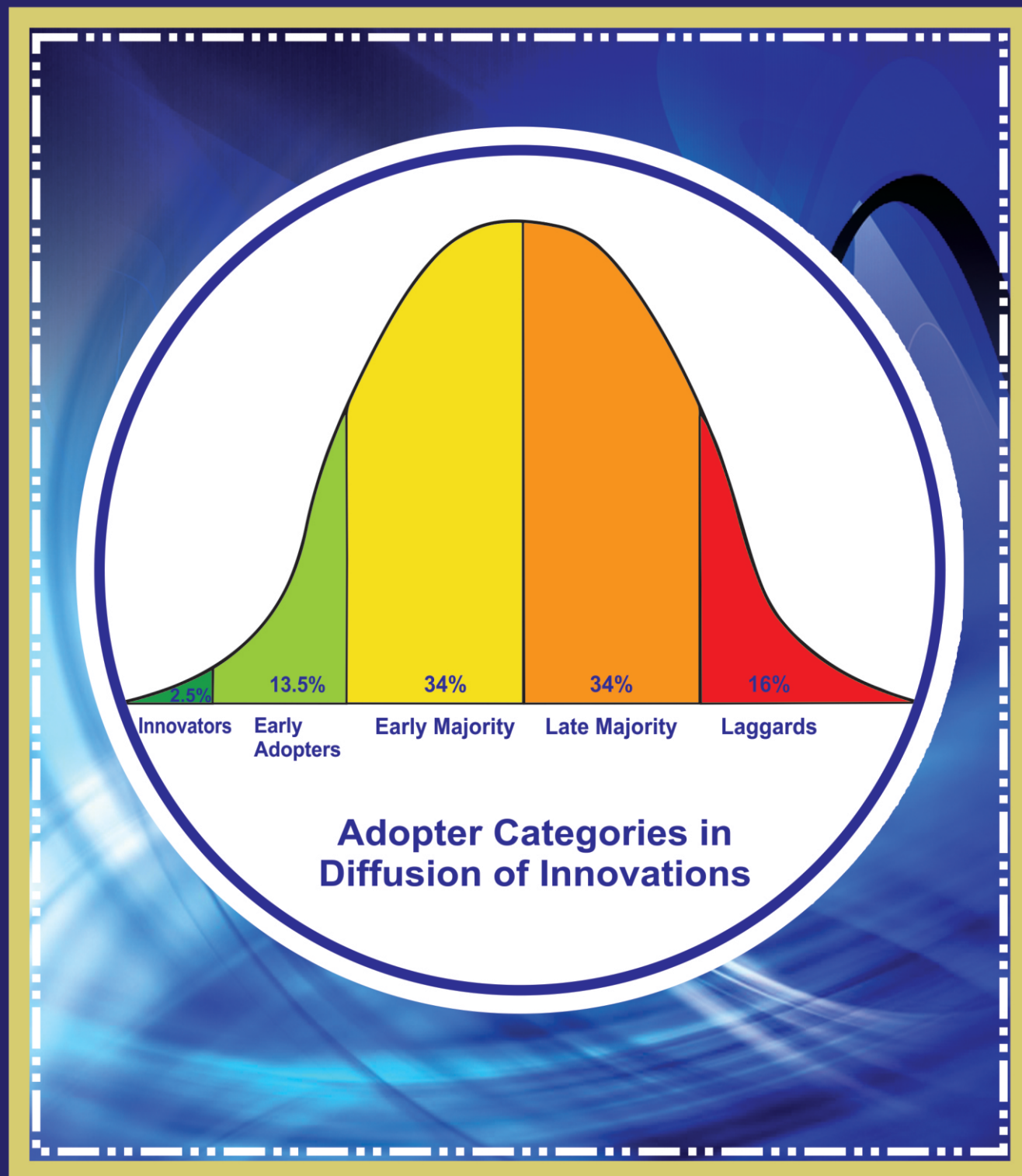




“शिक्षा मानव को बन्धनों से मुक्त करती है और आज के युग में तो यह लोकतन्त्र की भावना का आधार भी है। जन्म तथा अन्य कारणों से उत्पन्न जाति एवं वर्गगत विषमताओं को दूर करते हुए मनुष्य को इन सबसे ऊपर उठाती है।”

— इन्दिरा गाँधी



“Education is a liberating force, and in our age it is also a democratising force, cutting across the barriers of caste and class, smoothing out inequalities imposed by birth and other circumstances.”

— Indira Gandhi

Block

4

ICT FOR DEVELOPMENT

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PROGRAMME DESIGN COMMITTEE

Prof. Amita Shah Gujarat Institute of Development Research Ahmedabad	Prof. P. Radhakrishnan Madras Institute of Development Studies, Chennai
Prof. S. K. Bhati Jamia Millia Islamia University, New Delhi	Prof. Ramashray Roy (Rtd) Centre for Study of Developing Societies New Delhi
Prof. J. S. Gandhi (Rtd) Jawaharlal Nehru University, New Delhi	Prof. R. P. Singh (Rtd) Ex-Vice-Chancellor, MPUAT, Udaipur
Prof. Gopal Krishnan (Rtd) Punjab University, Chandigarh	Prof. K. Vijayaraghavan Indian Agriculture Research Institute, New Delhi
Prof. S. Janakrajan (Rtd) Madras Institute of Development Studies Chennai.	Dr. Nilima Shrivastava, IGONU, New Delhi
Prof. Kumar B. Das Utkal University, Bhubaneswar	Prof. B. K. Pattanaik, IGNOU, New Delhi
Prof. Nadeem Mohsin (Rtd) A.N.Sinha Institute of Social Sciences, Patna	Dr. Nehal A. Farooquee, IGNOU, New Delhi
	Dr. P. V. K. Sasidhar, IGNOU, New Delhi

PROGRAMME DESIGN COMMITTEE (Revised)

Late Prof. T S Papola(Rtd) Institute of Studies in Industrial Development New Delhi	Dr, S, Rubina Naqvi Hindu College, University of Delhi, Delhi
Prof. S. Janakrajan (Rtd) Madras Institute of Development Studies Chennai.	Prof. Nadeem Mohsin (Rtd) A.N.Sinha Institute of Social Sciences, Patna
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	Dr. Pradeep Kumar, IGNOU, New Delhi
	Dr. Nisha Varghese, IGNOU, New Delhi
	Dr. Grace Don Nemching, IGNOU, New Delhi

COURSE PREPARATION TEAM

Unit Writers:

Prof. B.K. Pattanaik
IGNOU, New Delhi (Unit 1)

Dr. Debolina Kundu
NIUA, New Delhi (Unit 2)

Editors:

Prof. S.V.N.Rao, RAGACOVAS,
Puducherry (Content & Language Editor)

Prof. P.V.K. Sasidhar, IGNOU, New Delhi

Prof. B. K. Pattanaik, IGNOU, New Delhi

Prof. Nehal A. Farooquee, IGNOU, New Delhi

Course Coordinator: Prof. P.V.K.Sasidhar, E-mail : pvksasidhar@ignou.ac.in

Programme Coordinators : Prof. P.V.K. Sasidhar, Prof. B.K. Pattanaik, Prof. Nehal A. Farooquee

PRODUCTION TEAM

Mr. S. Burman Dy. Registrar (Publication) MPDD, IGNOU, New Delhi	Mr. K.N. Mohanan Asst. Registrar (Publication) MPDD, IGNOU, New Delhi	Mr. Babu Lal Rewadia Section Officer (Publication) MPDD, IGNOU, New Delhi
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BLOCK 4 ICT FOR DEVELOPMENT

Information and Communication Technologies (ICT) for Development is a general term referring to the application of ICT within the fields of various sub-sectors of development. ICTs can be applied either in the direct sense, wherein their use directly benefits the development process, or in an indirect sense, wherein the ICTs assist aid organisations, or non-governmental organizations, or governments, or businesses in order to improve general socio-economic development. The purpose of this block is to make you understand the basic concepts of ICT and ICT applications in urban and rural developments.

Unit 1, **ICT for Development: An Overview** focuses on meaning and attributes of ICT, interface between ICT and development of various sectors and e-development strategies.

Unit 2, **e-Governance in Rural and Urban Development** deals with importance of e-governance in rural and urban development, National e-Governance Plan, international and national initiatives of e-governance in development and challenges in e-governance.



UNIT 1 ICT FOR DEVELOPMENT: AN OVERVIEW

Structure

- 1.1 Introduction
- 1.2 ICT: Meaning and Attributes
- 1.3 ICT and Development Interface
- 1.4 ICT and Sectoral Development
- 1.5 e-Development and its Strategies
- 1.6 Let Us Sum Up
- 1.7 References and Suggested Readings
- 1.8 Check Your Progress – Possible Answers

1.1 INTRODUCTION

It is an established fact that use of Information and Communication Technology (ICT) in development by the developed nations is more as compared to developing nations. In this unit, you will read about the role of ICT in development. After reading this unit, you should be able to:

- Define the meaning and explain attributes of ICT
- Explain ICT and development interface
- Narrate the role of ICT in development of various sectors
- Comprehend e-Development strategies

1.2 ICT: MEANING AND ATTRIBUTES

1.2.1 Meaning of ICT

Customarily, ICT refers to *information, communication* and *technology*. Generally we seek information and communicate them to others who may also be interested to know about its value through technology. The *technology* plays an important role in the effective transaction and communication of knowledge or information to its seekers. ICTs include hardware, processes and systems that are used for storing and managing communications and sharing of information. These tools can be either manual or computerized. ICT is defined by the United Nations Development Programme (UNDP) as, “ICTs are basically information handling tools, a varied set of goods, applications and services that are used to produce, store, process, distribute and exchange information. They include the ‘old’ ICTs of radio, television and telephone, and the ‘new’ ICTs of computers, satellite and wireless technology and the Internet. These different tools are now able to work together, and combine to form our ‘networked world’ – a massive infrastructure of interconnected telephone services, standardized computing hardware, the Internet, radio and television, which reaches into every corner of the globe”. The ICT has enabled ICT using nations to become an *Information Economy*. The UNDP document defines *Information Economy* as “a new global electronic

structure where in the production of information goods and services dominates wealth and job creation and is underpinned by the use of information and communication technologies (ICT) and the global infrastructure”. The OECD member countries define the ICT sector as a combination of manufacturing and services industries that capture, transmit and display data and information electronically. Some commonly used ICT tools are described:

- i) **Mobile phones:** An electronic, portable and wireless communication device that is available in different shapes, sizes and models. Mobile phones connect to a wireless communication network through radio waves or satellite transmissions. According to business dictionary “Mobile Phone is a portable device that does not require the use of landlines. It utilizes frequencies transmitted by cellular tower to connect the calls between two devices”. Mobile phones are capable of communicating via voice calls, e-mails, text messages, video, picture messages, blue tooth, infra-red and fax.
- ii) **Video Conferencing:** According to the BSNL, video conferencing services allow multiple participants to converse with each other regardless of their location through the video end-points. It enables new ways for communication and collaboration between people at almost any location within the world. It involves the transmission of visuals and sounds to two or more separate locations through the use of cameras, monitors, speakers and microphones. Multiple video-conferencing enables three or more individuals to sit in a virtual conference room and communicate as if they were sitting right next to each other.
- iii) **Radio:** The radio is the wireless transmission through space of electromagnetic waves in the approximate frequency range from 10 kilohertz to 300,000 megahertz. Radio is a user friendly and cost effective technology. It is an effective communication and knowledge sharing tool.
- iv) **Internet:** Internet is a global network and is a revolution in IT which is connecting millions of computers. The Internet has become a public, cooperative and self-sustaining facility available and accessible to millions of people, Non Governmental Organizations (NGOs), offices, civil society organizations, private corporate sectors, etc., Worldwide. The Internet carries a vast array of information resources and services, most notably the inter-linked hypertext documents of the World Wide Web (WWW) and the infrastructure to support electronic mail (e-mail), in addition to popular services such as video on demand, online shopping, online gaming, exchange of information from one-to-many or many-to-many by online chat, online social networking, online publishing, file transfer, file sharing and Voice over Internet Protocol (VoIP) or teleconferencing, tele-presence, person-to-person communication via voice and video.
- v) **Television:** It is a widely used telecommunication medium for transmitting and receiving static and moving images usually accompanied by sound. Televisions are available in different sizes and also in colour and black & white sets. Use of cable television and remote control is in recent use.

