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(ELECTIVE-II)

E-GOVERNANCE

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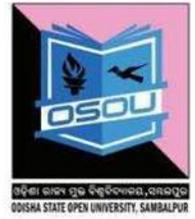
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ELECTRONIC GOVERNANCE

BLOCK-2

UNIT 4   ROLE OF ICT IN ADMINISTRATION

**UNIT 5   ADMINISTRATIVE ORGANISATION CULTURE:
TOWARDS ICT BASED REFORMS**

UNIT 6   ROLE OF ICT IN RURAL DEVELOPMENT

UNIT 4   ROLE OF ICT IN ADMINISTRATION

Structure

4.0   LEARNING OUTCOMES

After studying this Unit, you should be able to:

- discuss the essential components for ICT implementation in administration;

- examine the role of ICT in the vital areas of administration; and

- suggest measures for effective implementation of ICT in administration.

4.1   INTRODUCTION

In the early 1990's, with the coming of globalisation, liberalisation and privatisation, the governments, especially of the developing world, found themselves under remarkable pressures of economic reforms. They sought to create social and economic systems that could compete effectively in the globalising world. There was also a continuous pressure from the citizenry for reinvention of governments. The traditional bureaucracy focusing on hierarchy, authority, control, rigidity, rationality, centralisation, etc. found itself challenged by these changes. It was now to pave way

for restructured administrative organisation, reengineered work processes, strategic management, decentralisation, delegated authority and control, delegated decision-making, localness, shared and participative vision and purpose, and entrepreneurial skills, insightfulness and innovativeness.

ICTs emerged as major instruments in facilitating and enabling these changes. ICTs enabled the restructuring of hierarchical organisations, re-engineering of work processes and effective and participative decision-making. ICTs are helping governments to perform the new roles of serving, steering, coordinating, reinventing and realignment. The tools and applications of ICT are the new modes of enabling multi-stakeholders' participation in policy making. They have helped in achieving citizens' engagement in policy deliberation and implementation process. ICTs have also given a new meaning and definition to administration. Administration has now become efficient, accountable, digital, responsive, transparent, equitable, qualitative, participative, team spirited, vision based, paperless and flexible.

In this Unit, we will discuss the role of ICT in facilitating three vital areas of administration, namely,

- Internal Administration;
- Planning and Decision Making; and
- Service Delivery

However, before we proceed to discuss the role of ICT, we will delve upon certain conditions that are necessary for effective ICT implementation in administration. Also, we would like to mention that the words 'administration' and 'governance' have been used interchangeably, without any distinction. Though we are aware of the distinction, they are used for convenience sake.

4.2 ICT IMPLEMENTATION IN ADMINISTRATION: ESSENTIAL COMPONENTS

Before we proceed to discuss the role of ICT in governance, we will delve upon certain conditions that are necessary for effective ICT implementation. According to A. Sawhney, we need to have a proper and well laid down ICT architecture that can provide strong technology framework for e-government initiatives. It should lay down the design imperatives and constraints each project must adhere to and ensure that various projects and initiatives are interoperable and capable of being combined in a logical and cohesive manner to add value to each other. It should ensure that the

architecture components are extensible and scalable to adapt to the changing environments. ICT architecture encompasses the following components:

- Application-software application, which includes database programmes, word processors and spreadsheets;

- Information- processed data;

- Groupware- also known as collaborative software, is an application software that integrates work on a single project by several concurrent users at separated workstations;

- Componentware-computer and associated physical equipment directly involved in the performance of data processing or communication functions;

- Shared Database-especially pertaining to citizens, organisations or establishments;

- Middleware- in a distributed computing system, middleware is defined as the software layer that lies between the operating system and the applications on each site of the system. These are the intermediate software layers hiding distribution, that is, the fact that an application is usually made up of many interconnected parts running in distributed locations; hiding the heterogeneity of the various hardware components, operating systems and communication protocols; providing uniform, standard, high-level interfaces to the application developers and integrators so that applications can be easily composed, reused, ported and made to inter operate; and supplying a set of common services to perform various general purpose functions in order to avoid duplicating efforts and to facilitate collaboration between applications. Hence, the role of middleware is to make application development easier by providing common programming abstractions, by masking the heterogeneity and the distribution of the underlying hardware and operating systems, and by hiding low-level programming details;

- Integration-combining software or hardware components or both into an overall system;

- Network- Wide Area Network, Local Area Network ensuring connectivity;

- Platform- it describes some sort of framework either in hardware or software, which allows software to run. Typical platforms include a computer's architecture, operating system or programming languages;

- Security Policy- security certifications and standards for data and system security.

Besides the above, an e-government model needs to have:

- Shared software applications that would be deployed across:

    i.   all the departments in the state, such as, the software suite built around Multipurpose Household Survey Citizens' Database, e-procurement portal, or Human Resources Management System, or an Integrated Financial Information System, or Social Benefits Management System or Online Transaction Processing System;

    ii.   a group of departments, such as, software for all engineering departments or health departments that would integrate with the core applications and deal with common processes across such groups; and

    iii.   departments integrating the core and group applications.

- Shared delivery channels relating to services from several departments and organisations being delivered across the same counter in single window centres or through a comprehensive citizen services portal on the internet, which can be accessed by citizens cyber cafes or internet kiosks. This enables well-defined quality of services;

- Public- private partnerships for generating resources; and

- Training of manpower-officials and employees.

We will now discuss the role of ICT in the three vital areas of administration individually.

4.3   ROLE OF ICT IN ADMINISTRATION

ICT enables administration to be efficient and effective by facilitating the three core areas of its functioning. It helps administration perform its public functions by simplifying the work processes and internal functioning via internal computerisation and automation, thus fostering transparency and accountability. Further, ICT facilitates policy formulation through multi-stakeholders participation enabling administration to incorporate the ideas and suggestions of professionals,

academicians, private sector, civil society organisations, media, community and individuals in policy making. In addition, it renders public goods and services to the people by making the service delivery much more convenient, customer oriented and cost-effective.

We will now examine these roles in detail.

4.3.1 Internal Administration

ICT has brought about an electronic transformation in the traditional functioning of administration and has made it accountable, transparent, decentralised and citizen-centric. ICT:

- tends to reduce the inordinate delays in file processing and movement caused by multiple levels in the departments/organisations (Gupta, et.al). From the lowest level of receipt of application to the highest level of action taking is the involvement of online file movement. Once the concerned official does noting, it is sent online to the next official. Hence time is not wasted in unnecessary physical movements. Computerised database is available for ready reference and it becomes possible for the officials to reduce the number of file movements;

- promotes centralised storage of files and data. This enhances maintenance, reduces unnecessary effort, minimises storage place and lessens security risks. As the files and data are maintained in the electronic form, location and retrieval becomes easy and time saving. The entire office management system is electronised;

- establishes efficient communication system between employees of departments thereby reducing wastage of time. Technology promotes connectivity and closer collaboration between departments and helps them to work in an integrated manner increasing overall productivity and reducing time overheads. This will not only benefit the employees of the organisation but also the citizens who would experience a much shorter turnaround time and a greater degree of transparency (paraphrasing Gupta, et.al);

- replaces the manual system of using standard process sheets and similar documents for processing leave applications, transfer orders or General Provident Fund advances of the employees. These process sheets can be maintained in the electronic form in a computerised environment (Gupta, et.al); and

- shapes the environment in which the department is operating and enhances the knowledge and skills required by administrators and staff. It facilitates organisational learning and adaptation to the changing global environment by way of partnership, participation, information sharing and delegation- a complete shift from the functional traits of classic administration.

Now there is a shift from the traditional administration to a modern electronised administration. ICT modernises the traditional pattern of administrative functioning in the following way:

Traditional Administration	Electronic Administration
- Unwieldy paper files	Computer based files
Hierarchical authority	Networked power
- Wielding power through hiding information	Empowerment by sharing information
- Expenditure orientation	Performance orientation
- Individualistic	Organisational
- Batch processing	Online processing
- Delayed access	Instant access
- Delayed response	Prompt response
- Manual data entry	Electronic data entry
- More time for routine repetitive work	More time for creative work
- Fear of unknown	IT savvy
- Status quo	Continuous improvement

Source: Jagdish Kapoor, IT and Good Governance

Technology for Effective Internal Administration

Internal functioning of administration will become effective with the application of the following devices. (Gupta, et.al.)

- **Wireless Devices**
  Wireless communication devices, like cellular phones, can help in accessing the internet. Hence, with mobile phones it is possible to access people even when

they are outside their offices through email or voice mail. Important and urgent matters can be immediately attended even when the officials are not in office. According to the Gartner Research Report, integration with such wireless devices has facilitated effective communication and has increased productivity (by 30%). Hence, integration with wireless technology should be taken up for effective functioning of our departments. A suitable system for interfacing with mobile devices through such channels as wireless email, SMS and voice mail, so as to harness time and cost saving, must be incorporated.

- **Unified Messaging**

Unified Messaging (UM) is a part of unified communications which provides users with the ability to access, receive and send different types of messages-faxes, emails, and voice mails-through a single common interface, such as, a browser on a PC or web enabled wireless devices. This makes it easier for the user now to access multiple messages voice, fax and email- through wireless devices or a PC browser. Equally, it is possible to save time in sending fax by over 80% (Captaris and ComGroup). Hence, UM can save time and money and increase productivity through effective communication system, especially in government departments, where there is reasonably enormous inter-employee communication.

- **E-mail**

E-mail facilitates inter-employee communication and inter-department communication, as communications can be sent, received and replied across electronically. Internal communication will be improved by increasing use of e-mail in the government. Even mobile wireless devices, such as, mobile phones and Personal Digital Assistants (PDA) can be used to access the message. Hence, users can now have multiple interfaces apart from computers.

- **File Tracking Module**

All files move from one section to the other and from one desk to the other in a well-laid down pattern. The file-tracking module helps to maintain a central record of the status of the files. So, whenever a file crosses one desk or checkpoint the dealing assistant enters it in the central record. Hence, all related officials and staff can access the information from the central location. This facility not only reduces the unnecessary procedure of maintaining file registers but also helps in locating all information pertaining to a single file at a central place in an electronic form that can

be accessed online. Thus, the transactions can be processed online achieving greater efficiency, higher productivity and less paper work.

