmospheric Remote Sensing, Photonics, EMI/EMC, Millimeter wave, Thermal Engineering and Antenna.

Achievements during 2006-07

Multi Frequency Phased Array Sodar for NARL Gadanki : SAMEER has developed a new multifrequency phased array sodar system for profiling of atmospheric boundary layer wind and turbulence. It transmits ten frequencies starting from 1880 Hz to 2500 Hz with frequency increment of 80 Hz to improve the height coverage. This system typically gives wind profiles upto 800m with a resolution of 20 m. It can measure maximum wind speed upto 30m/s. SAMEER has designed developed and installed the system. It makes use of special antenna and acoustic enclosure design for clutter suppression as well as for protection from rain and weather.

Six MV Medical Linear Accelerator Machine : The Type Approval for the 6 MV Medical Linear Accelerator machine JV-1 was received from Atomic Energy Regulatory Board (AERB) in august 2006 The type approval was given on the basis of the safety and performance compliance as per IEC International Standard for radiation and non-radiation aspects after the Radiation tests and measurements were carried out by RP&AD - BARC and AERB. The 6 MV Medical Linac Integrated Oncology System installed by SAMEER at Mahatma Gandhi Institute of Medical Science (MGIMS) hospital at Sevagram, Wardha has received authorization for clinical use from AERB. The clinical use of the machine has commenced from October 2006.

15 KW RF Dryer : SAMEER has developed technology for Radio frequency Dryer. The frequency of operation is 27.12 MHz. SAMEER has conducted extensive trials on the machine for different applications and have proven the effectiveness of this technology for various applications like dehydration of vegetable, drying of raw materials for instant food mixes, tobacco leaves, chemical powder, noodles, drying and aging of raw rice etc. A RF dryer for food processing with 15 KW capacity has been developed for Ministry of Food Processing industries (MFPI) and is installed at Laxminarayan institute of Technology (LIT) Nagpur.

Packaging of Photonic Devices : The infrastructure for packaging of optoelectronics devices is established. The laser weld equipment for packaging of laser diodes is installed. Initial trials on the laser diode packaging and process optimization are in progress. Optoelectronic devices like optical power

splitter, modulator and laser diodes are packaged using the established facility. The 1x8 optical power splitter based on silica on silicon technology and developed by CEERI, Pilani was packaged. In addition, research group from IIT Chennai was provided technical support in fiber attachment of their devices.

Optical Waveguide on Polymers : Polymers are one of the most promising materials for photonics applications due to its ease of processing and low cost. The scope of the activity is to carry out study of polymers useful for optical waveguiding, fabricate the optical waveguides and characterize them. The polymer materials can be used for fabricating passive as well as active (thermo-optics and electro optics) photonics devices. Straight Channel Waveguides in SU-8 as core and PMMA as cladding are fabricated on silicon substrate. The measured propagation loss is of the order of 3dB/cm at 1310 nm wavelength. This sort of waveguides would be more useful in application like waveguide sensors for antibody detection, enzyme analysis where loss is of secondary concern.

Design and Development of hardware and software for collection of Electromagnetic signatures for Digital equipment : The electromagnetic emanations from devices and equipments were viewed as hazardous subjects but the theory that, they can actually carry information has been contemplated in the world war time. There have been ingenious demonstrations to prove that EM emanations can be tapped for information. The project undertaken starts with the consideration of EM radiations as EM signatures, which can be mined for information. Both on-line and off-line approach of eavesdropping emanations from VDU has been demonstrated. A wide band EMI Receiver has been used for on-line approach of eavesdropping. A high-speed digitizer and embedded controller were used for off-line analysis. The hardware required for EM signature processing and the software for signature analysis and data re-construction have been developed by SAMEER.

Four MV Medical Linear Accelerator : Type approval for 4 MeV Medical Linear Accelerator machine Jeevan Jyoti-2 has been received from Atomic Energy Regulatory Board (AERB) of Department of Atomic Energy (DAE). The Jeevan Jyoti -2 machine has been commissioned in GMCH, Chandigarh.

Development of Ultra Wideband Multiridge Waveguide and Horn antenna: Conventional rectangular waveguides are known to give bandwidth of 1.5: 1. This bandwidth being limited, ridged waveguides have been developed for wider band operation. Depending upon the type of application such waveguides are known to offer bandwidths much wider than conventional rectangular waveguides. Standard double-ridged waveguides offering 2.4:1 and 3.6:1 bandwidths are available today which are used for design of double-ridged horn antennas. Based on theoretical studies, multiple ridges (3 Pairs of ridges) were incorporated in standard 2.4:1 bandwidth double ridged waveguide, and a prototype model of multi ridge horn antenna was designed, fabricated and experimentally evaluated. The bandwidth extended to 8.22:1 thus enhancing the existing bandwidth by about 3.5 times for the same aperture. The concept is thus verified. The operational bandwidth is from 1.8-14.8GHz.

Digital Signal Processing Laboratory Facility : Digital Signal Processing is key component of any RF communication system. A state of DSP infrastructure lab catering to current technology like complex FPGA/CPLD systems and high-speed DSP processors systems has been set up. Under this activity the following have been developed a) FPGA based launcher control board b)MIL 1553 RT protocol implementation in DSP TMS5502 and c)Frequency hopping synthesizer for 902-928 MHz band.

Technical assistance to L&T for C and S-band transmitter : One C-band radar and one S-band radar are proposed for up gradation of the tracking network of Satish Dhawan Space Centre, Sriharikota. The Radars are being built by L & T for ISRO. SAMEER is providing technology and would be associated for the development and manufacturing of the high power IRIG coded Transmitters with L&T. The hard tube modulator has been tested on dummy load for 35 KV/50A pulsed conditions. Integration of prototype C-band transmitter system has been completed.

Differential phase shift circulators : A High power 4-port S-band ferrite circulator capable of handling 6MW pulse power and 5KW average power has been designed and developed indigenously. The high power tests have been completed and results have been very encouraging.

25 KW RF Dryer for textile industry : SAMEER has successfully completed the development of 25 KW RF dryer for textile industry and installed at M/S MAMCO Ltd, Bhiwandi Maharashtra for yarn processing. This system is fully automatic; user friendly and recently 1000 hrs of continuous operation was achieved. The efficiency of this design is 25% more than the similar imported machine.

Study on Frequency Selective Surface (FSS) for out of band antenna RCS reduction : Different geometries of FSS have been designed, fabricated and tested for pass band characteristics around 10 GHz. Test results are in agreement with the theoretical results. A conical shaped radome has also been designed, fabricated and tested. Test results are encouraging.

X – band Monopulse Comparator : A project has been undertaken for design , development and delivery of a X- band comparator for use in LCA. The comparator has been designed , simulated and fabricated.

Indium tin oxide coating on glass and plastics: SAMEER has developed technology and pilot plant facility for coating Indium Tin Oxide on glass and plastics for providing EMI shielding. This technology is used to reduce the EM radiation from the monitors.

Projects Continued/Initiated

Linac Infrastructure at Kharghar, SAMEER Navi Mumbai : The linear Accelerator based cancer treatment equipment (Medical Linac) has been SAMEER's strength. Preparing to meet the increasing demand for more machines, SAMEER is establishing a separate facility for the Medical Linac at the Kharghar Campus of SAMEER at Navi Mumbai. Foundation stone was laid for the Medical Linac laboratory at Navi Mumbai by Secretary, Department of Information Technology on 22nd May 2006. This laboratory will facilitate assembly, integration, testing and quality assurance of Linac Tubes.

EMI/EMC : SAMEER has a strong presence in the area of EMI/EMC. SAMEER offers both facilities such as CE,CS,RE & RS and for testing to standards as well as consultancy services in this area. This is continuing activity at all the three centres.

Compact Antenna Test Range Facility at SAMEER Kolkata : A project has been approved by Dept. of

Information Technology for establishment of Compact Antenna Test Range (CATR) facility at SAMEER Kolkata. The CATR facility is a high tech antenna measurement facility needed for accurate characterization of antenna subsystem for different applications. Establishment of the CATR facility will help SAMEER to provide antenna test and measurement services for civilian and defense applications including production agencies where a large number of high performance antennas are required to be evaluated. The CATR facility will enhance the R & D potential of antenna groups in SAMEER and will enable us to undertake complex design problems in antennas, radome and RCS studies. Government of West Bengal has allotted a land for construction of laboratory to accommodate CATR facility.

Millimeter Wave R & D Facility at SAMEER Kolkata : A project has been approved by Dept of Information Technology for establishment of Millimeter Wave R & D facility at SAMEER Kolkata. This will be a very important R & D facility for design and development of critical millimeter wave subsystems and systems. The aim at this project is to establish design, simulation, fabrication and measurement facilities for MMW subsystems and systems and creation of a core expert group in millimeter wave technology to undertake research, design and development work in the millimeter wave area. It will also provide design, development, test measurement and consultancy services in millimeter wave technology for important applications.

Six MV Medical Linear Accelerator Machine : Siddharth –2 The 6 MV medical linear accelerator machine has been integrated and tested at SAMEER. The machine will be installed and commissioned at Adyar Cancer Institute Chennai. Approval has already been obtained for commissioning of this machine.

DOEACC

DOEACC Society, an autonomous body of Department of Information Technology has 10 Centres at Aizawl, Aurangabad, Calicut, Chandigarh, Gorakhpur, Imphal, Srinagar/Jammu, Kohima, Kolkata and Tezpur/Guwahati and 3 Branch Offices at Delhi, Lucknow and Shimla with its Headquarters at New Delhi. DOEACC Society is the only professional examination body in India, which accredits institutes/organizations for conducting courses particularly in the non-formal sector of IT Education

and Training. It is primarily engaged in the development of industry oriented quality education and training, establish standards for Examination and Certification in the field of IECT.

The IECT education and training programmes of the DOEACC are categorized as follows:

- IECT Education and Training for fresh students
- Continuing Education (Refresher training / retraining / upgradation) for working professionals through Short-Term / Long-Term Courses.
- Training of Trainers at all levels and
- New courses in emerging areas of IECT.

DOEACC Centres : Erstwhile CEDTI Centres have been conducting long-term courses, which are not offered by the Universities/Institutions in the formal sector. These courses are at Post-Graduate level in Electronics Design and Technology and Diploma Level in Electronics Production and Maintenance, Electronic Engineering Courses affiliated to various Universities are also being offered. DOEACC Centre, Imphal, in the North-Eastern Region, offers Diploma Programmes approved by respective State Governments in Electronics Engineering and Computer Science and Engineering. The Centres are also conducting short and long-term programmes to meet the need of respective regions. DOEACC Centres at Kolkata and Chandigarh have been engaged in activities relating to IT education and training, data processing, software development and consultancy projects. Almost all the DOEACC Centres are engaged in long Term and short Term courses in the emerging areas and are per the local needs.

DOEACC Society has a total strength of about 610 employees at 10 Centres and 3 Branches at 15 different locations. Most of the DOEACC Centres are located in under developed region of the country and have strength in infrastructure and delivery apart from examination and certification activity.

The Objectives of the Society inter-alia includes:

- To generate quality manpower and develop skilled professionals in the area of Information, Electronics and Communications Technology (IECT) and allied, by providing world-class education and training and accreditation services.
- To provide continuing support to learners and

trainers through active design and development of innovative curricula and acquisition of content aligned with the dynamically changing IECT scenario.

- To establish a quality system of examination and certification that is globally recognized and provides a fair assessment of the competency of students.
- To establish standards in the areas of IECT and to develop markets in the emerging areas.
- To develop entrepreneurs and provide IECT based services to users.
- To encourage and nurture industry academic interaction through inter-disciplinary cooperation amongst scientists, technocrats, administrators and entrepreneurs.

e-Governance Implementation in DOEACC

DOEACC Society has been practicing e-Governance for both its internal as well as external clients. The Society has already computerized its internal processes for data processing such as processing of students registration and examination application forms; processing of results; processing of application for accreditation, etc.

A new website of DOEACC (www.doeacc.edu.in, www.doeacc.ac.in) was made operational in October 2005 based on open source JAVA. The website has made provisions for students and institutes to view the details of examination time table, examination venues, admit card details, examination roll numbers and examination results. Besides, norms for DOEACC accreditation, the Rating status of the accredited institutes and the detailed list of accredited institutes are also available on the website with provisions for users to query the details of Institutes on location basis. A facility for development of a database on the employment status of DOEACC qualifiers is also available at the DOEACC website.

DOEACC Scheme on Computer Courses

The DOEACC Society, since its inception in 1994 had the mandate to implement the DOEACC Scheme on Computer Courses, a joint scheme of the then Department of Electronics (DoE), now DIT and All India Council of Technical Education (AICTE), to generate qualified manpower in the area of Information Technology at the National Level by utilizing the facilities and infrastructure available with the institutions / organizations in the non-formal

sector. Under the Scheme the following Computer Courses are offered:-

'O' Level	Foundation Level Course
'A' Level	Advanced Diploma Level
'B' Level	MCA Level
'C' Level	Equivalent to M.Tech Level (under consideration of AICTE)

O/A/B Level courses are recognized by MHRD for the purpose of employment.

Till date about 5.8 lakh candidates have registered, and about 1.14 lakh candidates have qualified the various DOEACC Computer Courses at O/A/B & C Level.

The Long Term Courses offered by DOEACC Centres are as follows:-

- M.E / M.Tech in Electronics Design Technology (2 years) (Aurangabad, Gorakhpur, Calicut)
- M.Tech in Embedded Systems (2 years) (Calicut)
- Masters in Computer Applications (MCA) (Calicut)
- 3 year Diploma in the following areas:
 - Electronics Production and Maintenance (Aurangabad)
 - Electronics Engineering (Imphal)
 - Computer Engineering (Imphal, Aizawl)
 - O/A/B/C Level courses under DIT-AICTE Scheme

The continuing education programmes (Short-Term courses) offered by DOEACC Centres area-wise are listed below:-

- **Electronics Design Technology**
 - Embedded System
 - VLSI Design
 - PCB Design and Fabrication
 - Surface Mounted Device Technologies
 - Fiber Optics
- **Information Technology**
 - Computer Science and Applications
 - Computer Hardware and Networking
- **Manufacturing Technologies**
 - CAD and 3D Modelling
 - CAM / CAE Tools

- Maintenance Engineering
- Consumer Electronics
- Telecom and Office automation

- **Process Control etc**

Entrepreneurship Development Programmes

Under this programme, the Society is training about 9500 candidates annually. The new initiatives undertaken by the DOEACC Society during the Xth Five Year Plan are as follows:-

- **ITES – BPO Courses in Customer Support**
- *(DONER in NE, DIT in J&K, Self-Supported – Gorakhpur and Kolkata)*
- **Online exams- Course in Computer Concepts (CCC)**
- *(Jointly with NIC)*
- **Bioinformatics - O / A / B level**
- **Computer Hardware Maintenance and Networking Scheme – O/A Level**
- *(Jointly with MAIT)*
- **Regional Institute of E-learning and Information Technology (RIELIT), Kohima**
- *(DIT Supported under PM programme)*
- **Computer and Soft Skills for Nurses**
- *(DONER Supported)*
- **Training of teachers in E- learning**
- *(DIT Supported)*
- **Embedded System Design / VLSI Design**
- *(DIT Supported)*
- **Animation and Multimedia – O / A level**
- *(DIT Supported)*
- **Information Security (Short term)**
- *(DIT Supported)*
- **Information Storage and Management**

Under ITES-BPO Customer Support Programme, some of the DOEACC Centres including the Centres of NE Region offered a course of 160 hours duration consisting of Computer Skills, Soft Skills and English Language Skills. Till date, the Society has trained about 3500 candidates including about 1300 Women and about 1350 including 675 Women have been placed. The DOEACC Centre, Aizawl has trained 210 Nurses in Soft and English Skills and Telemedicine concepts. 110 out of 210 have already been placed in the leading Hospitals in India and abroad.

The Society has also initiated online examination of Course in Computer Concepts (CCC) jointly with NIC. The examination is open to all. 387 CICs in North Eastern Region have been accredited and approximately 30,000 candidates have been qualified. About 5000 candidates are appearing in the examination, conducted thrice a year. Some of the State Governments i.e. Government of Gujarat recommended this course for their employees.

The Society has also launched the DOEACC Scheme on Bio-informatics courses in August, 2003. Under this scheme 1290 candidates have registered at O/A and B Level and around 340 candidates have qualified the various Bio-informatics courses at O & A Level and 55 candidates have been placed till date.

The DOEACC Centres Aurangabad and Kolkata have trained 120 teachers each in Phase-I under the programme “Training of Teachers in e-learning”, which was supported by DIT. The same programme shall be replicated at DOEACC Centre, Calicut, Gorakhpur and Imphal in Phase-II.

The courses in Embedded System Design and VLSI Design have been launched at some of the DOEACC Centres.

DOEACC Scheme for SC/ST/OBC/Female/Physically Handicapped and other Economically Weaker Sections

The DOEACC Society is contributing towards upliftment of under privileged sections of the Society by encouraging women, SC/ST and other economically weaker sections candidates to undergo the Society's courses. The society has got a large number of candidates belonging to the SC/ST/OBC and other weaker sections of the society including female candidates enrolled and qualified in the courses. DOEACC Society has implemented the following scheme for the financial assistance to the Women/SC/ST/OBC and other weaker sections of the Society.

Scholarship Scheme to SC/ST/Physically Handicapped and Female Students

The Society has introduced a Scholarship Scheme for SC/ST/Physically Handicapped and Female Students who are pursuing O/A/B/C Level of courses of the DOEACC Society as a full time course through an Accredited Institute authorized to conduct the DOEACC Courses. 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 Rs.1 lakh per year from all sources.

The amount of scholarship shall be four times the examination fee paid per module paper i.e. Rs.350/- as at present as under:-

‘O’ Level - Rs.5,600/- (in two instalments)

‘A’ Level - Rs.14,000/- (in three instalments)

‘B’ Level - Rs. 21,000/- (in four instalments)

‘C’ Level - Rs. 21,000/- (in three instalments)

The Number of SC/ST and female candidates registered during April, 2006 to December, 2006 are 287 and 12, 411 respectively.

Projects in North Eastern Region

Regional Institute of E-learning and Information Technology (RIELIT), Kohima

The Regional Institute of e-learning and Information Technology (RIELIT), Kohima was inaugurated on October 29, 2003 ; with an outlay of Rs. 20 crore, with land provided by the State Government of Nagaland. Presently RIELIT is functioning from rented premises in Lerie Colony, Kohima. The own building of RIELIT is coming up on 15 acres of land in Merama village adjacent to Nagaland University. The construction work is being taken up on priority during the current year.

The Regional Institute of e-learning and Information Technology (RIELIT) has the prime objective to create quality manpower in the area of Computer Science and Information Technology and related disciplines in the non-formal sector, making available industry ready professionals and to promote and facilitate education in e-learning mode. The Institute will offer training programme to improve employment opportunities and facilitate availability of quality IT manpower, which will lead to enhanced employability of the local youth pursuing the IT courses in NE Region.

The Institute is planning to have State-of-the-art infrastructure for providing e-learning solutions including content development and delivery, with a facility to train about 500 students per annum by 2006-07. A Placement Cell to take care of the requirements of placement of the local youth engaged in IT profession has also been set up.