The ICT has established that there is an inherent relationship between information, communication and technology. The synergistic relationship between information, communication and technology is described in Fig. 1.1.

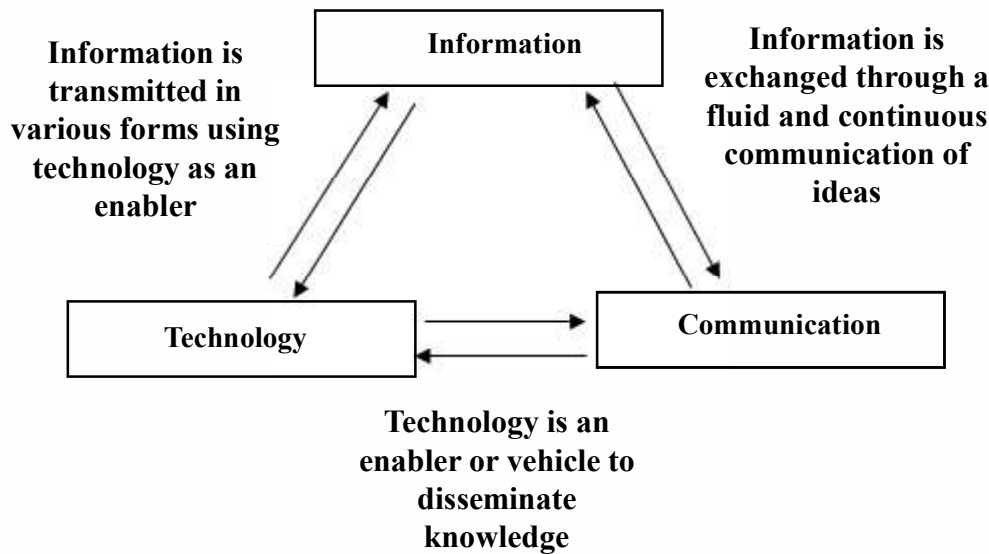


Fig. 1.1 Synergistic Relationship between Information, Communication and Technology

1.2.2 Attributes of ICT

After knowing the meaning of ICT, it is essential to know about its attributes. Some of the important attributes of ICT are:

- i) **Knowledge Revolution:** ICT has dramatic power to organize information. This has also accelerated the pace of learning, innovation and knowledge creation and dissemination. It has helped knowledge power in a great way. The transfer of knowledge has been faster after the advent of ICT. ICT and the growth of knowledge society have become almost synonymous.
- ii) **Productivity Revolution:** The ICT has impacted the ICT using industries and services in raising the overall productivity. The economically advanced country USA, which has effectively used ICT for enhancing the productivity across various sectors of the economy, is one of the illustrious examples. In India also, sectors that are using ICT effectively are able to raise productivity much faster than their counterparts. ICT in most of the service sectors has reduced cost and enhanced productivity and output.
- iii) **Learning Revolution:** According to World Bank, ICT has created a learning revolution that has given rise to lifelong learning. According to Resnick, ICT empowers the students becoming more active and independent learners. ICT has made the people to be less dependent on class room teaching.
- iv) **Promoting Connections:** ICT has promoted connections among people, NGOs, enterprises and communities. ICT gives rise to empowerment, participation, coordination, decentralization, social learning, connecting communities of practice, mobilizing social capital and globalizing civil society concerns. ICTs have been increasingly described as *technologies of freedom*. ICT is empowering people to connect, mobilize, organize, overcome their isolation and share their experiences and idiosyncratic information.
- v) **Innovation-Driven Economy:** The ICT is an enabler to transform the nation from investment-driven economy to innovation-driven economy which is

more efficient and productive. ICT has fastened the innovation process in scientific societies.

- vi) **Globalization booster:** ICTs have been a key engine for the performance and growth of economies since the early 1970s, becoming of course the main technological enablers of economic globalization. The global information has become easily accessible through ICT. It is one of the important energizers of globalization and has made the world a global village.
- vii) **Promoter of Human Development:** The United Nations has long recognized the need for timely and relevant information as a fundamental element of human development. It has emphasised on universal access to information and communication services as a basic need for human development. The human development is effected by digital divide.
- viii) **Contribution to Research and Development:** ICT has contributed greatly to research and development. Research guides and scholars are using ICTs as tools for acquiring information and knowledge. The research and development activities of various sectors and institutions have been benefited immensely by the ICT revolution.

Check Your Progress 1

Note: a) Use the spaces given below for your answers.

b) Check your answers with those given at the end of the unit.

- 1) What do you mean by ICT?

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- 2) How internet is useful in carrying a vast array of information resources and services?

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1.3 ICT AND DEVELOPMENT INTERFACE

Since the early 1970s the pace of ICT has been recognized as a key engine for enhancing development and accelerating growth of economies. ICTs have the potential to not only improve the delivery system of government services but also enhance development outcomes through greater transparency, ease of access,

people's participation and cost reduction. While encouraging the role of ICT in development Kofi Anan, the former Director General of UNO said, "A technological revolution is transforming society in a profound way. If harnessed and directed properly, ICTs have the potential to improve all aspects of our social, economic and cultural life. ICTs can serve as an engine for development in the 21st century". The UN has recognized the need for timely and relevant information as a fundamental element of human development and has called for universal access to information and communication services as a basic development need. While delineating the role of ICT, the Asian Development Bank (ADB) has emphasized that "ICT for development is not about computers, mobile phones and the internet, but about help, support and training people in linking them and communities for communication, learning and services. This will lead to improved well-being, increased work productivity, support for innovation and impetus for inclusive growth". The thrust areas of ICT strategies for development as envisaged by ADB is to create an enabling environment by fostering the development of innovative sector policies, strengthening public institutions and developing ICT facilities and related infrastructure and network. World Bank states "Information and communication technologies are a key input for economic development and growth. They offer opportunities for global integration while retaining the identity of traditional societies. ICT can increase the economic and social well-being of poor people and empower individuals and communities. Finally, ICT can enhance the effectiveness, efficiency and transparency of the public sector including the delivery of social services". The ICT for development need to emphasize the following dimensions of ICT:

- i) **Information-centric:** Focusing more on information and data and less on technology. In the knowledge society, information and knowledge is considered to be more powerful and is an important tool for empowerment. The Right To Information (RTI) Act in India empowers common citizens to get official information and play a pro-active role in governance.
- ii) **Chain-centric:** The ICTs need to provide the connected data relating to the main problem. For example, if health status of a village is low, the ICT need to provide data on infant mortality rate (IMR), institutional delivery, immunization status, disease prevalence, etc., which are the determinants of health status. Sporadic information is dangerous and will cause more harm than benefit. It will not help the decision maker to take appropriate decisions.
- iii) **Society-centric:** The ICTs need to provide data on social aspects such as health, education, status of women, role of youth in development, etc. Partial information is always dangerous and can not be helpful to take corrective measures.
- iv) **Economy-centric:** The ICTs not only provide data and information about economic development but also enable new or more productive income generating activities. For example in Bangladesh, through the national phone operators, villagers purchased their phones as members of the Grameen Bank, get accessible pay-phone services. The information about various development schemes, welfare programmes, and successful projects can be communicated to the rural people through ICT.

- v) **Development-centric:** ICT in order to promote development should be development centric. The ADB is helping its member countries in integrating ICT components in sector development strategies especially in education, health and agriculture. The focus is on improving public administration and finance management, as well as providing various electronic services to citizens and businesses. The ICT should provide information about performance of various sectors of development and different programmes of development.
- vi) **Manpower-Centric:** ICT plays an important role in manpower development. A study claims that ICT diffusion accounts for up to 90 percent increase in Human Development Index of some of the nations. Therefore, most of the ICT proponents suggest that ICT should focus more on people rather than just human efficiency and ultimately raise their knowledge and productivity. For this, at first the requirement of the people who are to be benefited from ICT needs to be understood and the ways in which ICT can be helpful must be chalked out.

The ICT enabled “Information Chain” for development is given in Fig.1.2

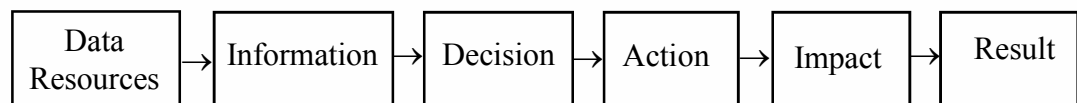


Fig. 1.2. ICT Information Chain

The three types of ICT enabled development are:

- i) Direct Development
 - ii) Networked Development
 - iii) Grassroots Development
- i) **Direct Development:** In this model, the ICTs deliver resources and services directly to the beneficiaries without any interventions of other development actors like NGOs, PRIs and SHGs, etc. The direct telecast of many development programmes of the government through ICT is a direct development endeavour.
 - ii) **Networked Development:** In this model, instead of directly providing information or data to the beneficiaries, the state or private agencies act through other actors or institutions that are connected and can effectively act through ICTs. Here the main source is inter-connected. These intermediaries are not only inter-connected with the main sources but also inter-connected among themselves.
 - iii) **Grassroots Development:** In the grassroots development model, the main development agency, for example, government takes the help of NGOs and other civil society organizations to reach to the beneficiaries. Now a days, the state as an actor of development gradually receding its onus to the community level organization or civil society organizations. There are several successful examples of community development models. It is a democratic way of pursuing development.

Note: a) Use the spaces given below for your answers.

b) Check your answers with those given at the end of the unit.

1) ICT should be Development centric-Justify?

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2) Write short note on ICT enabled grass roots model?

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1.4 ICT AND SECTORAL DEVELOPMENT

ICTs play an important role in enabling the nation to achieve the objective of Millennium Development Goals. The economic, social and human development needs of the developing nations in particular cannot be met in timely and effective manner without the innovative and strategic use of new technologies. The *digital divide* is also one of the reasons for differences in the percentage of achievements in various development indicators in both rural and urban areas. It is remarked that the *digital divide* is really a reflection of existing disparities between the haves and have nots. According to the Organization for Economic Cooperation and Development (OECD), “The digital divide is a symptom of existing economic and social divide, which will widen even in future, if developing countries are not helped to take advantage of ICT in tackling economic and social problems and are denied access to markets that are becoming increasingly ICT-dependent as a part of globalization”. United Nations have developed an ICT Development Index given in Table 1.1. in which Iceland occupies the first rank.