Steps Taken

- Most of the states have fully automated the budgeting process. The revenue collection offices have been computerised. Border check posts have been connected with central computerised system at the headquarters of respective states. Relevant data of those who pay different kinds of taxes are computerised. States like, West Bengal, has taken the effort of National Informatics Centre (NIC) in preparing software for implementing a model value added tax scheme. Tripura has taken up the computerisation of taxes and treasuries;

- States like, West Bengal, has computerised the registration of documents relating to immovable properties in transactions involving sale, mortgage, lease, etc. with the help of software prepared by NIC. In Andhra Pradesh, the Computer-aided Administration of Registration Department Project has transformed the government to citizen interaction through application of ICT and has introduced a transparent system of property valuation. This Project has helped in replacing the manual system of copying and filing documents with a sophisticated document management system that uses imaging technology replacing the manual system of indexing, accounting and reporting; and introducing electronic document writing;

- Letters and files tracking system for different offices have been implemented in states like Maharastra. Software for fund flow system, file monitoring system, letter monitoring system including receipt and despatch of letters have been developed by NIC and are in use in many departments in West Bengal;

- Government of Delhi has not only taken steps to automate its existing procedures but also reinvent government processes and redefine the role of bureaucracy. This would enable the Government to make its functioning citizen-centric, transparent and efficient;

- Video teleconferencing is used to centrally address the officials and staff at secretariat departments. Even training is being conducted through this mode. The Andhra Pradesh Government has created a requisite information infrastructure to support IT solutions in Government for disseminating relevant information for improving productivity and efficiency at all levels. It has set up a state-of-the-art video conferencing network for this purpose;

- Regional language software package with keyboard has been prepared by states, like West Bengal, for office work. West Bengal and Sikkim have integrated multi-lingual interface with Hindi data support using GIST SDK Software of C-DAC for data entry, validation, mutation, report generation, security, querying etc. of land records;

- NIC has developed an intranet based system for the management of personnel within each department providing for leave management and processing of benefits like house building advance, computer advance, TA/DA, LTC claims, etc. The Planning Commission and the Ministry of IT has already demonstrated the software for the purpose;

- In West Bengal, software of pension calculation has been developed by NIC for the primary and secondary school teachers as well as employees of the municipalities and panchayats. The State has developed software for pension file monitoring system of papers at each table of operation and tracking from entry point to despatch; and pension information system facilitating payment of gratuity, commuted value of pension, etc. to the employee at the date of his/her retirement;

- States have taken up training of employees and officials concerned in computer literacy. West Bengal has training in computer for both staff and officials of the Departments/ Directorates and District Offices. A Bengali Software package with keyboard has been prepared which will be used for office work in Bengali. Orissa has started Centre of IBM Software for imparting high-end software training. Tripura has taken up programme of training its officers and staff in basics and slightly more advanced concepts of computing.

4.3.2   Planning and Decision Making

ICT enables planning and decision making with the help of following applications:

Information Systems

Storage of information in electronic databases opens up significant possibilities for sharing information and creating new information and knowledge. Such information can be retained as individual data elements, as combinations of data to support decision-making, and with the application of judgement, as accumulated knowledge and wisdom (Gupta, et.al.). Information collected for one purpose can be re-used for multifarious policies and plans. Geographic Information Systems and Management

Information Systems (MIS) have enabled effective planning and decision-making by government departments.

- **Geographic Information Systems (GIS)**

GIS are special category of Decision Support Systems that can capture, store, check, integrate, analyse and display data using digitised maps. Every record or digital object has an identified geographic location. By integrating maps with spatially oriented databases and other databases, government departments can generate information for planning, problem solving and decision making, thereby increasing their productivity and quality of decisions. With help of GIS, use and analysis of spatial information in conjunction with connected socio-economic information is possible, which provides an ideal basis for planning. GIS is used for systematic town planning, establishing network, taking stock of country's agricultural and other resources, identifying natural resources through remote sensing; and developing infrastructure projects through spatial digital information to meet the growing needs of urbanisation (Gupta, et.al.).

GIS has been used for local level development planning in the country. The Department of Science and Technology has implemented a UNDP assisted Project on 'GIS-Based Technology for Local Level Development Planning' in association with leading academic institutions, data generating agencies and NGOs in the country. The Project helps in local level planning by using remote sensing, GIS and modern data communication facilities. Tools and techniques, such as, Geo-referenced Area Management or the GRAM++GIS package and Decision Support Modules were used for selected sectors of local level planning, for example, water resources management, land use planning, energy budgeting and infrastructure development (http://www.undp.org.in).

Besides, GIS-Based Decision Support System was implemented in Kutch district in Gujarat. The System helps in processing of survey data. Geo-database prepared by laying the various databases on the district, taluka (block) and village maps of the district is used for decision-making at the local administration level (http://www.undp.org.in).

Andhra Pradesh has employed comprehensive GIS for the State under the A. P. Development Monitoring System, which combines satellite imagery with digitised district, mandal (block) and village maps with several thematic layers covering aspects, such as, contours, soil, roads, irrigation and so on. This has helped in local level development planning.

In West Bengal, the Land Record Data Retrieval System at Block Land and Land Reforms office has been initiated. Digitisation of cadastral maps has taken place, which has made their availability to the Ryots (farmers) easy and highly cost effective. A Land Acquisition Information System has been developed by NIC for the State to ensure speedy disposal of land acquisition cases.

In West Bengal, GIS is being implemented in municipalities. It will cover geographical layout, land use, physical infrastructure and socio-economic scenario with special emphasis on education, health and family planning.

Vikas Darpan is a GIS based Planning and Decision Support System in Rajasthan, which covers more than 40000 blocks on about 200 demographic and socio-economic indicators. Department of Telecom, Ministry of Defence and Maharashtra Earthquake Emergency Response Project are also using GIS applications.

- **Management Information Systems (MIS)**

There have been various instances of state initiatives in the application of MIS in decision-making and planning. Comprehensive MIS has been undertaken for the Department of Irrigation in Maharashtra. The infrastructure in the State includes a network among various levels in the Irrigation Department starting at Mantralaya (secretariat) upto the Divisional Offices. Hence, all information is smoothly exchanged among these levels and database is consolidated for planning and monitoring irrigation schemes. The network mainly constitutes of a dialup network for communication with various offices and ethernet for local network.

The Land Records Management Information System in Andhra Pradesh has provided land records database, which apart from furnishing land record certificates to the people, helps in land reforms planning. Now land records database can be easily accessed and used for planning land reforms. In West Bengal, the Land Records Data Retrieval System at Land and Land Reforms office at the Block level has enabled effective system of land management. A Land Acquisition Information System has been developed by NIC to ensure speedy disposal of land acquisition cases and has been in use in states like West Bengal. Tripura has also taken up the project of transport MIS for traffic management. Infrastructure for rural and urban areas can be well planned with the help of MIS as in Tripura, which has taken a project on computerisation and information system for rural infrastructure.

In Maharashtra, Cabinet Meeting Information System for the Chief Secretary's office has been implemented. Executive Information System for the CM and other ministers and senior bureaucrats is also undertaken. This will have well defined canned queries for the use of various ministers and executives and these queries will be accessible over a web interface.

The Sales Tax Department of Maharashtra has developed and deployed an Integrated Information System to facilitate electronic business, such as, web filing of returns and payment of taxes. The application forms can be downloaded from the web and used. It enables dealer specific queries and complaints. 'News Flash', 'Opinion Poll', and 'Chat with the Commissioner' are added features for the web-based solution. It also helps the dealers with accurate tax collections and simplified interpretation of the Sales Tax Act.

Information systems help in data communication as we can see in the case of AP Irrigation Information System. It encompasses development of information infrastructure in the form of radio based voice communication system at the field office level, telemetry system with limited coverage of selected project locations and use of existing Department of Telecommunications lines for networking the higher level offices. The existing NICNET terminal at important project sites also facilitates data communication to the State Headquarters at Hyderabad.

Computerisation

Computerisation of all sections of the government departments has made the system efficient in policy making and policy implementation. Properly maintained and updated centralised database and records in the computer has made decision-making quick and easy. It has become possible for the local offices to access data more conveniently for day-to-day decision-making. Computerisation, therefore, aid in the preparation of data repository.

Today, most of the departments have been computerised. Computerisation has modernised departments, such as, the police department. They are able to now effectively operate control rooms with all vehicle registration figures computerised. They are able to plan policing system for urban areas also. ICT has, further, helped in modernising the criminal-tracking system.

West Bengal has computerised its government departments and directorate. The State has computerised the transport system so that the traffic police can get automated access to vehicle data. It has computerised the preparation of land records, which

enables the collection of certified copies of land records readily from the local offices of the land records directorate against some fees. Budgeting process has also been fully automated. Revenue collection offices have been computerised. Relevant data of about lakhs of professionals paying profession tax has been computerised. Treasuries have also been computerised. All Land Acquisition Offices and Offices of the Divisional Commissioners are computerised. The Home Department is providing computer network to all police stations in Kolkata. Transport Department is using Smart Cards for registration certificates and driving licenses.

Computerisation at even the village and taluka (block) level, e.g., in Tamil Nadu, has facilitated free flow of information and data for planning for these levels.

Maharashtra, AP, Gujarat, Tamil Nadu and UP have implemented the Voucher Level Computerisation System for Offices of the Accountant General.

Maharashtra has automated the back-end operations of the Motor Vehicle Department for purposes of registration of new vehicles, issue of licenses, tax collections and defaulter prosecutions.

Andhra Pradesh has computerised the Registration Department with the Project, namely Computer aided Administration of Registration Department.

Besides States like Rajasthan, Haryana and Tripura have also taken similar steps and initiatives.

Connectivity

Connectivity among various government departments is provided horizontally and vertically through LAN and WAN. With networking they are able to smoothly transfer files, papers, records, information and notifications on intranet. Transfer and exchange of data is now immediately done. Wide area network has helped in linking state headquarters with district and cities and even the villages. Departments are now able to stay connected with their local units. Reports and data from the grassroots offices can be sent via e-mail. Linking the offices at the cities' and village level has helped in policy monitoring.

Post &Telegraphs Department has connected Postal Directorate at Delhi with the Northeast Postal Circle and the Assam Postal Circle with internet. This helps in sending directives and matters related to policy via internet and email.

The AP Secretariat Campus Network has linked the various secretariat departments. This Network has been integrated with AP Wide Area Network linking all government and public offices with State Secretariat including the district headquarters with facilities for data, video and voice communications. To enhance good quality communication of sufficiently high speed between departments, LAN has been set up. Equally, the government departments located all over Hyderabad and Secunderabad have been integrated under the TWIN Cities Project.

West Bengal has set up State Wide Area Network to provide backbone networking for e-governance projects. The departments have taken steps to provide connectivity from their district offices to the respective District Magistrates' offices to enable data flow. Rajasthan and Tripura have also followed suit by networking the secretariat departments. Rajasthan has developed intranet for city police. Maharashtra has set up a backbone LAN for entire Mantralaya. In West Bengal, the departments, such as, transport and traffic police are electronically connected at Kolkata, enabling automated access to vehicle data and speedy disposal of cases by the traffic police.

Project implementation and monitoring can be done with the help of such networking. A system for monitoring of various aspects of rural development schemes implemented at the district level has been made available to the Department of Rural Development. The state and central government departments can monitor online the progress made in the implementation of the poverty alleviation schemes. This has been implemented in State of Madhya Pradesh.

Video Teleconferencing

Video teleconferencing can be used to decide urgent matters in consultation with senior officers without calling them over from their offices. This will make them accessible to the people even while being in a position to confer with other officers in matters which are urgent and cannot wait for a formal meeting to be convened.

The AP State Wide Area Network provides connectivity across 25 key locations that can be used for data, voice and video communications. The state departments are able to address their units with the help of this Network. The Network connects the State Headquarters with key locations in the district and cities and provides video teleconferencing which is used by the Chief Minister, Ministers and Heads of Department to hold frequent reviews of various programmes without requiring the district officers to travel and be physically present in the State Headquarters. This has proved to be extremely effective tool for managing natural calamities and drought

relief, handling health related epidemics, tracking performance and organising state-wide campaign for various programmes and themes.

Teleconferencing has enabled citizens' participation in decision-making, especially in matters concerning them. Rather, multi-interest groups' participation, deliberations and discussions have become possible through teleconferencing in areas of wider and broader concerns of the community.

ICT has further enabled a direct form of democracy through e-polls, e-consultations, e-discussions and e-ballots. Political parties, governmental institutions, non-governmental organisations and media get the opinions and feedback of the people through e-polls on policy matters and on crucial issues. The suggestions are important inputs to planning and policy making by the government. Recently, we can see the emergence of Internet Discussions proving to be a significant tool in involving the citizens and civil society organisations in policy making.

