CHAPTER – I

Introduction

A. Objectives

Department of Electronics and Information Technology (DeitY) 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, Electronics and Internet (all matters other than licensing of Internet Service Provider). All policy matters including e-Governance (which aims to make all Government Services accessible to the common man in his locality), computer based information technology and processing including hardware and software, standardisation of procedures and matters relating to international bodies, establishing the National Knowledge Network with multiple gigabit bandwidth to connect Knowledge Institutions across the country, 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.

B. Following are the business allocated to the Department of Electronics and Information Technology:

1. Policy matters relating to Information Technology; Electronics; and Internet (all matters other than licensing of Internet Service Provider).
2. Promotion of internet, IT and IT enabled services.
3. Assistance to other departments in the promotion of E-Governance, E- Commerce, E- Medicine, E- Infrastructure, etc.
4. Promotion of Information Technology education and Information Technology-based education.
5. Matters relating to Cyber Laws, administration of the Information Technology Act, 2000 (21 of 2000) and other IT related laws.
6. Matters relating to promotion and manufacturing of Semiconductor Devices in the country excluding all matters relating to Semiconductor Complex Limited (SCL), Mohali; The Semiconductor Integrated Circuits Layout Design Act, 2000 (37 of 2000).
7. Interaction in IT related matters with international agencies and bodies, e.g. Internet for Business Limited (IFB), Institute for Education in Information Society (IBI) and International Code Council – on line (ICC).
8. Initiative on bridging the Digital Divide: Matters relating to Media Lab Asia.
9. Promotion of Standardization, Testing and Quality in IT and standardization of procedure for IT application and Tasks.
10. Electronics and Computer Software Export Promotion Council (ESC).
11. National Informatics Centre (NIC).
12. Initiatives for development of Hardware/Software industry including knowledge–based enterprises, measures for promoting IT exports and competitiveness of the industry.
13. All matters relating to personnel under the control of Department.

CHAPTER – I
INTRODUCTION, ORGANISATIONAL SET-UP AND PROGRAMMES/SCHEMES

C.   Organisational set-up

The Department of Electronics and Information Technology (DeitY) in the Ministry of Communications and Information Technology (MC&IT) is headed by Secretary who assists Hon'ble Minister for Communications and Information Technology/Minister of State for Communications and Information Technology in carrying out the business allocated to the Department. DeitY has two Attached Offices, four Statutory Organizations and seven Autonomous Societies besides three Section 25 companies under its control to carry out the business allocated to the Department.

D.   Schemes/Programmes being implemented by Department of Electronics and Information Technology

In the 12th Five Year Plan, the following six thrust areas have been identified:

- e-Government
- e-Learning
- e-Security
- e-Industry (Electronics Hardware)
- e-Industry (IT-ITeS)
- e-Innovation/R&D

In order to operationalise the objectives of the Department, schemes are formulated and implemented by the Department. The schemes are implemented directly by the Department and through various organisations / institutions. To make the technology robust and state-of-the-art, collaboration of the academia and the private / public sector is also obtained. The following broad programmes/schemes are implemented by the Department: Society for Applied Microwave Electronics Engineering and Research (SAMEER); Micro-electronics and Nano-technology; Technology Development Council (incl. ITRA); Convergence, Communication & Strategic Electronics; Component and Material Development; Centre for Development of Advanced Computing (C-DAC); R&D in Medical Electronics & Health Informatics(erstwhile Electronics in Health and Tele-medicine); Technology Development for Indian Languages (TDIL); Media Lab Asia; Standardisation, Testing and Quality Certification (STQC); Software Technology Parks of India(STPI) & EHTP; E-Governance (incl. (i) Programme on Good Governance & Best Practices and (ii) Programme on enabling all schools with virtual classrooms); Cyber Security (incl. CERT-In, IT Act); National Informatics Centre (NIC); National Knowledge Network; Controller of Certifying Authorities (CCA); ERNET; Promotion of Electronics/IT Hardware Manufacturing; National Institute of Electronics & Information Technology (NIELIT); Digital India Programme and Manpower Development for Skill Development in IT and IT for Masses; Facilitation of setting up of Integrated Townships and Others including Secretariat Economic Services.