Table 1.1. Ranking of Nations on ICT Development Index, 2017

Rank	Countries	Value
1.	Iceland	8.98
2.	South Korea	8.85
3.	Switzerland	8.74
4.	Denmark	8.71
5.	United Kingdom	8.65

Contd...

10	Japan	8.43
14	Australia	8.24
16	USA	8.18
18	Singapore	8.05
29	Canada	7.77

Source: https://en.wikipedia.org/wiki/ICT_Development_Index (accessed on 10/9/2018)

The discrepancy in urban and rural development is a cause of concern for many developing countries. One of such discrepancies is higher literacy rates in urban areas as compared to rural areas. E-Development, therefore should aim at harnessing the ongoing technological revolution to achieve Millennium Development Goals, one of which is certainly of raising literacy and educational status. E-Development would systematically address the opportunities to use ICT for the competitiveness of developing economies and to expand employment and earning opportunities, to access market information and lower transaction costs for the poor, women, marginalized communities, farmers, traders and artisans. It will be used to achieve higher agricultural and industrial growth rate and enhance literacy and health status of the country's population. However, it is observed that many of the developing countries are still lagging in the use of ICTs in various sectors of development. One of the findings on the ICT role in development reveals that the technological information infrastructure has failed to link the growing awareness of the importance of knowledge for development to the key actors and the information seekers who can carry forward the development actions bridging ICT. The optimal and innovative use of ICT tools will have a decisive bearing on the success or failure of development. This decisive role that ICT plays in facilitating successful implementation of development objective is clearly spelt out in the declaration of principles of the World Summit on Information Society. The role of ICT in development of various sectors is narrated as under:

1.4.1 ICT and Poverty Reduction

ICTs play an important role in poverty reduction strategies adopted by various countries. One of the main opportunities for using ICT in poverty reduction is to provide information and knowledge to rural populations and to empower local development agents to serve the poor. Lack of knowledge regarding various poverty alleviation schemes and their procedures of implementation are important reasons for poor implementation of governmental programmes particularly, the rural development programmes. The illiterate people have poor access to information and therefore, are unable to tap the benefits meant for their upliftment. To sight a few examples, the Chile's electronic rural information system has enabled development actors such as NGOs, municipalities and extension agencies in transmitting information on prices, markets, inputs, weather, social services, and credit facilities at a cost 40 percent less than that using traditional methods. Another example, the land record computerization in Karnataka, India has enabled the agencies to deliver land certificates within 15 minutes instead of 20–30 days and in the process, has reduced transaction costs and corruption, created a viable land market and enhanced the quality of life of the common man.

The tele-centre or the community information and communication centres play important role in transacting information about various development initiative programmes of the government to the common men. These centres also have enabled rural community to carryout local dialogue, share practical locally relevant information and support community problem solving. According to M. Fontaine, digital literacy centres in Benin and Ghana have become an important instrument of empowerment of low-income communities, enhancing employability, increasing capabilities and extending learning opportunities beyond those available in education institutions. While justifying the role of ICTs, Mohammed Yunus (See Chhavi, 2008), the architect of microfinance in Bangladesh remarked that “there is an on-going view that IT is totally irrelevant for the poor who are generally illiterate; IT is too expensive for them to reach out; the poor do not need fancy IT, they need food. These are the voices of the sceptics. Now in three years, there are more than 5000 telephone ladies in Bangladesh villages doing roaring business in selling telephone services.” Some of the lessons learned from the use of ICTs for poverty reduction are:

- i) Technologies used must be adequate to the skills of the poor in order to exploit their potential effectively, in other words it must be user friendly and pro-poor;
- ii) Content should receive as much attention as connectivity and it must be people-centred, demand-driven and in local languages; and
- iii) Ownership by the local communities, partnership and networking is key to effective poverty reduction programme. The local NGOs and civil society organizations are required to be adequately involved through ICT for the poverty reduction at the grassroots level.

1.4.2 ICT and Agriculture

Agriculture is the primary sector of development. ICT in agriculture is an emerging field focusing on the enhancement of agricultural productivity and growth rate. The technological revolution could benefit the agriculture sector through increased flow of information, transfer of capital and inputs and quality of various services provided to agriculture sector. The role of ICT to enhance food security and support rural livelihoods is increasingly recognized and was officially endorsed at the World Summit on the Information services (WSIS, 2003–05). The ICT can potentially help the farming community in the following ways:

- i) Meet the information, technical and input needs of the farmer more efficiently;
- ii) Improve access of knowledge and technology among farmers and farmers linked institutions;
- iii) Strengthen dialogue between and among farmers and farm-linked institutions;
- iv) Promote interactive learning among the farmers and other local based organizations such as *panchayats*, milk cooperative societies WSHGs and village farmers groups.

All these will lead to increase in farm outputs or greater value addition of farm products, resulting in increase in household incomes and quality of life of the

farmers. Further, ICTs can promote trade and competitiveness of agricultural products and broaden markets for agro-products leading to increase in domestic GDP. The FAO's *e-Agriculture* initiative aims at ensuring systematic dissemination of information using ICTs on agriculture, animal husbandry, fisheries, forestry and food, in order to provide ready access to comprehensive up-to-date and detailed knowledge and information, particularly in rural areas.

The ICTs nowadays play an important role in the promotion of public private partnership (PPP) in the area of *ICTs for Agriculture Development*. The four types of partnership which are desirable for agricultural development are:

- i) Providing affordable ICT access and connectivity to farmers and farm-linked institutions;
- ii) Providing relevant contents to the experts, trainees and extension agents;
- iii) Training and capacity building;
- iv) Projecting the locally available good practices;
- v) Promotion of contract farming through public-private partnership.
- vi) Enhancing farmer to farmer contact.

There is a need to understand as to how far the ICT initiatives are able to address the farmers' needs as far as agriculture development is concerned.

1.4.3 ICT and Education

ICT is a powerful tool for extending educational opportunities both formal and non-formal to all sections of the society particularly to the unserved sections of population. The International Institute for Communication and Development (IICD) has emphasized that ICT can be used to improve the quality of education by enhancing educational content development, supporting administrative processes in schools and other educational establishment and increasing access to education for both teachers and pupils via distance learning. As far as use of ICT in education is concerned, two concepts such as *e-learning* and *blended learning* are recently used to fortify the role of ICT in education. According to Tinio (see Gunjan, 2014) "e-learning encompasses learning at all levels, both formal and non-formal that uses an information network-the internet; an intranet (LAN) or extranet (WAN) – whether wholly or in part, of course delivery, interaction and/or facilitation". Others prefer the term on-line learning, web-based learning in a subset of e-learning and refer to learning by using an internet browser. The other term used in educational technology is blended learning. It refers to learning models that combine traditional classroom practice with e-learning solutions. For example, students in a traditional class can be assigned both print-based and online materials; have online mentoring sessions with their teachers through chats and subscribed to a class email list. UNESCO recognizes that "These technologies have great potential for knowledge dissemination, effective learning, and the development of more efficient education services".

In India satellite based teleconferencing (one-way video and two way audio) non-formal education has been operational since 1992 at national and regional levels. The ICT mission for school education in India aims to devise, catalyse, support and sustain ICT and ICT enabled activities and processes in order to improve access quality and efficiency in the school system.

According to UNESCO, ICTs can be used in education to:

- Improve administrative efficiency
- Disseminate teaching learning materials to teachers and students
- Improve the ICT skills of teachers and students
- Allow teachers and students access to sources of information from around the world
- Share ideas on education and learning
- Collaborate on joint prospects
- Conduct lessons from a remote location

The six focus areas of ICT in education programme as emphasized by the UNESCO are policy, teacher training, teaching and learning, non-formal education, monitoring and measuring, research and knowledge sharing. The international institutions as well as experts involved in communication and development believe that ICTs in education will be of great help to achieve the Millennium Development Goals of universal primary education through following ways:

- i) **Teacher Training:** Increase the supply of trained pre-service teachers through ICT-enhanced training and by creating teacher networks. Teacher training programme through ICT will be more effective and even can be conducted in a faster pace as compared to traditional methods.
- ii) **Teaching and learning in the class room:** The capacity development of teachers to empower them to use ICT in the classroom and the development of curricula and support materials/resources through ICT. The teaching-learning through ICT will not only improve the process but also raise the student attendance rate. It will enable both the teacher as well as students to use ICTs in their current as well as future teaching learning processes.
- iii) **Management and administration:** Improve the efficiency and effectiveness of Ministries of Education and related bodies through the use of ICTs for management and educational information. The department can use ICTs in procuring the record of the educational institutions, teacher and students and other lost and expenditure aspects relating to education. The on-line admission and on-line examination have fastened the educational administration and makes the administrative process cost-effective.
- iv) **Policy and strategy:** Establish an enabling environment and improve the overall strategic development of education by integrating ICT's policies and strategies into the education policies. The ICTs have also enabled the educational planners to make available educational policies, plans and strategies accessible to the teachers, students, administrators, and researchers. The feedback mechanisms have become easier with the advent of ICTs.

1.4.4 ICT and Health

The health care services will be improved and the quality increased by the coordinated induction of information technology in all segments of the health care action chain; local, regional and national health network will strengthen

cooperation and resource management in the health care sector. According to the World Health Organization (WHO) “Technology is the backbone of the services to prevent, diagnose and treat illness and disease. ICTs are only one category of the vast array of technologies that may be used. Given the right policies, organization, resources and institution, ICTs can be powerful tools in the hands of those working to improve health”.

According to WHO, the use of ICTs in the health sector is not merely about technology, but a means to reach a series of desired outcomes such as:

- i) Health workers making better treatment decisions;
- ii) Hospitals providing higher quality and safer care;
- iii) People making better choices about their own health;
- iv) Governments becoming more responsive to health needs;
- v) National and local information systems supporting the development of effective, efficient and equitable health systems;
- vi) Policy makers and the public aware of health risks and
- vii) People having better access to information and knowledge they need for better health.

The use of ICT in health care has become an important aspect of health development. Health care solutions provided by ICTs are popularly known as *e-health*. The tools and services which contribute to e-health provide better and more efficient health care services for all. The use of e-health technologies allows a mutually beneficial collaboration and involvement of patients and medical professionals in the prevention and treatment of chronic diseases.

In Peru, Egypt and Uganda effective use of ICTs has prevented avoidable maternal deaths. In South Africa, the use of mobile phones has enabled patients to receive timely reminders to take their medication. In Cambodia, Rwanda, South Africa and Nicaragua, multimedia communication programmes are increasing awareness of how to strengthen community response to HIV and AIDS.

Last but not the least, e-learning development strategies may target ICT as a core technological competency in view of its need and its potential as a tool for competitiveness. According to Sidharthan and Lal (2003) targeting technologies with substantial potential and spill over effects is shown to have greater benefits on economy.

Accurate, relevant and up-to-date information is essential to health service managers, if they are to recognize weakness in health service provisions and take action that will improve service delivery. Therefore, the development of effective information system is a necessary precursor to managerial improvement in health care system. The major elements of opportunities for ICT in primary health care are telemedicine and health services, health care data management, information systems, appropriate data collection devices and analysis tools, appropriate and affordable bio-medical equipment for grass root deployment, video/multi-model conferencing and e-connectivity and appropriate legal and administrative framework.