Courses offered at the Institute

- DOEACC ‘O’ & ‘A’ Level Courses
- Course on Computer Concept (CCC)
- IT Enabled Services (ITES) / Business Process Outsourcing (BPO) Training – Customer Care.
- Short term training programmes for industry ready professionals.
- ‘C’ & ‘C++ Programming and JAVA
- VB6 Programming
- PC Assembly and Maintenance
- Multi-Media

Computer Lab and Internet Facilities

Presently, the institute has one of the best infrastructure including state-of-the-art Computer facilities. It has got two laboratories. The Institute is having 3 Xeon servers (1 Linux server, 1 Windows 2003 server and 1 Proxy server). All the servers are of IBM make e225 series. The Institute has its own Intranet. It is also equipped with VSAT connectivity of 128 kbps from ERNET for access to Internet 24 hrs a day, 7 days a week and 365 days in a year. Wireless LAN for internet connectivity has been provided using 802.116 protocol.

e-learning

To facilitate students to undertake the DOEACC ‘O’ Level course at their own suitable speed and time; ‘O’ level course material has been provided on intranet deployed over “MOODLE” Learning Management System (LMS) a free shareware. The course material has been developed by IISC, Bangalore for DOEACC.

e-learning Advantages

- Reachability
- Localisation
- Affordability
- Increased Retention
- Just-in-time
- Quality Content
- User Friendliness
- Security

The institute has been offering following courses from July, 2004 onwards through rented premises:

Long Term Courses

- DOEACC "O" Level Course (67 students completed and 27 students undergoing training)
- DOEACC "A" Level Course (15 students undergoing training)

Short Term Courses

- ITES-BPO Call Centres Agents Training Programme (102 students completed training)
- "CCC" Course on Computer Concepts (146 students completed and 37 students are undergoing training)
- "C" Language programming (4 students completed training)
- Core JAVA (2 student completed training)
- Internet Web Designing (03 students completed training)
- PC Assembly and Maintenance (48 students completed training)

Placement of Qualifiers

So far, about 406 students have been trained including 102 students for ITES-BPO. About 47 qualifiers have already been placed in ITES-BPO Centres across the country. ITES-BPO industries have been placed in various BPO centres across the country.

RIELIT Extension Centre at Nagaland, Gandhi Ashram, Chuchuyimlang, Nagaland.

RIELIT Rural Extension Centre at Nagaland was inaugurated on 7th August, 2006. DOEACC 'O' level (7 students) and CCC courses (20 students) are being conducted at the Extension Centre. Internet facility is being provided to the local public and SBI, Chuchuyimlang for transfer of data facility.

ITES / BPO Training at Jammu and Kashmir

Under the reconstruction plan drawn up for the State of Jammu and Kashmir, it was envisaged to support the training in ITES / BPO under same lines as in North East region through DOEACC Centres at Srinagar and Jammu. 2400 students would be trained in 3 years period (800 per year) covering all the 14 districts of J&K State. In the first year, 800 students, in batches of 25, are being imparted training through a training program of 160 hours duration, conducted two and a half hours a day, over a period of 3 months. The

training programme has been launched since 24st February 2005 at Srinagar and 28th February 2005 at Jammu.

Status at J&K Centres of ITES-BPO Training Programme for the year 2006-07

Trained	- 556
Placement	- 72
Total Outlay	: Rs. 288 lakh
DIT Contribution	: Rs. 216 lakh (for a period of 3 years)
Funds released	: Rs. 144 lakh (Rs. 72 lakh each in Jan 2005 and Jan 2006)

Scheme on Hardware courses

According to Manufacturers' Association for Information Technology (MAIT) the apex body representing - Ernst and Young Study 2003 the computer hardware professionals currently in India are estimated to be 0.24mn, while the computer hardware professionals required by the year 2010 is 2.4 million. Hence there is likelihood of a wide gap of hardware professionals, which needs to be bridged. Further, PCs are entering in a big way in Class B and Class C cities in Offices, Banks and Postal services in India, apart from huge demand in the home segment thereby necessitating more and more hardware professionals.

A new scheme under DOEACC for computer hardware courses has been launched by DOEACC Society in line with existing DOEACC scheme in Computers and experience of CEDTI Franchising Scheme (CFS) of erstwhile CEDTI in hardware courses. The scheme has been launched during 2006-07 in association with MAIT.

The objective of the scheme is to generate quality manpower for computer hardware maintenance and networking by utilizing the facilities and expertise available with training institutes/ organizations in the non-formal sector.

The eleven DOEACC Regional Centres will be offering these courses in addition to the private sector computer training institutes/ organisations, subject to meeting norms and criteria. They would be granted accreditation for specified levels of courses ranging from Diploma in Computer Hardware Maintenance (CHM) – 'O' Level and Advance Diploma in Computer

Hardware Maintenance and Networking (CHM) – 'A' Level.

Centre for Materials for Electronics Technology (C-MET)

Centre for Materials for Electronics Technology (C-MET) was set up as a registered Scientific Society in March 1990 under the then Department of Electronics (now Department of Information Technology) as a unique concept for development of viable technologies in the area of materials mainly for electronics. C-MET is operating through its laboratories situated at Pune, Hyderabad and Thrissur with Headquarters at Pune. The objectives of C-MET are to:

- establish technology upto pilot scale for a range of electronic materials and transfer the same to industry for commercialization.
- establish relevant characterization facilities.
- undertake applied research activities in the area of its operation.

C-MET's mission is to develop knowledge base in electronics 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 economy.

During the 10th Plan period, C-MET continued to work in the selected areas namely Ultrahigh Pure Materials and Electronic Packaging and emerging area namely Optoelectronic materials and Sensors and Actuators to develop unique expertise in India.

The salient features of C-MET achievements during 2006-07 (till December, 2006) are

Ultra-high Purity Materials

- Four cycles (1 cycle = 15 passes) of Cadmium zone refining has been completed.
- The samples given to NCCCM, Hyderabad for ICPMS analysis for the estimation of impurities.
- The process parameters will be studied after obtaining analytical results.
- Process parameters optimized upto sodium reduction and optimization continued for powder processing.
- CV of 15000 – 16000 lFV/gm and DCL of <0.0005 MA/ lFV achieved on repeating basis.
- 25 Kg Tantalum powder supplied to DMRL.

Electronic Packaging

- Optimized LTCC tape casting slurry composition and prepared defect free trial tapes.
- The tapes were co-fired with 100% Ag paste and its compatibility has been studied. Prepared tapes of 6" x 6" size.
- Optimized 250g batch high dielectric composition systems based on PTFE/rutile/ microfibre glass through sigma mixing process.
- Fine tuning of the microwave dielectric properties of cu-cladded high K substrates have been carried out through ring resonator method.
- 250g batch low dielectric low loss composite systems optimized through sigma mixing process using PTFE as the matrix, fused quartz as the particulate filler and micro fibre glass as the reinforcing agent.
- Cu-cladding over thermo- laminated low K substrates has been carried out through electroless and electroplating process.

Optoelectronic Materials

- The Filter of OG-515 type in 25mm dia was obtained from 50mm blank. The samples sent to ISRO for testing.
- Preliminary experiment on GG-495 glass completed successfully and now the optimization is in progress.
- Optical grade Poly (methylmethacrylate) (PMMA) was synthesized by free radical polymerization at 50 gm batch size and prepared non linear optical (NLO) chromophore i.e., m -Nitroaniline (0 to 30 wt.%) doped PMMA films (thickness = ~80lm) by solvent cast method.
- Second harmonic generation (SHG) study of the films was carried using Nd:YAG laser set-up. The films were poled above the glass transition temperature of PMMA for 15 minutes by applying 10-30 V poling voltage.
- CdS/PMMA was completed and quantum dots of size less than 5 nm were prepared.
- Self supported films of CdS and CdSe /PMMA were prepared and tested for photoluminescence.

The process for preparation of blue, yellow and orange lights was optimized.

Sensors and Actuators

- Inter digital pattern was made on which polyaniline derivatives was spin coated.
- This sensing device was found to be a very good Humidity Sensor.
- The PMN-PT powder was prepared and the phase purity was confirmed using XRD.
- Developed multilayer electrostrictive actuator, evaluation of the same is under progress.
- The LTCC fabrication process is fully developed. A prototype pressure sensor package has been designed and fabricated. A multilayer test package has been delivered to the sponsoring agency.

Electronics and Computer Software Export Promotion Council (ESC)

Electronics and Computer Software Export Promotion Council (ESC), an autonomous organisation under the Department of Information Technology has emerged as the premier nodal agency to promote trade of information technology and Electronics between India and the rest of the world. Headquartered at Delhi, the Council has regional offices at Bangalore, Chennai and Kolkata as well as a representative office in Dubai. ESC has a membership base of over 2300 manufacturers and exporters covering the entire gamut of Electronics, Telecom and Software Industry (these sectors include: consumer electronics, electronic components, instrumentation, telecommunication hardware and services, computer hardware, computer software and information technology enabled services). Starting in 1989, with an export performance of US\$ 200 million, ESC has successfully steered the direction of India's Electronics and Software Export to achieve the export volumes of US\$ 25.8 billion during 2005-06. Under the aegis of the Council, the exports have reached to more than 198 countries across the world establishing the hallmark of India's quality and competitiveness. It is indeed a matter of pride that ESC's members together contribute around 14.33 per cent in India's total export earnings.

ESC provides member exporters the following :

- one-stop source of information on Trade related information and trade facilitation
- Helping hand to members for participation in
 - i) International trade fairs
 - ii) Exhibitions

- iii) Buyer-Seller meets
- iv) Catalogue shows
- v) Business delegations abroad

- A platform between the industry and the government to help members in Policy and procedural related matters
- Implementation agency for the promotional programmes assisted by the Government such as
 - i) MDA : Marketing Development Assistance
 - ii) MAI : Market Access Initiative
 - iii) LRMAFI : Language Related Market Access Facilitation.

ESC New Initiatives in the Information Technology Sector

ESC will be setting up incubation-cum export facilitation and business support centre in New York and Chicago. These initiatives of ESC will provide 20 Indian IT / ITES companies an opportunity to market their products and services in USA.

ESC's Initiatives for ICT Small and Medium Enterprises

With a wide array of membership, primarily comprising of exporting SME's the Council, has been laying emphasis on facilitating the interaction of India SMEs with potential buyers in global market. The Councils delegation to global market in various trade fairs, expositions, buyer seller meets, etc., have SME representation in large number.

During the year, the Council emphasized on market development for small and medium enterprises as a focused effort towards market diversification of IT exports.

ESC continues to actively support exports by small and medium enterprises in the Electronics and IT sector in a big way. The Council creates awareness in foreign markets to highlight the capabilities of Indian SMEs, conduct market studies/ surveys, participation in exhibitions / conferences, organising road shows, buyer-seller meets, etc. The ultimate goal is to assist Indian SMEs in the IT sector to graduate to being global players.

ERNET India

There was a vision that educational institutions in the country would have same technologies for

communication and connections as educational institutions in the developed countries of the world have. It was a vision to look at sophisticated tools such as advance Internet resources, use of World Wide Web, video-conferencing and Virtual classroom and other and technologies to support connectivity for those tools ranging from fibre optic to satellite networks.

ERNET over the period has strived to realize the vision in its true spirit and have continued to extend its presence across the country and extended its frontiers to the PAN European Educational and Research Network. During the year, the vision was demonstrated. ERNET has geared around for innovation through the deployment of easy to use, dependable technology designed to provide innovative way of connectivity. The applications like virtual single classroom, high speed connectivity, video conferencing on Internet protocol have been implemented and available to educational institutions. ERNET has been able to create a climate of change in the network usage in educational institutions in the country. The goal is to deliver the services and content on demand. The average daily traffic on the network is 300 GB.

The structure of ERNET is a simple, highly effective, sustainable and operational structure. The resources generated are being used to upgrade the infrastructure regularly both in terms of technology and capacity. The drive has been to provide secure network to users. The systems installed in different De-Militarized Zones have been created according to desired security levels for different services. The network has been made secure by installing Intrusion Prevention System and SPAM filters. The initiatives have been taken to expand the reach of network and setting of Points of Presence at cities which are emerging as education Hub in the country. Our collaboration with the premier educational and research institutions has resulted in a winning formula that benefit all educational and research institutions in the country.

ERNET's unique abilities, specialized domain knowledge and passion for excellence have allowed us, year after year, to make significant progress in the growth of our organization. As we continue to leverage the full power of our relations with the education and research community, we recommit to, consistently exceeding expectations of our users within the framework of strong business ethics and quality deliverables.



National Informatics Centre

Informatics Centre (NIC) of the Department of Information Technology is a Central Government organization providing network backbone and e-Governance solutions to Central Government, State Governments, UT Administrations, Districts and other Government bodies. It offers a wide range of ICT services including Nationwide Communication Network for decentralized planning, improvement in Government services and wider transparency of national and local Governments. NIC assists in implementing Information Technology Projects, in close collaboration with Central and State Governments, in the areas of (a) Centrally sponsored schemes and Central sector schemes, (b) State sector and State sponsored projects, and (c) District Administration sponsored projects. NIC endeavors to ensure that the latest technology in all areas of IT is available to its users. One of the major strengths of NIC lies in the area of producing quality software at low cost. NIC is working at the grass root levels of the development administration and its expertise is not limited only to software engineering but also lies in the area of implementing it in various sectors of the economy. NIC is constantly in the pursuit of developing state-of-the-art application software related to various sectors, which is customized to the users needs. NIC has also provided IT support to neighboring countries by undertaking various projects related to capacity building, framing e-governance action plan and setting up of data centre.

NICNET- A Government Informatics Network for E-governance

All the 141 blocks in Jammu and Kashmir are connected through Skyblaster VSATs under CIC Jammu and Kashmir project. 68 Treasury and sub treasuries in Chhattisgarh under e-Kosh project are connected with the Skyblaster VSATs to enable the state to carry the online transactions.

162 blocks and the institute of rural development in Chhattisgarh are connected with Skyblaster VSATs to carry the e-governance application under e-Panchayat project. Skyblaster360E VSATs are being installed in 91 SDM locations in North Eastern states under SDM North East project to enable the connectivity at the remote SDM offices. VSATs at 172 NIC districts have been upgraded by DVB VSATs so that they get better performance. Network infrastructure is established over Skyblaster VSAT network under SDO (7) Lakshdweep for e-governance and district high court (18) projects for updating the cause list and the daily orders. E-learning and LMS (Interwise) over the VSAT network (VSATs under CIC, NIC and Gramsat projects) and integration with WAN of NICNET has been tested thoroughly before implementing and many e-lectures are delivered using the same. For setting up a Disaster Recovery Centre at NIC Hyderabad for the backup DAMA order has been placed.

The NIC- ICT infrastructure comprises:

- The satellite based Wide Area Network has about 3000 nodes.
- Integrated Network Operations Centre (I-NOC) for round the clock monitoring of NICNET.
- Internet Data Centre at NIC Hq. with storage capacity of 60 Tera Bytes for hosting websites and databases.
- Data Centres at State capitals for their local storage needs having storage capacity from 2-5 Tera Bytes.
- National long distance high speed (4 /8/16/34/45Mbps) leased data circuits connecting all state capitals.
- Connectivity from State to Districts using 2MBPS leased circuits.
- Metropolitan Network with high speed RF and leased lines.
- About 30,000 nodes of Local Area Networks in all the Central Government offices and State Government Secretariats.
- Video conferencing facilities in state capitals and districts. Total number of locations is 490.
- Internet Gateway bandwidth enhanced to 418 Mbps for incoming and 384 Mbps outgoing traffic with multiple alternate paths.
- NICNET peering with NIXI with a bandwidth of 68 MBPS.



- Certifying Authority for Digital Signature in G2G domain.
- Training facilities at NIC Hqr. and State Government Secretariats.
- Network Security.
- DR Centre at Hyderabad.

Cyber Security

National Informatics Centre(NIC) provides necessary security for NIC network, servers and applications by introducing security appliances at the critical network segments of NICNET (using network firewalls, Intrusion Detection System/Intrusion Prevention System, Application Firewalls), formulation of NICNET Security Policies, restructuring of the network at various levels (headquarters, Ministries and State Centres) to incorporate security at network, introduction of Patch Management and Anti-virus Services, Secure Communication Establishment over Virtual Private Network(VPN)/Secure Sockets Layer(SSL), Scanning of servers for vulnerabilities and hardening, Application Penetration Testing and Auditing and hardening, etc.

Video Conferencing

NIC has set up high quality videoconferencing facility in 490 location using cost effective solutions. Video Conferencing has been extended to districts of Assam, Tamil Nadu, Jammu and Kashmir and Bihar. This facility is extensively being used for monitoring of various projects and discussions. Video Conferencing facilities are being used for conducting remote interactions, inaugurations and for delivering speeches on more than 50 occasions. MP Government has conducted 390 VC sessions between Government Secretariat and districts and it

has been published as a national record in Limca book of records.

Certifying Authority

NIC has set-up a "state-of-the-art" Certification Authority (NIC-CA) with secure infrastructure with biometric sensors, surveillance system at its Hqrs. The CA has been upgraded with the "Tata Dhruvam 3.5 CA Software" to enable the implementation of Registration Authorities (RA) and Sub-CA. Symmetric Key Infrastructure to issue DL & RC Authority Cards for State Transport Authorities has also been Co-hosted and established in the common NIC-CA infrastructure.

Land Records

Computerization of Land Records has been extended to 582 districts and 4536 Tehsils. Project is fully operational in terms of on demand distribution of Record of Rights (ROR) and mutation updation in 3115 Tehsils so far. There are ten States, which have provided G2C interface through internet for citizens to view their ROR. Number of ISO certified land records application software variants has increased to 16 from the previous year of 10. Land Records application software implemented in Tamil Nadu, Gujarat, Himachal Pradesh, Madhya Pradesh have received national recognition at various forum. A Regional workshop on "CollabLand" was conducted at Chennai for ten states. Usage of simulators/mobile devices has been experimented for Land Records Application.

Government Informatics Training Programme

Trainings and courses were conducted to NIC officers to upgrade their skills on latest technologies and trends namely Management Development through IIMs, Technology Updates through IITs. Virtual training solutions have been used for wider dissemination of programmes using NICNET. International programmes were also conducted to participants of neighboring countries in the areas of Network Management and Security, .Net and Portal Development, Quality systems to share NIC's experience and expertise to promote international cooperation with developing nations. Under sponsorship of DoP&T, various courses have been conducted for Government staff. Workshops on e-Governance were also conducted.

North East Informatics Services

The last module of NLCPR MIS application had been developed and is ready for deployment. It will enable

complete monitoring of NLCPR projects from project proposal stage to completion. All 209 Sub-division offices of North Eastern region were connected. With this, all levels of government are on the network in NE. The framework for the website for NEC has been developed and data is being uploaded.

Bibliographic Information Services

NIC further strengthened its existing services for biomedical/medical professionals with launching of OpenMED archive with 1400 submissions with over 800 users. This Archive (Open Access) serves as a journal repository to select journals. The Indian Medlars web page (<http://indmed.nic.in>) is ranked the 1st Indian health website by Google Directory. The Union Catalogue of Biomedical Periodicals web page (<http://uncat.nic.in>) had new features added to it with detailed information of over 180 medical libraries in the country. OpenMED Archive was nominated for the Stockholm Challenge 2006 award in Health sector.