4.3.3   Service Delivery

ICT helps administration to perform its duties towards citizens by efficient and effective delivery of public services. With ICT enabled service delivery, administration is able to provide:

- qualitative and comprehensive information on departmental websites, especially in local languages. Internet and websites are used to disseminate information pertaining to various policies and programmes of the government. Government departments also host notifications and various Acts promulgated from time to time on the web, fostering information sharing and effective communication. Government is now able to provide information to those who are living in remote and disadvantaged areas where they have no access to libraries, newspapers, etc.

  Most of the state governments like Andhra Pradesh, Kerala, Maharastra, Karnataka and others are now hosting bilingual websites enabling easy access to information and services by the people. Information on utility services and welfare schemes, as those given below, is now being hosted on bilingual websites.

  i.   rural services relating to land records;

  ii.   police services concerning FIR registration and lost and found matters;

iii.   social services relating to pension scheme, schemes for elderly and widows, schemes for physically challenged, licenses, motor vehicle registration, ration cards, certificates relating to births and deaths, domicile, caste/tribe, etc;

iv.   public information regarding employment exchange registration, employment opportunities, examination results, hospitals/beds availability, railway time tables, airline time tables, government notifications, government forms, government schemes, etc.;

v.   agricultural information on seeds, pesticides, fertilisers, crop disease, weather forecast and market price;

vi.   utility payments of electricity, water and telephone;

vii.   commercial services pertaining to taxation and return filing; and

viii.   public grievances matters pertaining to civic amenities, such as electricity, water, telephone, ration card, sanitation, public transport, etc. (Sawhney)

- integrated and seamless services to the citizens. All service providers, all services and all service channels are integrated to provide seamless services to the people. It is now possible to deliver the services seamlessly across governments and across the delivery channels of the internet, telephone, and service counters. Citizens are able to access the services in a seamless fashion (fluid, agile, integrated, transparent and connected) as per their needs (Kernaghan). Thus, they are saved from travelling distances and spending time and money for getting services, as everything is available at a single window centre.

The single window system will provide all government services and information online at a single point, that is, web portal. All the citizens' requests can be handled through the portal. The single window system helps in compilation, presentation and delivery of government services in an integrated manner where searching, finding and accessing different possible services is effortlessly achieved by citizens (Gupta, M. P. et.al.) Comfort and satisfaction is ensured, as administration is now able to render services that can be conveniently accessed from any place and anytime from the net.

In Andhra Pradesh, government departments and organisations are providing public services through the single window and one-stop shop, namely, e-seva

kendras and city civic centres. The people can visit the e-seva kendras and city civic centres and avail information on employment schemes, development programmes and government notifications. Departments can now get online payments on the utilities (electricity, water and telephone) they provide to the citizens. Departments have now enabled the people to file returns and taxes, lodge grievances, and apply for various certificates using e-seva or civic centre facilities. In addition, departments are able to host information pertaining to a number of social services, such as, schemes for widows, old and physically challenged online.

Civic departments are able to use one-stop centres of FRIENDS Project in Kerala to provide public information and utility services to the people. The FRIENDS centres are fast, reliable, instant and efficient networks for disbursement of services by departments. These centres render one-stop, front-end, IT enabled payment counter facility for citizens to make all kinds of government payments. Hence, the government is able to get increased revenues, as now there is no scope for intermediaries and corruption.

In States like West Bengal, queries relating to sales tax, luxury tax, coal cess, etc. are received over e-mail from citizens and are replied via e-mail. Land records preparation has been computerised that enable the pattadars to get certified copies of updated land records from the local office of the Directorate of Land Records and Surveys. Public Grievance Monitoring System has been implemented at most of the District Offices and also at New Secretariat Building. These systems are connected in a network for enabling proper and prompt services to the public. A government portal has been set up for providing information to the citizens in English and Bengali.

The National Capital Territory of Delhi has set up citizen service points, which could be used by the citizens to access any information about government services from any location. These citizen service points are electronically linked to government departments through websites. The government has also put up Suvidha Points at each department to enable the citizens to interact at only a single point. At these Suvidha Points the applications are accepted and acknowledged and the citizens are given a date by which they can expect a response from the department.

States like Tripura have opened Information and Facilitation Centres in the State Secretariat. This enables the departments to highlight their activities and use

database at the backend to respond to citizens' queries. Likewise Delhi, Orissa and Rajasthan have undertaken similar initiatives in service delivery.

NIC has developed a web-based Public Grievance Redressal Monitoring System for the Directorate of Public Grievances enabling the citizens to file their grievances to the Directorate. The system also helps in monitoring the status of grievance redressal.

Thus, with ICT in service delivery:

- public interaction has become maximum. It has taken government at the doorsteps of the people. One stop information centres render all services to the people without the need for them to visit the departments personally. Administration has become people-oriented providing high quality services through a very large set of conveniently located access points (AS). Government has facilitated comfort and satisfaction to the people, as they can avail public services of their own choice conveniently from any place and at any time. Government departments are able to render improved, qualitative and comprehensive services and information to the people even in their regional languages;

- administration has access to multiple service delivery channels now. Government uses integrated service channels, such as, internet, website, computers, CDs, mobile and other wireless devices, television, radio, etc. in delivery of services. Hence, ICT has provided multiple electronic channels to the government departments to render different types of services and to reach to those far-flung areas, which have connectivity and bandwidth problem. ICT has ensured seamless service delivery involving all service providers and all service channels for all services;

- openness is ensured. Government departments have become transparent in sharing information with the people. There is no secrecy and administration has become open in giving information. This has ensured the right to information to people; and

- accountability and efficiency has increased. Administration has now become hassle free, as they are able to dispose of cases online. With service delivery becoming integrated at both front-end and back-end, their burden of facing hundreds of people every day and being tangled in the file work has been reduced. Now, departments can focus on their core functions. Also, internal monitoring of disposal of applications is possible and delay, harassment and corruption can be

checked. The system brings in transparency relating to the number of applications received and the concerned department to which they relate.

4.4 SUGGESTIONS

For effective implementation of ICT in the three vital areas of administration, there is need to have the following:

- each ministry/department need to provide PCs with necessary software to all officials, especially upto the level of section officer. They all should be connected through the LAN. This will facilitate two main areas of internal functioning, namely: internal communication and data handling;

- each ministry/department should start using the Office Procedure Automation Software developed by NIC for keeping record of receipt of dak (post), issue of letters, as well as movement of files in the department. Internal communication will be improved by increasing use of e-mail, bulletin boards and video conferencing in the government.

  Pay roll accounting and other housekeeping software should be put to use in day-to-day operations. Notices for internal meeting should be sent by email to the officers. Similarly, submission of application for leave and for going on tour should also be done electronically. Ministry/department should also set up on-line notice board to display orders, circulars, etc., as and when issued;

- state WAN should be provided to ensure connectivity across districts and blocks with the state headquarters for data, voice and video communications. This would facilitate video teleconferencing enabling departments to address, interact and hold frequent reviews with their local units;

- all ministries/departments should use the Web-enabled Grievance Redressal Software developed by Department of Administrative Reforms & Public Grievances;

- each ministry/department would also make efforts to develop packages so as to begin electronic delivery of services to the public. Each ministry/department should have its own website. Websites of ministries/departments/organisations should specifically contain a section in which various forms to be used by citizens/customers are available. The forms should be available for being printed out or for being completed on the computer itself and then printed out for

submission. Attempts should also be made to enable completion and submission of forms online. Bilingual version of the content of the websites should be developed simultaneously;

- all Acts, rules, circulars should be converted into electronic form and made available on the internet and be accessible from the information and facilitation counters. The government should issue multi-purpose electronic cards to citizens for accessing services offered by different departments. Such cards will serve the purpose of being a driving license, or an identity card, or ration card, etc.;

- full-fledged training should be imparted to the staff in use of computers. For this purpose, ministries/departments should set up or share learning centres for decentralised training in computers as per the guidelines issued by the Department of Information Technology. Rather, modules for IT courses should be specifically designed for imparting computer training and education to produce knowledge workers in government. Annual confidential reports of employees should reflect the employee performance in using IT. Employees should also be given the benefits of loans for purchasing computers. Also, appropriate level of computer literacy should be made an essential requirement in the recruitment rules;

- handbook with successful ICT initiatives should be prepared for ready reference and avoidance of duplication of efforts; and

- internet based information delivery systems in combination with conventional broadcast media- TV and radio- could act as a major vehicle to educate citizens regarding their duties to the nation and the State. This will immensely help in people's participation in programmes of government (http://egov.mit.gov.in/minagenda.asp).

4.5   CONCLUSION

ICT in administration has led to positive developments. With ICT enabled administration, there is/are:

- citizen-centredness in service delivery;
- restructuring of government departments;
- better working methodologies and re-engineered work processes;
- better decision-making, implementation, monitoring and evaluation;
- increase in efficiency and productivity;

- cost effectiveness, consistency and seamless services;

- participative and collaborative policy making;

- openness and wider accessibility; and

- accountable, responsible and decentralised governance.

4.6   ACTIVITY

1. Let us know about some of the ICT applications being implemented in the secretariat departments of your State.

2. Discuss the civic services rendered by your area local body through the Information and Facilitation Counters.

4.7   KEY CONCEPTS

Ethernet : is a frame-based computer networking technology for local area networks. It has become the most widespread LAN technology in use during the 1990s to the present. In telecommunications, a frame is a packet which has been encoded for transmission over a particular link. A packet is the fundamental unit of information carriage in all modern computer networks.

Telemetry : basically refers to wireless communications and is a system for acquisition, storage and transmission of real time data from remote locations. It is a technology that allows the remote measurement and reporting of information of interest to the system designer or operator. The word is derived from Greek word 'tele' meaning remote, and 'metron' meaning measure.

Application : software application, which includes database programmes, word processors and spreadsheets. Application software sits on the top of systems software because it is unable to run without the operating system and system utilities. It is defined subclass of computer software that employs the capabilities of a computer directly to a task that the user wishes to perform.

Spreadsheets	:	is an accounting or bookkeeping programme that displays data in rows and columns on a screen. It is a screen-oriented interactive programme enabling user to lay out financial data on the screen.

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UNIT 5 ADMINISTRATIVE ORGANISATION CULTURE: TOWARDS ICT BASED REFORMS

Structure

5.0 Learning Outcomes

5.1 Introduction

5.2 Meaning and Importance of Organisation Culture

5.3 Administrative Organisation Culture: A Case for ICT

5.4 Towards Changed Organisation Culture

    5.4.1 Mechanisms

    5.4.2 Limitations

    5.4.3 Suggestions

5.5 Conclusion

5.6 Activity

5.7 References and Further Readings

5.0 LEARNING OUTCOMES

After studying this Unit, you should be able to:

- explain the meaning and importance of organisation culture;

- describe the culture of government organisations;

- examine the mechanisms to bring in reforms in the existing administrative culture; and

- analyse the limitations and suggest measures to ensure reforms.

5.1 INTRODUCTION

"Ultimately, the government worker of the future has to be a knowledge worker."

"Men well governed should seek no other liberty, for there is no greater liberty than a good government." This in times when the waves of change point towards a liberal economic framework and exit of state from sectors that could be better done through private enterprise has far reaching implications. While this is so, it definitely does not

mean curtains for governments since as long as the civilisations exist; governance of some form has to exist to ensure order and fair play. The areas of operation may change but the societal dependence on state is inevitable and if that is the case, it is important that the state does its task in the manner giving least inconvenience and maximum facility to its citizens. Never before was the craving for looking at options and alternatives to improve governance stronger than now. Though there are many ways of achieving that, one has to find out methods that are easiest and cost effective and it is here that the tools of Information and Communications Technology score over others.