DeitY has two attached offices – (i) National Informatics Centre (NIC) and (ii) Standardisation, Testing and Quality Certification (STQC) and four statutory organizations – (i) Controller of Certifying Authorities (CCA), (ii) Cyber Appellate Tribunal (CAT), (iii) Semiconductor Integrated Circuits Layout Design Registry(SICLDR) and (iv) Indian Computer Emergency Response Team (CERT-In). The Department also has seven Autonomous societies under its control namely: (i) Society for Applied Microwave Electronics Engg & Research (SAMEER); (ii) Centre for Development of Advanced Computing (C-DAC); (iii) Software Technology Parks of India (STPI); (iv) National Institute of Electronics & Information Technology (NIELIT);   (v) Centre for Materials for Electronics Technology (C-MET); (vi) Education & Research Network (ERNET) and (vii) Electronics and Computer Software Export Promotion Council (ESC). Besides above, there are three Section 25 companies viz. (i) Media Lab Asia, (ii) National Informatics Centre Services Inc. (NICSI) and (iii) National Internet Exchange of India (NIXI).

1.   Attached Offices

1.1   National Informatics Centre (NIC)

The National Informatics Programme is for providing national IT infrastructure to facilitate ushering in "e-Governance" applications at all levels of Government. Programmes / projects of NIC are essential to promote "e-Governance" by strengthening the on-going projects such as Land Records Computerisation, Treasury Accounting Project, Extension of NICNET to the new districts, and also by implementing projects on pilot-scale to strengthen knowledge management, disaster management knowledge network, horizontal transfer of IT enabled Software products across the States, village planning demonstration project for holistic sustainable development, technological empowerment and social responsibility, etc, and also to give support for development and implementation of various programmes under the NeGP. In view of the Core Competence developed by NIC in economic and social sectors, NIC has proposed "Centres of Excellence" for diffusion of ICT in these sectors to increase "productivity" and to achieve sustainable development.

1.2   Standardisation, Testing & Quality Certification (STQC) Directorate

Standardization, Testing, Quality and Certification (STQC) Directorate, an attached office of the Department of Information Technology provides Testing, Calibration, Training and Certification services through its well-developed network of laboratories spread across the country. Electronic Regional Test Labs (ERTL) at Delhi, Kolkata, Mumbai & Thiruvananthapuram and Electronic Test & Development Centres (ETDC) at Bengaluru, Chennai, Hyderabad, Pune, Goa, Mohali, Solan, Guwahati, Agartala & Jaipur are providing test and calibration services. In order to provide software evaluation services, IT Centres have been established at Delhi, Kolkata, Bengaluru, Chennai, Hyderabad, Pune, Guwahati, Mohali & Thiruvananthapuram. Additionally, Indian Institute of Quality Management (IIQM) at Jaipur, Centre for Electronic Test Engineers (CETE) at Bengaluru, Hyderabad, Pune, Noida & Kolkata, Center for Reliability (CFR) at Chennai and Regional Certification Centers at Delhi, Mumbai, Kolkata and Bengaluru have been rendering specialized services in the respective areas. Currently, STQC services are being utilized by more than 10,000 organizations representing the entire segment of industry, Government departments, R&D organizations etc.

Through National / International accreditation and recognitions, STQC Directorate has also earned an International reputation and its testing & certification services are being recognized globally. Apart from being a major testing & calibration network in the country and primary institution in this field, STQC has strengthened its infrastructure and activities in the area of Information Security and Software Testing & Certification keeping in view the Department's thrust in these areas. A number of projects sponsored by the Department in the field of Software Quality Assurance, Common Criteria, Information Security Management, Website Quality, Biometrics, e-procurement etc. have been successfully executed.