Intellectual Property and Know-how

NIC provides global patent information (bibliographic, abstract and patent documents) to Indian industries, R&D Organizations, consultants, patent attorneys, scientists, researchers and interested public. Further data on EPIDOS-INPADOC bibliographic patent of over 65 countries is kept updated on our website patinfo@hub.nic.in to global users from all over the world.



Computer Aided Design

CollabCAD Project – The major activities carried out are : Content Management with Work Flow / PLM for Design and Manufacture (SLIDE / OpenWFE / BONITA: Free and Open Source Solution), Integrated through Check In / Check Out, Manufacturing Resource Planning, Customer Relations Management, Supply Chain Management, e-Commerce (OFBIZ: Free and Open Source Solution: Integrated through Bill of Material {BOM}), Fixes to Open Cascade Geometry

Kernel as a part of NIC-Tata Technologies Agreement valid for one year fixes to Open Cascade Geometry Kernel as a part of NIC-Tata Technologies Agreement valid for one year, Integration of Virtual Reality Solution. SESAM Project, A project proposal had been sent to BARC, Mumbai to integrate the in-house Non-linear solver programs at BARC with a Common Graphical User Interface. HP State Electricity Board, Sundernagar, HP proposes to get the 110 MW Underground Power House of Savda Khud Project on Babbar river, a tributary of Sutlej analysed by NIC using SESAM software. Two Benchmark problems i) Seismic Analysis of a Battery Stand and ii) Seismic Analysis of a Chimney Stack were proposed by Nuclear Power Corporation of India Ltd., Mumbai in September, 2006. Educational License of SESAM Software installation and 3-day onsite training at Civil Engg. Department, NIT, Calicut carried out.

Geographical Information System and Remote Sensing (GIS & RS)

Creation of Spatial Data Infrastructure for Multi-layer GIS for Planning Commission has been created. Further Data Infrastructure has been set up integrating topographic data, different resolution satellite data (Wiff, Awiff, LISS-III, PAN etc.) and resource data related to forest, agriculture, water bodies, wasteland, watersheds, demography, village amenities, transport network, rivers and drainages etc. GIS based projects have been completed in the areas of GIS for Poultry and Dairy Development, GIS Based Mapping System for Public and Private Medical/ Health Facilities at village level completed (revised), Web Based GIS for Total Sanitation Campaign (TSC), National Soil Mapping at the scale of 2,50,000 at national level initiated, Development of National Highways, Railway lines and Railway Stations, database administration for raster data handling and development of web based application for Toposheet archival, Watershed atlas incorporated in NSDB National Agricultural Marketing Atlas (NAMA), Web based GIS application for information related to agricultural mandis like market prices, commodity arrival etc.

Utility Mapping

Under the Computer Aided Digital Mapping Project for Six Cities – Ahmedabad, Bangalore, Chennai, Hyderabad, Kolkata and Mumbai, the necessary hardware, software, GIS software and LAN items have been procured and delivered in each of the six

utility agencies of the six cities. Lease line connectivity and LAN installation process is in progress. Base map compilation of Mumbai, Hyderabad and Ahmedabad is in progress. The aerial photography of Bangalore, Chennai and Kolkata is being undertaken. The digital base map is being accessed by various agencies of Delhi Government. Updation of digital base map compiled from aerial photography of the year 2002 is in progress. The main control grid established for Delhi City is being strengthened by fixing the disturbed and destroyed control points using GPS. Missing flyovers in the existing base map are being picked up in the field using GPS. The updation of digital base map compiled from aerial photography of the year 2002 is in progress.



Content ASP (GISTNIC Programme)

Value added service is provided on NICNET relating to various sectors/areas such as Indian economy, health, education, etc. The system provides Environment Information Services (EIS), Education Information Services (EdIS), Citizen Information Services (CIS), Government Information Services (GovIS), Business Information Services (BIS), Finance Information Services (FIS), Socio-economic Information Services (SEIS), Tourism Information Services (TIS), IT Information Services (ITIS), Health Information Services (HIS).

Courts Information Systems-COURTIS

E-Filing of cases has been started in the Supreme Court. IT based Attendance Recording System has implemented for all Supreme Court employees. Case Status on IVRS implemented in the High Courts of Nainital, Nagpur, Madras, Bombay, Goa, Jabalpur, Gwalior, Indore, Delhi, Orissa and Bangalore. The Capital City Courts of Nainital, Chandigarh, Bhopal, Raipur, Bilaspur, Ranchi, Thiruvananthapuram, Hyderabad, Jammu and Jodhpur have been computerized. In the Delhi High Court Digital Display

Boards information system, giving details of the case hearing status in each court is made available on the Courts web site for the benefit of the advocates to attend in time. Also WI-FI based LAN for all the 33 Judges across three floors of the High Court building is established. The Case Status Information Systems of the High Courts of Jodhpur, Jaipur, Gujarat, Bombay, Goa, Calcutta, Kerala, Guwahati, Jabalpur, Gwalior and Shimla have been implemented and the same is available on Internet for the benefit of the litigants. The judgments and orders of the High Courts of Bombay, Madras, Goa, Allahabad, Guwahati, Bilaspur and Kerala are made available on the High Courts Web Sites for the benefit of the litigants and advocates.

e-Learning

E-learning infrastructure has been set up over the NICNET for LMS (Learning Management System) and Virtual Classroom environment. During the year, more than 500 Class Room sessions and over 1000 Meetings have been held on various technology updates and projects. The CCC CAPES Exam was successfully taken by 30000 candidates at 100 centres across the country including exam at 33 Community Information Centres in North East

DISNIC Plan

The implementation of this scheme in pilot districts of the State of Haryana (Jhajjar District) and Goa (North and South Goa Districts) has been initiated. Through the National level Consultation Process and State level Workshops, the Draft Dataset on Village Level Information System has been published on internet (<http://disnic.gov.in>) and circulated to Sectoral Departments at the State and district Level for localization of their Input requirements. Consultation process for implementation of the project with the State/District authorities, institutions, NGOs, etc., has been initiated in almost all the States. Dataset for Village Level Requirements, as per the local requirements, has been finalized for Haryana State Unit. Detailed Progress Report (DPR) received from nearly 22 states for pilot phase implementation of the project in the identified backward district. Remaining states are in the process of preparation/receiving consent from the concerned state/district government departments.

NIC Web Services and Data Centre Infrastructure

NIC has extended a comprehensive WWW services to Government Ministries and Departments with respect to; consultancy, web design and development, web

hosting, value added web services for promotion of web sites, enhancement of web sites and training. NIC designed, developed and maintained the major Portals like National Portal, Government of India Web Directory, Districts portal, Examination Results, Government Policies Portal, Tenders Portal, Portal related to: President of India, Prime Minister Office and National Advisory Council. In addition, NIC has hosted over 4000 websites and portals related to Governments and its agencies. NIC also provided "Value Added Services" such as web casting of President's Address to the Nation; President's address to 6th Mizoram Legislative Assembly Session; Prime Minister's Address to the High level Plenary Meeting of 60th United Nations General Assembly; Prime Minister's Address to the National Integration Council; Republic Day Celebration; Independence Day Celebration; ELITEX. The National Portal, <http://india.gov.in> has been offering on citizen centric information and services related to sectors such as Health, Rural Development, Land Records, agriculture, transport employments, examination results etc.

Data Centre Infrastructure

NIC has set up a state-of-the-art Data Centre at its Headquarters at Delhi which has been extensively used for providing basic value added Internet Services to the government at centre, states and district administrations levels. Besides major e-governance applications in the domain of Transport, Land Records, Passport, Post and Telecommunication, GIS were also hosted at this Data Centre. Data Recovery centre has been at Hyderabad.

GOV.IN Domain Registration Services

NIC is authorized registrar for GOV.IN Domain registration for government departments and organization at all levels. Online domain registrations can be done through <http://registry.gov.in>. So far around 2500 domain names have been registered with more than 300 fourth level domain names.

Community Information Centre (CIC)

About 500 CICs continued to provide all basic services like internet access, e mail and trainings to local populace in North East. Further, 141 blocks of J&K have been operationalized under the project. Host of e-Governance services related to certificate issuance, forms etc are being provided through e-Suvidha system. About 209 Sub-division offices in North East have been brought under NICNET domain to automate sub-division level services and offer linkages to CICs and Districts.

E-governance standards

The need for having a standards-based integrated framework to facilitate moving away from isolated developmental environments to a coherent and transparent one with suitable policies, guidelines and specifications has become increasingly important to facilitate faster proliferation of e-Governance applications. A website <http://egovstandards.gov.in> on Standards has been constituted which apart from publishing the various activities being carried out by the NIC, Working Groups and other players also facilitates closed collaboration and interaction with the various stakeholders.

Natural Hazards Management Information System

An application shell is designed for Disaster Information System with five major modules. The General Information module development is completed. For any selected district/ state/ International boundary of the country, the neighbouring district/state names can be extracted. Buffering analysis feature is incorporated. Past disasters and their impact details database development is in progress.

Support to Elections

Assembly Elections were held for the states of Assam, West Bengal, Kerala, Pondicherry and Tamil Nadu in May 2006. The result data from NIC election Server was sent directly to CPC for graphics generation and then relayed on the Doordarshan channels. Hosting the websites of 35 States Election Commission websites, Provision of VPN Network, support to CEOs in states for Electoral Rolls Generation were carried out.

Library Services

NIC has come out with a low cost solution e-Granthalay - Library Management Software (<http://egranthalaya.kar.nic.in>) for automation and networking of libraries. The software has been installed in many libraries in India. With a mission to identify possible areas of convergence among the Departments viz. Department of Telecommunications, Department of Post and Department of Information Technology in the Ministry to optimize usage of mutual resources and strengths, a Consortium of Libraries of the Ministry of Communications and Information Technology has been formed. Further to increase the usage of world class digital resources and making the library users

aware about the services, various workshops have been conducted. Regular training programmes for working librarians in India on Implementation of eGranthalay Software were organized at NIC Centres as well as user premises. During the recent workshop the latest version of eGranthalay was released. Discussion forums at <https://ismgr.nic.in> are available for the users of eGranthalay and Consortium members for sharing views. NIC Library (<http://library.nic.in>) provides Current Awareness and SDI services to the users including document lending, Inter Library Loan, and Reference services. Online services like Research Reports from GARTNER, Science Direct from Elsevier Science, Newspaper Clippings Service-NEWSNIC, Web browser access to Books Catalogue, Articles database, Journals holdings, etc, are provided to NIC officials up to district level.

Property Registration

The project which encompasses to automate the process of property and land registration has been fully implemented in the states of Andhra Pradesh, Haryana and Punjab. The project has been implemented in some Sub-registrar offices in the States of Gujarat, Orissa, Delhi, Uttranchal, Himachal, Bihar and Uttar Pradesh. The States of Chhatisgarh, Manipur, Mizoram and Sikkim have customized the software and entered the master codes. The computerized system takes care of system workflow starting from acceptance of documents, valuation, document admission, photo and signature capturing, verification and document scanning for issuance of certified copy of deeds. ISO certification regarding software functionality, reliability and maintainability has been evaluated as per international standards for CARD (AP) and PRISM (Punjab). 1602 out of 4022 Sub Registrar Offices have been computerized. About 100 SR offices in Bihar and Uttar Pradesh each are likely to be operational by the end of this financial year.

Analytics and Modeling

All India Fertilizer Demand Forecasting for the Eleventh Plan 2007-12 has been completed. A detailed data analysis has been carried out before the actual forecasts and the data has been cleaned. The macro level N, P and K forecasts for all India has been derived from the micro level forecasts of N, P and K from all the five zones. The zone-wise and all India forecasts of major nutrients viz. N, P and K exercise were carried out using neural network methodology.

A number of analysis reports and graphs have been generated and a detailed analysis report submitted to the user ministry. Data warehouse on Sankhikiya Patrika Data for the State Planning Department, Government of UP has been taken up. Data on major parameters pertaining to all the districts of UP are considered for inclusion in the warehouse. The major sectors of economy like agriculture, industry, transport, education and health have been included in the first phase of the project.

Common Integrated Police Application (CIPA)

The development of the CIPA software for Police Stations has been completed, consisting of the modules on Registration ; Investigation, Seizure of Properties, Witness Statements recorded etc, and also facilitate entering the text of his Case Diary; Prosecution ; Information ; State Specific Requirements; General/Daily Station Diary ; Reports/ Registers/ Queries . CIPA Software rollout at 10% PSs (1300 approx.) in all the States has been completed. State Development Teams are now working on the development of Local Customization requirements.

International Cooperation

NIC has been undertaking ICT projects abroad under bilateral agreements. A state-of-the-art National Data Centre has been established and made operational at Lao PDR for implementation of e-Governance applications and various other services like messaging services, National Portal of Lao PDR etc. Under Capacity Building Programme, training on "Web Services, Portal and Content Management" for 150 Government officials of Lao PDR has been conducted at Vientiane in 6 batches. e-Governance action plan for Government of Lao PDR has been prepared and final report submitted to Government of Lao PDR and the Government of Lao PDR has approved the plan for implementation by various agencies. Initiated preparatory activities for conducting Masters in Computer Applications (MCA) Programme for 30 Lao students in India from academic session of 2007. For the establishment of five Rural Tele Centres in various Provinces of Lao PDR along Mekong river for ICT penetration in Agriculture, Health and Rural Development feasibility study conducted and report finalized.

Right to Information Portal

NIC has provided support to the Government for speedy and effective implementation of Right to

Information Act 2005. NIC has created portal for all central and state government agencies to host their data related to public information. RTI Request & Appeal Management Information System (RTI-MIS) is being implemented in all Ministries / Departments / Organizations of Government of India for processing and monitoring RTI Requests and Appeals. RTI related newly designed and developed websites i.e. www.rti.gov.in, www.righttoinformation.gov.in and www.cic.gov.in along with RTI-MIS software were show cased in the Annual Convention of Central Information Commission held during November, 2006.

Open eNRICH - Community Software Solution Framework (<http://enrich.nic.in>)

Open eNRICH is a Community software solution framework which has features of Portal generation, Content management, Collaboration and Knowledge Management. The framework was conceptualized by NIC in collaboration with UNESCO and developed the initial version. The initial versions have been used in CMC project of UNESCO, Akshaya Project of Kerala, CIC project of NIC/DIT in N-E states to generate the dynamic Portals of grass-root agencies (such as village, block etc). The product has also been used to generate 2,40,000 dynamic portal of all PRIs across the country under National Panchayat Portal (<http://panchayat.nic.in>). The Open eNRICH 4.0 (fourth version, based on open source tools and technology) has also been used in many rural tele-centre projects of countries such as Sri Lanka, Thailand, Africa etc in. The national portal of Lao PDR, portal of ministries/department and districts have also been generated using Open eNRICH. The product is particularly useful for rural kiosks environment to manage and exchange the content where availability of skilled computer programmer is rare. The product is Unicode enabled.

NIC Services to Central Government Ministries and Departments

Accounts

New upgrade 4.5 and new version 5.0 of COMPACT, a computerized software package for Pay and Accounts Offices, have been released incorporating a number of new functionalities. E-Lekha, a web based fiscal management system has upgraded to include all the reports for controller level and summary reports of accounts for the Government of India. Daily data abstract is regularly uploaded into the e-

Lekha application from over 275 Pay and Accounts Offices. This facilitates monitoring of accounts and analysis of the fiscal and revenue figures by respective controllers. CDDO2PAO software has been developed for CDDO Offices. The software generates electronic files in the formats of COMPACT. CPM software has been implemented for the new Defined Contribution Pension Scheme. Reconciliation software for the Appropriation accounts section was developed and implemented. Comprehensive DDO package is at the advanced stage of development, which will integrate Composite Payroll System with all other kinds of bills/functions of DDOs. NIC continued to support for Inclusion of Appropriation Accounts, Budget Reconciliation and Finance Accounts within the scope of e-Lekha. Several Training programs have been organized to impart training to resource persons from various PAOs on various applications developed by this division.

Agriculture

NIC has developed more than six portals and 40 websites for the Department of Agriculture and Cooperation (DAC) and its field offices/Directorates under the DACNET (an e-governance model for DAC) and Development of Agriculture Informatics and communication (DAIC) projects.

AGMARKNET portal (<http://agmarknet.nic.in>) provides daily market information on commodity prices and arrivals in respect of about 300 commodities and 2000 varieties from over 2700 markets. The project was selected as finalist in the Stockholm Challenges award – 2006. It was also awarded Microsoft e-Governance awards 2006. More Markets and varieties are being covered during

Eleventh Plan Period. Conversion of this portal into different languages is in progress.

DACNET (<http://dacnet.nic.in>) aims to provide information and services to the farming community on a number of specific subjects. It includes comprehensive portal on oilseeds which provides information on production programmes / schemes, varieties, crops, seeds availability, diseases related to oilseeds, information on all India prices of oilseeds, etc. Separate portals of Crops Directorates provide information on seed varieties, pest management, quality standards, other related topics and governmental schemes relating to rice, wheat, sugarcane, millets, pulses, cotton, jute, tobacco and horticulture crops. Plant Quarantine Information System facilitates adoption of uniform procedures in issuance of phyto-sanitary certificates, import permits, and import release orders; fast issuance of certificates on pre-printed stationery; etc.

The INTRADAC (<http://intradac.nic.in>) portal facilitates information dissemination within the DAC relating to personnel, Administration, Directorates, field units, conferences, seminars, office circulars/notices, agricultural news etc.

Under the Development of Agriculture Informatics and Communication (DAIC) major activities are : portals such as SeedNet Portal, Data-warehousing, RFS and Watershed Development, digitization of Soil Mapping Data, ICT in Extension Reforms, Mass Media support to Agricultural Extension, Farm women database for National Gender Resource Centre for Agriculture (NGRCA), etc., ICT in Agriculture Extension plan was prepared for strengthening the ICT infrastructure at Directorate of Extension (i) The work for establishing 2 Mbps NICNET link, interlinking KVB and KVS buildings and video conferencing is in progress. (ii) The Mass Media portal was developed and implemented at National, 18 Regional Kendras and 36 Narrow-casting clusters of Doordarshan and 96 FM stations of All India Radio for capturing and dissemination of Agricultural Programme Schedules under mass media support to agriculture extension. (iii) The development of farm women database for National Gender Resource Centre for Agriculture (NGRCA) is in progress. (iv) Web based applications for ICT extension reforms have been developed to monitor the progress up to District level. Development of Horticulture Informatics Network has been taken up to facilitate implementation of National Horticulture Mission.



Agricultural Resources Information System (AgRIS): Agricultural Resources Information System (<http://agris.nic.in>) project is envisaged to create comprehensive database on various parameters related to land use, water use, inputs etc; develop decision-support systems on production practices and systems for strengthening advisory services to farmers in adopting agricultural production practices. Content Development Strategy for development of Portal on Buffaloes has been prepared. Institutional linkages with Sardar Krushinagar Agricultural Dantiwada Agricultural University Palanpur, Indian Institute of Management Ahmadabad, World Buffaloes Trust and ICAR Institutes have been developed for the project implementation. NIC is executing National Project on Computerization of Agricultural Census 2000-01 and Input Survey 2001-02 with a project cost estimate 8.69 Crore for the Department of Agriculture and Cooperation, Ministry of Agriculture in similar lines with the earlier census completed with project cost estimate of 9.40 Crore. The third phase which deals with the data on consumption of various agricultural inputs by major size groups of holdings is in progress and is expected to be completed within six months. The data for the earlier census at National, State, District and Tehsil levels are made available through web for wider dissemination (<http://agcensus.nic.in>).