ICTs enable transformation of a very vital component of governance, that is, administrative organisation. It plays a significant role in enabling the organisation to be citizen centred and service oriented in the context of globalisation. In this Unit, we will be focusing on the administrative organisation culture and how ICTs can facilitate it to become citizen centred and vibrant with the changing environment.

To mention we have used the terms 'administrative organisation,' 'government organisation' and 'bureaucratic organisation' interchangeably for convenience sake.

To begin with, we will now delve on the meaning and importance of organisation culture.

5.2   MEANING AND IMPORTANCE OF ORGANISATION CULTURE

The culture of any organisation is the internal environment of the organisation to which the members of the organisation subscribe. This is characterised by certain defining organisational traits, pattern of thinking, and philosophy of living on and off work. Although culture is not strictly a part of organisation design, culture and design must complement each other in order for organisation to function smoothly.

Organisational culture is the set of values that defines for members what the organisation stands for, how it operates, and what it considers important. The organisational culture communicates important information about acceptable and unacceptable behaviour. Most managers acknowledge that a strong and clear organisational culture helps provide a common frame of reference for managerial decision-making and other organisational activities.

An organisation's culture normally forms over time and is often deeply influenced by the values of the firm's founders. As organisational culture evolves, various symbols,

stories, heroes, slogans and ceremonies emerge. These facilitate the perpetuation of culture.

5.3   ADMINISTRATIVE ORGANISATION CULTURE: A CASE FOR ICT

Everyday when one sees tens of thousands of citizens approach the government, one can't help asking a question- whether it is possible to live up to their expectations. The expectations that are huge while resources at disposal are thin. To make matters worse, systems to administer those resources are primitive and inefficient.

There are constraints; sometimes due to lack of resources and manpower, while many a times there are vested interests not allowing it to be done a particular way. On many occasions the general lethargy and casualness that has crept into our system becomes the major impediment.

The vast apparatus of governance that we've got is now slowly coming to a state where it has stopped moving without getting a push and the unfortunate thing is that not many of us have the capacity and the wherewithal to do so. This notwithstanding, what is without doubt is that the systems of governance lying in the hands of powerful and influential need to be transformed for catering to the requirements of all, whatever their face may be.

This rhetoric might sound a bit cliché, after all there are so many who have been talking of this. What remains unaddressed, however, is that many of these issues have been getting swept below the carpet without any visible change. Nobody is able to tell us where the real action is and where the solution is. One thing perhaps is certain; the solution does not lie in the talk and cannot be in pronouncements. If we've to improve the administration of governments anywhere, we would have to do some serious introspection, look inwards, do a system analysis and figure out where the rub lies.

Every government department has two lives; one that it lives internally while the other that it lives with its clients, the citizens as we call them. Internally, the organisations suffer from problems of malfunctioning due to lack of proper and smooth systems; while externally it makes its clients suffer. There are many in the government who are frighteningly overworked while there are many more who are woefully under worked or do not want to work. Due to this it is very difficult to distinguish where the disease is and who the diseased is.

To any casual observer, a government office is a place where papers move or get stalled, papers containing loads of information affecting people. This information moves through a huge hierarchy giving scope to manoeuvrability at all levels. This leads to imperfections in its processing leading to bad decisions that range from being whimsical at times to looking prejudiced sometimes. The bureaucratic system that was based on the impersonal arrangements is now caught in the web of its procedures. The same procedures that were created to protect it from its ill wishers are seriously hampering the lives of its well wishers. The bureaucratic culture in a government organisation is characterised by traits where fixed ideas and achievement against predetermined targets hold precedence. It is based on formal rigidities, systems, clearly spelt out rules and rationally laid down guidelines and procedures. The bureaucratic organisation design is the overall configuration of structural components that define jobs, groupings of jobs, hierarchy, patterns of authority, approaches to coordination, and line staff differentiation into a single, unified organisational system. The organisation is characterised by a hierarchical set up, a top to bottom approach and is largely a closed system. Unity of command and compliance to set rules and procedures takes precedence over rest. The accent is more on doing least number of mistakes rather than experimentation and risk taking and committing errors as a result of that. The stereotypical belief about bureaucracies is that they are inflexible, monolithic organisations with uncaring employees who create red tape.

A thorough system analysis would, however, confirm that nine out of ten times, both the prevention and cure of this disease is possible only if we allow technology to take precedence over the norm. Internally, technology solutions would ensure that the non-performers can't hide themselves and the decision support systems are on a stronger wicket with properly processed information base. Externally, technology would ensure that the discretionary advantages and favours possible in the tech-less system are eliminated allowing level playing field to everybody, which in essence, is the purpose of government. ICTs though can play a catalytic role but cannot alone change this culture. In order to achieve meaningful gains, the whole process needs to be backed by strong willed effort to change the organisational culture and then sustain it over a reasonable frame of time.

The immediate need of the hour is to make administration get a citizen centred focus and to make use of technology for storing, retrieving, processing, handling and doling out information. However to do this, every office needs to do some groundwork. It has to carry out the system analysis to weed out incorrect procedures and lengthy formalities and above all, right sizing so as to get right people for right positions by training and re-staffing, if required. The quality of people manning various positions

needs a real push if we have to make any headway in improving the face of administration.

This however does not mean that technology by itself can make administration transparent, smart and responsive, as there are host of other factors that influence but it is also true that technology is a sine qua non, an indispensable condition for achieving that.

5.4　　TOWARDS CHANGED ORGANISATION CULTURE

To put in place a data network through ICT in a government organisation, one needs to:

- gain high-level management support for the project;

- undertake a pilot project;

- ensure that all users have access to the network, to provide an adequate population of users;

- make sure the networking is integrated with the organisations' core office automation applications;

- have the central IT unit co-ordinate introduction of technology; and

- tackle the difficult questions of security, reliability, cost and ownership.

For building the new culture, one needs to:

- demonstrate possibilities to those who are interested;
- provide organisation with a presence on internet;
- provide a way to receive information from internet;
- create an internal process to guide Internet use;
- provide positive role models for users;
- provide new mechanisms to support the rhetoric of organisation; and
- use technology to implement and administer technology

5.4.1 Mechanisms

In order to bring about the change in the bureaucratic culture and infuse in them new thoughts and urge for creativity, ICT and its solutions can play a major role. This can allow them to gain insights into expanding frontiers of information technology but also help them become knowledge workers. This would also free their minds and open them to open ended thinking.

In order to achieve this objective, there has to be designed and tailored programmes to sensitise them to information needs on one hand and bringing technical skills of functionaries on the other.

The main objectives of these programmes are to:

- identify ICT applications that can provide improved services to citizens and help public administration in improving planning, monitoring and administrative processes;

- demonstrate the feasibility of implementing such applications by specifying broad architecture, detailed design and creating prototype application software (wherever feasible); and

- disseminate the work to public administrators that promote and use e-governance

A major shift has occurred in the operation of the public sector in India and other countries over the last decade or so. At the heart of this change is the proliferation of new instruments or tools of public action-regulation, contracts, cooperative agreements, reimbursement schemes, tax subsidies, vouchers, insurance, and many more. Moreover, many of these new or newly expanded tools have in common a reliance on a host of third parties-such as commercial banks, non-profit organisations, other levels of government, or for-profit companies-to implement public programmes. The adoption of these tools has, thus, transformed the public sector from a provider to an arranger of services with profound implications on the nature and content of public management and democratic governance more generally. Those involved in public administration must consequently learn not only how to operate public agencies but also the distinctive operating requirements of the different tools, many of which involve complex collaborative relationships with private contractors, regulated industries, non-profit agencies and other levels of government.

The governments would, therefore, need to play a pivotal role in calling attention to this development and producing educational and other materials to promote understanding of it. This should include:

- emphasis on 'new governance' concept and its implications to accountability, management and democratic control; and

- instructional materials to acquaint both policy scholars and practitioners with these alternative tools and with the "tools approach" that focuses attention on them. More than that, it is needed to establish an agenda for future action that might improve the operation of public programmes by sensitising policymakers and policy administrators to the distinctive features and operating demands of the various tools that public programmes embody.

Within the broad framework of these objectives, there is a need to take up the following types of activities:

- developing conceptual papers on strategies that governments can follow to introduce e-governance;

- working with specific departments/programmes to identify opportunities for developing ICT applications;

- designing ICT applications and identifying hardware and software resources that would be required to implement such applications;

- developing the software as prototypes (wherever feasible) to demonstrate the feasibility of building such applications;

- conducting cost-benefit analysis of e-governance projects and preparing comprehensive evaluation reports;

- documenting case studies of successful e-governance applications already developed in the field;

- designing workshops for sensitising senior echelons of public administrators; and

- developing papers, reports and films to disseminate the output.

5.4.2 Limitations

The resistance to change is inevitable, especially, so if the status quo gives the vested interests additional clout. Such a shift in the bureaucratic culture may also meet with a similar response as the bureaucracy ever so reluctant to open up may create many hurdles to see that the power they wield over the information they control is not reduced by bringing it into public domain through net. Besides this, openness and transparency in administration, which such activities attempt to achieve, would also be feared by those sections of employees who do not want to get exposed for their inefficiency. Another constraint is paucity of funds as the case is with most of the public bodies in India. This exactly is the reason why such projects should be taken up as public-private initiative getting entrepreneurs to invest in them. Another challenge is to develop public awareness about ICT and making the citizens use such mediums for accessing civic services.

ICTs in the administrative parlance have been simply equated to computerisation resulting in myriad of computers with absolutely no accent on the 'information' part of IT. Anybody who understands ICT would agree that it is almost 80% in the information part and only rest in the latter, that is, technology. The wrong understanding of this definition in organisation has, however, resulted in needless addition of computers leading to a system which neither has citizen focus and nor has evolved out of the real understanding of the maladies the particular system is afflicted with. Most of the computers lying with various organisations are relegated to being used as typewriters; more than 90% of their processing and storing capacities are unutilised/underutilised.

In most of the cases, if every government department can take a lead and analyse its functioning, simple local ICT solutions keeping citizens as focus can be found. Due to the scale of operation and multiplicity of tasks what one needs in government system is creation and maintenance of databases that allows the retrieval and sorting of data easier and faster. Smooth front ends could allow user-friendly access to these databases. Networking and connectivity should be ensured wherein all these related computers and databases talk to each other, share the information and live symbiotically. A stand-alone computer serves no purpose and is an injustice to its inherent capacity. These computers talking sub consciously without any human intervention is the key to administrative reforms. It is also important that once the databases are readied and set, any further transaction be compulsorily routed through the data base so that the database is routinely and sub-consciously updated and remains relevant and dynamic at all times.

The bane of most government databases is that individual rather than systems drive it and hence, most of it is never updated once the individual departs. It is, therefore, essential that this process is ingrained into the departmental bloodstream and the transactions are invariably done through the database and updated without any conscious effort. Also, common databases for multiple departments need serious attention and promotion. There should be centralised maintenance of databases at various strategic levels. Last not the least; strong political and administrative will is required to achieve this in fairly minimal time.

5.4.3 Suggestions

Changing the administrative bureaucratic culture to a tech savvy, modern looking, flexible, goal-oriented culture requires significant efforts both at the technical as well as organisational and personnel level. There are few management tips, as suggested below that can help usher in such a change:

- **Making a Compelling Case for Change**
  Successful organisations have one important thing in common - the people who have a stake in the outcome see the need to change. Most researchers also found that as employees' understanding of a need for a change went down, the failure rate went up. Creating a change readiness is, therefore, critical.