The ICT intervention in health development can be broadly categorized in to the following areas:

- i) **Telemedicine:** According to International Telecommunication Union, telemedicine is a powerful tool for empowering health care delivery. According to WHO, telemedicine is dealing of health care services where distance is a critical factor by health care professionals using information and communication technologies for the exchange of vital information for diagnosis, treatment and prevention of diseases and injuries, research and evaluation and for the continuing education of health care providers, all in the interest of advancing the health of individuals and their communities. The e-health is the use of emerging information and communication technology, especially the internet, to improve or enable health and health care.
- ii) **Health Management Information System (HMIS):** ICTs nowadays play an important role in most of the countries in maintaining medical records system, district, block and village health status records, disease surveillance system and health services delivery and recording system.
- iii) **E-learning and capacity building:** ICTs nowadays are being used for the capacity building of health and health related personnel by training institutions and NGOs involved in the health sector developmental activities. The training organizations are providing access to internet and other materials to the trainees on recent development in health education.
- iv) **IEC on community-based health care delivery:** Information Education and Communication (IEC) is one of the important components of community health care strategies. Many studies have found that use of ICT materials in the community orientation training on health has better impact on knowledge, attitude and behaviour. Some of the organizations dealing with health sector development are laying emphasis on local information access and telemedicine with a local indigenous knowledge base.
- v) **Health Research:** The role of ICTs in health research is undoubtedly one of the important components of ICT in health development. The bibliographies in health give a number of useful references that focus on the utility of ICT in health research. It also emphasized on the use of electronic journals and on- line medical journals and the use of ICTs for networking among health researchers.
- vi) **Health Campaigns:** ICTs nowadays are being used in large scale health campaigns. Most of the African countries are using ICTs for the health campaigns of HIV/AIDS. USAID of South Africa seeks development of innovative public-private partnership that uses ICT to reduce the impact of HIV/AIDS in South Africa. The ICTs which are largely in use are mobile/cellular technology, computer-based technology, radio, video television, web and social networking.

Media Lab Asia, 2005 recommendations on use of ICT in different levels of primary health care system are:

- i) The ICTs requirements for sub centre are handheld computer devices for data collection and compilation, the ICTs enabled digital camera, digital stethoscope, digital glucometer, portable digital weighting machine, e-mail facility, and multi-media facility for training.

- ii) The ICTs requirements for the PHCs are a PC with printer and web camera, digital weighing machine, digital stethoscope, digital ECG machine, digital glucometer, diagnostic test kits, pulse oximeter, digital x-ray, digital microscope, digital ultra sound etc
- iii) ICTs requirement for Community Health Centre (CHC) will be all the requirements at PHC and diagnostic kits, cardiac monitor, ICT augmented operation theatre, good communication and connectivity facilities like email, fax and video conferencing and good telemedicine facilities.

It is rightly remarked that continuous development in ICTs has resulted in increasing use of those technologies in the practise of medicine and in the provision of medical care.

1.4.5 ICT and Women Empowerment

ICT can play a vital role in promoting women empowerment in developing countries. There are many examples where women have used the new technologies to improve their business, create new business or find new employment opportunities. However, a large majority of women particularly those who are residing in rural and semi-urban areas are still excluded from the digital economy. Women need to become active promoters of the use of ICT and e-commerce and enhance their capacities in IT training and skills. Further, women also need to become more involved in ICT policy making and development to ensure that women's needs are incorporated in policies related to the infrastructure, access, training and education. ICTs can be a powerful catalyst for political and social empowerment of women. June Lennie (2002) citing the Australian case said that many women in rural Australia are taking leadership in community and economic development activities and are often extremely reliant on a range of communication technologies for personal, family, business and networking purpose. The UNESCO intends to overcome gender divide by providing opportunities to women in the knowledge societies through the development of ICTs. The UESCAP (United Nations Economic and Social Commission for Asia and Pacific) emphasized on closing gender divide through gender-responsive ICT capacity development for women's organization and enhanced women's access to the benefits of ICT so that ICT becomes a central tool for women's empowerment and promotion of gender equality. The state of Kerala had initiated gender-focused approaches to ICTs and gender empowerment through Kudumbashree's ICT-based enterprise.

Kudumbashree ICT Unit

Techno world Digital Technologies (TDT) is a Kudumbashree ICT unit initiated in 1999 by 10 women from below-poverty-line families who provided US\$300 of their own money, which was matched by a US\$3,000 bank loan and a US\$2,500 local government subsidy used to purchase a basic computing set up. Their total asset base had risen five-fold by 2004 to a system of 22 computers plus computing peripherals worth US\$ 30,000.

The unit mainly undertakes data entry work for state government departments under the government's digitization programme. It has undertaken work such as CD rewriting and some web site maintenance, and it also provides IT training to a number of government schools. Work patterns are based on

two main shifts (7.30 AM to 1.00 PM, and 1.00 PM to 6.30 PM), and 40 additional staff have been employed over and above the original 10 women members, including a number of men.

Note: Kudumbashree which means “Prosperity of the family” is an initiative of the Kerala State Poverty Eradication Mission (SPEM) which was launched on 1st April 1999 as a women oriented participatory and integrated approach to fight poverty.

Source: https://e-space.mmu.ac.uk/97901/1/di_wp20.pdf(accessed on 10/9/2018).

1.5 E-DEVELOPMENT AND ITS STRATEGIES

E-development is a process of development that makes use of ICTs or ICT applications to provide information and knowledge services necessary to enhance productivity, efficiency and quality of life. The International Institute for Communication and Development (IICD) considered e-development as that development by which ‘e’ means effective; ‘e’ means efficient and ‘e’ means empowering. It uses ICTs to increase people’s opportunities to empower poor people and to counter insecurity and vulnerability. ICT has a far reaching role to play in the development of a nation both urban as well as rural. Many of the developed nations have grasped the advantages of ICT which has contributed immensely to their socio-economic development. The e-development has occupied important place in the paradigm of development. Therefore, an efficient e-development strategy is *sine-qua-non* for development. It is emphasized that the measure of success of ICT in development will not focus on the spread of technology but on overall progress towards economic growth, and ultimately towards the Millennium Development Goals (Dutta et al., 2004).

Some of the strategies to be followed for e-development are as follows:

- i) **Raising awareness:** An intensive campaign in propagating the role of ICT in development is very much required. All the stakeholders at the national, regional, state and even at the grassroots level needed to be awarded about the role that ICT would play in development. It should clarify the ICT options available for development and those that should be taken and used for development. The role of public, private sector, NGOs and even civil societies be harnessed which will go a long way to promote awareness on role of ICT in development.
- ii) **Building coalition:** e-development strategies in order to become successful need a coalition framework in which both the public and private sector should work shoulder to shoulder. A successful public-private-partnership model is very much required for the knowledge-based global economy.
- iii) **Clarifying roles and responsibilities:** A national strategy should help to clarify the roles and responsibilities of various actors of development such as government, private and civil society. The government need to take the lead by setting the policy and institutional environment in promoting ICT industry development. However, it should not be viewed as a government-only strategy.

- iv) **Scaling up:** Scaling up intra and inter ICT sectors is required. Therefore, reform and innovations are required to be made within the ICT sector. Besides, the intra-sector scaling up of the ICT to other development sectors like health, education, rural development, urban development, etc is also essential for the holistic development of a nation. Appropriate policy, institutional reforms and change in management practices are required during the scaling up commitment and knowledge about processes to diffuse and scale up best practices.
- v) **Leveraging ICT:** The role of e-development strategy can also be stated in terms of the three options for leveraging ICT such as an industry or sector in its own right, as a general purpose technology to be applied across sectors and an enabling infrastructure for empowerment and service delivery. To reduce the risks and improve the impact of targeting the ICT industry for promotion and focused efforts, governments should work with the private sector to identify target market opportunities, match specific niches to comparative advantage, systematically assess current constraints and jointly devise the policies and programmes to develop the industry and exploit market niches.

Check Your Progress 3

Note: a) Use the spaces given below for your answers.

b) Check your answers with those given at the end of the unit.

- 1) What do you mean by e-Development?

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- 2) ICTs are useful for development of Health? Comment.

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1.6 LET US SUM UP

ICT in this era of globalization is considered as one of the important tools for development. Many of the developed countries have already reaped the benefits of ICTs and have successfully utilized it in their process of development. This unit describes in detail the meaning of ICT and its role in development of different sectors such as education, health, agriculture, industry, and poverty alleviation and women empowerment. Besides it also deals with the concept of development and various strategies of e-development.

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1.8 CHECK YOUR PROGRESS-POSSIBLE ANSWERS

Check Your Progress-1

- 1) ICT refers to ‘information’, ‘communication’ and ‘technology’. Generally we seek information and communicate them to others through technology who may also be interested to know about its value. The ‘technology’ plays an important role in the effective transaction and communication of knowledge information to its seekers. ICT includes hardware, processes and systems that are used for storing and managing communications and sharing of information.
- 2) The Internet carries a vast array of information resources and services, most notably the inter-linked hypertext documents of the World Wide Web (WWW) and the infrastructure to support electronic mail, in addition to popular services such as video on demand, online shopping, online gaming, exchange of information from one-to-many or many-to-many by online chat, online social networking, online publishing, file transfer, file sharing and Voice over Internet Protocol (VoIP) or teleconferencing, tele-presence person-to-person communication via voice and video.

Check Your Progress-2

- 1) ICT in order to promote development should be development centric. Asian Development Bank is helping its member countries in integrating ICT components in sector development strategies especially in education, health and agriculture. The focus is on improving public administration and finance management, as well as providing various electronic services to citizens and businesses. The ICT should provide information about performance of various sectors of development and different programmes of development.
- 2) ICT is effectively utilized for the development of rural areas at the grassroots levels by transacting the information about various developmental projects and programmes to the countryside masses.

Check Your Progress-3

- 1) The e-development is a process of development that makes use of ICTs or ICT applications to provide information and knowledge services necessary to enhance productivity efficiency and quality of life “The International Institute for Communication and Development (IICD), considered e-development is that development by which ‘e’ means effective; ‘e’ mean efficient and ‘e’ means empowering.

- 2) The use of ICT in health care has become an important aspect of health development. Health care solutions provided by information and communication technology (ICT) are popularly known as “e-health”. The tools and services which contribute to e-health provide better and more efficient health care services for all. The use of e-health technologies allows a mutually beneficial collaboration and involvement of patients and medical professionals in the prevention and treatment of chronic diseases.



UNIT 2 e-GOVERNANCE IN RURAL AND URBAN DEVELOPMENT

Structure

- 2.1 Introduction
- 2.2 National E-Governance Plan (NeGP)
- 2.3 Importance of e-Governance in Rural and Urban Development
- 2.4 Initiatives of e-Governance: International Experiences
- 2.5 Initiatives of e-Governance: National Experiences
- 2.6 Challenges in e-Governance
- 2.7 Let Us Sum Up
- 2.8 Keywords
- 2.9 References / Selected Readings
- 2.10 Check Your Progress – Possible Answers

2.1 INTRODUCTION

Generally speaking, e-governance or electronic governance in rural / urban development is the use of information and communication technologies (ICT) in the operation and maintenance of rural / urban services, respectively. ICT helps to introduce a wide range of ways for improving collaboration and cooperation between ministries; making government services more transparent, efficient and effective for the public by sharing accurate and up-to-date information and improving people's access to government services; boosting public sector accountability, transparency, efficiency and effectiveness. E-governance can also help streamline activities, cut costs and paperwork and help the city governments make more informed development decisions.