Activities in North-East Region: Under the DACNET, the following offices in the North-Eastern Region have been covered: Directorate of Marketing and Inspection at Guwahati and Shillong, Central Integrated Pest Management Centres at Guwahati, Aizawal, Dimapur, Gangtok, Regional Organic Farming Centre at Imphal and North Eastern Regional Farm Machinery Training and Testing Institute, Sonitpur, Assam.

Agricultural Research Informatics System Network (ARISNET)

Local Area Network at IVRI Izzatnagar and Central Agricultural University, Imphal has been strengthened to provide access of information available with institution as well as on Internet to scientists and student community. Video Conferencing facilities are being established at the six campuses of Central Agricultural University. Website of DARE has been redesigned to provide better services to research, student and farming community. Web based application have been developed to provide information related to service matters for technical

manpower in ICAR system. Support on Scientists Progress Monitoring System and Network services has been continued. Use of E-Learning, Video Conferencing and other IT tools have been promoted to be taken up under NAIP Project.

Animal Husbandry, Dairying and Fisheries

A web based system for Sanitary Import Permit (SIP) has been developed and implemented to facilitate online submission and tracking of Applications for Issuance of Import Permit of list of Livestock Products to the Department of Animal Husbandry Dairying and Fisheries by the importers of Livestock products and Grand Parent Stock of Poultry through the website of the Department <http://dadf.gov.in/sip>. The Department LAN has been extended to meet the additional requirements with security features enabled. Web sites of the Department of Animal Husbandry Dairying and Fisheries (<http://dadf.gov.in>) is being updated on daily basis.

Audit

New website was launched for AG(Audit), Delhi. Software for Online Submission of Application of C.A firms for PSU Audit has been developed. Developed web based software for Returns of administration functions of the software, rationalization of various returns/reports received from field offices. Software for Empanelment and allotment audit of CA firms for PSU Audit has been modified with added features. Result processing system for Examinations has been implemented.

Central Excise

New version of SERMON software i.e. SERMON 6i.0.4 has been released for the Filed Formations of Central Excise All over India. The same software is also loaded on the central server for online users for filing the Monthly Central Excise Returns. The ER1 Return has been modified as per the new requirement to compliance the LTU (Large Taxpayer Unit) needs. The EASIEST (Electronic Accounting System In Excise and Service Tax) Project pilot testing is extended from single site to multiple sites. E-STAX (Electronic filing of Service Tax Return) and offline version of STREMS(Service Tax Revenue Monitoring System) has been redeveloped due to the revision of ST-3 document by CBEC and released to users for usage at the Field level. A software package is developed for the requirement of the Directorate of Data Management (DDM) and is to be released for testing

and auditing. A portal site is developed and launched for the Large Taxpayer Unit (LTU) project. Electronic Monitoring of Customs, Excise and Service Tax Supreme Court cases (EMCESS) system has been developed and audited. It has to be released for usage to all the Field Formations of CBEC.

Central Record Keeping and Accounting Agency

Creation and Maintenance of Central database of New Pension Scheme (NPS) entrants joining Government of India on or after 1st January 2004 completed. Launched Website for Interim CRA (<http://i-cra.gov.in>) for viewing and printing the reports at Government Ministries Accounting units. Design and development of Interest calculation and Annual Statement generation module for NPS employees. Database of more than 1.35 lakhs employees and their contribution details has been created.

Central Vigilance Commission

NIC continued to provide support to Commission for operation of Vigilance Cases Monitoring System, Departmental Inquiry Information system, Complaints lodging and tracking in addition to maintaining database for Chief Vigilance Officers. NIC has also implemented File Tracking System, Payroll system and hosting data related to RTI. The Commissions Website in Hindi has also been redesigned and hosted, as per the new requirement and as desired by the commission, on the NIC Web Server. The 24 hours connectivity for Internet access and Email is provided to commission's LAN Provided thru Leased line with Fallback thru RF Link. Apart from this, NIC has been providing System Backup, Lan support Maintenance of Application Server, Proxy Server and Email accounts, etc., of CVC.

Civil Aviation

Software for monitoring applications under RTI Act made operational. NIC continued to provide support to the existing applications like OPA,CPS, Parliament Question and Web updation. As part of the computerisation project in DGCA, computerized fee collection system and expenditure monitoring systems were implemented. Web based domestic airlines schedule information system and Air transport traffic statistics information system has been developed and are under implementation.

Commerce and Industry

On-Line System for Submission/ Approval of Documents, Upgradation of monitoring System of funds to States for creating Infrastructure for the Development and growth of Exports (ASIDE), Personal Information System and Web site are implemented for Department of Commerce.

The 9th United Nations Centre for Trade Facilitation and electronic Business (UN/CEFACT) Forum Meetings and Workshop on United Nations electronic Trade Documents (UNeDocs) was held during 2nd - 6th October, 2006 at New Delhi to focus on the development and simplification of Electronic Data Interchange, e-Business and Administrative process in public and private sector.

Directorate General of Foreign Trade (DGFT) and its thirty three (33) regional offices spread across the country have been connected with a facility for web based online / offline electronic filing integrating Digital Signature (DS) along with electronic data interchange (EDI) with banks and Customs. This has helped in bringing down transaction cost and time for all stakeholders.

In the O/o Directorate General of Supplies and Disposal (DGS&D), e-Procurement system covering e-Tendering, e-Inspection and e-Payment has been launched for mandatory use from April, 2006.

In Department of Industrial Policy and Promotion (DIPP), web based system for Industrial Approval and Foreign Direct Investment has been implemented for promoting investment and Joint Ventures. A system has been designed developed and implemented for automating the Patent Administration process in the area of Intellectual Property.

A computerised system has been introduced for Electronic Filing and Approval in Ministry of Steel to encourage paperless working. A web based system for monitoring various schemes is implemented for handloom sector in Ministry of Textiles.

In Department of Public Enterprises(DPE), a web portal for Counselling, Retraining and Redeployment (CRR) of rationalized employees of Central Public Sector Enterprises (CPSEs) is developed for facilitating the implementation of CRR Scheme. The Portal will serve Nodal agencies, CPSEs, DPE and all the VRS optees. The portal facilitates delivery of information and monitoring of the scheme by various agencies.

Culture

Digitisation of rare collection of arabic persian manuscripts at Khudabaksh Oriental Public Library Patna has been successfully completed. 100,000 (one lakh) pages of about 4000 books are digitised.

Automation of Archival Information System (AIMS) for National Archives of India (NAI) has been undertaken. The software prototype has been successfully demonstrated to NAI which facilitates online retrieval of millions of archived files by scholars, government agencies in an intranet environment called e-reading room.

File monitoring System has been implemented in the Ministry and its associated /subordinated offices in various locations of India.

Drinking Water Supply

Online monitoring systems for Accelerated Rural Water Supply Programme (ARWSP) Swajaldhara and Total Sanitation Campaign Nirmal Gram Puraskar are being used for monitoring at the habitation level, which is a cluster of families within a village. The Integrated system enables monitoring of progress of coverage through various funding categories (ARWSP, Swajaldhara, State MNP, MPLAD/MLALAD, External Agencies, Finance Commission Grants etc.) in the Rural Water Supply and Sanitation Sector, as a whole. These systems are accessible in the online monitoring page of the department website.

Energy

NIC implemented various E-Governance applications namely PGRAMS, CPS, FTS, PIS and OPA in Ministry of Power (Mop), Coal (MoC), Petroleum and Natural Gas (MoP&NG), New and Renewable Energy (MNRE), Department of Chemicals and Petro-Chemicals (DC&PC), Central Electricity Authority (CEA) and associated PSUs. It designed and developed web portal as well as web based solutions for Rural Electrification scheme under Rajiv Gandhi Grameen Vidyutikaran Yojana (RGGVY), a key component of Bharat Nirman portal. Implemented E-Granthalaya, Phase-I of COALNET project (SCPC DAMA VSAT at CIL and its subsidiary companies along with VC facility), Board Level Appointment system, ECS for e-disbursement of salary, Web based systems for electronic notice board, leave details, complaints monitoring, Coal library, consumer management, bilingual system for demand of grants for annual

budget, system for Receipts and dispatches monitoring, Production Monitoring system, web enabled system for Telephone bill payment monitoring, on line pay slips, incumbency Monitoring, QPR Monitoring, RTI query disposals, on line fillable and printable PDF forms.

Environment and Forests

The project on GIS for ISBEID has been implemented for the states of Maharashtra, North Eastern States, Madhya Pradesh and Orissa on eleven broad environmental areas namely Ecology, Climate, Demography, Agriculture, Hazardous waste, Land utilization, Forest Resources, Water Resources, Pollution (Air, Water and Noise), Biodiversity, Waste Disposal and Tourism. Project on GIS for Emergency Planning and Response has been implemented for the states of Punjab, Haryana, Delhi, Uttar Pradesh, Madhya Pradesh, Karnataka, Kerala, West Bengal and Assam. Web based National Hazardous Waste Information System implemented for all the state pollution boards. It encompasses the monitoring of hazardous waste across the country. Web based software application for the Indian Forest Services Cadre management was implemented. Intra-MEF Portal has been developed by using open source technologies (Linux, Zope and Plone) that are cost effective and highly customizable with an aim to provide comprehensive, accurate, and reliable and one stop source of information to the Staff and Officers of the Ministry of Environment and Forests. Training was conducted for ISBEID in North Eastern States at Guwahati highlighting the themes taken on the basis of State of the Environment report. Implementation and training of GEPR in Punjab, Haryana, Uttar Pradesh, Madhya Pradesh, Karnataka, Kerala, West Bengal and Assam also took place during this period.

External Affairs

Provided support to all the 31 passport offices in India and 11 Indian Missions Abroad in addition to the office automation. Computerized Visa Issuance System implemented at Paris, Madrid, Muscat, Kuwait and Chittagong. A new version of the web enabled application of Passport Management System has been introduced in the Mallapuram Passport Office. Machine Readable and Machine Printed Passports and Passport File Scanning Facility made available in all the Passport offices. Maintenance of Central System with over 60 Million Passport Applicant details released to all RPOs, Indian Missions

and Immigration Check posts. Support has been given for the issuance of OCI card and universal Visa through web enabled application from Online Registration till delivery of the Document to the applicant. As of today more than One Lakh Documents have been issued so far. Online Passport Registration System has been made operational in 20 Passport Offices. The implementation of Hague Apostille Convention (HAC) for attestation of educational certificates issued in India by MEA is in process. The Automation of office of the Protector Of Emigration in India has been undertaken.

Fertilizers

A closed user group (FERTNET) on Fertilizers Informatics Network has been developed by NIC for the Department of Fertilizers. This is a Web-based information system that provides information relating to fertilizer movement, production, distribution and subsidies paid to different fertilizer producers, equated freight fixation and payment handling for fertilizer imports. It has become easier to plan the widespread distribution of fertilizers based on the interrelated informatics support on demand and supply positions. This in turn helps in reducing transportation costs and demand-supply gap, and optimizes the use of stocks. Use of ICT in Integrated Plant Nutrient Management focusing on the conjunctive use of organic, inorganic and biological nutrient sources in a cropping system and climatic situation has been taken up on priority to achieve and sustain the optimum agricultural yields and to improve/ maintain the soil health for food security.

Finance

Network upgradation in Ministry of Finance was completed. Network Operation Centre was established to facilitate monitoring of network traffic and status. WAN connectivity was upgraded to 34 MBps fiber optic link through Power Grid Corporation. Document Management Information System for online tracking of file movement was implemented in Department of Economic Affairs, Department of Expenditure and Department of Revenue. Comprehensive Payroll Software was fully operationalised in Department of Expenditure and Department of Revenue. Manpower Management System was developed and implemented for Pay Research Unit, Department of Expenditure to facilitate monitoring of pay and allowances and in position/vacant posts in various Government Offices.

E-Purti Software for inventory monitoring and VIP Reference Monitoring software were implemented in Department of Expenditure.

Food and Supply

CONFONET project is 'Computerization and Computer Networking of Consumer forums in India' under which a standardized Case Monitoring System is being deployed at all consumer fora. The related computer infra-structure, training, networking are also undertaken on turnkey basis. The IISFM project done for FCI is operational and captures Stock Accounting information from all districts. While the Depot level transaction application is under implementation. The scheme is extended to cover state warehouses and Agency operations in nine major decentralized procuring and distributing states. Data centre set-up over MPLS VPN is being implemented for secure data flow.

Health

More than 650 PCs of the Ministry are connected to the Local Area Network (LAN), which in turn, connected to NICNET through RF Link and leased line circuits. NIC has developed software for eligible woman survey for NGO division. The data-entry s/w has been distributed to the mother NGOs through Regional Resource Centres, on all India basis.

NIC has undertaken computerizing all functions of the dispensary such as Registration, Doctors' prescription, Pharmacy Counter, Stores, Laboratory and Indent. The pilot project has been completed successfully in the Laxmi Nagar CGHS Dispensary. Subsequently 3 VIP dispensaries viz. North Avenue Dispensary, South Avenue Dispensary and Parliament House Annexe Health Post have been computerized. NIC had initiated the development of a portal for the Ministry of Health and Family Welfare. The services like Pay slips, user profile, Birthday Greetings, File Movement System, Project Monitoring System, News, Events, Notices and Circulars, Photo of the week etc have been incorporated. File Movement system is being accessed by various sections of the Department of AYUSH and Department of Health and Family Welfare.

For the Integrated Disease Surveillance Project (IDSP) the creation of District and State Health Data Centres for the Surveillance Units and networking of 800 nodes with Broadband and operating District Health Training Centres through Video based Distance

Learning with heterogeneous network consisting of VSAT and Broadband based network is being operationalized by NIC. In addition, Early Warning System for Disease incidence and call centre based information collection being designed by NIC is part of the above project. NIC will do the facility management of all 800 nodes across the country.

A web based Court Cases Monitoring System has been developed by NIC with password protected access to the authorized users across the country. The updating rights are given to different level of users.

A web based Personnel Information System for the Central Health Services Doctors has been developed. The website <http://chsmohfw.nic.in> is going to be launched soon.

A computerized system has been developed to keep track of GIA to the institutions and organizations and reconciling the receipt of UCs from them.

Website for Indian Pharmacopoeia Commission (IPC) has been developed to develop comprehensive monographs for drugs to be included in the Indian Pharmacopoeia, including active pharmaceutical ingredients, excipients and dosage forms as well as medical devices, and to keep them updated by revision on a regular basis.

NIC is providing expertise in designing appropriate network for National Cancer Control Programme, National Programme for Control of Blindness and Telemedicine/Continued Medical Education (CME) projects of Ministry of Health and FW.

The software for Schemes and Grant Monitoring for Department of AYUSH is being customized to suit the requirement, using Dot Project Framework (an open source tool). The software has been designed to enable farmer submit the project proposal online, the status of the project at the SMPB and NMPB is reflected to the farmer online.

Home Affairs

The New web based Immigration Control System (ICS) Application software has been successfully commissioned at Ahmedabad, Amritsar, Bangalore, Chennai, Calicut, Cochin, Delhi, Goa, Hyderabad, Jaipur, Mangalore, Mumbai, Thiruvananthapuram 13 international air check posts, Attart and Munnabo 2 international rail check posts and Haridaspur and

Wagha 2 international land check posts. A total number of 60 full-page and 296 2/3 lines passport reading machines has been installed at immigration counters in various ICPs. Network connectivity between above mentioned ICPs has been established with CFB, Delhi. Hardware along with SAN storage has been set up at CFB, R K Puram. Infrastructure set-up is being upgraded for new web based Immigration Control System (ICS) application software at Cochin, Goa, Kolkata 3 international sea check posts, Kolkata, Coimbatore, Guwahati, Gaya, Lucknow, Nagpur, Pune, Portblair, Varanasi and Trichy 10 international air check posts and JS(F) office. Advance Passenger Information System (APIS) has been developed and implemented for Air India at IGIA, Delhi. The facility is hosted at official website of Ministry of Home Affairs (<http://mha.nic.in>).

Human Resources Development

Technical and development support has been provided to AIEEE based Counseling for Central Counseling Board from 16 Counseling Centres located in various States. A Web based online counseling for Haryana State, Centralized online counseling for Delhi State have also been successfully executed. NIC has designed and developed one stop education portal, SAKSHAT, a prototype of which has been launched by His Excellency, the President of India on 30th October 2006. Preparation of SRS for Sarva Shiksha Abhiyan for the development of web portals for managing the operations of the scheme has been completed. Redesign, development and launching of education portal with URL: <http://education.nic.in> has been completed. Seventh All India Educational Survey has been successfully completed. SRS reports have been prepared and submitted to the Ministry for Mid Day Meal Scheme Operations and All India Teacher Information Management System.

Information and Broadcasting

A new website for 37th International Film Festival of India (IFFI) was set-up and software for Online Delegate Registration was developed. More than six thousand delegates were registered, nearly 500 paid online and Delegate Cards were printed for all invited and other delegates in-house. Application enabled smooth conduct of delegate registration during the IFFI in December 2006. Facility for accepting online applications for renewal of Press Cards by journalists

was built into the website of PIB. This was put to use for media accreditation during IFFI 06. A new Audio Visual section was created in the website of PIB. This enabled PIB to disseminate A/V content created by a new in-house facility (Two camera persons plus two Non Linear editors) installed in consultation with NIC. A new service has been set-up on the PIB website to disseminate Ministry wise content to beat journalists.

Jail Computerisation

Visitors management system was implemented to record and keep audit trail of all visitors to Tihar jail. Prison Management System (PMS) was implemented at Alipore central jail. Feasibility study was conducted for Chandigarh jail. PMS System was implemented at Ahmedabad, Vadodara and Hotwar Jail Ranchi. LAN was created at Rohini Jail and PMS implemented. VC set-up was created in all the 7 Jails in Tihar.

Labour

NIC has developed and implemented a National Employment Service portal with the application for Registration of unemployed, employer, notifying vacancies, screening and drawing list of suitable candidates, Employment market information, on-line vocational guidance and career counseling. The project is under implementation in all states. The other major project is "Comprehensive Computerisation of Employees' State Insurance Corporation". The project has medical insurance component, dispensary automation and hospital automation. All the components are integrated. The project is implemented as a pilot in 22 branch offices, 2 regional offices and 7 dispensaries in the states of Haryana and Delhi.

Information Technology

Continued to provide management and operational support for various Databases such as Financial Accounting (Payroll Processing, Tax processing and calculation, Financial Accounting, Budget Preparation); Personal Information System (PIS); Public Grievance Redressal and Monitoring System; File Tracking System (OPA), Project Monitoring System, Expenditure Monitoring System, Utilization Certificate Monitoring System, LIPS Information System containing information on Electronics and IT Industry and PAO2000, etc. The services/ Portlets of IntraDIT are fed by some of these backend systems.

National Human Resource Commission

Compliant Management System was implemented at Rwanda national human rights commission in French and web site was re-launched.

Official Language

NIC has developed department's portal bilingually with latest state-of-the-art technology (Unicode enabled). The Office Procedure Automation(OPA) has been converted in Hindi and is operational. Continued to support result processing system for Hindi Prabodh, Praveen, Pragya, Typing and Shorthand, Monitoring of Quaterly Progress Report, Central Secretariat Official Language Service-Seniority List, Networking in the Department and its sub-ordinate offices, online Hindi learning package – LILA – Prabodh, Praveen and Pragya and English to Hindi Translation solution MANTRA-RAJBHASHA.