  Leaders of successful new initiatives made a compelling case to critical stakeholders before doing anything else. How did they do it? The change managers were able to make a compelling case for change in their organisation by creating a change readiness in the officials and employees.

- **Communicate Formally and Informally**
  Formal communications – meetings and memos – are necessary, but they are not sufficient in times of change and transition. Employees need to know how the new direction relates to their day-to-day work. Officials at all levels need to talk about how the change relates to day-to-day decisions, actions and events.

  Look for opportunities to discuss differences and similarities with new methods or structures during team meetings and one-to-one meetings.

  Most officials and employees need to hear a new idea many times before they absorb and integrate the new information. This is, especially true, when the new way of doing things is significantly different from current practices. As

they hear about a change and talk through how it supports organisation goals, they mentally rehearse how they will accomplish work using different means or different methods. For a significant change, this will not happen in a day or a week. Significant transformation requires time.

- **Personalise the Message: What Does This Mean for Me?**
  Employees want answers to questions about how a change will affect them, and how his or her job will change.

  Until the employees know what part they will play and how the change will impact them directly, they can withdraw into worry. Their energy is not available to work on change or on the business of the organisation.

  Someone on the executive level can only answer questions like this in generalities; employees will look to their supervisors to gain information. The more preparation and information direct supervisors have, the better equipped they will be to answer questions.

  And, it is impossible to have all the answers. Draw the picture of what you do know and the boundaries of what is unknown.

- **Acknowledge the Unknowns**
  The maxim, "I'll communicate something when I know something," does not work in change situations. In times of change, employees fill in the blanks with their worst fears. Every bit of factual information helps.

  The statement, "I don't know," is more helpful than no communication at all. When you do not know an answer, tell employees when you will report on progress finding answers.

  Most employees do not expect their directors to be perfect and all knowing. They will accept when you are not able to find answers. Be sure, though, not to let questions fall into a black hole. Reporting that you have no new information is better than silence.

- **Surface Rumours and Fill in the Blanks**
  In many government organisations while the computerisation process is on, it is observed that rumours regarding lay off etc. hold sway. By the next day, the rumour spreads to the entire organisation. Employees latch onto such

messages as fact. The members become incensed and their productivity plummets.

Rumours thrive on lack of credible information. One simple thing managers can do is regularly ask, "What's the scuttlebutt? What are the latest rumours and gossip?" Bringing rumours out into the open deprives them of their power and provides a chance to replace rumours with solid facts or at least informed denials.

While it is important to quash rumours, they can also be a source of information. Rumours also provide a clue about what people are worried about, and where they are having trouble finding information. Look for patterns and fill in with factual information and frank discussion of unknowns.

- **Practice What You Preach**
  When management actions do not match the changes they are asking others to make, employees grow cynical. One administrator extolled the virtues of self-organising teams, but continued to dictate the details of team membership and assignments. He even stopped by developers' desks to give them advice on how to write code. He talked the talk but his actions showed he did not walk the walk of self-organisation.

  Successful change requires changes from everyone, not just the lower levels of the organisation. Wise managers do not ask other employees to make changes they are not willing to make themselves.

  Sometimes it only looks like there is a contradiction between what the executives say and what the executives do. Explain the apparent inconsistencies to avoid the appearance of hypocrisy and the resultant cynicism.

- **Acknowledge and Build on What Employees Value**
  In periods of change, people struggle hardest to keep what they value most. Employees do not change based on logic; they change to keep something that is valuable to them.

  Unfortunately, it is not always easy for employees to articulate what they value about the way they do their work. One finds that asking the question a different way help surface the information. As employees work out the details

of how the new ways will work, ask, "What were the strengths of the way we have been doing things? How do those strengths map to the new way?"

Acknowledge that the old way was not stupid or bad – it worked well at one time, but it does not fit the current context.

- **Reframe Resistance**
  When employees resist, the natural tendency is to push harder, give more reasons or even threaten. But exploring the response to change can be a source of important information.

  When faced with a change, some employees are afraid they will not be able – or will not have time – to learn the new skills, methods or procedures to be successful with the change. Employees who do not believe they can be successful are reluctant to try a new way. Sometimes they are not interested in learning new skills too.

  How a person feels about his or her senior colours what they hear. Even if employees have never spoken to the senior, they have a relationship with him based on their good or ill regard for him. Communication from a well respected senior will garner more attention than communication from one the employees regard as inept or irrelevant. And they are less likely to want to go through the disruption of a change for someone with whom they have a negative relationship.

  Past experience with change will affect how employees greet the current change initiative. When past change efforts have failed, fizzled, or flopped, people will be understandably sceptical. When you hear someone say, "It won't work here," or "We've tried that before," it is a clue that people have been burned in the past. Arguing will not help, but curiosity may. Probe to find out what is behind the categorical statements. You may uncover useful information that will help you avoid pitfalls with the current change. Or you may be able to point out what has changed since the last time that makes the change more likely to succeed this time.

  Resistance is a label that cuts off a conduit for information. Resistance is when someone is not doing what you want him or her to or expect him or her to. Listen and probe to find out why.

- **Employees Do Not Resist Change, They Resist Coercion**

  There is a misplaced notion that people hate change. In reality, people choose change all the time-big changes. People choose to marry, to have children or adopt children, to divorce, or join any foreign assignment, etc. These are all life-altering changes. Yet people choose them freely. Most of the time, people buck up and muddle through when change is thrust upon them by circumstances. Most people manage to find their way through to the other side of that change event. Clearly, people do not hate or resist all changes. One should realise that they do not resist change itself; they resist coercion.

  Employees will reject even insignificant changes when they feel coerced. The reality is, it is impossible to make someone else change. Lay out the reasons, acknowledge the emotions, provide support and give employees a chance to choose change.

  Not everyone will change at the same pace, and some may choose not to change at all. If there is another place in the organisation where they can be valuable, support them to find that place and if there is not, support them to move on.

- **Empathise**

  Every so often we run into administrators who are not very patient with employees going through change. There are directors who would say, 'Move on or move out,' there would be many who would say 'I've thought about it and there's no reason for you to feel that way.'

  In reality, change involves loss: loss of routines, relationships, turf, expertise and status. It is normal for people to experience intense emotions during times of change. Pretending those emotions do not exist will not make them go away; failing to acknowledge emotional responses may actually prolong and amplify them.

  This does not mean administrators need to play psychologist; they do need to listen, empathise and acknowledge that feelings are real and valid.

  Real change takes time. One is not expected to complete a major transformation in a matter of weeks. Transitions that involve significant changes-new methods or reorganisations-are measured in months and years, not days and weeks.

Expect that the world around you will shift during the transition and be prepared to adapt to new opportunities and circumstances. Be willing to refine goals and plans based on new information from both inside and outside the organisation. Plan for small wins and celebrate those wins.

Start change communication with a compelling reason for the change, then communicate, communicate, communicate until the employees begin to forget they ever did things a different way.

5.5   CONCLUSION

ICTs have taken up the challenge of re-building administrative culture in government organisations. They have brought in an improved and qualitative work culture by fostering:

- open, transparent, flexible and decentralised organizations;

- information sharing and dissemination;

- shift in the traditional organisational culture of neutrality, anonymity and political accountability;

- speed, accuracy and efficiency in day to day work;

- participative, collaborative, cost effective and responsive work culture ; and

- values of public interest, public discourse and dialogue, and democratic citizenship in administrative organisations and has enhanced public accountability and trust of the masses in administration.

5.6   ACTIVITY

1. Visit a government department or agency. Observe the functioning and the work culture. Please jot down your observations about the behaviour and action of the employees and officials.

2. Narrate some suggestive measures to revamp the administrative culture of our government organisations.

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UNIT 6   ROLE OF ICT IN RURAL DEVELOPMENT

Structure

6.0   LEARNING OUTCOMES

After studying this Unit, you should be able to:

- explain the importance of ICT in citizen service delivery;

- discuss the role of ICT in rural development;

- highlight ICT applications in agriculture development ; and

- describe the role of ICT in creating livelihood opportunities in rural communities.

6.1   INTRODUCTION

India is a country of villages and their socio-economic transformation shall always serve as an index to development. Rural development is generally taken as development of rural areas. The concept encompasses within its scope the prosperity of people and place in rural areas. While talking of rural development the target has to be an overall improvement of the quality of life in rural areas taken as a whole and not just the development of an isolated sector. Rural development means rather a comprehensive development of rural areas in its wholesome nature.

Since 1991, a new era has commenced which has brought drastic changes in economic environment of the country. Indian economy has opened up to the world economy and invited foreign capital, investment collaborations and technology in a big way. Today, every sector of the Indian economy is attuning itself to the changing economic environment. The rural sector is no exception. New feature of today's globalisation that has profound impact on rural sector is the ICT. The major objectives of ICT in rural development are to bring efficiency, openness and responsiveness along with participation in the formulation and implementation of rural development programmes by the people. It contributes to qualitative and quantitative changes in rural life style.

In this Unit, we will now discuss and assess the role played by ICT in the field of rural development.

6.2   ICT IN PUBLIC SERVICE DELIVERY

Service delivery is a core component of any government's obligation to citizens. Today, citizens are demanding more efficient and responsive services from government. Therefore, citizen service delivery has become a key focus area among governments throughout the world. With advent of ICT, there is now a greater need for governments to draw on these mechanisms to provide more efficient and responsive services to the citizens.

Governments all over the world have taken major transformation processes in citizen service delivery with the use of ICT. ICT is enabling citizens' participation and streamlining the work processes of government to improve the quality of services and responsiveness towards citizens. It enables citizens to use information as a key resource for betterment of their lives and strive towards socio-economic development. It has enabled governments to use multiple service delivery channels, such as, internet, mobile devices, WAP, etc. to render effective services to the target group.

In the following paragraphs, we will be discussing a project namely, 'PRAJA' that is based on ICT applications to render services to the people in the rural areas.

PRAJA: Reaching People in Rural Areas

The Project aims to provide all public services to the rural people at the district and mandal (Block) levels. National Informatics Centre (NIC) technically supports this Project taken up for the first time in West Godavari district of Andhra Pradesh.

The Project 'Praja' (meaning citizens) is an effort to bring government closer to the people and empower them through ICT. It makes the government more accessible to the people. It is an effort to deliver various Government to Citizens (G2C) and Citizens to Citizens (C2C) services in the rural areas. The Project has provided web enabled rural kiosks termed Praja Seva Kendrams at mandal level and village level. The fully computerised Praja Seva Kendrams are on a district wide network connected through dial up circuits and internet, with the district server acting as a remote access server.

The Praja Seva Kendram runs a district portal that allows access to various citizen services. These services range from the issuance of various certificates to getting information about various programmes and also go to the extent of networking citizens to each other and allow them the flexibility and convenience of mutually beneficial transactions. The Project allows access to hither to marginalised communities and therefore, helps in bridging the existing information gaps and is a step towards digital unite. Many of the Praja Seva Kendrams are run as self-employment units and are manned by unemployed youths from Chief Minister's and Prime Minister's rural employment plan beneficiary groups. The Project envisages that all villages can become knowledge hubs and gain symbiotically from each other and derive benefits from global networks. In addition to providing government services, this Project encourages rural e-commerce and rural cyber forums in the villages.

The traditional channels of citizen service delivery are continuing and complementing electronic channels for transactions, as they cater especially to those who are unfamiliar with technology or electronic transactions. Therefore, it is of prime importance that governments create awareness and educate the citizens on how to use the electronic channels. Through proper education citizens can familiarise with the changes in service delivery mechanisms.