2. Statutory Organisations

2.1 Controller of Certifying Authorities (CCA)

The Controller of Certifying Authorities (CCA) has been appointed under Section 17 of the IT Act, 2000 to promote the growth of e-commerce and e-governance through the use of digital signatures. The number of digital signature certificates issued till March 2014 is about 7 million and continues to grow and is expected to increase significantly with the launch of various e-governance/e-commerce programmes. Initiatives have been taken in this respect through coordinated interactions between the e-governance/e-commerce application service providers and the Certifying Authorities. CCA is assisted by Deputy Controller, Assistant Controllers, Technical Officers and other support staff.

2.2 Cyber Appellate Tribunal (CAT)

In accordance with the provision contained under Section 48(1) of the IT Act 2000, the Cyber Regulations Appellate Tribunal (CRAT) has been established in October 2006. The Cyber Regulations Appellate Tribunal after the amendment of the IT Act in the year 2008 (which came into effect on 27.10.2009) is known as the Cyber Appellate Tribunal (CAT). As per the IT Act, any person aggrieved by an order made by the Controller of Certifying Authorities, or by an adjudicating officer under this Act may prefer an appeal before the Cyber Appellate Tribunal. This Tribunal is headed by a Chairperson who is appointed by the Central Government by notification as provided under Section 49 of the IT Act 2000.

Before the amendment of the IT Act in the year 2009, the Chairperson was known as the Presiding Officer. Provision has been made in the amended Act for the Tribunal to comprise a Chairperson and such number of other members as the Central Government may notify / appoint.

2.3 Semiconductor Integrated Circuits Layout-Design Registry (SICLDR)

The Intellectual Property of a Semiconductor Integrated Circuit lies in its Layout-design. In India, though other Intellectual Property (IP) legislations like Patent Act, Trade Marks Act, Copyright Act, etc. have been in place, protection of intellectual property of layout-designs was one gap area. To address this gap, Govt. of India enacted Semiconductor Integrated Circuit Layout-Design Act, 2000 (No.37 of 2000). The Act lays down mechanisms for registering and protecting the intellectual property of the Integrated Circuit. To carryout the above functions and to meet the objectives as per the provisions of the Semiconductor Integrated Layout-Design Act, DeitY established the Semiconductor Integrated Circuits Layout-Design Registry with its Head Office in DeitY. The jurisdiction of this Registry is whole of India. The Registry, as per the guidelines laid down in the Semiconductor Integrated Circuits Layout Design (SICLD) Act 2000 and the Semiconductor Integrated Circuits Layout-Design (SICLD) Rules 2001, examines the layout-designs of the Integrated Circuits and issues the Registration Certificate to the original layout-designs of a Semiconductor Integrated Circuits. The Registry is headed by a Registrar who is appointed by Government as per section 3(1) of the Act.

Semiconductor Integrated Circuits Layout-Design Registry (SICLDR) has been made operational with effect from 1st May 2011. The website http://www.sicldr.gov.in contains all the information about Semiconductor Integrated Circuits Layout Design Act and Rules, notices and notifications issued by Deity relating to the SICLD Registry, reports, "Semiconductor Integrated Circuits Layout-Design Journal" etc and downloadable formats of various application forms etc.

2.4   Indian Computer Emergency Response Team (CERT-In)

CERT-In has been designated under Section 70B of Information Technology (Amendment) Act 2008 to serve as the national agency to perform the following functions in the area of cyber security:

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

CERT-In has been evolved as the most trusted referral agency in the area of information security in the country. Activities of CERT-In include regular interaction with Critical Infrastructure Organisations and sectorial CERTs to ensure security to the critical systems, collaboration with IT product and security vendors to mitigate the vulnerabilities in various systems, cooperation with international CERTs and security organizations on information sharing and incident response, promotion of R&D activities in the areas of Artifact analysis and Cyber Forensics and security training and awareness.