Panchayat Raj

NPP framework hosts dynamic portals for Panchayati Raj Institutions (approximately 550 Disitric Panchayats, 6096 Intermediate Panchayats and 2,39,000 Village Panchayats across the country), is being maintained by PID. It provides a simple and easy to use interface to Panchayats to upload content into their respective portals without requiring any technical support. The portals can be accessed either through Ministry's web page (<http://panchayat.gov.in>) or directly through their individual URLs. A proposal has been submitted to the Ministry to fund the training programmes. This portal; would act as front end for all PRIs and backend would be state specific being prepared under ePRI mission mode project.

Parliament

Major activities carried out are : Web based Application for Bills office under .NET framework, Web Portal for Joint recruitment Cell, Parliament of India, New Website of Lok Sabha under .NET framework, Precedence Monitoring System-Rajya Sabha, Committee S/W - Lok Sabha Secretariat under .NET, WHO's Who of Members under .NET framework, Web casting of LSTV on 24 * 7. Debate Publishing on Website(Lok Sabha) under .NET, Question Answer Retrieval (Lok Sabha) under .NET, WHO's Who of Constituent Assembly Members, Bilingual Website of MPA, Inventory MIS-MPA,

Assurances MIS-MPA, Implementation of CPS in MPA, Consultative Committee MIS-MPA, Implementation of Personnel MIS, MPs in Hospital MIS.

Pension and Pensioners Welfare

Continued to maintenance of Central Pensioner Accounting database and its web site <http://cpao.gov.in>. Reengineered Pension Authorization Application software and developed using latest Oracle tools (Oracle 10g database and 10g Application server), implemented and e-PPO Project for Electronic transfer of PPO data from PAO to CPAO to Banks, and e-Scroll Project for Electronic transfer of Scroll data from banks to CPAO

Personnel and Public Grievances

Annual Return Information System has been developed and implemented for submitting to CIC the Annual Returns on RTI requests/Appeals handled by all Ministries / Departments Government of India. RTI Request and Appeal Management Information System (RTI-MIS) is being implemented in all Ministries / Departments / Organizations of Govt of India for processing and monitoring RTI Requests and Appeals. RTI related newly designed and developed websites i.e. www.rti.gov.in, www.righttoinformation.gov.in and www.cic.gov.in along with RTI-MIS software were show cased in the Annual Convention of Central Information.

A Centralized web-enabled Public Grievances Redress and Monitoring System (PGRAMS) was developed so as to facilitate the Public Grievance (PG) Officers of various Ministries/Departments/Organizations to login and view the grievances forwarded by D/o Administrative Reforms and Public Grievances (ARPG) in order to redress the same. They can also send online report/reply back to D/o ARPG. D/o Pension and Pensioners' Welfare. As a part of NeGP Mission Mode Project of Government of India, Pensioners' Portal has been designed and developed for providing online pension related information to central government pensioners spread across the country.

Planning Commission

Village Planning Information system (VPIS) <http://pcserver.nic.in/vpis> is a web-based retrieval system enabling retrieval of analytical information

relating to demography and 9 types of amenities available in 638,439 inhabited villages, which belong to 35 States and 593 districts of India, as per Census 2001. District Planning Information system (DPIS) <http://pcserver.nic.in/dpis> is also a Web-based retrieval system enabling retrieval of analytical information relating to demography and 9 types of amenities available that belong to 35 States and 593 districts of India, as per Census 2001. MIS for the Flagship Programmes including components of Bharat Nirman has been operationalized <http://pcserver.nic.in/flagship>. Non-Government Organization (NGO) Database <http://pcserver.nic.in/ngo> Website for Financial Resources and State Plan Division of the Planning Commission NIC (YBU) has been designed and developed an Intranet website for the Financial Resources (FR) and State Plan Divisions of the Planning Commission. The scheme of Spatial Data Infrastructure for Multi-Layered Geographical Information System (GIS) for Planning has also been operational which is a new Central Sector Scheme (CS) sponsored by the Planning Commission and executed with the support of National Informatics Centre (NIC).

Posts

The Instant Money Order (IMO) service has been launched in 2006 for sending money of minimum value of Rs.1000 and maximum value of Rs. 50000 to



a person across the country who can collect it from the nearest post office within a few minutes. The iMO software has inherent capabilities to develop managerial reports and accounting and pairing of the booked and paid transactions.

The ePost service is being extended to cover APS (Army Postal Service) with provision for

confidentiality. The software has been modified to address some of the shortcomings of the original version of ePost which will be launched soon.

The software to receive the application for information or appeal under the RTI Act for Central Assistant Public Information Officer (CAPIO) and forwarding the same to the Central Public Information Officer (CPIO)/ Nodal officer or the Central Information Commission (CIC) has been implemented. This module is integrated with the CIC database for maintaining integrity of the CPIO details.

A state-of-the-art National Data Centre (NDC) for DOP has been set up to integrate the existing electronic applications and hosting new applications for providing network driven value added counter, mail, financial and banking services leading to better customer satisfaction. A proposal has been prepared to establish Network between National Data Centre and Department of Posts Field and Administrative offices across the country.

Programme Implementation

The computerized central project monitoring system maintains a live database of more than 800 large central projects and generation of regular Flash Report, Quarterly Status Report, Exception Report, PMO reports and various ad-hoc reports. The computerized Infrastructure Monitoring System was also strengthened. An integrated MPLADS Funds Sanction, Expenditure and Works Monitoring system with distributed data entry at the district level was further enhanced including regular updation of dynamic website <http://mplads.gov.in>. The computerized Twenty Point Programme which monitors various performance indicators with a distributed data entry facility at the state level was further strengthened. Action was initiated for an integrated Personnel Information System and IntraMPI portal.

Road Transport and Highways

Applications developed/ implemented during the year include IntraRTH, the IntraOffice Portal for the Department, streamlining access of information on personnel, Administrative and miscellaneous services to the officers and staff of the Department. The Website of the Department has also been enriched with Road Safety Awareness campaign as well as information disbursal in Audio and Audio visual form.

Downloadable Road Safety Games have also been uploaded. Other Application Systems implemented include Composite Payroll, Inventory Management, DMIS, leave management etc. RTI Software has been implemented and PIOs/ de facto PIOs of the Department have been trained on its use.

Rural Development

A portal has been developed for information exchange and learning from others experience. It provides a gateway to around 150 websites at International/National/State/District level. It provides details of schemes of MRD, News related to MoRD, Circulars of public interest, information regarding events, tender/notices, e-mail Address of officers, Vacancies etc. House Hold Survey system has been computerised to uniquely identify a family and all the members of the family at national level. It has been implemented in the whole of India and in the same format. Other computerized projects are : National Portal for National Rural Employment Guarantee, a single Window access to all information. It is getting implemented in 200 districts, 8000 blocks and about 80000 Gram Panchayats in local languages, Intranet Site Daily, computerized systems for administration and finance, CAPART computerization, enrich, PRIASoft, etc.

Science and Technology, Biotechnology and Ocean Development

Implemented the Software PROBE (Participation of youth in Real-time Observation to Benefit the Education), which targets the students, meteorological department and research institutions in Uttaranchal and National Capital Region in DST. E-granthalaya implemented in library of Ministry of Earth Sciences (MoES). Intranet for Department of Scientific and Industrial Research (DSIR) and Department of Biotechnology (DBT) has been implemented. File Tracking System (FTS) has been implemented in MoES, DBT and DSIR. Web based Project Management System is under development for MoES and DBT. Web based application for evaluation of applicants for international seminars, conferences has been implemented in DST. E-Purti and Asset Management implemented in MoES. Input model for the Patent Information System database in DBT completed. A website was launched for the ATCM-2007 (Antarctic Treaty Consultative meeting 2007) in MoES.

Shipping

IntraShip, the IntraOffice Portal of the Department of Shipping has been designed, developed and implemented. Store Inventory Management System has been implemented to monitor issue and stock position in General and Technical Stores of the Department. The LAN has been strengthened and extended. Web based File Tracking System DMIS is now used by all sections of the Department. The website of Department of Shipping has been enriched with new features such as emerging investment opportunities in port development, major projects in the offing etc. Updated Information on Indian Shipping Industry and Ports were compiled and released. RTI Software has been implemented and CPIOs and Appellate authorities of the Department have been trained on its use.

Social Justice and Empowerment and Minority Affairs

Inventory Management System has been designed and developed for inventory management. It consists of Stock Entry and Issuance part for various Consumable and Non-consumable and provides various MIS reports. Portals for National Commission for De-notified, Nomadic and Semi-Nomadic Tribes (NCDNSNT) and Ministry of Minority Affairs have been designed and launched. Document Management Information System (DMIS), ACC Vacancies Monitoring System, PAO-200 Software Package, RTI Annual Return Information System, Parliament Questions and Answers, etc., have been designed/operationalized. VPN Set-up and Web Publishing have been carried out for Office of Chief Commissioner for the Persons with Disabilities and National Commission for Denotified, Nomadic and Semi-Nomadic Tribes.

Telecommunications

A web based application software has been developed to facilitate electronic submission and settlement of claims of various service providers for subsidy from the Universal Service Fund against the telephone facility provided by them in the villages of India using different technologies.

Another web based application software has been developed to monitor the progress of 250 million telephone connections going to be provided by various service providers across the country by 2007.

Operators have to feed their yearly and monthly target figures along with their monthly achievement figures in respect of Landlines, WLL Cellular and Broadband Connections. This system generates timely MIS reports to enable the planners/administrators to identify delays and problems and take corrective action.

To map telecom infrastructure on country-wide basis for information dissemination for planning and decision-making purpose at national, state and district level including local bodies and Members of Parliament, a GIS based information system has been undertaken. It will be used for planning and strategic decision making for the installation of core indicators and to monitor the existing area as well as to determine the potential growth in the country.

Tourism

Hotel Classification system has been developed and implemented. It generates reminders on expiry of such classification.

An Intra Tourism Portal has been designed and implemented for the Ministry.

A Project Monitoring System (PMS) has been implemented to monitor the progress made in different projects and also provide online access to the executing agencies for progress report update and utilisation certification update etc.

UPSC

The SOAP software facilitates the Union Public Service Commission (UPSC) to make use of IT and Internet in a big way to launch a G2C E-Governance application for submission of application by the candidates online for various examinations. The most important feature of the software is that the same software can be used by the candidates for submitting the application forms online for different examinations conducted by UPSC. The software is so designed that the rules and regulations of all the examinations are modeled in a single window. The software is designed on LAPP platform. Linux ES 4.0 is used as server O.S and PostgreSQL 7.4.6 as backend RDBMS and PHP.

Urban Development

eAwas - Government Accommodation Management System (GAMS) (<http://eawas.nic.in>) was successfully used for General Pool Residential Accommodation in

Delhi by the Directorate of Estates. The application has also a citizen interface hosted on the website of the Directorate (<http://estates.nic.in>). Its implementation in regional offices of the Directorate at Kolkata, Chennai, Nagpur, Chandigarh, Shimla, Faridabad and Ghaziabad was started with its inauguration for Chennai on 20th December 2006 by Secretary (UD). Computerization of Guest Accommodation for MPs and Ministers at Western Court, New Delhi, and Holiday Homes and Guest Accommodations in different locations were undertaken. eDharti - Land Management Information System (LMIS) was completed to help L&DO in various activities related to Lands and property under L&DO such as Conversion, Substitution, Mutation, Sale Permission, Mortgage Permission, Gift Permission, Inspection, Demand Calculations, Payments and Refunds. It also provides online status of application through L&DOs website.

Water Resources

A project proposal for computerization of 4th Minor Irrigation Census data has been submitted to Ministry after successfully completing 3rd MI Census. Detailed project proposal for WEB-based application for monitoring the flood forecasting data has been submitted to Central Water Commission. Application System for monitoring the physical and financial progress of the irrigation project has been implemented in open source. Vacancy Monitor application has been developed for designation profile management. Network services have been strengthened with 140 additional nodes in the Ministry. NICNET/INTERNET connectivity has been extended to Central Ground Water Board, Faridabad through leased line. Bilingual Website for the Ministry has been redesigned. (<http://mowr.gov.in>).

Women and Child Development

National Resource Centre for Women (<http://nrcw.nic.in>) portal has been inaugurated by the Hon'ble Minister for Human Resource Development. An online Complaint Registration System for Women has been developed and launched for National Commission for Women. Software application for State Level Monitoring of Swayamsidha Scheme has been designed and made operational and also organized video-conferencing sessions for 900 cluster leaders of Scheme. A training programme was organized at Srinagar in J&K during the workshop organized by department for the



implementation of the above software application. NGO Grant-in-Aid application was designed and developed for the Ministry. So far, more than 20,000 records have been entered which includes NGO directory, Projects sanctioned and their details along with GIS based projections of the actual impact has been provided to have greater visibility of actual implementation and to take necessary steps for active interventions to ward off imbalances. Tracking and Monitoring of Missing children has been taken up for design and development for a National and International roll out. Design and development of Loan Operations Management System has been taken up for Rashtriya Mahila Kosh for its implementation in five states on pilot basis.

Youth Affairs and Sports

IT Action Plan prepared by NIC for Sports Authority of India(SAI) has been approved and got implemented. For the visits of Hon'ble Minister for Sports, a multimedia CD on the sports activities has been designed and developed along with a colourful brochure. Websites for SAI, Ministry and NYKS have been designed and launched. Local Area Network has been designed and established for SAI at Jawahar Lal Nehru Stadium. IntraSAI portal has been prepared and launched. A workshop on sports databases has been conducted to elicit the requirements of sports persons.

States

Andhra Pradesh

Internet Gateway has been enhanced to 34 MBPS. STM1 link, channelised E-1 link and CISCO 7609 have been installed. 5 MNIC centres in Medak made fully operational. 10 MBPS links commissioned to Chennai, Bangalore, Tiruvananthapuram. DR link to Delhi upgraded to 45 MBPS. 6 AP districts, High Court, NIN, INCOIS provided with 2MBPS leased circuit. Action

initiated for VSAT DR Hub at Hyderabad. Action initiated for connecting remaining districts of AP with 2 MBPS leased link. Under e-Panchayat, workshops, training programs were conducted in all the districts of AP for Panchayat Staff and system has been implemented in 250 Panchayats. The CARD services are web enabled to disseminate registration information to public with a provision for calling objections. Support was extended to Card project on a continuous basis. An SMS based application to inform citizens about land details was launched in Hyderabad District in 2006. Integrated Management System for Pay and Accounts (IMPACT) has been implemented at 2 PAO Offices (State Government) in Hyderabad. A complete work flow automation of all activities of PHED – RWS schemes has been completed. A EDI based message exchanging system among air cargo trading partners for cargo export/import was developed for State trading corporation. This facilitates exchange of airway bills, cargo details etc over internet.

Arunachal Pradesh

Implementation of Web based MIS package for PHED has been completed. GPF has been computerised and implemented in Directorate of Accounts and Treasuries. CIPA project is being implemented and necessary training has been given to Police Staff. Employment Exchange Management system has been implemented and data entry work related to registered candidates is being done. Transport Computerisation Project (Sarathi and Vahan Software) has been implemented in Yupia and Tezu districts. NICNET is being extended to 23 sub-divisions. All districts have been have been provided with video conferencing.

Assam

NIC Assam State Centre played a major role in the improvement of the basic ICT infrastructure through implementation of the Sub-divisional network, commissioning of high-speed lease (MLLN) circuit in five pilot districts and establishment of video conferencing in all districts of Assam. Some of the major projects undertaken during the period were support to State Election department and the district level RO and ARO during State Assembly elections; MoU for SLA for Election Department finalized and to be signed by NIC for future support; Pragati (the e-Governance package for district administration) developed by NIC extended to more number of

districts and also to Meghalaya. Consultancy and Support is being provided to 33rd National Games Secretariat. VPN connection has been provided to all district Centres for content uploading of websites through secure channel. Arogya system has been implemented in B. Barooah Cancer Institute (BBCI). Immigration Control System (ICS) has been implemented for Lokapriya Gopinath Bordoloi International Airport, Guwahati.

Bihar

SCORE – (System for Computerized Registration) - a novel ICT Software Solution for e-Registration of properties in Bihar has been implemented at 105 registry offices of the state in the record time of three months on Hire Basis Hardware (HOHB) model yielding increase in state revenue. Chanakya – University activities pertaining to the students, teachers, course management, evaluation of answer scripts, and publication of timely results are the crux of ideal University/ institution. Well managed University shows exemplary management of these issues and map the University as an ideal Institution in the canvas of education and learning globally. The e-KHAZANA (Treasuries) system introduced as rescuer and generated online fund management, reconciliation with budget, timely submission of classified accounts. VICTORY (VAT Information Computerization to Optimize Revenue Yields) has been implemented in the State for tax evasion by micro and macro analysis by adopting integration of top-down and bottom-up approach using HIT and Windfall. RACE - (Revenue Administration through Computerized Energy billing)- Provides quality service to more than 3 lakhs of energy consumers at Patna was more than a challenge for the Bihar State Electricity Board where the demand of energy outpaces the generations and its supply.

Chhatisgarh

The MIS development of PHED has been completed. The testing and implementation is in progress. The NREGA of Rural Development is being implemented successfully. Under e-Return Digital Signatures are being issued to the vendors of Commercial Tax department through NICCA. Under the NICNET expansion program, 5 new districts have been connected through 2 Mbps Leased Line. Another 5 districts are under process of installation. All the 73 APMCs(Mandis) of the state have been provided hardware under AGMARKNET project for entering

the daily data of market for arrivals. District Courts of Bilaspur and Raipur have been totally computerized along with LAN in court premises and daily cause list of cases is being uploaded on net for general public. Towards the implementation of CIPA in state, 32 police stations have been provided the systems. The software has been tested, the feedback from the police department have been incorporated. e-Kosh is running smoothly in all the 17 district treasuries and 46 sub treasuries over NICNET. e-Challan has been introduced for online submission of Challans in banks for treasury use. e-Karmachari (Employee Database in local language) entries are over and database is being kept updated. Land Records is being extended to Village level is currently in progress. Computers are given in phase 1 to Patwaris of 43 Tehsils across the state.

Delhi

SWAN connecting 34 locations of Delhi Government has been operationalized. Property Registration has been implemented in 8 SR offices. PAO-2000 s/w has been implemented in 18 PAOs, Centralized Pay Software for Delhi Government implemented by 700 DDOs, GPF Information Monitoring System implemented for all PAOs of Delhi Government, Online RoR under Land Records computerization started from 6 Districts, Mutation module implemented in 2 Districts. File Monitoring System, Letter Monitoring System, E-Purti S/w, Software for processing of Information for Recruitment of Home Guards has been implemented for various Departments of State Government.

Goa

INFOGRAM was successfully rolled out in the entire village Panchyats of GOA. The Hardware was procured by the Government of GOA and the software and training for the trainers was provided by NIC, Goa State unit. The new Version of Land records System has been developed and tested. The new version of Muncipal Administration Software in progress. The web enabled application will provide facilities to maintain centralized database of all the municipal councils and provide citizen services through mahithighras. Web based reconciliation system for directorate of accounts has been implemented. Mines information system had been implemented for the directorate of mines and geology. All the courts upto taluk level are taken up for computerization. The Government of GOA is

financing the project by providing connectivity, hardware.