6.3   ICT APPLICATIONS IN RURAL DEVELOPMENT

ICTs have the capacity to significantly empower people and facilitate development. This major technological revolution can significantly influence the development capacity of any society. Their applications to agriculture and rural development are very extensive and pervasive. With telecommunication technology, computers and information processing technology, data and image transfer technology, and interactive technology, ICTs have made a qualitative difference in the way we can generate, disseminate and transfer knowledge and promote development. The

convergence of these technologies has created not only a new technological and production sector, but also a new social and economic reality in the rural sector. Increased connectivity and quicker flow of information has opened new frontiers of knowledge.

ICTs develop in rural communities a learning and innovation capacity that increases the effectiveness of their efforts to solve problems and improve their lives. They empower these communities and increase the effectiveness of their development efforts through informed decision making to achieve the objectives of poverty eradication, food security and sustainable development in rural areas.

However, technological applications are largely restricted to urban areas. Rural areas have not reaped enough benefits from them. ICTs must be used judiciously as important tools in developmental activities to address the problems of rural development in all sectors of the economy, such as, agriculture, energy, health and sanitation, rural engineering, housing and habitat, etc.

It is, therefore, necessary, to develop and introduce appropriate of so called green technologies coupled with sound delivery system, which ensures economic and ecological sustainability and optimum use of local resources emphasising on technology capacity building of rural people. In this endeavour, institutional linkages and active participation amongst voluntary agencies, science and technology based field groups, R & D institutions, financial agencies and above all, people who are primary stakeholders, become crucial for improving the quality of life in rural areas to achieve long term sustainability.

Essentials

In above process, technology choice can have a critical impact on many aspects of rural development, especially, the way we choose them, the way we innovate and design them, and the way we deliver them to masses. Therefore, technology must be carefully chosen to enable rural people to:

- acquire and imbibe knowledge of technologies appropriate to their needs and environment;
- upgrade their traditional skills and capabilities;
- minimise fatigue and reduce drudgery; and
- be innovative

Equally ICT should:

- be capable of easy assimilation;

- generate significant and assured added value to existing methods of operation;

- generate employment and use local resources, both men and materials;

- need low capital investment and result in low cost production of goods;

- be capable of replication and adoption; and

- blend harmoniously with existing ecosystems leading to tangible improvements in the living conditions and self-sustained development of the rural people.

Thus, appropriate or green technologies, with above features, can play crucial role in building up local capacity, devising solutions for tackling the identified problems, and improving the lives of rural people by improving their surroundings and daily activities. Focus must be on technological empowerment of people with skills and critical thinking that fosters a sense of self-reliance and ability to evaluate what is beneficial or detrimental to their interests. This will improve their access to affordable, environmentally sound technologies and generate meaningful employment in local economic structure.

However, success in development and dissemination of such green technologies lies in participatory systems with down to earth approach or effective percolation of technology from people's acceptance point of view as well as to make proposed intervention sustainable to be managed by them. This involves:

- need identification/assessment of the people by local voluntary or science and technology based field groups;

- identification of ideal technological options as per location specific needs, skills and resources available;

- in-house technology appropriation or with assistance of nearby technical institution to a scale and level, which is acceptable to the people for long term sustainability;

- technology back up for 2-3 years through continuous handholding to people; and

- establishing backward and forward linkages for long term sustainability.

Once total system is in place with the complete technology package, the field group can gradually withdraw giving the entire responsibility to locally formed people's groups/ organisation for further dissemination.

With above approach in mind to reach majority of the people who live in the vast areas of rural India, several grassroots level organisations with scientific and technological capabilities are providing crucial link between the emerging new developments in knowledge and technology, and also helping to strengthen and diversify the local economy, utilisation of local resources, and upgrading the skills of artisans, land-less labourers and other disadvantaged sections. By adopting above mentioned approach, such groups have developed proven and viable models of a large number of green technologies for socioeconomic up-liftment through skill upgradation, income generation, drudgery removal, sustainable use of resources, etc. Such interventions have brought in visible changes in the lifestyles in rural areas and can have multiplier effects in different parts of the country.

6.3.1   ICT Applications in Agriculture

ICTs have played an important role in promoting agriculture during the last several decades. The role of television and radio in rural education and extension services has been well documented. These technologies will continue to play a crucial role in and along with the new ICTs.

ICT revolution is leading to the need to develop a new paradigm for agriculture. Beyond databases and information systems, application of ICT to agriculture is appearing everywhere. ICTs are profoundly transforming extension services through the use of multimedia technology, distance education technology, as well as through innovative approaches based on interactive knowledge development processes. They are having a clear impact on our capacity to monitor the environmental impact on agriculture and degradation of natural resources through remote sensor data. GIS are opening new approaches to regional planning and to the management of natural resources.

In the context of agriculture, there are five key services or functions that are very closely related to ICT:

- access to information through different types of **Agricultural Information Systems** (AIS);

- monitoring the situation of natural resources and environmental impact through different **Information Processing Tools** (i.e. analysis of environment deterioration, soil erosion, deforestation, etc.);

- **Education and Communication Technologies** that are playing a very important role in generating new approaches to learning and knowledge management;

- **Networking** where ICTs can contribute greatly to relating people/institutions among them and facilitating the emergence of 'Virtual Communities of Stakeholders' that generate and exchange information and knowledge among themselves. If well managed, networking is a first step in the direction of developing interactive knowledge development processes that may lead to learning networks; and

- **Decision Support Systems (DSS)** through which data and information provide relevant knowledge inputs for informed decision-making. These tools are playing an important role in converting information systems into knowledge systems.

The main objective of these ICT applications, from a development perspective, is that of empowering people through knowledge. It means developing in people a capacity to achieve their development objectives and goals through the generation, acquisition and use of knowledge.

National Institute of Agricultural Extension Management

Agriculture continues to be an occupation and way of life for more than half of Indian population even today. Sustainable prosperity of this class, that is, farmers and landless agricultural labourers, holds key for improving the over all human resource development scenario in the country. Various efforts are being made to improve the social and economic conditions of this class through ICT.

National Institute of Agricultural Extension Management has taken up a number of "Cyber Extension" initiatives across the country. District level websites are hosted, information kiosks are established at block / mandal and village levels, and technical and other need based information is collected, digitised and hosted on the internet.

The Institute has taken initiative to provide linkages to the technical and other farmer friendly information through its websites. In Andhra Pradesh, websites of 24 districts contain very important information on district profile, land use pattern, district agriculture scenario, strategic research and extension plans, replicable success stories

and information on important contact persons with their telephone numbers and e-mail addresses. These websites have improved information dissemination significantly.

As an apex national institution, the Institute through its various projects and programmes is working towards providing cyber connectivity to all Indian villages to make available the benefits of ICT to the Indian farmers and change the face of Indian agriculture.

Village Knowledge Centres

The future of food security in the developing world is dependent less on resource-intensive agriculture and more on knowledge-intensity. In the coming years, agriculture will have to be developed as an effective instrument of creating more income, jobs and food and such a paradigm of sustainable agriculture will be both knowledge and skill intensive. The development of precision agriculture is need of the hour, which emphasises knowledge intensity. Precision agriculture refers to exactness and implies correctness or accuracy in any aspect of production. Precision agriculture is the application of technologies and principles to manage spatial and temporal variability associated with all aspects of agricultural production for the purpose of improving crop performance and environmental quality. The enabling technologies of precision agriculture can be grounded into four major categories: Computers, Geographic Information System (GIS), Global Positioning System (GPS), and Sensors and Application Central (SAC).

The new agriculture paradigm in India will have to take advantage of knowledge availability to achieve the triple goals of increased income, jobs and food. The emerging ICTs have a significant role to play in evolving such a paradigm. The key step in the use of ICTs in sustainable agricultural and rural development is the value addition made to generic information to render it local specific. A programme has been launched in 1998 in the Pondicherry region to determine the manner in which ICTs make an impact on rural livelihoods. The Village Knowledge Centre Project has an operational centre/value addition centre at Villianur, which is the headquarters of the Villianur Commune. The value addition centre has access to the internet through two dial-up accounts. This also functions as the hub of a local area network for data and voice transmission covering the project village. The value addition centre in Villianur has generated a number of databases to fulfil requirements of the people in the villages. Some of the databases pertain to the following:

- entitlements to rural families: this database provides details of about 130 schemes, which are operational in Pondicherry Union Territory;

- families below poverty line: details of families in the communes of Ariyankuppam, Villianur and Nettapakkam have been provided in this database, which has been compiled from the UT Administration. Approximately 22,000 families are listed;

- grain prices in Pondicherry region;

- input prices (quality seeds/fertilisers) in Pondicherry region;

- directory of general and crop insurance schemes;

- integrated pest management in rice crop;

- pest management in sugarcane crop;

- directory of hospitals and medical practitioners in Pondicherry-grouped with specialisations, such as, orthopaedics, paediatrics, etc.; and

- bus/train timetables-covering Pondicherry region and two nearby towns

These databases (except the data on families below poverty line, which is an official document in English) are available in Tamil language at all village centres. Updates are transferred using the wireless network. In addition, interactive CD-ROMs for health related issues have been developed, where FAQs (frequently asked questions) are posed to medical practitioners, whose replies are video-graphed and converted to Real Video format for retrieval, using a PC. Topics related to 'general hygiene', 'dental and oral hygiene' and 'eye' have been covered.

In addition to such defined content, daily transactions take place covering important public events and government announcements for rural families. Cricket information is much sought after through well-known websites. One important service provided is the announcement of examination results of 10th and 12th classes. The results and mark sheets are available on the web, cutting short the time of waiting by at least one week.

Recently, a significant new dimension was added with the commissioning of solar-mains hybrid power systems in all the centres.

This Project has received mention both in India and abroad (in the 136th Presidential Address at the US National Academy of Sciences by Prof. Bruce Alberts in April 1999). The Human Development Report (UNDP 1999) cites this as an example of a creative project in addressing the global information divide.

6.3.2 ICT and Women Empowerment

ICT applications in rural areas should benefit the agricultural sector and reduce rural poverty. Participation of the poor in planning and implementation of anti-poverty programmes is required to reduce the chain of intermediaries between the government and actual beneficiaries and to improve their bargaining power. There is a need for institutional mechanism at the grassroots to safeguard the interests of the poor. Therefore, organising the poor in the form of self-help groups (SHGs) around thrift and credit services is one of the most effective methods, not only for alleviating poverty but also for empowering rural poor. In this context, the Government of Andhra Pradesh has provided a larger space for women self-help groups in its strategy for poverty alleviation and women empowerment. The Development of Women and Children in Rural Areas (DWACRA) Programme was started in 1982-83 in the State with UNICEF cooperation to provide opportunities of self-employment on a sustained basis for the rural poor women. National Institute of Agricultural Extension Management has provided multimedia computer system with UPS, printer and internet connectivity to Mutually Aided Cooperative Thrift and Credit Societies (MACTCS) organised by DWARCA groups. Four members identified by the group were trained in basic computer operations and internet browsing. Multimedia CDs on Agriculture-Intensive Self-Learning Packages on Watershed Management, Vyavasya, Panchangam (Encyclopaedia of Agricultural Practices), Paddy Cotton, Mayo and Coconut Cultivation, Expert Systems on Selected Crops and Rural Development – pickle making, child labour, child education, nutrition and health education, etc. were given to all the groups. A user-friendly accounting package was given to all the MACTCS to maintain their accounts and two members were trained to use it.

