

3.1. INTRODUCTION

For a worthwhile study in any field of knowledge, the researcher needs to acquire adequate familiarity with the works that have already been done in his area of choice. The process of review involves identifying, locating and evaluating reports of relevant researches, study of published articles, going through related portions of encyclopedias, research abstracts, pertinent pages of books on the subjects, manuscripts if any and even non-book materials. A properly carried out literature review can help the researcher to formulate a sound research design and appropriate tools for the successful completion of the study. The variables, data collection tools and statistical techniques used in the present study have been selected after an exhaustive review of the available literature in this field. Review presented below includes literature pertaining to social implications of Information and Communication Technology and application of Information and Communication Technology for Rural Development and related aspects.

According to Best, (1995)¹ capitalizing on the reviews of expert researches can be fruitful in providing helpful ideas and suggestions. It is a valuable guide to defining the problem, recognizing its significance, suggesting promoting data gathering devices, appropriate study design, and sources of data.

The significance of review of related literature is emphasized by several notable researchers. Study of literature implies locating, reading and evaluating reports of research as well as reports of casual observation and

opinions that related to the 'individuals' planned research project (Aggarwal,1996)².

Indiresan (1989)³ conducted a study on the technological planning for rural development. The author discusses the four categories of technologies: they are craft technology; traditional machine technology; modern-electrically oriented-technology; and futuristic computer dominated technology. According to the author modern technology and futuristic computer dominated technology will rapidly replace the conventional production technologies but basically their value is as information processors. They need fewer infrastructures than conventional machine technology and are quite in expensive. As in the ultimate analysis, all development depends on knowledge and as knowledge transmission and dissemination is more difficult in rural areas than in cities, electronic and computer systems are a greater necessity for rural development than for urban development.

Dutta, Misra and Dash (1993)⁴ highlight in their article, discussed the quotation of world Conference on Agrarian Reform and Rural Development, that ".....greater interaction between development personnel and the masses through an efficient communication system are prerequisites for the success of the rural development strategies". The concept of development was first conceived when primitive man organised rural settings/hamlets followed by agricultural activities. The journey continued with the induction of simple machines like wheel, pulley, lever etc. and era of semi industrialisation began which evolved into industrialization phase with steam engines and super industrialisation stage with development of electronics industries. The era of Information technology (IT) is the result of continuance of the said process of development.

The authors said that with the development of electronics industries world experienced information explosion. The information available is not

always organised in a desired way. Thus it is the demand of the day to evolve a mechanism to organise the vast quantum of information available in various sectors and more so in rural areas where accessibility to modern amenities is very difficult. Development planning has to be realised and practiced in future, with the assistance of "information" which is dynamically changing. The authors suggest that only IT culture has same pace of work which can fulfill the demand successfully.

Boonalia (1996)⁵ in his article states that the need of rural community centers at the villages and the major functions of the rural community centers can be recognized as to provide scope for education, information and recreation to the rural masses. The centers will play a vital role in their social, cultural, physical, mental and economic development. The author hardly stresses that rural community centers with multi-dimensional activities will be the forum for building up an enlightened well informed, cultured and progressive society in the country.

Upadhya (1996)⁶ done an enquiry about the role of information technology in community development. The process of community development involves decision makers, planners, and extension workers. The information obtained from block level information systems (BLIS) is highly useful. The article also describes the sources, uses and services which may be offered by the BLIS. The author suggested that the IT might be used as a tool to reach the unreached and make the development programmes a success. The BLIS provides counseling, advocacy, continuing, education programme services, referral, reference service, demonstration conducting exhibition, publication services, list of different types like statistical, pamphlets, brochures etc. Therefore the government authority must make their effort to suggest and to develop the proper information systems for their use to provide

better service to the community and overcome the problem of information and communication gap to achieve the real success.

Gill (1996)⁷ suggest that information is the most recognized resource for socio economic, scientific and technological progress of mankind as a whole. During the recent years, increase in information has led to increase in the demands of the users. Libraries are the major information centers leading this information revolution. Due to prevailing financial and space crisis in almost all the Indian libraries, it is reasonable to think of promoting IT to meet out the challenges posed by increasing information needs and exploding information. The article discusses the real meaning of IT, its past and current developments and its impact in the social sphere through its information centers. The paper gives a brief description about the various library networks and their need.

Neelameghan (1998)⁸ in the article, “*Information Technology and Rural development*” suggested that the rural people has a three-fold purposes relating to information and communication, they are; to enable them become more productive and efficient in their economic activities; to enhance their capacity to disseminate the valuable native knowledge they possess; and to facilitate reliable village data collection and analysis needed for development planning. In the article the author suggested that rural communities and individuals need to be empowered by enhancing their capacity to access, select and use information as a basis for and in tandem with all other development efforts whether they relate to literacy, food, health and family welfare, population growth, environment, trade and employment. The paper discusses briefly the scope and issues relating to rural development and information and communication, use of emerging information and communication technologies to support rural development, and related policies and strategies.

Mathew (1998)⁹ in the article “*Role of information technology for the sustained development of Kerala: strategies and policies*” highlights the importance of information technology in the economic development of Kerala and proposes an action plan to derive benefits of the emerging international information economy. The superior brain power and the human resource with high knowledge absorption capabilities are sure to enable Kerala to achieve this. The proposed action plan includes restructuring of educational system from primary to university level, marketing of unique bio- resources of Kerala, establishment of a school of informatics and future system studies, starting of super specialty medical care and educational services, entering into tele-education and establishment of a software technology centre. This would enable Kerala to become the world centre of knowledge based industries and services.