The initiative of the use of information technology (IT) in urban governance started in the late nineties, especially after the adoption of the 74th Constitutional Amendment Act (CAA) in 1994, when urban local bodies (ULBs) became constitutional entities of local governance. Prior to this, local governance was the mandate of the state governments where the ULBs were supposed to perform certain functions mandated to them by the state governments. The passage of the 74th CAA resulted in the increased role of the ULBs in local governance. Further, the central government launched the programme of Jawaharlal Nehru National Urban Renewal Mission (JNNURM) in 2005 where adoption of reform in e-governance became mandatory for all the 65 Mission cities (all State capitals, all million plus (population) cities and cities of historical interest). The use of ICT is expected to help the ULBs and state governments to curb corruption, reduce time for the provision of civic services and bring about transparency in urban management. Therefore, development professionals working in urban areas are expected to know about role of ICTs in urban development.

After studying this unit you should be able to:

- Discuss the meaning, concept and importance of e-governance in rural and urban development.
- Describe various initiatives of e-Governance in different development sub-sectors in rural and urban areas with the help of examples/case studies.

2.2 NATIONAL e-GOVERNANCE PLAN (NeGP)

The National e-Governance Plan (NeGP), takes a holistic view of e-Governance initiatives across the country, integrating them into a collective vision, a shared cause. Around this idea, a massive countrywide infrastructure reaching down to the remotest of villages is evolving, and large-scale digitization of records is taking place to enable easy, reliable access over the internet. The ultimate objective is to bring public services closer home to citizens.

NeGP 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.

Strategy to Realize Vision

- Centralized Initiative, Decentralized Implementation
- Focus on Services & Service levels
- Ownership and Central Role of Line Ministries/State Governments
- Emphasis on Public Private Partnerships (PPP)

The Government approved the National e-Governance Plan (NeGP), comprising of 27 Mission Mode Projects and 8 components in 2006. In the year 2011, 4 projects - Health, Education, PDS and Posts were introduced to make the list of 27 MMPs to 31 Mission Mode Projects (MMPs). The Government has accorded approval to the vision, approach, strategy, key components, implementation methodology, and management structure for NeGP.

In order to promote e-Governance in a holistic manner, various policy initiatives and projects have been undertaken to develop core and support infrastructure. The major core infrastructure components are :

- State Data Centres (SDCs)
 - o State of art Data Centers in all States/UTs
 - o Housing all applications and databases
 - o e-Delivery of G2G, G2C and G2B services
 - o State Portals, State Service Delivery Gateways
- State Wide Area Networks (SWAN)
 - o Secured network for Government work
 - o Connecting State HQs ,District HQs, Blocks HQs
 - o Minimum 2 Mbps Broadband Connectivity

- Common Services Centres (CSCs)
 - o More than 100,000 tele-centers in 600,000 villages.
 - o Broad band internet enabled connectivity
 - o Implementation through PPP
- National e-Governance Service Delivery Gateway (NSDG)
- State e-Governance Service Delivery Gateway (SSDG)
- Mobile e-Governance Service Delivery Gateway (MSDG)

The important support components include Core policies and guidelines on Security, HR, Citizen Engagement, Social Media as well as Standards related to Metadata, Interoperability, Enterprise Architecture, Information Security etc. New initiatives include a framework for authentication, viz. e-Pramaan and G-I cloud, an initiative which will ensure benefits of cloud computing for e-Governance projects (Source : Ministry of Electronics and Information Technology, 2018)

2.3 IMPORTANCE OF e-GOVERNANCE IN RURAL AND URBAN DEVELOPMENT

2.3.1 Importance of e-Governance in Rural Development

E-Governance which is a short form for electronic governance, also known as digital governance or online governance refers to the use of ICT to provide and improve government services, transactions and interactions with citizens, businesses, and other arms of government. While e-governance is often thought of as *online governance* or *Internet-based governance*, many non-Internet *electronic* technologies can be used in this context, like telephone, fax, wireless networks and services etc.

As per the latest census, about 69 per cent of people live in rural areas. Therefore, focusing on the all round wellbeing of villages has been the principal objective of various government policies over the years. As part of e-governance for rural development, government has opened common service centers (CSCs) at village level across India under National e-Governance Plan (NeGP). As a follow-up to the e-governance initiative of the Union government, many state governments have provided the necessary information to the people in villages. The e-governance measure has enabled people to access government services easily and in a cost-effective way to address their grievances.

e-Panchayat as Tool of Rural Development

Because of the large size and diversity of the country, public services delivery becomes a tough challenge in remote rural areas. The NeGP envisages the establishment of e-Panchayats. The e-Panchayats for the villages aim to provide numerous basic services for the rural population across the country.

Objectives : The objective of e-Panchayat is to effectively tackle the tasks that confront rural villages in general. The challenges include lack of reliable communication infrastructure, inordinate delays in delivery of the services, little revenue realization at Gram Panchayat level, and absence of a meaningful monitoring system.

Benefits : e-Panchayat yields various benefits where adopted. The benefits include the following:

- 1) **Efficiency:** Public services delivery has improved because of the adoption of e-governance. It has led to easy access for people at minimal cost and delays. Processing of payment of property tax, user charges (water, electricity, etc.), getting license grievances addressed etc has become easier and cost effective. It would make services delivery transparent, and free from abuses and corruption.
- 2) **Better financial management:** The 73rd Amendment to the Constitution provides special financial powers to Panchayat bodies. Under the new rules, Panchayats are empowered to levy, collect and expend tax revenue, tolls, fees and the like. A software application, is being deployed to process the financial transaction of e-Panchayats. The software application would help in the collection of revenues and enable the authorities to track the expenditure by funding authorities.
- 3) **Monitoring the programs:** Evaluating and monitoring the various development programs constitutes a significant task for the authorities. e-Panchayats help the authorities use ICT to do the job efficiently and in a timely manner. Further, it helps create a database of all development programs.
- 4) **Disseminating information:** e-Panchayat leads to easy access to information with respect to the function of Panchayats and other services. Citizens can access the internal tasks done by e-panchayats, such as meetings for agenda setting, voting on proposals, the decisions taken and so on. Further, information pertaining to Pensions, BPL food grains, Census data can be provided and also be accessed. Further, it makes dissemination of information faster among all levels within the Panchayats and government departments.
- 5) **More participatory:** e-Panchayat makes the village local bodies more participatory – women and weaker sections get the opportunity to join in the economic growth process. This leads to equitable and inclusive growth. Information becomes available to all with respect to social services/schemes without bureaucratic interference.

2.3.2 Importance of e-Governance in Urban Development

E-Governance has become an essential tool for urban development by involving the use of IT in:

- Improving transparency;
- Providing information to the citizen speedily;
- Improving administrative efficiency;
- Improving public service such as transportation, power, health, water, security and panchayat / municipal services.

One of the important components of e-Governance solution is the Geographical Information System (GIS). The GIS has helped in systematic mapping of four aspects:

- **Revenue mapping** – showing details of all taxes and charges like property tax levied on various assets. This will help the officials by improving assessment and thereby increasing collection of revenues.
- **Infrastructure mapping** – showing the details of infrastructure like roads, solid waste management system, streetlight, housing, etc.
- **Resource and assets mapping** – showing specifically the assets for optimum utilization and hence providing better services to the citizens.
- **Poverty mapping**– showing socio-economic attributes of the poor households. This will help in targeting the correct citizens for the correct services.

Urban areas are currently the largest contributors to global energy consumption and climate change. The world's 20 largest cities alone – each with a population exceeding 10 million – are responsible for 75 percent of the planet's energy use. Added to this is the rapid development of metropolitan areas around the globe as well as the need to renew outdated 20th century infrastructures in cities. The scope of ICT in addressing these urban challenges is tremendous.

The further development of the information/knowledge/network society is now a common goal of many authorities round the world. Modern telecommunications can be seen not only as a new way of working but also as a new form of urban management. Delivery and management of urban services can be better done by e-governance. This may be true for property tax collection; vehicle tracking or efficient transport services. The quality and diversity of conventional transportation networks and services are important locational factors for many industries and activities. Therefore, analogously, one may suppose that ICT and its applications will, over the course of time, similarly come to affect spatial development and thus one may argue that with this in mind, ICT should already now be taken into account in all future spatial planning processes. In the policies and plans for sustainability and eco responsibility in cities, much attention has been directed to three sectors: the built environment, energy, and mobility. At the commencement of the 21st century, it is obvious that a fourth, equally important element must be addressed: ICT.

This era is the start of a dialogue about how cities can create coherent, long term policies and plans to manage the environmental impacts of ICT and utilize ICT strategically to create sustainable 21st century cities. ICT products and systems are a significant and rapidly growing part of the environmental footprint of modern urban life. They are resource intensive in manufacturing and distribution, consuming ever greater amounts of energy while in use, and producing escalating volumes of solid and toxic waste.

ICT products, systems and networks are the essential drivers of productivity improvements and innovation for the 21st century. They will be the enablers of sustainability solutions in all networks of urban life: buildings, energy production and use, mobility, water and sewage, open spaces, education, and public health and safety. ICT innovation is also the catalyst for changes in personal, work and community life that will be a fundamental requirement for sustainable economic development.

Until now, little attention has been given to measuring the eco footprint of ICT in cities, or to clearly understand its role in enabling other sustainability initiatives.

Because ICT systems and products are literally everywhere in modern life, it is difficult to see and understand that each device is part of a whole system globally linked by networks to create, manipulate, store, move and present information for humans and machines. To successfully manage the ICT environmental footprint and realize the benefits for enabling sustainability, a city must have a vision and strategy for ICT that encompasses all organizations and constituencies.

ICT helps develop an innovative combination of advanced technologies that meet the unique needs and vision for each urban area. Some of these technologies include:

- Vehicle tracking/identification systems;
- Dynamic congestion-charging programmes;
- Video communication solutions;
- Integrated transportation management systems;
- Global positioning system (GPS), radio frequency identification (RFID) and other sensor technologies;
- Broadband, wireless and intelligent infrastructures;
- Collaboration technologies in the creation of innovative work environments;

A study about the relationship between the quality of local e-government services and the levels of Internet access in the 12 regions of the United Kingdom reveals that lower quality of local e-government services correlate with low levels of Internet access. In Taiwan, electronic tax-filing systems, the implications of technology acceptance and perceived credibility of the systems are positive factors that influence adoption of e-government services. Whether e-government in the future will be a method for including more citizens in a government or excluding less technologically educated citizens remains a concern. Many information policy issues are likely to present significant challenges to the development of e-government. These are:

- Ensuring ability to use required technologies;
- Educating citizens about the value of e-government;
- Ensuring access to useful information and services;
- Coordinating local, regional and national e-government initiatives;
- Developing methods and performance indicators to assess the services and standards of e-government;
- Providing consistent and reliable electricity, telecommunications, and Internet access;
- Addressing issues of language and communication;
- Preventing e-government from lessening responsiveness of government officials; including individuals with disabilities in e-government.