The experiences of these groups have shown that they have been using the internet in innovative ways. They are browsing DRDA Websites for government programmes and schemes. They are looking for weather forecasts, market prices, job opportunities and news on the net regularly. They have also started to charge some of these services selectively. This has provided a good opportunity to the rural information kiosks to earn some revenue. Farmers are also using the net for getting technical advice online from various sources. Rural people have created their own e-mail accounts for faster

communication. They are sending mails to DRDA, district collector and other district and state-level officials.

The studies conducted on the impact of these groups on women empowerment highlighted that woman's access to and control over their savings, credit and income has improved. Further, women have improved freedom to move and interact with the officials and other women after joining the SHGs of DWACRA. But, the studies also have revealed that empowerment varied across different social groups since issues of women empowerment are interlocked with caste, religion, headship of households and their age. The fundamental pre-requisite for sustainable women empowerment is intensive participation of women in the activities of respective SHGs facilitated by ICTs.

6.4   SUGGESTIONS FOR EFFECTIVE ICT IMPLEMENTATION IN RURAL DEVELOPMENT

Limited local participation, lack of availability of local resources, fractured relationship with state agencies and exogenous social and economic environment are identified as some of the factors for the inability of ICT projects to deliver their full range of outputs in rural areas. E-governance is invariably a passive system of information empowerment. There is need for promoting participatory methodologies of content creation and knowledge management. The approach to rural women and men should be one of partnership and not patronage. In the field of agriculture, a Farmer Participatory Knowledge System (FPKS) could replace the existing beneficiary and patronage approach to knowledge dissemination. Information should be demand driven and should be relevant in terms of time and space.

There is need for more on-farm and non-farm employment opportunities in villages. This will be possible only if there is diversification of farming systems and value addition to primary products through improved post-harvest technology. Training should be with reference to market-driven skills. Small-scale industries and khadi and village industries should receive particular attention from the point of view of the upgradation of both technology and marketing skills. There is also need for synergy between the private sector and public and cooperative sectors in promoting more avenues for skilled jobs in villages.

The usefulness of a computer-aided knowledge centre in villages will be directly proportional to the social, ecological and economic significance of the static and dynamic information being provided. Hence, a consortium of content providers will have to be developed for each agro-ecological zone. Leading industries could

participate actively in such a knowledge and skill empowerment revolution by adopting specific villages where they could provide, in addition to monetary support, marketing and management information.

A culture of change, knowledge and lifelong learning should be encouraged by rural communities and the government agencies serving them, along with openness to a wide spectrum of ideas in the knowledge age. Cultures of merit, analysis, professionalism and evidenced-based decision-making should be embraced in rural ICT4D (Development) initiatives. Online services should be designed with a mix of free and fee-based services so as to ensure commercial sustainability of rural ICT4D initiatives in the long run. As a major consumer of ICT products and services, governments in developing countries can also lead by way of example in the use of ICT, implementing best organisational practices and spurring local markets in rural areas.

ICT4D policy initiatives should have a strong grounding in local communities of villages. Online and offline forums should be promoted for communities of interest and communities of practice to exchange knowledge on harnessing and creating ICTs in the rural context. Multi-actor alliances targeting rural ICT4D initiatives should be encouraged and nurtured. Creating funding options for rural ICT4D initiatives should be explored. Special financing should be set aside for ICT initiatives involving marginalised communities, physically challenged, refugees, migrant population and youths. Measures should be implemented to increase ICT literacy in rural areas. Technical, managerial and design capacity should be built up in the adoption of ICT for rural communities, creation and maintenance of secure ICT infrastructure and scaling up of rural ICT initiatives across dimensions of depth and breadth. Capacities should be built up not just in adoption of ICTs in rural areas, but in creativity with regard to devising new applications, R&D focus areas and harvesting of local knowledge. Government of India should liberalise policies for the operation of community and ham radio stations. This will help to confer the benefits of the knowledge age to every woman and man in a village. Reaching the unreached and including the excluded will be possible only through an integrated ICT system.

6.5   CONCLUSION

Indian economy can rightly be called a rural economy, as sixty percent of the country's population resides in villages and thrives on agriculture. Socio-economic transformation of rural areas is, therefore, an indicator of the nation's economic development. ICT, especially as an important feature of good governance, plays an important role in bringing in this transformation extensively by:

- rendering effective and varied delivery channels to reach the target groups in rural areas;

- empowering people through knowledge and information creation and dissemination; and

- enabling food security, livelihood, poverty eradication and sustainable development.

By building up technical, managerial and design capacity in the adoption of ICT for rural communities; creating and maintaining secure ICT infrastructure; and scaling up of rural ICT initiatives across dimensions of depth and breadth will ensure rural development to reach the rural poor and disadvantaged. Technology has to be used as a strategic innovation and not as a tactical automation in this effort.

6.6 ACTIVITY

Mention some of the ICT initiatives/ projects/experiments undertaken in areas of agriculture and women empowerment in your State or Region.

6.7 KEY CONCEPTS

Wireless Application Protocol : a secure specification that allows users to access information instantly via handheld wireless devices, such as, mobile phones, pagers, two-way radios, smart phones and communicators. WAP supports most wireless networks. These include CDPD, CDMA, and GSM.

GPR : short for Ground Penetrating Radar, a UWB imaging technology used for subsurface earth exploration. GPR uses electromagnetic wave propagation and scattering to image and identify changes in electrical and magnetic properties in the ground. GPR systems have wide applications, such as locating underground utility lines, monitoring airplane runways for structural integrity, detecting unexploded land mines, conducting groundwater studies or

forensic research, and surveying land for construction purposes.

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6.9   ANNEXE

A. E-nabling India's Rural Reaches

Just two hours out from Bangalore on the railway main line to Chennai, Kuppam is a two-minute halt on most trains. But that is time enough for most passengers to snatch a quick look at the posters lining the two platforms, welcoming them to Kuppam's 'inclusive' or i-community.

For those who choose to alight, the contrast with other rural clusters in this southern corner of Andhra Pradesh is palpable: neatly signposted lanes, a clean bus shelter and something one is unlikely to find anywhere else in rural India: bright red-and-yellow booths which say: 'Emergency Telephone' in Telugu and English.

They are free phones supported by a wireless (802.11b) network and connect instantly to the local police, fire and hospital services.

They can also reach two other numbers: World Corps India, the voluntary agency that has been instrumental in training local entrepreneurs to set up over 15 wireless internet-enabled Community Information Centres (CICs) spread across the five villages or mandals of Kuppam; and Hewlett Packard, whose adoption of Kuppam as one of the first sites of its global e-inclusion programme of 'appropriate' Information Technology has inspired the State Government as well as a dozen private companies, charitable foundations and non governmental agencies to come together and co-create a sustainable future for this so-called backward area, using cutting edge technologies that have largely been the preserve of urban pockets of plenty.

Digital Photography

Last week was a busy time for Neelamma and 15 other local women mobile photographers in the Kuppam community. Armed with Photosmart Digital Cameras, they 'covered' dozens of Ganesha 'nimarjan' (immersion) ceremonies, and using the field kits loaned to them by HP, converted the shots into instant colour photos using solar-powered direct photo printers and sold them at Rs. 30 a print.

On other days they routinely cover weddings, baby 'naming' ceremonies, bus route inaugurations, accident sites, etc. They earn anything from Rs. 750 to Rs. 2000 a month and are currently moving from a model where HP supplies all the material and takes away Rs. 20 for every print to a more lucrative one where they just lease the camera and buy all the consumables.

The change has come because of the sudden access to doorstep photo services in Kuppam which has created a big enough market for nearby towns to stock digital printer consumables. 'We want to move away from the 'pappad-and-pickle' stereotype of employment for rural women,' says Anand Tawker, Director of HP's emerging market solutions in its e-inclusion programme, who has nurtured this initiative from day one. 'We are thrilled that they are so confidently handling technology that may seem disruptive even to hardcore professionals in the metros'.

In his community kiosk in Kothaindlu village, a proprietor M. Kumarswamy has just one PC and a multi-function printer. He sells toiletries and sweets to attract the local customers then offers to cast their horoscopes using special software at Rs. 30 a go. He has also discovered a new and gainful use for the spare disk-space on his PC: he calls it 'surakshita dakhalalu' ('electronic safe deposit locker'). Villagers usually have a hard time preserving their precious documents: birth certificates, land title deeds or 'pattas'…from the ravages of time and weather. Kumarswamy charges a one-time fee of Rs. 20 to scan and preserve the documents on his PC for as long as the customer wants.

Touch Typewriting

At the Mamidipudi Nagarjuna Social Welfare Residential School for Girls, 10 year olds crowd around a dozen PCs, learning 'touch typewriting' in Telugu or browsing language software created by the Azim Premji Foundation, another partner in Kuppam's icommunity. A single PC running Linux fuels four monitors, which can work independently.

They are the first beneficiaries of an exclusive 2 MBPS 'pipe' provided by the State Government and fed from the Software Technology Park at Tirupathi, via fibre, to all five mandals of Kuppam. From here, a WiFi umbrella set up by Convergent Communications, Bangalore, unfurls over the whole community of 3.2 lakh citizens even while fuelling the community Net portal (www.kuppamhpi-community.stph.net) that is already delivering a variety of local services under the 'Yojanalu' head. Last week, a domestic gas outlet was advertising a vacancy, as were World Corps and some of the local voluntary agencies.

The Web for Kuppam is also the gateway to a range of health and educational services: tele-medicine software from Tele-Vital, which connects remote villages to the P.E.S. Speciality Hospital and Medical College; computer-aided-education steered by World Links and the America India foundation; and documenting farm land productivity using remote sensing satellite data collated by Samuha, a voluntary agency.

Kuppam's t-community mobile van was parked in Vasanadu village. Local residents brought soil samples for immediate testing in the field lab even as others queued up to have their eyes tested for a possible referral to the Arvind Eye Hospital. And a crowd of school children waited to take possession of a laptop computer – their weekly treat.

It is very much in the spirit of Dr. A.P.J. Abdul Kalam's favourite blueprint, PURA: Programme for Urban Amenities in Rural Areas. The challenge remains to sustain the 'inclusive' drive, even while striving to create hundreds of other Kuppams.

Anand Parthasarathy
The Hindu
n. d.

B. Medical Advice Comes Calling to Woman at Remote Village

Gandhimathi, a 37-year-old agricultural labourer in Tiruvaiyaru village near Thanjavur district in Chennai, began complaining of breathlessness about four months ago. 'I could not work. I was finding it difficult to go through everyday chores,' she said.

Today, she consulted a specialist in Chennai – without stepping out of her village.

A Village Resource Centre (VRC) Project established by the Indian Space Research Organisation (ISRO) and M.S. Swaminathan Research Foundation (MSSRF) made it possible for her to consult the Vice-Chancellor of Sri Ramachandra Medical College and Research Centre (SRMC), Shri S. Thanikachalam.

The cardiologist wanted to see her echocardiogram and this was instantly flashed on the screen from Tiruvaiyaru. Dr. Thanikachalam confirmed this diagnosis of a defective value and reassured Gandhimathi.

This interaction was part of a live demonstration of the on-ground effectiveness of the VRCs located at Tiruvaiyaru in Thanjavur district, Thankatchimadam in Ramanathapuram district and Sempatti in Dindigul district and at the MSSRF and SRMC in Chennai.

Tele-medicine is not the only application of the Project inaugurated by the Prime Minister, Dr. Manmohan Singh, from New Delhi, today. As Dr. Singh watched from the Capital, a wide range of interactions took place between the experts at the MSSRF, Chennai and farmers and fishermen in the villages.