3.   <u>Societies/Autonomous Bodies</u>

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

Society for Applied Microwave Electronics Engineering & Research (SAMEER) is an autonomous R & D institute under Department of Electronics and Information Technology(DeitY)), Ministry of Communications and Information Technology (MC&IT), Govt. of India since 1984. It was created with sole objective of pursuing research and development in the field of RF & microwaves. Ever since its formation, SAMEER has been involved in development of many RF and microwave based systems and products which are required by various government agencies like Defence, Space, Earth Sciences and Indian Meteorology Department. The headquarters of SAMEER is located at Powai, Mumbai. The other two Centers of SAMEER are located at Chennai and Kolkata respectively known as Centre for Electromagnetics and Centre for Millimeter Wave Research. SAMEER undertakes and executes sponsored projects for various Government agencies, public sector undertakings and industries in its expert areas of RF/Microwave/Millimeter wave systems and subsystems, High

Power RF amplifiers, RF communication systems, Atmospheric Radar Instrumentation, Linear Accelerators, Electromagnetic Interference/compatibility (EMI/EMC), Thermal Engineering of electronic hardware, antennas, Photonic devices, Microwave components/modules and Industrial RF/Microwave application products.

3.2   Centre for Development of Advanced Computing (C-DAC)

Centre for Development of Advanced Computing (C-DAC) is a Society under DeitY for carrying out R&D in IT, Electronics and associated areas. Starting from its initial mission on building indigenous supercomputers, C-DAC has progressively grown to build an eco-system and institutional framework for innovation, technology development, skills development, delivery plans, collaboration, partnership and market orientation in a number of niche areas of national importance and market relevance in ICT and Electronics. Through in-house research, technology and product development efforts in collaboration with academia, research labs and industry in India and abroad, it endeavors to identify promising ideas, nurture them, and convert many of them into practical tools, technologies, products and services to meet the needs of various end-users in areas such as Science and Engineering, manufacturing & service sectors, government, health, agriculture, strategic sector, etc. C-DAC also offers a wide range of educational programmes in its area of focus.

3.3   Software Technology Parks of India (STPI)

Software Technology Parks of India has been set up in 1991 as an Autonomous Society under the Department of Electronics & Information Technology (DeitY). The prime objective of the Software Technology Parks of India has been the promotion of software exports from the country. The main services rendered by STPI for the software exporting community have been statutory services, data communications services and incubation facilities. STPI has also played a developmental role in the promotion of software exports with a special focus on SMEs and start up units. The STP scheme has been widely successful and the exports made by STP units have grown manifold over the years. STPI has also been providing incubation facilities for the software exporters, specifically to the SMEs and start up units. The incubation facilities include ready to use built up space with plug and play facilities and other backup resources such as power, DG set, internet enabled workstations etc., which have been very useful for the start-up units and SMEs.

3.4   National Institute of Electronics and Information Technology (NIELIT)

National Institute of Electronics and Information Technology (NIELIT), an Autonomous Scientific Society under the administrative control of Department of Electronics and Information Technology, Ministry of Communications and Information Technology, Govt. of India was set up to carry out Human Resource Development and related activities in the area of Information & Communication Technology. The Society has its presence in 30 locations through-out the country at Aurangabad, Aizawl, Ajmer, Agartala, Calicut, Chandigarh, Chennai, Delhi, Gorakhpur, Gangtok, Guwahati/ Tezpur, Imphal, Itanagar, Kolkata, Kohima, Patna, Srinagar/ Jammu, Shillong, Jorhat, Silchar, Shimla, Churachandpur, Senapati, Lunglei, Chuchuyimlang, Srikakulam, Leh & Lucknow with Headquarters at New Delhi.

The institute is engaged both in the formal & Non formal Education in the area of IECT besides development of Industry oriented quality education and training in the state-of-the-art areas, establish standards to be the country's premier institution for Examination and Certification in the field of IECT. It is also a National Examination Body, which accredits institutes/organizations for conducting courses particularly in the non-formal sector of IT Education & Training. Under the IT Mass Literacy Programme, Institute is offering two schemes namely, Course on Computer Concepts (CCC) & Basic Computer Course (BCC).