Gujarat

With the introduction of Gujarat State Wide Area Network (GSWAN), the state of e-Governance has gathered fast momentum in Gujarat. GSWAN reaches to all districts and taluks. All e-governance initiatives in the State are monitored by the Department of Science and Technology (DST). NICNET and GSWAN are integrated. State Government server farm and NIC SAN servers are in place. G2C applications like Land Records (e-Dhara), One Day Governance, Ration Card, Registration of Documents (ReD), BPL List, Chief Ministers Grievance Redressal System (SWAGAT), Employment Exchange Management System (EEMS), Comprehensive Case Information System at High Court, ITI admissions, Panchayat Portal, Pension and Provident Fund System, Inventory Management system for Central Medical Store Organization, Sale license application for Food and Drugs Control Administration, Market value and stamp duty calculation on Internet, Passport Status and Application filing etc., are some of the major projects successfully implemented by NIC. SWAGAT ensures that the grievances are redressed at the lower administrative functionaries level itself and those still to be addressed are only brought to the CMs Jansampark office along with the applicant and is resolved there itself by the Hon. CM in consultation with the concerned authorities from departments / district offices through video conference. The CIPA implementation has been initiated at 47 Police stations.

Haryana

Out of State's 11 Mission Mode Projects, Online Treasury Information System (OTIS) and Haryana Registration Information System (HARIS) has been implemented in all locations of the state. Data of Land Records (HALRIS) of 76 Tehsils has been kept on the website. Road Transport Regulatory (Driving License/ (Sarathi and Vehicle Registration/Vahan has been implemented at 35 SDM offices. E.Health.net has been implemented in the State. NREGA system for registration has been implemented in Narnaul and Sirsa. IDSP (Integrated Disease Surveillance Programme) is under implementation in all districts. E-Panchayat has been implemented to take care of village level development works. Workflow based Justice Delivery and Judicial Information System has

been implemented and Network of more than 700 PCs and NMC has been set-up at High court of Punjab and Haryana.

Himachal Pradesh

Land Records Computerization made online/operational at 109 Tehsil Centres. Property (Land Deeds) Registration (Him-Ris) has been operationalized in at least 45 Tehsils by March 2007. Transport Permit (Vahan) is being implemented in all the RTO offices. ePraman(Certificate Issuance System) has been operationalized in all the tehsils(109) and 40 Sub-divisions. HP IPH Computerization, all 14 software modules are ready and under testing. OLTIS-Treasuries has been extended to 20 additional Sub-Treasuries Computerization. Integrated Pay and Accounts system implemented in 45 IPAO offices. NIC has provided Web-based interfaces for online access to HP AG office information pertaining to Departments, Employees and Pensioners. Double Entry Accounting System SW implemented in five pilot Panchayats. Implementation of CIPA in 40 Police Stations in HP by March 2007. ePension has been implemented in all the districts.

Jammu and Kashmir

124 CICs have been made functional in the State of J&K. Data Centre has been set-up at SMC Srinagar. Computerized issuances of Birth and Death certificate at SMC Srinagar and at Municipal Council Anantnag have been started. Entire electoral rolls have been prepared in Urdu and Hindi and with dynamic search facility provided at election department website. Common Integrated Police Application is under installation at 17 police stations. Video Conferencing facility has been installed at 11 locations.

Jharkhand

Computerisation of Treasury(2 tier) has been implemented in all the treasuries and sub-treasuries along with operation of a web based network management system. A new application(3 tier) has been implemented at four locations at pilot basis. Smart card based driving license and registration system implemented at 12 DTOs. Web based VAT Computerisation has been made operation in all the 28 circles. GPF/CPF computerization has been implemented along with integrating with treasury schedules on pilot basis. Under the Lands Record Computerisation : Khatian, Register-II has been

implemented at the pilot site of Jamshedpur. A video conferencing has been set up between District Court and Jail. Prisoner Management Information System implemented at Birsa Munda Central Jail, Ranchi.

Karnataka

Bhoomi (Land Records Information system) was enhanced to support Podi (division of land) and assigning new survey numbers, facilitating banks to update the liabilities information on the RTC through web based system with PKI integration. Bhoomi has been integrated with Kaveri (Registration software. RTC has been further integrated with Rural Digital Services for delivery of RTCs through 800 telecentres on a PPP model. State wide rollout of 'Vahan' and 'Sarathi' has been completed by assisting the department to prepare RFP (Technical details) on a PPP model. Rural Digital Services (RDS) Version 2.0 renamed as 'Nemmadi' was launched by the Hon'ble Chief Minister of Karnataka. The State wide rollout of the software for delivery of digital services like caste and income certificate, RTCs, birth/death certificate etc in the rural areas has commenced on a PPP model with NIC's software delivering the services electronically. VAT system is under implementation. Development of water supply billing and collection software for KUIDFC has been completed and being implemented at 4 municipal corporations (Hubli-Dharwad, Belgaum, Mysore and Gulbarga) during the financial year 2006-07. Integration of comprehensive display system with the High court case monitoring system has been completed to help the advocates and litigants to know the status of the cases being heard in different court halls. Online market computerization for bidding has been completed for 5 commodities in Mysore market.

Kerala

Generic template has been designed for any department of Government of Kerala based on the website development policy of Government of Kerala. This template uses the Joomla framework, using which the content management can be done by the individual department including the user management of content providers within the department. The template is accessible at <http://oss.kerala.nic.in/goktemplate/>. Treasury Management System - 100% Completed in all treasuries of Kerala : Trainers trainee programme for the Master Trainers identified from the Treasury

Department was given for a week who in turn will train all the staff of Treasury department in Kerala. BHUREKHA Version 1.0 software for Computerization of Land Records in Taluk Offices completed the STQC certification procedures and overall software quality was assessed as "Very Good" with score of 82.9%.

Madhya Pradesh

Samadhan on-line- A grievance redressal system for Chief Minister Office has been implemented, where NIC's Network, VC, web services are extensively used. A web based system to monitor the performance of the various departments has been implemented at CM Office. E-PDMS (Public Distribution Monitoring System) has been implemented having data of about 20,000 Fair Price Shops. Result Processing System has been used for processing and dissemination of result for Class V and VIII of MP Board. IDC and iNOC has been established at Bhopal providing 24X7 operations. GIS based system has been developed for Madhya Pradesh Vidyuth Vitharan Company Ltd and being used as Power Distribution Monitoring System. 2MBPS connectivity provided to 14 districts. Connectivity has been provided to Directorate of Institutional Finance, Fisheries, Department of Economics and Statistics, Directorate of Training; to 1120 users; conducted seven training programmes including DOL sponsored, e-governance related sponsored by DOPT and over 165 persons trained. 390 VC sessions of VC were conducted between districts and State Government Secretariat It has been published as national record in the Limca Book of Records.

Maharashtra

VPN facility has been provided to all (35) District Websites for secured updation. Storage capacity of SAN Centre has been upgraded. Driving Licence (Sarathi) and Vehicle Registration System (Vahan) has been implemented. NREGA Portal for districts of Maharashtra. Commissioning of Web site for display of Land Record data of all (357) tehsils. CIPA has been implemented in 127 Police stations. Aerial photography has been completed for Mumbai under Utility mapping project and installation of Computers. STM1 connectivity has established from Mumbai to Delhi, Pune, Gandhinagar and Chandigarh. RF network has been set up at Districts. Digital Signature certificate has been implemented for instant money order project. 2MBPs connectivity

has been provided to 8 districts Centres of NIC Maharashtra.

Manipur

District Courts of Cheirap Court Complex and Lamphel Court Complex have been computerized. Online treasuries systems have been implemented at 3 locations. Property registration has been implemented in Imphal district. Personnel Information Database has been prepared for Govt of Manipur. Computerized Energy Billing has been started at 8 Electricity sub-divisions. Computerization of Vehicle Registration and Driving License started at 6 RTOs. Land Records Computerization project extended to 4 SDC offices. Monitoring system has been developed for Technology Mission Projects. Video Conferencing has been set up in all 9 districts.

Meghalaya

VAHAN and SARATHI has been implemented in all the District Transport Offices. TreasuryNET is being customized for local requirements and pilot implementation in Shillong South Treasury. e-Granthalaya has been installed for State Central Library, Shillong, District Libraries and Libraries in various Colleges and Government Institutions. Web based PHED MIS Software for Role Management, Personnel Information System, Scheme and Programme, Finance and Work Accounting, Equipment Information System, Material and Store is ready and being tested.

Mizoram

NIC along with the Government of Mizoram has taken up many initiatives in facilitating and promoting e-governance in various sectors such as Transport, Land Record, Public Health Engineering, and Accounts and Treasuries etc. NIC has completely rolled out VAHAN and SARATHI in Mizoram (6 DTOs). Various training programmes have been organized by NIC(Mizoram) on Vahan and Sarathi for the officials of the Transport Department to acquaint them with the different modules of the software. Completed site preparation, installation of hardware, UPS, LAN for City Court Computerization. CICA as it is abbreviated is implemented at Aizawl District Mizoram as a pilot project. It facilitates issue of various citizen centric certificates such as Tribe, Birth, Income etc.

Nagaland

Video Conferencing facility has been set up for 11 sites. 41 RF sites have been established connecting to the state departmental directorates. Installation for 38 sites of Sub-Division Network in Nagaland is in progress. Setting up of I-NOC Centre, Data Centre and Training Centre has been carried out during the year. Infrastructure for National Multilayer GIS project and BPL-Unique ID Project is being established at the state Centre. Sarathi has been implemented at Regional Transport Office, Kohima and testing of Vahan software is in progress. MoU for PHED computerization project under RGNDWN has been signed between the State Government and NIC. Update and publish Daily Naga News Bulletin on daily basis in the State Website.

Orissa

State Portal Official has been launched <http://www.orissa.gov.in>, covering 38 departments of Government of Orissa. Land Records is now operational in 166 tehsils with online updation of ROR in regional language. Land Registration System has been implemented at 15 registration offices. Treasury Accounting system is operational at 28 District Treasuries. Janavani - Public Grievances Redressal system made operational at Khurda district. E-Sahayata - implemented at 5 districts to offer one stop service centre. RuralSoft and Priasoft implemented at Block level offices. Portal of all 3-tier PRIs created using eNRICH. Online monitoring of NREGS made operational from 2nd February 2006, has 24.00 Lakhs registrations where as 16,02,199 Job Cards has been issued. AGMARKNET operational at 58 RMCs and e_granthabali implemented at State Museum under National Manuscripts Mission Project. e-Soochana for tracking of petitions implemented at State Information Commission. e-RTI enables the Public Information Officers of all 38 departments to monitor the status of applications received. Integrated Information System for Food grain Management implemented. Sarathi and Vahan implemented at 6 RTOs

Punjab

SUWIDHA 2.0 has been extended to 56 SDM Offices apart from all districts. E-kiosk has been set up at Nawanshehar and Mukatsar districts for static as well as dynamic status dissemination for varied services.

PRISM has been implemented in 130 Sub-Registrar Offices (SROs) including Districts, Tehsils and Sub-tehsils. Social Security Information system (SSIS) has been developed for pension disbursement. Various certificate have been computerized for DC office namely Marriage Registration Information System, Marriage-ability Information System, Certificate Issuance System, Courts Information system, Bus Passes Issuance System, Identity Card Issuance System, Birth and Death Certificate Issuance system, Handicap Certificate Information for DC offices. Treasury Information System of Punjab (TISP) project has been implemented in all District and Sub-Treasuries of Punjab. Embossing Information system (EMBOSSIS) for Commissioner's office has been put in place. Official E-mail Server of Punjab <http://punjabmail.gov.in> with more than 1200 accounts has configured. RTI Contents has been uploaded at <http://rti.gov.in> for more than 60 organizations of Punjab.

Rajasthan

For finance department, Cheque System has been implemented in 38 Treasuries and 110 independent sub treasuries. This reduces processing time, minimizes chances of forgery, etc., BPL data has been finalized for the entire state with the technical support from NIC. The rural BPL list has been released in September 2006. Data would soon be made available on the internet. Monitoring software for National Rural Employment Guarantee Scheme has been implemented at all 6 locations where the NREGS has been implemented. An internet based system for monitoring Routine Immunization programme has been developed and implemented for Medical and Health department. Rajasthan assembly is the first state assembly to have the daily proceedings in Hindi online supported by NIC. Judgements of Rajasthan High Court Principal seat Jodhpur and Jaipur bench have been made available on the web site of High Court (<http://hcraj.nic.in>). Licenses have been given to Cyber cafes for issuing RoR. Copy of record of right can be obtained from the cyber cafes. IT infrastructure has been created at all the SDM offices and ACM offices (Total 201 locations). 2 mbps managed leased lines have been commissioned from Jaipur secretariat to the divisional headquarters including Jodhpur, Kota, Udaipur and Bikaner. The same is also being commissioned at Ajmer. CIPA has been inaugurated.

Sikkim

ORCHID Online registration of certificates Handling and Insurance Delivery System has been developed for automation of certificate handling system in the District Collectorate for issuance of OBC, SC ST, employment and death certificates. Software for land registration is complete and being tested. VAT system connecting 9 check posts has been successfully implemented in Income and Sales tax department. Under Multilayer GIS project, training on ARC VIEW was given and along with the software GIS division has been given data for Sikkim for 10 layers and rest is being collected by NIC Sikkim State Unit.

Tamil Nadu

The system developed for National Rural Employment Guarantee Scheme was implemented at 3830 Village Panchayats. Integrated System developed under Rajiv Gandhi National Drinking Water Mission Programme was implemented for Tamil Nadu Water Supply and Drainage Board under Municipal Administration and Water Supply Department. Tamil Nilam system was enhanced with two new modules - Two Acre Land Assignment System and Taluk Assurance and Acknowledgement System. Vahan and Sarathi system was implemented in 25 more offices during this year. Extensive support was given during Assembly Elections and Local Body Elections. Electoral Roll data of all 234 Assembly Constituencies were hosted with provision for getting online applications for inclusion in the list. Candidates nomination details and Votes Polled details were captured through web based system for more than 2 lakh candidates in the Local Body Elections. A web based system was implemented for monitoring Vehicular Emission Control data of more than 240 active PUCC (Pollution under Control Certificate) centres in the state. CollabLand System was approved by Government of Tamil Nadu for implementation in all taluks based on pilot implementation in two taluks. Single Window counselling system was used during admissions to more than 390 Teachers Training Institutes. Land Management system for Defence Estate Office at Chennai was implemented. The system was taken up for implementation at other Defence Estate Offices in the country.

Tripura

Tripura Registration Information System (TRIS) for Registration of Documents has been implemented in

West Tripura District covering 3 (three) Sub-Registrar Offices. Land Records Management System has been deployed in 5 (five) Revenue Circles. Smart Card based Driving License and Registration Certificate has been introduced in West Tripura District of JTC office, Agartala. A comprehensive Hospital Management System has been deployed in Agartala Government Medical College and GBP Hospital Site preparation and procurement of ICT Infrastructure for Statewide rollout of Energy Billing System has been completed. Training provided for CIPA operational staff. Successful deployment of workflow based Hospital Management System IN AGMC and GBP Hospital. Smart Card based Driving License and Registration Certificate has been introduced. Tripura Registration Information System (TRIS) has been successfully deployed and operational in multiple locations in West Tripura District.

Uttarakhand

Land Records Computerization has been implemented in all tehsils and sub-tehsils of the State. Property Registration has been implemented at 6 SR offices. Computerization of Jal Sansthan has been done including Resource Management, Water Quality Management System, material and Store management system, Finance and Works Accounting System, Pension System, Office Automation System etc. MIS has been prepared for Transport and Revenue. Online module for collection of Prices of different commodities and Wage rates of different type of labours has been implemented.

Uttar Pradesh

UP State Unit implemented many e-Governance Applications in the area of G2G, G2C and G2B. These applications (Lokvani, Bhulekh, Prerna, Vahan, Nagarsoft, Pensioner Database etc.) have brought about a major change in the citizen service delivery mechanism and helped in extending the fruits of IT enabled services to the remotest parts of the state. Online counseling for UP Technical University has been a big success. The G2G services ranged from CM Office (CM 39 and Janta Divas) to UP Treasury, Niyukti Online/Niyukti Seva for IAS and PCS officers of the State, File and Letter Monitoring System, GIS based Planning Atlas, Revenue Case Monitoring System and many more. The other services included Website development, extending email and Internet connectivity to various government departments etc.

West Bengal

Agricultural Integrated Management System (AIMS) towards development of Farmer Centric Applications in the Department is being developed to cater to the requirements of fertilizer control, project monitoring weather forecast, soil and water conservation etc. The software helps the administration extend all financial assistance given to SC/ST/OBC category of people under different schemes. This has been decided to be implemented at all districts. Excise Program for Effective Revenue Tracking (xPERT) for the Excise Department has been completed in case of Import Pass and will be implemented in all Bonds and Distilleries by March 2007. Transport Pass is also in the final stages of completion. Commercial Tax System has been extended to 7 Check Posts and Interface with States of Sikkim and Meghalaya established. The Computerization of Registration of Documents (CORD) software is too implemented in 50 Sub-Registration Offices in the state by March 2007. CORD is being customized for implementation in Mizoram.

Andaman and Nicobar

During the year 2006 A & N UT Centre has taken up various new projects. Provided the Internet connection to many Government organization and also maintained and monitored the ongoing projects. The Seat Allotment Software for allotment of Professional and Non-Professional seats to the students of A & N Islands in the various colleges in mainland was used in 2006-2007. It was highly praised by the A & N Administration. The Dweep Bhoomi software has been developed and being implemented in one Pilot Tehsil of South Andaman District. This software takes all the input of land owners and performs the activities like Sub-Division, Mutation, etc., with proper work flow and full security. After the Earthquake and Tsunami, the Department of Relief and Rehabilitation has started construction of around 10000 permanent shelters for the victims in 10 islands having 80 locations. NIC has developed a web based information system to monitor the status of Construction of Permanent Shelter at various locations in A & N Islands.

Chandigarh UT

To strengthen eGovernance activities for providing more and more services for the benefit of citizens one more eSampark centre was opened from where 17

G2C and 3 B2C services are being provided. Other delivery channels are Mobile sampark and Portal (<https://chandigarh.gov.in>). Pilot testing of IVRS is in progress which shall soon be made available. Jan Sampark centres have been established from where informative services are being provided and also these centres are facilitating in Grievances redressal and acceptance of RTI applications. An Intranet Portal has been developed which is being accessed by various departments for multiple applications. It is also being used for various G2E services. Some of the applications are Meeting Manager, Court Cases MIS, File Tracking MIS, Scheme and Budget Monitoring, Visitors MIS, Tenders and Quotations, Rent Controller MIS etc

Dadra and Nagar Haveli

“VAHAN” a computerised G2C RTO services inaugurated and dedicated to the people of Dadra and Nagar Haveli UT by Hon. Shri. R. K. Verma Administrator of Dadra and Nagar Haveli and Daman and Diu UT on 11/08/2006. “Sarathi” is also implemented in O/o RTO, Silvassa. Up till now 6000 number of beneficiaries have availed computerized services in the year 2006. District Court Computerization was started in Dadra and Nagar Haveli district court. An application s/w on open source (LAMP) platform is being used in gearing up judicial administration and providing court case information to stake holders. Single Window system has been put in use in District Collectorate providing support to Collector/DM in effectively and in time bound manner addressing public grievances and delivering G2C services to the citizens.