This satellite-based ISRO-MSSRF-VRC Project aims to provide digital connectivity to remote villages to render services such as telemedicine, tele-education and remote sensing applications through a single window.

Inaugurating the VRC Project via INSAT link from New Delhi, the Prime Minister said that unless the benefits of science and technology were taken to the villages, the country could not eradicate poverty, ignorance and diseases.

The concept was evolved by ISRO and implemented through a partnership with the MSSRF. ISRO's capabilities in satellite communications and satellite-based earth observation system to disseminate a variety of services emanating from the space systems have been integrated with other information technology tools to address the changing and critical needs of rural communities. The VRC works on an interactive Very Small Aperture Terminal (VSAT) network.

19 October 2004, The Hindu

C. 250 Satellite Linked Village Resource Centres by March 2006

G. Madhavan Nair, Chairman of Indian Space Research Organisation (ISRO) has said that at least 250 villages in the country will have satellite-linked Village Resource Centres (VRC) by March this year, taking the benefits of space technology to the rural people. He said that VRC Project, jointly launched by the ISRO and the M. S. Swaminathan Research Foundation in October 2004, would provide multiple services such as telemedicine, tele-education and remote sensing applications to remote villages. He further informed that at least 10,000 'virtual class-rooms' would be functioning in the country by the close of 2006.

3 January 2006, The Hindu

D. Net-based Information Kiosk for Farmers

The Haryana State Cooperative Supply and Marketing Federation Limited will launch a novel 'Kisan Choupal', and internet based Touch Screen Information Kiosk and Facilitation Centre at New Anaj Mandi, Jagadhri. The Facilitation Centre would also display the current and future prices listed on the National Commodities and Derivatives Exchange on an electronic board. A joint effort of HAFED and IFFCO, the Kisan Choupal is a significant step towards modernising and empowering farmers and member cooperative societies. The touch screen information portal would enable the farmers to access relevant and timely information at the touch of a finger.

8 January 2006, The Hindu

E. Intel launches PC Platform to suit Rural Conditions

Intel launched a personal computer (PC) platform to suit the rural environment. The PC platform, conceived by the Platform Definition Centre set up in India in June last year, is one of the many platforms for specific uses. It can work in temperatures of up to 50 degree celsius and can even run on a battery that can be charged by pedalling (as in a bicycle dynamo) and other means.

The battery works as a backup in areas where the power supply is erratic. The PC can also operate in high dust environment and in surroundings where there are a lot of insects.

Intel had positioned the personal computer as a community PC that could be used in citizen service centres and other applications like education. The PC platform would be priced between Rs. 20,000 and Rs. 30,000.

The applications for PCs would be developed by independent software vendors like TCS, Microsoft and Red Hat.

30th March 2006, The Hindu

F. Rural Bazar – An Internet based Solution

NIC, MIT, GOI is committed to strengthen the efforts of groups and agencies working for the benefit of rural poor and to that end, offers a solution in terms of an IT based marketing infrastructure to provide better visibility and sale of products produced by rural artisans.

NIC addresses the problem by adopting the e-commerce approach through its product Rural Bazar. Rural Bazar is a web store that allows customers to carry out the complete business transaction starting from browsing the products to paying for the chosen products. It offers several services to its users who may be broadly classified as the producer, the content manager, the business manager, the technical manager and the customer. The following paragraphs highlight the services offered by Rural Bazar to each of its users.

Customer Services

- allows a customer to browse a product catalogue online or offline (by downloading the catalogue from the web-site or through e-mail);
- provides a comprehensive search facility;
- accepts orders online or offline (through e-mail);
- accepts payment online using credit/debit card and offline through demand drafts;
- allows the customer to track order status;
- automatically confirms on order through e-mail;
- accepts customer feedback;
- maintains customer data on profile, preferences, bill and shipping addresses, etc.;
- provides individualised customer services on the basis of customer profile and preferences; and
- a host of other services and help facility.

Producer Services

The producer is the individual or group who is responsible for producing the products.

Keeping in mind the literacy standards of the rural poor and with a futuristic view, Rural Bazar offers the following services to the rural poor:

- it automatically generates letter or e-mail (whichever is desired) in the local language, intimating the producer of any new order placed for his products. The same information can be viewed over the web also, again in the local language;

- once payment is received for an order, Rural Bazar offers a facility to automatically credit the earnings to the respective producer's account, thus eliminating the role of any unwanted intermediaries; and

- the producer can also choose to be educated/updated, through reports, about the demand for his products as well as for any new products. This will help the producer in modifying or changing his product line.

Business Manager Services

The role of business manager is to manage the whole business of marketing the products. Rural Bazar provides an interface to the business manager through which he/she can:

- conduct an on-line market survey either by posing questions directly to the customers or collecting data from customer profile, preferences and behaviour;

- analyse the data collected from the market survey through a number of pre-defined textual and graphical reports; and

- launch advertisement and discount campaigns for the products.

Content Manager Services

The content manager is responsible for maintaining the content of the web site. Rural Bazar provides a user-friendly interface for the content manager to do the following:

- updation and maintenance of the product catalogue, such as, modifying the price and other information about products;

- updation and maintenance of producer information; and

- automatic generation of letters that may be required to be posted to a customer, a producer or a bank.

Technical Manager Services

Technical manager of the web store is the key person maintaining the technical aspects of managing the equipment and ensuring the smooth functioning of the same.

Rural Bazar helps the technical manager modify the functional capability of the site on the fly without requiring re-development of the software.

Special Features

Besides the above services, Rural Bazar has certain features that are unique and therefore merit special mention:

- it may be configured to market the products of the rural poor belonging to a particular state or a particular district in a state;

- Rural Bazar can be configured to act:

  o as a simple advertising medium that displays product images and their information; or

  o as a site that accepts orders but accepts only offline payment (through demand draft); or

  o as a total e-commerce site that accepts orders as well as payment online.

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G. eNRICH: Web-Based Community Software Solution Framework

Introduction

As part of the cross cutting theme on the eradication of poverty, UNESCO (http://www.unesco.org/webworld) launched a new pilot initiative to put ICTs to work in the hands of the poor under its ICT PR Project. The focus is not so much on technology itself, but on its innovative use to empower the poor with tools to change their circumstances. To test and introduce sustainable ICT access and utility models to empower the under privileged, UNESCO desired to produce a generic ICT browser that:

- acts as a one stop access and delivery mechanism for communities;
- is customisable in terms of local language and content;
- encourages local content production;

- allows easy access to relevant and authenticated information; and

- enables efficient interactivity within and among communities.

In response to UNESCO's request for generic software fulfilling the above requirements, the National Informatics Centre (NIC http://home.nic.in) undertook the design and development of eNRICH- a Community Software Solution.

The Need

The concept of Community Information Centres or Community Information Resource Centres (as they are variedly called) adopts a people centric approach where community members converge to identify their information needs and fulfil these needs through whatever medium is available to them. Many projects have been undertaken by various national and international agencies and NGOs to address the needs of the underprivileged through the use of ICTs in such community centres. Several models have been tried outwhile some established a computer centre with internet facility, others went a step further and developed a web site for the community in an attempt to fulfil their information needs. However, all these models suffer from one or the other of the following drawbacks:

- web site development is both time consuming and needs special skills to modify, revise and upload information. This reduces the self-sustainability of the project;

- effective communication within and among community is necessary ingredient for empowering the communities. However, these web sites invariably focus more on information retrieval and less on providing facilities for community communication;

- the web site lack provisions for community members to participate in building the web site; thus the community members are passive rather than active participants in the community building exercise;

- search for relevant information is time consuming, costly and requires special skill set. Even when information has been gathered, its relevancy and authenticity cannot be judged immediately. This problem is further compounded by the low standard of living and low literacy of the underprivileged section of the society; and

- last but not the least, research data on access habits of community members is severely lacking. Such data, if made available can greatly enhance the effectiveness of ICTs in improving the lot of the underprivileged.

eNRICH addresses all the above issues in two ways:

- it enables communities to quickly and efficiently build their own gateway, enriched with their own local content, connected to knowledge sources and services that are tailored according to their own information and communication needs, available in their own local language in a format and medium that is tuned to their assimilation capacities; and

- eNRICH attempts to reduce the challenges faced by disadvantaged communities, such as, lack of suitable skill set, language barriers and low literacy in using ICTs and the internet:

  o through a simple, consistent and easy-to-use interface that requires a low level of competence from users; and

  o through accessibility to the use of multiple media (textual, audio, visual).

Conceptual Framework

eNRICH has been developed as a web-based community software solution framework that adapts to the needs and circumstances of the poor. Through its customisable, multilingual interface, eNRICH truly puts ICTs to work in the hands of the poor. Its multiple features not only enable communities to identify, build and organise relevant information but also promote communication between and among communities. The framework encourages collection, preservation and sharing of indigenous knowledge. With the ultimate aim of empowering communities through a collaborative approach, eNRICH acts as a platform for voicing the thoughts and feelings of the poor.

Two Components of eNRICH

eNRICH comprises two main components, namely:

- Desk Manager User Interface (DMUI); and
- Communication Interface (CBUI)

Desk Manager User Interface (DMUI) – this interface, also called the Desk Manager or DM interface, will be used by the managers of the eNRICH site as well as by researchers. This is a broad administration and analysis tool for managers and researchers. Managers will use the DMUI to:

- specify the knowledge resources and services that should be provided to the community users on the Community Browser site;

- interact with community members to render the Community Browser more relevant and useful to them;

- identify issues for opinion poll, message of the day, etc.;

- moderate the contents and messages uploaded by community users so as to make them more authentic and relevant; and

- generally administer the site.

Community Browser User Interface (CBUI) – this interface, also called Community Browser interface, will be used by the community members. Using this interface, community members will:

- access various knowledge and services made available locally and/or on the internet;

- post announcements and public messages, such as, local meetings, bartering, auctions, etc. on bulletin board for other members to see and respond;

- upload content in the local database on community specific information;

- express their views on important community issues and also view peoples' opinion;

- communicate with their dear and distant ones through e-mail, chat, instant messaging service;

- learn through multiple media; and

- communicate their information and communication needs, suggestions, complaints, etc.

Enhancement

- eNRICH Community Software Solution Framework has been enhanced further to include the following features:

- introduction of Content Managers (government officers) at national, provincial and local levels with a view to extend the reach of e-governance services to the rural communities;

- provision for engaging domain experts for contributing knowledge in their respective areas and authenticating content uploaded by others; and

- enhanced inter and intra community communication through specifically designed messaging services.

Key Design Features

- a customisable web-based community software framework that caters to multiple scenarios through its twin-component structure comprising DMUI and CBUI;

- addresses local language issues through its Language Manager Interface;

- allows site configuration to suit user's requirements through its site manager;

- allows building of an Information Category Structure that could be any level deep, within and outside of a category, thus generating a flexible framework for uploading and organising content through the site manager;

- provides specific spaces for community people as well as desk manager (site administrator) to post content thereby:

  o promoting participatory approach;

  o establishing two-way communication between user and manager; and

  o generating content of local relevance (contributed by community people) as well as global relevance (contributed by the desk manager)

- allows posting of content in multiple forms that include text, file and audio;

- allows moderation to prevent publishing of undesirable content on the site;

- provides flexibility to switch-on or off any of its features at will; and

- captures, analyses and generates reports on user's profile and usage patterns for registered users, facilitating research activities.

Source: http://enrich.nic.in/keydesign.htm

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