Akshaya e-Literacy Project in Kerala

The e-literacy project in Kerala is the only initiative that aims to make ordinary citizens e-literate in India. The project aimed at making at least one member in each of the families e-literate. The pilot project started in

Mallapuram in 2002 and has been extended to other districts like Kollam, Kozhikode, Thrissur, Kasargodu. Total e-literacy was achieved in eight districts in Phase I and the project has been a great success. The Akshaya project has three distinct phases. The first phase enables the masses with the basic skill in computer operations and familiarising them with the internet, besides, hand on skill in operating a computer. The e-literacy initiative in Kerala have been recognised and appreciated globally.

Source: <http://www.akshaya.kerala.gov.in/index.php/e-literacy>, 2017

2.4 INITIATIVES OF E-GOVERNANCE: INTERNATIONAL EXPERIENCES

Examples of e-Governance practices followed in some of the developed countries are given below:

2.4.1 Automated Building Plan Approval: Case of Singapore

Singapore is a key hub in the development of the global information and knowledge economy. Part of the developing e-Business capability in Singapore is the Construction and Real Estate Network project (CORENET). This world's leading initiative has changed the entire perception of building planning in Singapore. Key to the success of CORENET is Automated Code Checking, which allows automated approval of building plans over the Internet. Received data is stored and checked within EXPRESS Data Manager software.

CORENET is a major IT initiative undertaken by the Singapore Ministry of National Development to re-engineer the business processes of the construction industry and achieve a quantum leap in turnaround time, productivity and quality. CORENET centres on developing IT systems to integrate the four major processes of a building project life cycle, supported by key infrastructures, to provide a *One-Stop Submission Centre* (OSSC) to facilitate electronic submission, processing and approval of building project documents over the Internet.

The specific objectives of CORENET are:

- To speed up the business planning and project evaluation processes in the building industry by making all relevant information readily available to all players in the industry.
- To streamline the design-related processes by having all industry professionals work with one common set of electronic plans instead of separate paper and electronic plans presently used.
- To evaluate the compliance of building design to statutory requirements with minimal intervention and guidance from the regulatory authorities.
- To move towards common procurement procedures and document standards.
- Integrated Building Plan and Building Services System (IBP/IBS).

One of the major projects in CORENET is the IBP/IBS which is an expert system that automatically performs checks on digital plans for compliance with building plan and building services regulatory requirements. The design checking and

approval process using the manual approach is time-consuming and inefficient. Automating this process eliminates potential delays as well as avoids inconsistencies in code interpretation.

One-Stop Plan Submission of Building Plans:

It is a virtual submission centre to facilitate round the clock electronic submission and approval of digital building plans. It will be an advanced e-government solution for industry professionals such as architects, structural, mechanical and electrical engineers. Automated compliance checks are performed on the relevant parameters of the proposed building against the building codes and compliance regulations. Payment of fees is electronic. The system saves the industry travelling time to the 13 regulatory agencies and brings about significant manpower and cost savings to both industry and agencies.

2.4.2 Smart Work Centers: Amsterdam

This network of Smart Work Centers (SWC) is part of collaboration between Cisco and the City of Amsterdam under the Connected Urban Development program (CUD), which serves to address modern urban challenges including mobility, climate, energy and sustainable ways of urban management. The Double U Smartwork aims at a one stop shop for location providers, individual users, independent professionals and corporate users, where all SWCs can be booked directly by a central booking tool.

SWCs comprise a regional network of neighbourhood professional work and community centres supporting travel virtualization and enabling mobile working practices. SWCs offer a professional work environment near residential areas to lower energy use and carbon emissions. Estimates revealed that users have saved on an average of 66 minutes of commuting time per day.

An SWC is a physical facility where high quality workplace solutions are offered to professional workers in a neutral, centrally located and easily accessible environment. To minimize traffic, an SWC is located in the vicinity of roads, traffic junctions, stations and residential areas. Currently, there are several providers of SWC-like facilities in the Netherlands. The Double U Smartwork Foundation serves as a coordinating platform for SWC providers and aims to develop a national network. Users, regardless of where they live or reside, should have access to a good workplace within biking distance. Until recently, existing SWCs were too fragmented and locally focused, therefore, employers operating on national level were not interested in offering their employees an alternative working spot. Double U links a network of over 50 open and SWCs, with the plan to extend to 100 national centres.

Smart Work Centers are well equipped and go beyond providing a workplace. The services and facilities are not only meant to facilitate work itself, but also to provide work related services as day-care and catering facilities.

Anyone can use the facilities offered by one simple online booking system. Through the portal, users can quickly find the nearest location with the right facilities, whether they are on the road or at their workplace. The available providers are automatically displayed.

2.4.3 An Energy Efficient City: Madrid

Madrid is one of the first pilot projects carried out in Spain within the Connected Urban Development program (CUD), in which companies and cities partner to contribute to the development of sustainable, efficient and innovative cities through the use of connectivity and new technologies. Promoted by the Municipal Company for Housing and Lands of Madrid; Cisco and technology partner Telvent, have deployed network infrastructure, connectivity and control systems in a pilot, apartment building in the city. The development is intended as temporary housing on a rental basis to young people in Madrid.

The *Energy Efficiency Manager* installed in homes can, at any time and in real time, manage energy consumption, controlling emissions of carbon dioxide and make decisions about the way in which residents make use of energy both at the individual apartment level and throughout the building. In the future, this is intended to extend across the urban community. The solution, which allows consumers to set limits and comparisons of weekly, monthly or yearly consumption, provides to citizens and municipal managers, daily tips to improve efficiency and be more environmentally responsible.

Urban Eco-Map is part of the global Urban Services Platform approach toward which visionary cities and the ICT industry are moving. Urban Eco-Map provides real-time environmental intelligence to enable citizens, communities, cities, countries and businesses alike to make smart ecological decisions and to develop policies that improve the sustainability of cities. Through this comprehensive view of eco-data, we can now take a global *pulse* of the eco-health of our planet.

2.4.4 Urban Eco Map: San Francisco

Urban Eco-Map: A pilot co-developed with the City and County of San Francisco, Urban Eco-Map provides cities with relevant data regarding primary greenhouse gas contributors – transportation, waste and energy – to help city residents take action to reduce their emissions.

2.4.5 Personal Travel Assistant: Seoul

Personal Travel Assistant (PTA): PTA is a Web-based service that allows residents in Seoul and Amsterdam to make on-the-go travel decisions based on time, cost and carbon impact. It offers *virtual assistant* features that provide transit guidance based on user preferences via any Web-enabled device, from any location.

Check Your Progress 1

Note: a) Use the spaces given below for your answers.

b) Check your answers with those given at the end of the unit.

1) What do you mean by e-governance?

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- 2) Explain the importance of e-governance and how e- governance has helped urban management across countries with examples.

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2.5 INITIATIVES OF E-GOVERNANCE: NATIONAL EXPERIENCES

Examples of e-Governance practices in some of the Indian states are narrated below:

2.5.1 Computer-Aided Registration of Deeds and Stamp Duties: An initiative of the Andhra Pradesh Government

E-governance has helped the state revenue departments to register properties in less time, store information scientifically and bring about transparency in the system. Such an initiative was taken in Andhra Pradesh in the late eighties, where the Computer-aided Administration of Registration Department (CARD) project has brought about computerized counters at land registration offices throughout Andhra Pradesh. The project aimed at altering the antiquated procedures that had governed the registration system of the state, which included the laborious copying and indexing of documents as well as their unscientific space-consuming preservation in ill-maintained backrooms. The state had a flourishing business of brokers and middlemen who exploited citizens selling or buying property. The CARD project is an attempt to reform this system through the use of IT¹. With the introduction of CARD, citizens now complete registration formalities within a few hours. The CARD project illustrates some of the key implementation issues the state and national governments may face in their efforts to use IT to improve citizen-government interfaces and serves as a best practice to be replicated by them (Satyanarayana, 2002).

The idea of introducing computers originated in 1988 in Andhra Pradesh when a project was initiated to computerize the process of issuing Encumbrance Certificates. A 386 server operating with 14 terminals was set up at a cost of about \$31,000 (Rs 1.33 million). Data entry of index registers of the twin cities of Hyderabad and Secunderabad (now in Telangana) was initiated. The National Informatics Centre (NIC) provided the technical assistance. The entry of 15 years of data went on until 1995 when a pilot scheme for issuing computerized Encumbrance Certificates was launched in one of the city offices. The feasibility of taking up a comprehensive Registration Department computerization project to address other registration formalities and problems was established in a study conducted by J. Satyanarayana² in August 1996. The study brought out methods

¹ The CARD project was funded entirely by the government of Andhra Pradesh. The original outlay was about US\$3 million (Rs.130 million).

² Commissioner & Inspector General of Registration and Stamps C.T. & Excise Complex, M.J. Road, Nampally, Hyderabad

by which the various registration services could be delivered electronically across the counter in an integrated manner and showed a road map as to how the process of valuation could be consigned to the computer and also introduced the concept of electronic document management as an essential part of computerizing the registration process.

Objectives of the CARD Project

CARD is a major IT project designed to eliminate the maladies affecting the system of registration through electronic delivery of all the registration services. It was based on the primary objectives outlined below.

- Demystify the registration process;
- Introduce a transparent system of valuation of properties, easily accessible to citizens;
- Bring in speed, efficiency, consistency and reliability;
- Replace the manual system of copying and filing of documents with a sophisticated document management system that uses imaging technology;
- Replace the manual system of indexing, accounting and reporting;
- Introduce electronic document writing; and
- Substantially improved the citizen interface.

Benefits of CARD

The CARD project aims at providing improved quality of the services at the registration department by providing a computer interface between citizens and government. The tedious procedures that took weeks have been replaced by a system that can be accomplished in just a few minutes. The market value assistance and issuing of the Encumbrance Certificate (EC) takes five minutes each. The sale of stamp papers, document writing and registration of the documents takes ten minutes, thirty minutes and one hour respectively. The positive impact of the CARD project on the efficiency of registration operations can be gauged from the following table:

Quantitative Benefits of CARD

Description of Registration Service	Time Taken in Manual System	Time Taken in CARD System
Encumbrance Certificate	1 to 5 Days	10 Minutes
Valuation of Properties	1 Hr	10 Minutes
Sale of stamp paper	30 Minutes	10 Minutes
Document writing	1 Day	30 Minutes
Registration	1 to 7 days	1 Hr
Certified copies of documents (registration under CARD)	1 to 3 days	10 Minutes

Source: Based on CARD (Satyanarayana, 2002)

2.5.2 KAVERI in Karnataka (Karnataka Valuation and e-Registration Project)

KAVERI Online service is a web based application of Department of Stamps & Registration, Government of Karnataka that provides interface to the citizen to enter details and book appointment for document registration and also provides facility to search for required Index and registered copies. These services enable citizen to download Index (List of transactions on the searched property) and copy of the document. Citizens can also book appointment for registering documents. This will help citizen to check the present owners of the properties, helps citizen in checking the authenticity of the registered document and also helps citizens to book appointment for document registration (Department of Stamps & Registration, Government of Karnataka, 2018).

For the last five decades, the process of registration of documents was done manually and involved the following steps:

- Stamping,
- Presentation,
- Admission of execution,
- Identification by witnesses and
- Registration, as prescribed in Karnataka Stamp Act, 1957 and Registration Act, 1908

Features of KAVERI

Automated Kiosks with touch screen operation facility were installed in every Sub-Registrar's Office, through which public can have access to the following information in Kannada and English.

