UNIT 1 ICT FOR DEVELOPMENT: AN OVERVIEW

Structure

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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 interlinked 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.
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?

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

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](image)

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.
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) 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 have 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

<table>
<thead>
<tr>
<th>Rank</th>
<th>Countries</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Iceland</td>
<td>8.98</td>
</tr>
<tr>
<td>2.</td>
<td>South Korea</td>
<td>8.85</td>
</tr>
<tr>
<td>3.</td>
<td>Switzerland</td>
<td>8.74</td>
</tr>
<tr>
<td>4.</td>
<td>Denmark</td>
<td>8.71</td>
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<tr>
<td>5.</td>
<td>United Kingdom</td>
<td>8.65</td>
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Contd...
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 an 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 carry out 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
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 net-work-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 ultrasound 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 website 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?**

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

### 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.
1.7 REFERENCES AND SUGGESTED READINGS


UNDP-Asia Pacific Development Information Programme, UN Service Building, Thailand.


World Bank Global Information & Communication Technologies Department, World Bank, Washington, DC.


ICT for Poverty Reduction, http://www.gersterconsulting.ch/docs/ICT4D_BO.


Website Referred

http://www.asksource.info/pdf/framework2.polf

http://www.iicd.org/articles/IICDnews.import1757


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.