The Centres are also undertaking government sponsored projects in the field of ICT & related activities. The Centres are also embarking upon training programme to develop entrepreneurs and provide ICT based services to users. The infrastructure, resources and expertise available with the NIELIT Centres are being utilized for the implementation of various e-Governance capacity building projects.

3.5 Centre for Materials for Electronics Technology (C-MET)

Centre for Materials for Electronics Technology (C-MET) has been set up as a Society under the Department of Electronics & Information Technology as a unique concept for development of viable technologies mainly in the area of electronics materials. C-MET's mission is to develop knowledge base in electronics materials and their processing technology for Indian industries and to become a source of critical electronic materials, know-how and technical services for the industry and other sectors of economy. C-MET is operating with its laboratories with well defined programmes at Pune, Hyderabad and Thrissur. The objectives of C-MET are to establish the technology up to pilot scale for a range of electronic materials; transfer the same to industry for commercialization; to establish relevant characterization facilities; to undertake applied research activities in the area of its operation; to establish national Data Base on Electronics Materials.

3.6 Education & Research Network (ERNET) India

Education & Research Network (ERNET), India is an autonomous Scientific Society under the administrative control of the Department of Electronics & Information Technology. ERNET India has been serving institutions in various sectors namely, health, agriculture, higher education, schools and science & technology and thus, understands the needs of these knowledge institutions. ERNET India is helping to create a truly global research community where advanced resources and new learning can be effectively shared by connecting the research network in Europe with ERNET. ERNET network is a judicial mix of terrestrial and satellite based wide area network. ERNET Network Supports IPv4 and IPv6 Internet protocol in dual stack, unicast and multicast. IPv6 routing protocol OSPFv3, end-to-end Ethernet services, QoS, Video Conferencing, authentication and authorization have also been implemented on ERNET network. At national level, ERNET India is working with other premier academic and research institutions on several R&D projects. ERNET has pioneered to take the lead in the IPv6 propagation in the country and is already doing a lot of activities in collaboration with other NREN's across the globe in terms of network performance and IPv6 related applications for which necessary infrastructure on IPv6 has been created. Application servers to monitor and manage IPv6 activities for Research and Development have been deployed and as the applications grow, more such devices would be required to be set up. ERNET is working on Software Defined Networks (SDN) and Internet of Things (IoT). It has also implemented open source EDx, a solution for e-Learning with facility of self aggregation of content for Kendriya Vidyalayas. This can b extended to other areas.

CHAPTER – I
INTRODUCTION, ORGANISATIONAL SET-UP AND PROGRAMMES/SCHEMES

3.7   Electronics and Computer Software Export Promotion Council (ESC)

Electronics and Computer Software Export Promotion Council (ESC) is mandated to promote India's exports of Electronics, Telecom, Computer Software and IT Enabled Services.

Ever since its inception in 1989 with an export performance of US $200 million (about ` 1,100 crore), ESC has successfully steered the direction of India's Electronics and Software Exports to achieve the export volumes of over US $76.90 billion (about ` 4,22,950 crore) during 2011-12. Under the aegis of the Council, the IT services exports have reached to over 200 countries across the world establishing the hallmark of India's quality and competitiveness.

In an Industry where the degree of technological obsolescence is very high, ESC is striving hard to elevate India's position in the international trading arena of the Electronic and Computer Software.

- ESC implements foreign assisted development programmes to facilitate joint ventures, technical /financial collaborations and strategic alliances.
- ESC undertakes Market Research / Studies in major overseas markets.
- For enhancing the brand equity of Indian IT industry, ESC undertakes publicity Campaigns in overseas markets.
- ESC facilitates business interface between Indian and foreign companies through Buyers – Seller Meets, Receiving and Mounting Business Missions and Match-making and Contact Promotion.
- ESC locates new business partners for Indian electronics, computer software and IT companies.
- For facilitating foreign trade, ESC provides on-line facility for Data Search, Information Dissemination and Broadcast using internet and Dial-up facilities.
- ESC promotes India's electronics, software and IT trade and facilitates participation in global trade shows/expositions, conferences/congress, etc.