- Market value of land in all villages, towns and cities in the state.
- Model formats of commonly used deeds and forms required for Registration of Marriage.
- Model byelaws of Societies and Associations.
- Frequently asked questions and exhaustive answers.
- Fee for Registration of documents/Registration of Societies/Firms/Marriages.
- Acts and Rules bearing on registration of documents.

(Source: Department of Stamps & Registration, Government of Karnataka, 2018)

Under the manual registration process, the documents registered were copied manually in specified books. After that, they were verified with the original documents, and the hand written documents were authenticated by Registering Officers. The registered book would serve as a public document. Since the manual procedure involved writing each document that was to be registered, the time taken for the entire registration procedure was anywhere between two to three months. Moreover, it also meant 2–3 trips to the registration office to check if the document was ready. The solution lay in finding an alternative procedure that would meet the statutory requirements and also speed up the process while preserving the accuracy of the manual procedure. Computerization was the way

forward. The Department of Stamps & Registration, Government of Karnataka set up automated registration process in the state in the year 2002. More than 200 Sub-Registrar Offices in Karnataka came under computerization under an outsourced model whereby the vendor could complete the registration process within 30 minutes. The software was aptly called KAVERI, after the river Cavery³

Centre for Development of Advanced Computing, Pune (C-DAC) provided the technical support in developing suitable software to cover the following aspects of registration: Registration of properties, Valuation of properties, Scanning and Archival of Documents, Reports, Vendor management system, Utilities, Website, Societies, Firms and Marriage Registration and Data Transmission.

After the introduction of KAVERI the department has registered documents and returned the same to the parties concerned within 30 minutes of its presentation. There was a significant growth in the revenue to the state exchequer after the introduction of KAVERI in spite of reduction in stamp duty and registration fee.

Case Study: E-governance in Land Administration – Karnataka

(Source: Manasi, et al., 2015)

The E-governance initiative in land administration has brought in a paradigm shift over the traditional practices through the usage of electronic systems. The new system of information availability has made service delivery and the governing process simpler and translucent. All the services are available in a single window to the citizens for better office and record management. E-governance initiatives for land administration began with the computerisation of land records and registration for creating a system of spatial record followed by the establishment of linkages between different wings of land record management agencies. The first E-governance initiative undertaken is 'Bhoomi' followed by 'KAVERI' (Karnataka Valuation and e-registration Project), 'Mojini and Bhoomi-KAVERI-Mojini integration'.

The Bhoomi-KAVERI-Mojini, regarded as 'three pillars' of Karnataka Land Revenue administration, reveals the intricacies involved in the policy formulation and implementation of these mechanisms.

- Bhoomi, implemented at the taluk level since the late 1990s, has enabled the availability of Record of Rights, Cropping and Tenancy (RTCs) in a digital form as against the physical format.
- KAVERI, an initiative undertaken in the Registration Department, in the year 2004-05, is intended for computerising land registration system with separate software. Along with this, the documents available in the Sub- Registrar's Office (SROs) have also been digitised.
- Mojini, initiated in 2008-09, aims to computerise the functioning of the Survey Department.

³ Centre for Development of Advanced Computing, Pune (C-DAC) provided the technical support in developing suitable software to cover the following aspects of registration: Registration of properties, Valuation of properties, Scanning and Archival of Documents, Reports, Vendor management system, Utilities, Website, Societies, Firms and Marriage Registration and Data Transmission.

- Integration of Bhoomi, KAVERI and Mojini, since September, 2011, aims to bridge the crucial gap between the textual and spatial data in terms of addressing mismatches, if any, with regard to boundary disputes among joint owners or adjoining properties.
- '*Nemmadi Kendra*' - kiosks is a public-private partnership initiative to support the dispensation of various services

Key Outcomes

Bhoomi: With respect to Bhoomi, disposal of applications were fast, there was significant improvement in the Bhoomi operation. Disposal of applications related to land transactions indicated an improved performance during post integration phase. It indicated that land administration system in the state showed a visible improvement in service delivery. Besides, there were Minimal Delays in Mutation Process. Bhoomi operator receives and processes a complete list of mutation details on a daily basis obtained from the Village Accountant. However, the processes need further streamlining in utilisation of Bhoomi/*Nemmadi Kendra* services. Consequent upon setting up of computerised land record kiosks - both Bhoomi and *Nemmadi* kendras, 80 to 83% of clients utilised the services. The present model of Bhoomi kiosk and method of operation are satisfactory in terms of accuracy, transparency, convenience besides time and cost saving. Also there was minimal time taken for issuing RTC and Mutation copies besides ensuring safety and transparency.

KAVERI: Computerised registration system is better than manual process and was evident. Majority of the clients managed to complete registration process with one visit. Further, registration of documents took less time as compared to obtaining Encumbrance Certificate (EC). However, there were some issues pertaining to outsourcing for maintaining quality control. With respect to availability of Kiosks and usage of services at SRO, more than 75% of clients were satisfied with services. However, there were complaints about lack of infrastructure, advanced computers, spacious buildings and basic facilities.

Mojini: Pendency status is a matter of concern. Demand for land has increased due to recent developments resulting in high sales transactions; hence, pendency level as a percentage of average monthly receipt of applications is higher. The notice-period for issuing 11-E sketches is limited to 45 days, about 58% of applicants could get their 11-E sketches within 1-2 months in Tiptur indicating fair service delivery while in Gulbarga and Navalgunda 47% of applicants waited for up to 3 months indicating insufficient number of licensed surveyors and well established infrastructure facilities. Survey and Work quality of licensed surveyors was good. Tatkal system aided in reducing pendency in respect of Phodi cases. At present, though digitisation of survey records data was in progress the level of achievements varied. Damaged original survey sketches and poor quality papers made it complex and varied across the districts and ranged from 20% to 50%. Also, inadequate Monitoring process caused pendency and delays in disposal of applications.

BKM Integration: This enabled faster service besides verification of property details easily, safety of documents and improvement in access. First-in-First-Out (FIFO) is working well and prevented misuse. However, integration process of Bhoomi and Mojini data needs improvements by better coordination between Bhoomi and KAVERI, improve data access problem during registration of documents. Speed money remains an issue as middlemen still play a major role in the processing of documents; however, the introduction of ID system for potential applicants has reduced their role considerably. To sum up, the extension of Bhoomi, Kaveri, Mojini Integration makes it further remarkable in putting the land records in place. To reach the stage of perfection, process constraints are to be addressed and evolved to make it more effective and efficient.

2.5.3 E-Suvidha – e-Governance Initiatives of Pimpri Chinchwad Municipal Corporation

The Pimpri Chinchwad Municipal Corporation (PCMC) has introduced an integrated e-Governance Programme to ensure improved transparency to build citizen centric governance. The implementation of e-governance gave new set of responsibilities to PCMC's employees. This project has involved around 11 corporation departments, which are computerized. Citizen Facilitation Centre (CFC) is the most successful project, which provides services to citizens with more than 99% efficiency. Another Innovative project is PCMC@home, which provides services of corporation directly at home through PCMC personnel.

The initiative under E-Suvidha has considerably reduced the hassles faced by the citizens. Citizens take minimum time and cost for availing the civic services. Citizens avail the facility on a mouse click from home or office or any remote location-avoiding visit to Corporation office or division office. Payment of charges and taxes directly online through payment gateway facilities reduces the travelling cost and valuable time. Citizens save about 3–4 hours of time through availing E-Suvidha facilities and in some cases citizens save days by availing the online facilities of the PCMC.

Kiosks set up in different wards, zonal offices and other public places have helped the citizens who are not proficient with net banking and who are not able to avail web based facilities. Visit to Kiosks at the nearest point helps the citizens to avail the facilities, services and payment of different charges, taxes and bills. The web based application helps the citizens to locate their properties for assessment details and for payment of taxes online. The utility mapping has helped the PCMC to monitor the delivery of essential services such as water supply, drainage lines, roads, streetlights, garbage bins, etc. This has increased the overall service delivery improvement to provide services and identify the areas which do not avail these services and utilities.

The following section provides details of the services provided under E-Suvidha initiative:

- **Property and water revenue management:** The property assessment details and water charges are available online, with online payment facility. This has reduced number of visits by the citizens to the corporation office.

- **e-Tendering:** PCMC has initiated the online tendering system for all projects and procurements to be taken up for the development works under its limits. Submission of tenders and documents can be done online.
- **Dashboard for works management:** Dashboard of work management is an integrated web based software for monitoring and tracking the progress of work. This module is also integrated with financial data like budget approved for works, cost incurred and other information, which helps in keeping a track of the projects undertaken by PCMC. Necessary decisions are taken from time to time depending upon the progress of projects and works.
- **Citizens Facilitation Centre (CFC):** PCMC's Citizens Facilitation Centre (CFC) provides 79 different citizen centric services for 12 departments of the Corporation. The CFCs work on single window basis to provide one stop service to the citizens for PCMC. CFCs also provide services of the District Collectorate like caste certificates, domicile certificate, ration card, and also provides value added services of Road Transport Office like issuance of learning licenses and collection of Maharashtra State Electricity Board bills, collection of BSNL bills, collection of insurance premiums and railway ticket booking.
- **SMS-based complaint monitoring system:** To reduce the difficulties of citizens and to send a complaint to PCMC, a SMS based complaint system has been initiated. A citizen can send a complaint by SMS and scrutiny of received complaints takes place through PCMC administration. An SMS as well as an email immediately goes to the related officer for addressing the complaint. This has reduced PCMC's response time considerably.
- **Solid waste management with vehicle tracking** PCMC has also started GPS vehicle tracking system. This GPS system has been integrated with an interface, which will assign waste pick up job and duty management. The system also monitors and registers the auto job picks adherence via geo reference and stop at pick up bin location. Vehicles trip/job report gets generated for number of trips per vehicle per driver and as well as contractor. Pick up adherence report; exception report on missed bins also gets generated for the authority to monitor the collection of solid waste from bins. Tracking report, stoppage, over-speed reports, detention reports etc., are getting generated for continuous monitoring of collection and transportation of vehicles.
- **Geographical Information System:** PCMC has a GIS mapping of 182 sq. km area. This has been done through geo-referencing of the Quick Bird satellite map of 0.6 m resolution map. This mapping has been developed for GISDA by Science and Technology Park (STP) and on terms of integration with various databases and application services. GISDA runs from a centrally located system, which can be accessed through web. GISDA provides core web technology and a GIS platform that is used by all other applications to provide Web-GIS based Citizen Centric Services.
- **Property and water revenue management:** Through this service:
 - Citizens can view their bills online;
 - Taxes can be paid online from home;
 - High level of transparency is achieved;

- Strong MIS and administration control;
- Citizens can pay or use any office of corporation;
- Easy Property Registration for tax assessment;
- Ability to create/copy rate profile for different tax years;
- Property Tax calculations;
- Self-Assessment of Property Tax;
- Provisional Tax and Notice generation.
- **e-Tendering:** This facility helps:
 - All the departments publish tenders online;
 - Bidders can view/download tenders online;
 - Bidders pay fees online;
 - Bidders bid online using digital signature;
 - Bidding is controlled through parameters like bidding capacity;
 - Tenders only opened by Tender committee using digital signatures online;
 - Lowest financial bids are published online to all bidders;
 - The Bidder registration is one time process;
 - Tender-Committee can be defined per tender;
 - Department wise Bidder Registration as well as common bidders;
 - Bidding Capacity and Tender limits are configurable with Rate Contracts;
 - Integration with Accounting;
 - Generation of comparative statement;
 - Facility to define multiple manufacturers for single item and bidders can bid for multiple manufacturers for single item;
 - The comparative statement is generated for all manufacturers;
 - The EMD and Tender Fees are auto-calculated based on Tendering Rules;
 - Bidders can pay the EMD and Tender Fees online through online payment gateway.
- **Building permission management:** The broad uses of the building permission management system are:
 - Creation of new projects for the developed drawings and project attributes;
 - The Auto DCR system reads the drawing and extracts the geometrical information of layouts and building plans;
 - Single window to get all N.O.C. The application is integrated internally with all departments;
 - Integrated with digital signature key – the applicant signs the application digitally and then it is encrypted;

Based on the project attributes the graphical object information is mapped to the relevant development control rules.