Daman and Diu

VAHAN- a computerized G2C RTO services for Registration of vehicles is running smoothly at RTO office, Daman since December 2004. The VAHAN is also being implemented at Diu.. The registration certificate for a new vehicle and tax collection receipts for old/new vehicles are issued to the vehicle owners. As a leap towards the e-Governance at village level, the Birth and Death registration has been computerized and implemented at all the village panchayats (14 Village Panchayats) of the UT. An introductory session to the Panchayat and statistical officers and officials was also organized. About 50,000 records across all village panchayats are entered. Ration Card system is in use at Civil Supplies Department at Collectorate, Daman. The application

is also replicated at Diu district. About 22,000 computerized new ration cards have been prepared and distributed in Daman and fair price shop wise food grain demand is estimated. Water Billing for PWD Department and Electricity Bill for Electricity Department has been implemented.

Lakshadweep

The SDO-NET- a VSAT network interconnecting all the sub Divisional offices in all islands(development blocks) in Lakshadweep completed. Video Conferencing facility provided to all the sub divisional offices by installing video phones and plasma screen. The automation of RTO office Lakshadweep completed by implementing VAHAN and SARATHI software. A web-enabled permit system introduced for the issue and monitoring of entry permits to Lakshadweep. GPS/ETS cadastral survey of two block of Kavaratti island completed and the spatial data integrated with the non-spatial land records data. A web-enabled consumer management and consumer billing system developed and implemented for the Department of Electricity. A web-enabled integrated inventory and cargo management system developed and implemented for department of electricity. The Lakshadweep Islands Resident Identity Card System (LIRICS) implemented and the basic resident database was created for Lakshadweep. INTRALAK, the Intranet for the Administration of U.T. of Lakshadweep developed and implemented. Implemented web-enabled employment exchange services in District Employment Exchange, The computerization of District court, Lakshadweep and state consumer redressal forum and District foras completed.

Puducherry

e-Pathiram and Nilamagal workflow applications has been developed for Revenue Department for rollout to all taluks. The ePathiram version -1 is installed in all SRO offices during 2006. The LR software Pilot – ‘NILAMAGAL’ was fully implemented at one pilot taluk and accepted by Revenue Department and is due to be implemented at all other taluks of

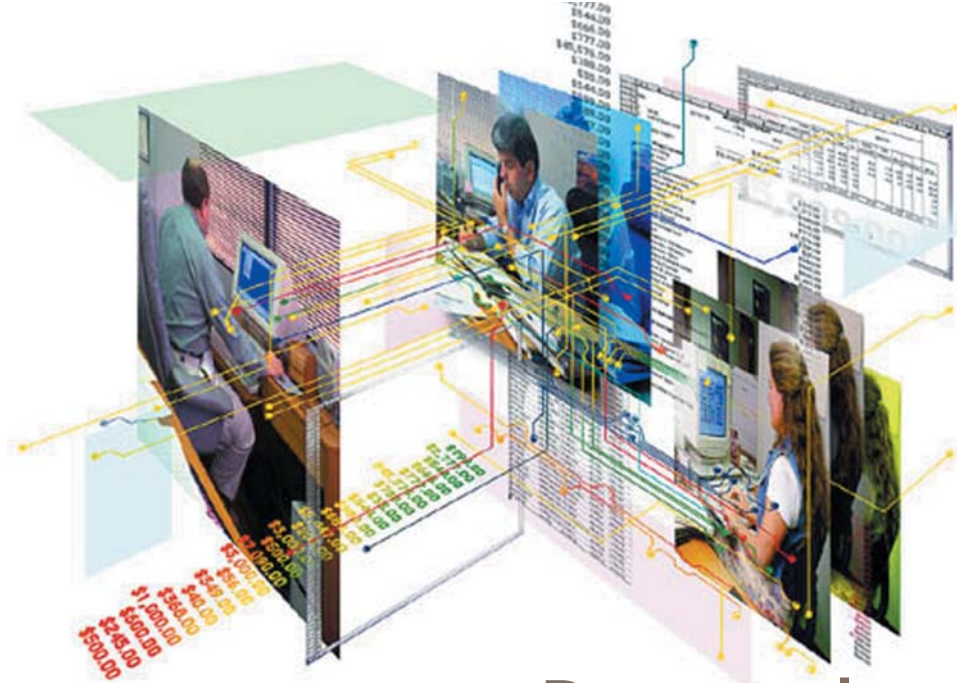
Puducherry. The external project consultants have been M/s PWC. Vahan and Sarathi fully implemented. Property Taxes of Municipal areas in Puducherry, Oulgaret, etc., (updated back office data base prepared and web based data and Property tax calculation work sheet displayed). New websites development and hosting done for Directorate of Tourism, Central Excise, Puducherry, Jawahar Navodaya Vidyalaya and Union Territory of Puducherry Legal Services Authority. Testing related to procurement of systems by NIC is being done regularly. Conducted trainings on eGovernance and RTI related at Puducherry Secretariat for 40 officers.

LBS National Academy of Administration

NIC Training Unit, LBS National Academy of Administration, Mussoorie provides Communication and Information Technology related training to the officers of All India Services during all the training programmes conducted at the Academy. During 79th Foundation Course, 50 training sessions were conducted. 54 sessions were conducted for IAS Professional course.

National Informatics Centre Services Incorporated (NICSI)

NICSI provides one-stop IT solution to Central Government and State Government departments, Public Sector Undertakings and other government bodies and institutional. It is a section 25 company under NIC. NICSI specializes in procurement hardware, software and support services at competitive prices. It has executed large number of projects in the e-Governance area; spread over various states. Some of the important projects are State Wide Area Network in Tripura and Sikkim, Government of NCT of Delhi and Chandigarh UT. It is also supporting several large projects to the Department of Information Technology, Government of India such as Universal Identification of Family Project, e-Governance replication project and e-District project. It has implemented IT projects for various states such as Kerala, Bihar, UP, NE States, Karnataka, Maharashtra, NCT of Delhi, etc.



Promotional Matters

International Co-operation and Bilateral Trade

International Cooperation and Bilateral Trade Division of this Department is regularly interacting with the foreign governments and agencies and our 'Mission abroad for bilateral cooperation in the IT sector.

During the year 2006-07, focus of activities was primarily on activating the MOUs and the arrangements agreed upon in previous interactions with the foreign dignitaries, foreign governments and delegations with a view to undertaking joint ventures, sharing of expertise and developing a common approach towards emerging issues in this sector.

India is always willing to share its experience and expertise with other countries of the worlds, specially the countries of the developing world. In this backdrop, the Indian Government takes an initiative for cooperation in the field of Information Technology and projects on setting up an IT Centre in the following countries are being set up with technical and financial assistance of India.

A Trilateral Commission of three countries of India, Brazil and South Africa (IBSA) Dialogue Forum was build up by foreign Ministers of three countries. The Framework of IBSA on the Information Society has signed during 1st IBSA Summit held in Brazil on 13th September 2006. Identification of joint projects in the area of agreed upon and Plan of Action established.

NIC has signed MOU on I-Community project between NIC and Operations Management Department of Kasetsart University, Bangkok, Thailand in April 2006 at Bangkok.

EU-India Joint Working Group on Information Society has been established to work on information society frameworks, regulatory

frameworks, Information and network security, cybercrime, digital signature, privacy and data protection, SPAM, e-Government, e-health, 4G, RFID, Internet governance, broadband rollout, etc., Next meeting of the Working Group will be held first quarter of 2007. A National Contact Point (NCP) has been established in DIT.

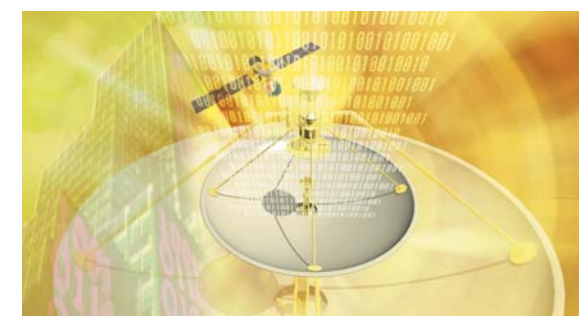
India - EU projects implemented includes :

Interlinking European GEANT - A connectivity project between ERNET and GEANT – A PAN European Education and Research Network on 34 Mbps Internet private leased circuit, under its FP6 programme was established on 2nd August 2006.

ERNET India is implementing a project proposal, 'Bridging Europe's Electronics Infrastructure to Expanding Frontiers'(BELIEF)', funded by EU's under IST of 6th framework Programme (FP6). The project has been initiated in November 2005 and would be completed by October 2007.

ERNET, India is involved in implementing EU's funded proposal FP6 programme, 'EU-IndiaGrid', which is an eInfrastructure Research proposal supports interconnection between the most relevant European Grid infrastructure (EGEE) and Indian Grid to make a common infrastructure to support data processing for eScience application areas where strong collaborations already exist between Europe and India. The project has been initiated in October 2006 and would be completed by September 2008.

The fifth India-French Joint Working Group meeting on Information Technology and Telecommunications was held in Paris on 19 - 20 September 2006. The Working Group identified following areas for joint action : policy and regulation, Internet Governance, ITU Plenipotentiary Conference, 2006 (PP-06), World Radio communication, Conference, Frequency management, E-applications, Internet/IPV6, SMEs and ICT, Smart cards, Media and networks,



Component, NGN, WIMAX, and Open Source Software.

A high level Indian delegation visited Sofia, Bulgaria during 30-31 May 2006, and signed a Memorandum of Understanding on Information and Communications Technology. A protocol was also signed on the future deliverables of focus areas including High-Tech Parks, Industrial Cooperation, High Performance Computing, E-Governance, eLearning and ICT Education, e-Commerce and e-Business.

A project proposal of 'Promotion of Industrial services and Employment', has been sanctioning by Government of Germany. The project was initiated in January 2005 and will be continued till 31.12.08. Another project proposal on 'Establishing an e-Government Quality Assurance Institute (eGQI)', has been sanctioned by Government of Germany, which has been initiated in January 2007.

An IT Centre at Tashkent, Uzbekistan has been set up with technical and financial assistance of India, Hon'ble Prime Minister of India, Dr. Manmohan Singh inaugurated the IT Centre in Tashkent on 26 April 2006. The IT centre has been named after our first Prime Minister as 'Jawaharlal Nehru India-Uzbekistan Centre for Information Technology (JNICIT)'.

An MOU was signed between Government of India and Government of Tajikistan in November 2003 for setting up of an IT centre at Dushanbe. While the land, building and operational cost was born by Tazik side, the indian side provided technical infrastructure, course curricula and training etc. The centre has been inaugurated by the Deputy Prime Minister of Tajikistan on 18 July 2006. The Centre be named after Mizra Abdul Qadir Bedil, an Indo-Persian Poet, who lived in 17th / 18th century in India.

Two meetings of Joint Working Group under the framework of India-Japan ICT forum were held wherein programs/projects in the area of Broadband, E-governance, R&D, etc., were identified for joint venture between India and Japan. The National Gigabit backbone Network – a super high way for the national traffic and an infrastructure with 10 gigabit bandwidth for video, voice and data communication, was the important joint venture project conceive so far been implemented under JBIC assistance. The project is also capable of providing voice

communication through VOIP and video conferencing to ensure better health, education facilities and other e-governance applications.

'i-Burst Technology' a contemporary wireless broadband technology developed by Kyocera Japan was put to a field trial at Gurgaon by BSNL and would be considered for deployment in India subject to the technical feasibility and cost effectiveness. Other projects in the area of R&D such as Machine Assisted Translation and Retrieval System in English, Japanese and Hindi have also been identified for implementation in India as a Joint Venture programme. Two more projects viz. 'Ambient Assisted Leaving for the aging society' i.e. creation of an Intelligent Home for disabled and old, and 'Facial feature extraction and human behaviour analysis for a dialogue system' are also under consideration for joint venture.

WTO-GATS Services negotiations

Services negotiations under General Agreement on Trade in Services (GATS) of the World Trade Organisation (WTO) in the area of Computer and Related Services (IT Software and Services including ITES and BPO) are going on to ensure liberal market access and national treatment to the Indian companies by the WTO member countries by way of undertaking binding commitments in the GATS schedule of commitments.

As per the negotiating guidelines finalized by the WTO Council for Trade in Services, Request-Offers have been sent to the member countries for improving their existing commitments under GATS and the same are being negotiated bilaterally and plurilaterally.

The key objectives of the Request-Offers made by India are as follows

To achieve agreement on a broad based classification of Computer and Related Services and undertaking broader commitments with a view to have flexibility to accommodate evolving services due to technological developments and convergence of technologies.

To achieve full liberalization in all the four modes of services delivery i.e. mode 1: cross border supply of services, mode-2: consumption abroad, mode-3: commercial presence and mode-4: movement of natural persons by removal of tariff and non-tariff

barriers to trade, permitting foreign direct investment, introducing simple and flexible visa regime enabling easy movement of professionals and bringing in transparency in the domestic regulations.

Lectures on Topics of Current Interest in IT

- "World Information Society Day" on 17th May 2006 Speaker: Dr. F.C. Kohli, TCS
- "Solar Technologies" on 28th June 2006 Speaker: Dr. Charlie Gay ,M/S Applied Materials, USA
- "Create opportunity-anytime, anywhere-with fast, secure access to critical resources" on 4th August,2006 Speaker : Citrix Systems Inc.
- "Gender issues" on 13 September 2006 speaker; Economic Adviser, Ministry of Women and Child Development.
- SEMINAR ON "Mobile Phones: Security, Crime and Investigations" on November 23, 2006 Speakers: Prof.Bhaskar Ramamurthy IIT-Chennai, Ms Manisha Sood Country Manager Sandisk, New Delhi, Shri Vakul Sharma, Shri Samir Datt, Director, Foundation Futuristic Technologies (P)Ltd., New Delhi, and Shri Arun Pandey.
- "Bharat Operating System Solutions (BOSS)" on January 25th, 2007 Speaker: Mr. Rajgopalan and team CDAC Chennai.

ELITEX 2007

DIT has been supporting the research and development effort in the areas of electronics and information technology at various institutions. To disseminate information on these technologies and products developed through this effort among the users and the industry, the Department has been organizing, an annual interaction Electronics and Information Technology Exposition (ELITEX). This event provides an opportunities for close interactions between academia, R&D institutions and industries.

ELITEX 2007 was held during January 10-11, 2007. The event was inaugurated by the Hon'ble Minister for Communications and Information Technology, Shri Dayanidhi Maran on January 10, 2007. The keynote address was delivered by Dr. V. Krishnamurthy, Chairman, National Manufacturing Competitiveness Council. Dr. V. Krishnamurthy appreciated the efforts made by DIT in organizing ELITEX 2007 and showcasing their achievements in terms of products and services for commercialization and advised if the scope can be enlarged to all the technologies developed in India.

The following products/technologies were transferred and released:

Technologies Transferred

- An intelligent and adaptive Area Traffic Control System developed by C-DAC, Thiruvananthapuram. The technology was handed over to Shri Gautam Burman, CEO, WML.
- Electronic Aid for Maintenance of Spindles in Textile Spinning Mills. The technology was handed over to Shri Rajesh Belwalkar, Managing Partner of M/s Orion Electronics, Mumbai.
- Tantalum Powder + Offshoots: The technology developed by C-MET was handed over to Shri J. Vijayakumar, Managing Director, Anabond Ltd., Chennai.

Products released

- Bharatiya Operating System Solutions (BOSS) developed by C-DAC, Chennai.
- E-SAVYA – A low cost Supply Chain Management Software developed by C-DAC, Hyderabad.
- Radio Sonde Transmitter developed by SAMEER. The technology was handed over to Dr. R.C. Bhatia, Acting DG of IMD.
- Project Ashwini developed by Media Lab Asia and Byrraju Foundation.
- Technology for ITO coatings: Technology for Indium Tin Oxide (ITO) coating developed by SAMEER.
- Digital Signature Security software Package developed at SAMEER
- Data Interface Module: developed at SAMEER.
- N@G-ESS (Network at Guard – Enterprise Security Solution) developed by C-DAC.

The Seminar theme of ELITEX 2007 were 'Productivity Enhancement using ICT' including E-Governance: Towards Service Delivery; Convergence, Broadband and Strategic Electronics; ICT for Grassroot Deployment; E-Governance: Standards and Interoperability; Fostering India ICT to Global Reach; Web Technology Standards: Unicode and W3C; Innovation, Knowledge Management and Productivity; IT/Electronics Application in Core

Sectors; Enhancing Productivity – NIC's Technology and Services; and Internet Technologies and Governance. Besides creating awareness about DIT technologies, ELITEX 2007 promoted R&D industry linkages essential for the absorption of indigenous technology by the industry and for stimulating innovations. The Seminar deliberations were available online via direct webcasting on www.elitexlive.nic.in and www.elitex.in and also at all the video-conferencing centres of NIC. Some of the Seminar sessions had Question/Answer through video conferencing.

A compilation on 479 "Technologies/Products developed under DIT Funding", with a brief write up on each of the technologies, was distributed for dissemination of the information about these technologies. Department has, so far, filed 240 IPR for patent/copyright/trademark and design related applications. Out of these, 75 (53 copy rights, 11 patents, 9 trademarks and 2 design) have been granted.

The Centre for Development of Advanced Computing (C-DAC) was given the Best Exhibitor Award among Large stalls, Gujarat were selected for the Best Exhibitor among States, and ATIRA, Ahmedabad among Individual Technology Developers.

Computer Literacy Excellence Awards

The Department of Information Technology (DIT) in the year 2002 instituted an award scheme for Excellence in Computer Literacy and Information Technology in Schools. The initiative was undertaken to create IT awareness among schools and to encourage Computer Literacy and Literacy through Computer usage in the school environment among students in early stages of their schooling. All recognized schools in India, Government and Private, teaching Computers and Information Technology in their schools are eligible to compete for the award. The qualifying criteria is based on the performance of the school in Computer Literacy, availability of IT infrastructure, Trained faculty and participation of schools in IT events at District/State/National Level amongst other activities related to the development of the schools in the field of computer literacy and IT. The evaluation of the nominations for National/State level Excellence Awards is done on a scale of 1 to 100. The awards are given at both the National and State Levels. The Awards are given under two separate categories viz. Category A: Private/Govt. Aided

Schools and Category B: Govt./Municipal Schools. From among the State award winners the National Award winners are selected based on a further evaluation by a National selection committee. The awards have since been distributed thrice in the consecutive years of 2003, 2004 and 2005 by His Excellency, Dr A.P.J Abdul Kalam, and President of India. For the year 2002, 21 schools were award recipients of State and National Awards for the year 2003, 53 schools were award recipients of State and National Awards for the year and for 2004, 51 schools were award recipients of State and National Awards.

Support to Conferences / Seminars

The Conference support programme of DIT has been designed to facilitate academia, research and development institutes, registered professional bodies and NGOs registered under the Societies Registration Act of 1860 to receive grant-in-aid for organizing conferences / seminars / workshops/ symposia, etc., at regional / national / international level 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 the events, supported by DIT through Grant-in-Aid, have been listed on DIT's website (www.mit.gov.in/giaconference.asp) along with the guidelines and proforma for wide dissemination of the information/ objective of the Conference support programme.