ESC provides a set of value-added services to its members as well as overseas companies. These are:

- ESC has a critical mass of Information on electronics, IT and services sectors.
- ESC provides information at a single point.
- ESC assists in moving up the value chain.
- ESC acts as an Information Kiosk for small enterprises.

4.   Other Organisations

4.1   Media Lab Asia (MLA)

Media Lab Asia was set up by Government of India, Ministry of Communications and Information Technology as a not-for-profit organization under Section 25 of Companies Act with the objective of bringing the benefits of the Information & Communication Technologies (ICT) and other advanced technologies to the common man. Media Lab Asia is presently working in the application areas of Education, Livelihood Enhancement, Primary Healthcare and Empowerment of Differently Abled.

Media Lab Asia works on the paradigm of collaborative research in the task of developing relevant and sustainable technologies and culturally appropriate solutions and bringing them to the daily lives of people. Media Lab Asia works with academic and research & development institutions, industry, NGOs and Government in this endeavor. The Board of Directors of the company is chaired by the Hon'ble Union Minister of Communications and Information Technology and there is a Technology Advisory Board chaired by Principal Scientific Adviser to the Government of India.

IT Research Academy (ITRA) and National e-Governance Division (NeGD) are two additional major activities of Media Lab Asia. ITRA is a National Programme to build a national resource for advancing the quality and quantity of Research & Development (R&D) in Information & Communication Technologies & Electronics (ICTE) while institutionalizing an academic culture of IT based problem solving and societal development by closely collaborating teams of researchers and institutions having expertise in the different aspects of the chosen research or application problems. National e-Governance Division (NeGD) is created as an independent business division within Media Lab Asia for taking up the Programme Management of the National e-Governance Plan (NeGP) at Department of Electronics & Information Technology (DeitY). DeitY recently entrusted with implantation of PhD scheme to Media Lab Asia.

4.2   National Informatics Centre Services Incorporated (NICSI)

NICSI was set up by NIC in 1995 as a Section 25 Company to help in the implementation of ICT projects developed by NIC in a faster and efficient manner. The main objective of NICSI is to promote the economic, scientific, technological, and cultural development in India by promoting the utilization of Information Technology, Computer Communication Network, Informatics, etc. by a spin off of the expertise developed by National Informatics Centre of Government of India including its Computer Communication Network, NICNET and associated infrastructure and services. NICSI, since its inception has been providing services to government organizations in coordination with NIC. NICSI has implemented large number of e-Governance projects. It helps in the conceptualization of ICT projects, procurement of hardware and system software and establishment of ICT

infrastructure including LAN/WAN/VC and Data Centres. It also facilitates in providing consultancy services in coordination with its empanelled organizations and under the overall technical guidance of NIC.

4.3   National Internet Exchange of India (NIXI)

NIXI is a not for profit organization set up under Section 25 of the Companies Act 1956 for peering of Internet Service Providers (ISPs) to the NIXI node for the purpose of routing the domestic traffic within the country. This will result in better quality of service, reduced latency and savings on international bandwidth. Seven Internet Exchange Nodes are functional at Delhi (Noida), Mumbai, Chennai, Kolkata, Hyderabad, Bengaluru, and Ahmedabad. Presently 43 major ISP's with 102 connections are connected to the various nodes of NIXI. The total maximum traffic exchanged at all the nodes is 20 Gbps as of February, 2013. For more information: www.nixi.in.

NIXI also operates the .IN Registry for managing the .IN Country Code Top Level Domains (ccTLDs). As of February 2013 Registration of .IN domain has crossed the 1.7 million domain names. .IN Registry would also be enabling the use of .IN ccTLD in 7 Indian languages viz. Hindi, Tamil, Telgu, Punjabi, Urdu, Bangla and Gujarati. For more information: www.registry.in.

Recently, NIXI has started the operations of National Internet Registry (NIR) for India. NIR has been named as the Indian Registry for Internet Names and Number (IRINN). IRINN will be responsible for allocation of IP address and AS numbers within the country to its affiliates. For more information: www.irinn.in.