- Final detailed rules verification report is produced, indicating passed/failed status for each rule;
 - Reduces the architect's/authority's effort for drawing and calculations;
 - Permission status is available online to the applicant;
 - Eliminates the human errors and manipulation and produces accurate reports;
 - Tremendously reduced the time cycle of approval;
 - Alerts on unnecessary delays;
 - Standardizes the drawing process;
 - Detailed user friendly dynamic reports.
- **Dashboard for Works Management:** This facility offers following services:
 - Every work has unique identification number generated by the system to be used for all purposes;
 - Budget is loaded in the system;
 - The workflow of various stages of the work is configured in the system;
 - At every stage the person who is in charge of that work needs to update its status;
 - It is linked to e-tendering application;
 - The work flows through various stages of approval. Once it is approved and work order is issued the work can be commenced;
 - Work in progress can be tracked for its completion, bills raised, payments made and funds allocated.
 - **Solid waste management with vehicle tracking:** The system includes benefits like:
 - Bin wise service efficiency report;
 - Business specific alerts via SMS/email;
 - Vehicle being dispatched to trip;
 - Vehicle reaching assigned waste bins locations;
 - Unloading at land fill site;
 - Vehicle stoppage time in various locations and breakdown.

Activity 1: Visit a near by corporation / municipal office and find out whether e-governance has been introduced in your city/town. If yes, what are the civic services, which are delivered through e-governance?

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Check Your Progress 2

Note: a) Use the spaces given below for your answers.

b) Check your answers with those given at the end of the unit.

- 1) Taking Pimpri Chinchwad Municipal Corporation as a case study, name various initiatives of e-Governance taken in different development sub-sectors in the city.

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2.6 CHALLENGES IN E-GOVERNANCE

Though this unit has presented discussions of interesting and innovative e-government initiatives, e-government still faces many challenges as it continues to develop. In designing and implementing e-government sites, a government must consider elements of policy, including regulatory issues, economic issues, and the rights of users.

The major challenges to e-governance as per Anil Kumar Vaddiraju and Manasi, (2017) are :

Economic inequality: Economic inequality is a major barrier to access e-governance. Unless the equipment used in e-governance becomes cheaper, economic inequality can enable some to access e-governance better than others. This is partly also a problem of digital-divide. The inequality in access to economic resources also translates into digital divide and non-economic sources of inequality add to this.

Inequality other than economic: Inequality in India is complex and multi-dimensional. There are social inequality, educational inequality, inequality of literacy; inequality of regions and places and inequality among various socio-economic groups owing to all these which in turn affect equal access to e-governance. Ironically, information is supposed to level these inequalities so far as governance and delivery of public services is concerned. Information society is supposed to be a 'flat society' without the hierarchies of the social order coming in the way of reach of information to individuals. However, how far this is true in a society, like that of India, is open to question.

Resistance from traditional bureaucracy: There is often resistance from bureaucracy which does not appreciate transparency. In an unequal society information too is a privilege. Bureaucracy feels insecure with increasing digitisation and likely to fear either retrenchment or reduced recruitment. It is indeed true that the governments want a thinner bureaucracy and less of state bureaucracy than earlier times.

Lack of regulation of e-governance: Electronic governance also requires vigilance. Cyber crimes are a reality. With increasing online transactions, trade

and commerce taking place via electronic means, the vulnerability of ordinary citizens to cyber crimes too has become a reality. This is the major reason why electronic governance needs cyber security.

Lack of privacy laws: When electronic governance is introduced, strict privacy laws for protecting individual from the overreach of the state and non-state entities too is necessary. Mostly, it appears that developing countries are introducing Electronic governance enthusiastically but commensurate privacy laws are either missing or still in the preparation. This dimension of governance is important as much as the protection of individual dignity and rights is concerned.

Other challenges to implementing e-governance are:

- Sustaining committed executive leadership
- Building effective e-governance business cases
- Maintaining a citizen focus
- Protecting personal privacy
- Implementing appropriate security controls
- Maintaining electronic records
- Maintaining a robust technical infrastructure
- Addressing IT human capital concerns, and
- Ensuring uniform service to the public.

2.7 LET US SUM UP

E- governance or electronic governance in urban development is the use of ICT in the operation and maintenance of urban services. This initiative of the use of information technology (IT) in rural and urban governance started in the late nineties, especially after the adoption of the 73rd and 74th Constitutional Amendment Acts, when rural and urban local bodies became constitutional entities of local governance. The Government of India has launched the National e-Governance Plan (NeGP) with the intent to support the growth of e-governance within the country. The introduction of e-governance has facilitated the state and local governments in the country in successfully delivering rural and urban services to its citizens in a transparent and efficient manner.

2.8 KEY WORDS

- | | |
|---------------------|---|
| E-governance | : E- governance or electronic governance in urban development is the use of information and communication technologies (ICT) in the operation and maintenance of urban services. |
| JNNURM | : Launched in 2005, Jawaharlal Nehru National Urban Renewal Mission (JNNURM) is a central government reform linked programme wherein adoption of reform in e-governance is mandatory for all the 65 Mission cities (all State capitals, all million plus cities and cities of historical interest). |

CARD

- : The CARD is a project aimed at altering the antiquated procedures that had governed the registration system of the state of Andhra Pradesh, which included the laborious copying, and indexing of documents as well as their unscientific space-consuming preservation in ill-maintained backrooms. The state had a flourishing business of brokers and middlemen who exploited citizens selling or buying property. The CARD project is an attempt to reform this system through the use of IT.

KAVERI

- : The Department of Stamps & Registration, Government of Karnataka set up automated registration process in the state in the year 2002, wherein 202 Sub-Registrar Offices in Karnataka came under computerization whereby the vendor could complete the registration process within 30 minutes. The software was aptly called KAVERI, after the river Cavary.

E-Stamping

- : To prevent fraudulent practices in stamp paper based transactions and registrations, e-stamping has been introduced in some states where the entire exercise of stamp duty payment and generation of stamp duty certificate takes less than 3 minutes. It offers a secure and reliable stamp duty collection mechanism, and stores information in secured electronic form and builds up a central data repository to facilitate easy verification.

E-Suvidha

- : Development of an integrated e-Governance programme to ensure improved, transparent and efficient way of building citizen centric governance.

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NISG Knowledge Center, www.nisg.org

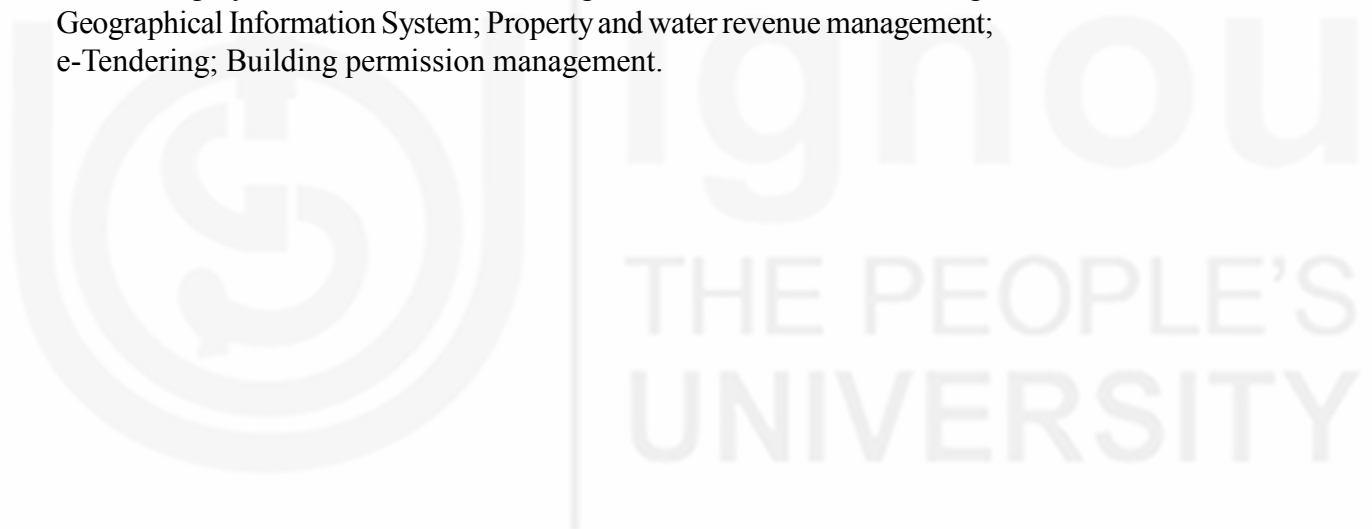
2.10 CHECK YOUR PROGRESS – POSSIBLE ANSWERS

Check Your Progress 1

- 1) E- governance or electronic governance in urban development is the use of information and communication technologies (ICT) in the operation and maintenance of urban services.
- 2) Two examples of the use of IT in the field of property registration are CARD in Andhra Pradesh and KAVERI in Karnataka. The CARD is a project aimed at altering the antiquated procedures that had governed the registration system of the state of Andhra Pradesh, which included the laborious copying, and indexing of documents as well as their unscientific space-consuming preservation in ill-maintained backrooms.

Check Your Progress 2

- 1) Property and water revenue management; e-Tendering; Dashboard for works management; Citizens Facilitation Centre (CFC); SMS-based complaint monitoring system; Solid waste management with vehicle tracking; Geographical Information System; Property and water revenue management; e-Tendering; Building permission management.



Notes



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Notes



PROGRAMME DESIGN COMMITTEE

Prof. Amita Shah Gujarat Institute of Development Research Ahmedabad	Prof. P. Radhakrishnan Madras Institute of Development Studies, Chennai
Prof. S. K. Bhati Jamia Millia Islamia University, New Delhi	Prof. Ramashray Roy (Rtd) Centre for Study of Developing Societies New Delhi
Prof. J. S. Gandhi (Rtd) Jawaharlal Nehru University, New Delhi	Prof. R. P. Singh (Rtd) Ex-Vice-Chancellor, MPUAT, Udaipur
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COURSE PREPARATION TEAM

Unit Writers:

Prof. B.K. Pattanaik
IGNOU, New Delhi (Unit 1)

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NIUA, New Delhi (Unit 2)

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Course Coordinator: Prof. P.V.K.Sasidhar, E-mail : pvksasidhar@ignou.ac.in

Programme Coordinators : Prof. P.V.K. Sasidhar, Prof. B.K. Pattanaik, Prof. Nehal A. Farooquee

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