During the year about forty 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 trends in high tech areas like Computer Vision, Graphics and Image processing, Bioinformatics, Digital Libraries, Artificial Intelligence, Nano-materials, Cryptology, Photonics, Network Security and Advanced Computing, 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

The Office Automation Cell continued to provide support services related to annual maintenance of Computers, Printers, LAN Servers, Attendance Recording Systems, Laptops and Scanners etc. It is also providing the services related to repair,

maintenance and installation of Personal Computers, Network support for Lotus Notes, Internet, etc., and necessary advise on the technical specifications with regard to procurement of technical stores.

The OA Cell also maintains and validates the Personnel and Finance databases and facilitates for further improvement of these databases. Various Office Orders/ periodical reports (Annual/ Half yearly/ Quarterly/ Monthly) are generated from the above databases.

Most of the forms used by Administrative Divisions in DIT (i.e. Personnel, Administration and Finance) have been made available on Intra DIT Portal, many of these forms are now in dynamic form for the convenience of employees. Centralized arrangement for regular hosting of all Office Orders, Notices, Circulars on Intra DIT have been made. LAN operational, for a long time in DIT, has been revamped so that DIT users are now being provided by 100 mbps speed. OPA System (on-line file / documents tracking system) has been introduced successfully.

For Introducing of e-Leave/e-Tour in the Department, Digital Signatures Certificate are being obtained from concerned CA. As part of e-Leave, submission and processing of on-line applications for CL and RH have been introduced and applications for easy calculation of medical reimbursement claims – pensioners dues as also for monitoring status related to ACRs/APRs have been developed.

Public / Staff Grievances Redress

A total of 38 cases relating to public / staff grievances were received during the year, out of which 27 cases were settled / disposed off.

Electronics Information and Planning Journal

The monthly techno-economic journal 'Electronics Information and Planning' published by the Department of Information Technology is in its 34th year of publication. The journal has a wide readership among the Industry and Users. Its coverage includes all aspects of promotion of Electronics, including technology developments, applications, policies and data.

During the year, the journal covered in-depth analysis reports/articles by professional on the latest technology, such as, Potential of MEMS, RFID,

Information Security, IT Act 2000 and PKI Interoperability, Challenges in BioMEMS, Vehicle Theft Prevention, Competitiveness of Indian IT Software and Services Industry, Intelligent Highway System, e-Passport, Next Generation Call/Contact Centres, Software Defined Radio, Report of the Working Group on Information Technology Sector for the Eleventh Five Year Plan, etc. In addition, statistics on Indian Electronics and IT Industry production profile was also covered in the journal.

To streamlining the distribution and accounting system, a computerized data base for the subscriber is being maintained.

Electronics Industry Information System

The data pertaining to production, exports, approvals, foreign collaborations, manufacturers and product directory and other macro level statistics related to electronic industry are maintained in an information system, called, 'LIPS Information System' by the Data Bank and Information Division (DBID) of the Department of Information Technology. The time-series (item-wise and unit-wise) production and export data is available since 1981. The manufacturer and product directory provides up-to date and reliable information and serves as a Buyer/Seller Guide. It provides manufacturer's information such as address (both office/factory), telephone, telex, fax, gram, name and office of the executive, year of establishment, brand, manpower employed, sector, product range and export product range, etc. It also provides manufacturers and exporters for a given product.

CD on Indian Electronics and IT Industry

The Data Bank and Information Division (DBID) of the Department of Information Technology brought out latest edition of the CD to provide comprehensive information on Indian Electronics and IT Industry.

The CD covers :

- EIS Package : An user-friendly package provides information on Manufacturers Directory, Product Directory, Export Product Directory, Time-series Production and Exports data, Foreign Collaboration, etc. Information can be retrieved on many keys such as Party, Item, Year, City, State, Collaborator, Country, etc.
- Guide to Electronics Industry : Covers policies and infrastructural facilities that are relevant to the electronics and IT sector besides other information.

- Annual Reports of the Department for the last 4 years
- IT Act 2000
- Information on DIT and its organizations, etc.

IT in Parliament

During the year 2006, a number of Parliament Questions on various issues in Information Technology and Electronic Sectors like Growth in I.T. Sector, National e-governance plan, Community Information Centre, Formulation of a Semi-conductor policy, Hardware and Electronic Manufacturing in India, Software Technology Parks, Data Protection, Policy on critical infrastructure protection, terror on internet, Cyber crime, Outcome of International Conference, Policy on critical infrastructure protection, Super Computer for Research and Development, Road Map for Becoming and IT Super Power, Special Economic Zone IT, Setting up of BIO-IT Park, Availability of low cost computers, Manpower for IT Sector, Promotion of Internet in Rural Areas, etc., were answered in both the Houses of Parliament. During the Winter Session, 2006, the Information Technology (Amendment) Bill, 2006 was introduced.

The Consultative Committee attached the Ministry of Communications and Information Technology discussed the subjects matter on Hardware manufacturing in IT Sector and Technology Development in Indian Languages during the year 2006.

During the year 2006, the Parliamentary Standing Committee on Information Technology took evidence of the representatives of DIT Besides, the Committee discussed the subject "e-governance" during the year. The Committee presented its reports to the Parliament on Demands for Grants (2006-07); Action Taken/ proposed to be taken on Demands for Grants 2005-06; and e-governance respectively.

In compliance of directions of Speaker of Lok Sabha and Chairman of Rajya Sabha, Hon'ble Minister of Communications and Information Technology made statements on status of implementation of each recommendation made by the Standing Committee on I.T. on Demands for Grants 2005-06 and e-Governance.

The Annual Reports 2005-06 and Audited Accounts of all Societies under the Administrative Control of the Department of Information Technology were laid

on the Table of the Houses of Parliament during the Winter Session, 2006.

Use of Hindi and Requisite Technology Development

During the year, the Committee of Parliament on Official Language visited the Centre for Development of Advanced Computing (CDAC), Mumbai, Standardisation Testing and Quality Certification (STQC) Headquarters, New Delhi and the Units of National Informatics Centre (NIC) at Kavaratti and Mumbai to oversee the progress with regard to implementation of OL Policy of the Government. The Committee had also invited the Department of Information Technology, CDAC, DOEACC, ERNET India and STPI for oral evidence. Various suggestions given by the Committee are being implemented.

Meeting of the reconstituted Hindi Salahakar Samiti was held during the year under the Chairmanship of Hon'ble Minister of State for Communications and Information Technology.

Under the scheme of National Awards for original books on Electronics and IT in Hindi instituted by the Department, one book was selected for the award of first prize out of the over 7 proposals received during the year.

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 books worth over Rs. 1,77,000/- were purchased during the year for the library of the Department.

Hindi fortnight was organised and messages from the Hon'ble Home Minister and the Cabinet Secretary together with an appeal from the Secretary, Department of Information Technology were circulated among all officers and staff of the Department on Hindi Day i.e. September 14, 2006. Various competitions were also organised 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 OL Act/Rules.

S&T Cooperation

S&T cooperation with ASEAN was actively pursued. Under this cooperation two training programmes, namely "IT Training Programme" for ASEAN and "HRD Programme in the Area of Computer Networking" for CLMV countries were organized at C-DAC NOIDA. A few other projects are being pursued to strengthen the cooperation

Appendix - I

Electronics Production (Calender Year)							(Rs. Crore)
Item	2001	2002	2003	2004	2005	2006	
1. Consumer Electronics	12,300	13,580	14,850	16,500	17,500	19,500	
2. Industrial Electronics	4,480	5,400	5,980	8,300	8,600	10,100	
3. Computers	3,520	4,180	6,600	8,680	10,500	12,500	
4. Communication and Broadcast Equipment	4,450	4,800	5,150	4,770	6,300	9,200	
5. Strategic Electronics	1,750	2,330	2,670	2,850	3,070	4,500	
6. Components	5,650	6,510	7,450	8,700	8,530	8,600	
Sub Total (HW)	32,150	36,800	42,700	49,800	54,500	64,400	
7. Software for Exports	34,000	44,000	55,000	75,000	97,000	135,000	
8. Domestic Software	10,600	12,000	15,500	20,500	27,000	34,000	
Total	76,750	92,800	113,200	145,300	178,500	233,400	

Appendix - II

Electronics Production (Financial Year)							(Rs. Crore)
Item	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07*	
1. Consumer Electronics	12,700	13,800	15,200	16,800	18,000	20,000	
2. Industrial Electronics	4,500	5,550	6,100	8,300	8,800	10,400	
3. Computers	3,550	4,250	6,800	8,800	10,800	12,800	
4. Communication and Broadcast Equipment	4,500	4,800	5,350	4,800	7,000	9,500	
5. Strategic Electronics	1,800	2,500	2,750	3,000	3,200	4,500	
6. Components	5,700	6,600	7,600	8,800	8,800	8,800	
Sub Total	32,750	37,500	43,800	50,500	56,600	66,000	
7. Software for Exports	36,500	46,100	58,240	80,180	104,100	141,800	
8. Domestic Software	10,874	13,400	16,250	21,740	29,600	37,800	
Total	80,124	97,000	118,290	152,420	190,300	245,600	

* Estimated

Appendix - III

Electronics Export (Financial Year)							(Rs. Crore)
Item	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07*	
1. Consumer Electronics	700	750	825	1,150	2,000		
2. Industrial Electronics	950	1,400	1,515	1,500	2,300		
3. Computers	1,800	550	1,440	1,200	1,025		
4. Communication and Broadcast Equipment	150	500	165	350	500		
5. Components	2,200	2,400	3,755	3,800	3,800		
Sub Total	5,800	5,600	7,700	8,000	9,625	11,500	
6. Computer Software	36,500	46,100	58,240	80,180	104,100	141,800	
Total	42,300	51,700	65,940	88,180	113,725	153,300	

* Estimated

Summary of Audit Observations

Functioning of Internal Controls – Department of Information Technology

(Para No.5.2.2.1 of Report No.12 of 2006 for the year ended March 2005 (Performance Audit))

Irregular flow of expenditure resulted in rush of expenditure during the last quarter and in the month of March every year: The Department did not observe the instructions of Ministry of Finance on flow of expenditure resulting in rush of expenditure during last quarter and March of the respective years.

Action taken:- Action Taken Note has been sent to the Office of the Principal Director of Audit, Scientific Departments, New Delhi for vetting intimating that the instructions have been issued to convene SFC/EFC meetings well in time. Further to this the concerned project coordinators have been advised/instructed to avoid such re-occurrence in future. Circulars reiterating the instructions in this regard have also been issued stating that there will be no expenditure more than 33 per cent of provision for scheme/project in the last quarter. And result of the same can be seen during 2005-06. Monthly Progress of expenditure statement is monitored at AS&FA level, quarterly review meetings are chaired by Secretary for smooth flow of expenditure and to avoid rush of expenditure is the last quarter of Financial year.

(Para No.5.2.3 of Report No.12 of 2006 for the year ended March 2005 (Performance Audit))

Internal Audit: DIT did not set up an Internal audit wing and did not prepare internal audit manual.

Action taken:- Action Taken Note has been sent to the Office of the Principal Director of Audit, Scientific Departments, New Delhi for vetting intimating that due to shortage of staff the Internal Audit Wing could not be established. Action has been taken. Now the Internal Audit Wing has been established by drawing existing staff. Annual Audit programme has been prepared to conduct the Audit of all the Cheque Drawing DDOs yearly and that of Non Cheque Drawing DDOs once in two years. Internal Audit Manual has been prepared.

(Para No.5.2.4.3 of Report No.12 of 2006 for the year ended March 2005 (Performance Audit))

Shortfall in O&M activities : Substantial shortfall in O&M activities prescribed by the Central Secretariat Manual of Office Procedures was observed.

Action taken:- Action Taken Note has been sent to the Office of the Principal Director of Audit, Scientific Departments, New Delhi for vetting. The update status in continuation of status provided in the ATN for the said para is that as regards recording and reviewing of the old files/records it is stated that MS (O&M) had launched a Special Drive on Record Management aspect with reference to the O&M activities to be performed by all the Sections/Units in DIT. The status of progress would be reviewed in April, 2007 and would also be brought to the notice of competent authority. Though the Annual Inspection Programme for 2005-06 in respect of all the 30 Sections/Units in DIT has already been completed, the Annual Inspection Programme for 2006-07 will however be formulated and carried out in due course. As regards Annual Inspection Programme for 2005 in respect of attached offices of the STQC, it is stated that inspections of 12 Centres (out of 17 Centres including one closed centre) of STQC has already been completed till date. Implementation of the Programme was got extended with the approval of Secretary, DIT. As regards Annual Inspection Programme for 2006-07, DG(NIC) had been requested to draw the said Programme.

(Para No.5.2.5.4 of Report No.12 of 2006 for the year ended March 2005 (Performance Audit))

Non-constitution of Staff Inspection Unit: DIT did not constitute the Staff Inspection Unit. It also did not frame recruitment rules for S&T staff.

Action taken:- Action Taken Note has been sent to the Office of the Principal Director of Audit, Scientific Departments, New Delhi for vetting. The update status in continuation of status provided in the ATN for the said para is that the Department had already set up a Standing Core Committee (SCC) in the Department (i) Evolve work-norms for scientific and technical (S&T) posts, and (ii) assess the work-load of S&T personnel in DIT. Since the Committee had felt that it was not feasible to submit the report in time due to the magnitude of work involved, the time limit for submission of the Report by the SCC has been extended twice i.e.(i) first time upto 20.9.2006 and (ii) second upto March 2007. Consequent upon the setting up of the SCC, the Committee had already held a no. of meetings i.e. on (i) 9.3.2006 and (ii) 17.5.2006. Hence, the SCC is engaged in its assigned responsibilities. Since the Report of the earlier committee set up in DIT in June, 2003 for carrying out similar studies for S&T personnel is still awaited and is also needed by the current SCC, the same has already been followed up by various reminders. As regards study of non-S&T posts in DIT, DIT had already requested SIU (M/o Finance) to conduct the work assessment of non-S&T in DIT and accordingly requested them to include the name of DIT in their next Annual Programme of Studies. SIU had subsequently informed that in accordance with the provisions contained in DST's O.M., there was no scope to divide the study into two parts i.e. non-scientific/technical area and scientific/technical area but the "S&T Department as a whole has to be entrusted to the SCC set up for the purpose. Consequently, keeping in view the fact that the study of non-S&T posts depends upon the outcome of the study of S&T posts and therefore clubbing of both the studies to carry out simultaneously by SCC would not be feasible. Accordingly, with the approval of competent authority, a decision has been taken that the issue of work assessment of non-S&T posts in DIT be kept in abeyance till the current SCC concludes its on-going status/ task.

(Para No.5.2.6.1 of Report No.12 of 2006 for the year ended March 2005 (Performance Audit))

Inadequate monitoring resulting in non-recovery of Rs.76.31 crore: Rs.76.31 crore was given as loan and refundable grant-in-aid by DIT was pending recovery due to inadequate monitoring.

Action taken:- Action Taken Note has been sent to the Office of the Principal Director of Audit, Scientific Departments, New Delhi for vetting intimating that the Finance Division is coordinating between the sanctioning authority of loan and Refundable Grant in aid and PAO, DIT. Efforts are being undertaken to recover the outstanding loan from the defaulters by way of issuing letters to concerned sanctioning authorities, on the basis of statements of PAO, DIT. It is informed that the administrative control of SCL has been transferred from Department of Information Technology to Department of Space with effect from 1st March, 2005. ET&T has been wound up vide High Court's order issue on 9.5.2005. Official Liquidator took charge and sealed all records and premises on ET&T on 6.7.2005. ET&T ceases to exist as on date. So far as others are concerned, efforts are being made to recover the outstanding loan from the entities/institutions where the cases are not sub-judice. The remedial action is being taken to obtain the same from the defaulters by way of issuing letters to concerned sanctioned authorities.

(Para No.5.2.6.2 of Report No.12 of 2006 for the year ended March 2005 (Performance Audit))

Inadmissible payment of Transport Allowance: DIT paid Rs.12.38 lakh as transport allowance to its staff though they were allotted government accommodation within one kilometer of the office premises.

Action taken:- Action Taken Note has been sent to the Office of the Principal Director of Audit, Scientific Departments, New Delhi for vetting. Ministry of Finance was requested to consider the findings of the Committee constituted for the purpose and concur in the proposal for regularising the Transport Allowance. Ministry of Finance has clarified that it is upto the Ministries/ Department to satisfy themselves about factual distance and take decision to pay or not to pay Transport Allowance. On the basis of clarification received from Ministry of Finance, action is being taken by DIT for regularising the transport allowance.

Appendix - V

EMPLOYEES STRUCTURE (TOTAL AND SC/ST) As on 01.01.2007 (Department of Information Technology including its Attached and Subordinate Offices)						
Group/ Class	Permanent / Temporary	Total No. of Employees	SC	% age of Total Employees	ST	% age of Total Employees
GROUP A	Permanent					
	(i) Other than lowest rung of Class – I	2255	155	6.87%	55	2.43%
	(ii) Lowest rung of Class - I	696	45	6.46%	30	4.31%
	Temporary					
	(i) Other than lowest rung of Class – I	-	-	-	-	-
	(ii) Lowest rung of Class I	-	-	-	-	-
GROUP B Gazetted	Permanent	503	33	6.56%	19	3.77%
	Temporary	-	-	-	-	-
GROUP B (Non Gazetted)	Permanent	464	76	16.37%	24	5.17%
	Temporary	241	32	13.27%	28	11.61%
GROUP C	Permanent	613	160	26.10%	40	6.52%
	Temporary	17	3	17.64%	1	5.88%
GROUP D (Excl. Sweeper & Farash)	Permanent	316	138	43.67%	23	7.27%
	Temporary	22	9	40.90%	1	4.54%
Sweeper	Permanent	52	48	92.30%	3	5.76%
	Temporary	4	4	100%	-	-
Farash	Permanent	10	3	30%	1	10%
	Temporary	14	3	21.42%	1	7.14%
TOTAL		5207	709	13.61%	226	4.34%

Appendix - VI

Department of Information Technology - Annual Plan 2007-08		(Rs. Crore)
SCHEMES		Budgetary Support
I. R&D PROGRAMMES		
1	SAMEER	22.00
2	Microelectronics and Nano-Tech Dev Prog	29.00
3	Technology Development Council	32.00
4	Convergence, Communications and Strategic Electronics	22.00
5	Components and Material Development Prog	10.00
6	C-DAC	75.00
7	Electronics in Health and Telemedicine	18.00
8	Technology Dev. For Indian Languages	11.00
9	IT for Masses (Gender, SC/ST)	9.00
10	Media Lab. In Asia	10.00
R&D Sub-Total		238.00
II. INFRASTRUCTURE DEVELOPMENT		
11	STQC	50.00
12	STPI and EHTP	0.50
13	Digital DNA Park	0.10
14	Electronic Governance	800.00
15	Cyber Security (including CERT-In, IT Act)	33.00
16	ERNET	0.10
17	Promotion of Electronics/IT Hardware Mtg.	1.00
Infrastructure Sub-Total		884.70
III. HUMAN RESOURCE DEVELOPMENT		
18	DOEACC	0.50
19	Manpower Development	43.00
20	Facilitation of Setting-up of Integrated Townships	1.00
HRD Sub-Total		44.50
IV. OTHERS		
21	Headquarter (Secretariat and Bldg.)	12.80
22	NIC	320.00
Grand Total		1500.00

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