Malik and Bhardwaj (2001)¹⁰ made an inquiry on the strategy of using information technology for rural development. According to the authors one of the most profound changes that contemporary Indian society has been witnessing during the nineties is transition from an industrial society to an information society. Information Technology is the result of convergence of telecommunication, computing and micro electronics. The increasing application of IT is a determining factor in social and economic issues that is heralding the country rapidly towards an information society. The boom in satellite and cable T V channels, introduction of cellular and paging services, India world on internet the large international network connecting 30 lakh computers, all these are a sign that the information society has eventually arrived in the country. The authors suggest that new information technologies can offer enormous possibilities in agriculture and Rural Development sector. But the use of these technologies needs a planned strategy at the village level. The authors establish the need to launch village information centres well

equipped with new information technologies is one step towards application of these technologies to Rural Development.

Chandel and Chouskey (2001)¹¹ made a study on the role of information technology in rural development. The authors conducted a case study on the Panchayat Raj Institutions in Madhya Pradesh. The article deals with management information systems in rural set-up and the various tools and equipments necessary for setting up of information kiosks. The authors suggested that the panchayati raj institutions have a vital role in bringing awareness and disseminating information among rural people. Right information to be made available to the right person at the right time at low cost is possible only through the new information technology. Information technology is a device which is used to accelerate the process of the development and expected to bring maximum social advantage for the benefit of the society.

Manish Kumar, Chitra Pathak and Singh (2001)¹² were conducted a study to identify the information source of rural poor in U S. Nagar district of Uttaranchal. The authors said that India is on the way to become a super power in the information technology. The boom has contributed in the development of strong information dissemination system. Benefits of revolution remains confined mostly to the big cities. According to the authors, in rural areas poor still rely on their local communication system. Interpersonal sources of communication form the hub of their system. Mass media is merely playing the role of creating awareness among the poor. The concrete information regarding their development activities is derived from personal localite or personal cosmopolite sources. The paper aims to discuss the information sources of rural poor regarding development messages.

Meena, and Gopi (2003)¹³ conducted a study on local governments and right to information. According to the authors the transparency and

accessibility of people to information is a vital component of democracy. Democratic govt. presupposes people have information about the way the govt. business is transacted. Right to information or transparency measures would certainly create confidence in the minds of the public and make them true participants in a democracy. People often complain about misutilization of funds, unnecessary delay and poor quality in various developmental or welfare schemes. Transparency is one of the effective ways to ensure fair and equitable delivery of goods and service to the people. The author suggests that transparency is the most potent weapon against corruption and ensures a responsive administration reflecting the true will and aspirations of the people..

Pillai (2003)¹⁴ in the article “*Information for development status Assessment of Grama Panchayats*” argues that the basic principles of the decentralized planning with peoples participation in Kerala is the optimum use of available local resources for the all round sustainable development of the grama panchayat as conceived and desired by the people of the panchayat. He suggested that the information and implementation of such development projects as necessary to meet the felt needs of the local people, expressed through the grama panchayat.

Reddy (2003)¹⁵ made an attempt to identify the opportunities of information technology for governments. Electronic governance is the application of information technology to the process of Government functioning to bring about simple, moral, accountable, responsive and transparent governance. Information technology puts forwards hitherto untapped possibilities to the government to increase its efficiency and meet the challenges in all aspects of its activity. Some of the advantages provided by application of Information Technology in governance include access, storage, processing, organization and transfer of information and data to

various levels of administration and to people, cost effective and speedy discussions and meetings, quick and speedy action based on timely reliable information etc. Transparency is made possible which enables participation of the people in development and it makes democracy meaningful.

Goswami (2003)¹⁶ in the paper “Information management for Rural Development” attempts to show the present information sources that can support rural development and the need to manage them effectively. The author states that improving the overall quality of life in the rural areas require effective and result oriented planning supported by proper management of information. For this information systems should be application oriented.

Kumaresan and Chitra (2003)¹⁷ have conducted a study to assess the need for rural information centers in the villages of Tamil Nadu. There are agricultural information centers in many villages of Tamil Nadu that disseminate vital information to the farmers about the crop, manure, and other related details. However, villagers who are dependent on professions other than agriculture for livelihood have no such facility that fulfils their information requirements. Twenty villages in the state of Tamil Nadu have been studied to asses the need for rural information centers. Further, the concept of rural information centers has been suggested. The Rural information centers aim to meet all information requirements at the village level.

Singh (2004)¹⁸ tried to find out how can information technology (IT) contribute to rural development, what are the channels through which impacts can be realized, and what are the practical means for realizing potential benefits. This paper examines several ongoing projects that aim to provide IT-based services to rural populations in India. These projects are distinguished by the goal of commercial sustainability, which supports scalability and,

therefore, more widespread benefits. The analysis highlights the common building blocks required for successful implementation, and the relative strengths and weaknesses of different approaches.

Prasad (2004)¹⁹ in the article “Digital divide in India-narrowing the gap; an appraisal” presents a state of the art report on the attempts made at narrowing the digital divide in India. The various endeavors of the government and non government organizations in creating awareness in rural areas especially through information kiosks are also identified by the author.

Modern information and communication facilities can contribute considerably to resolving the problems of a rural society. The major factor which has prevented rural areas from benefiting fully from the potential of ICTs has been the low penetration of telecommunication services. The rural community and individuals need to be empowered by enhancing their capacity to access, select and use information as a basis for and in tandem with all other development efforts whether they relate to literacy, food, health and family welfare, population growth, environment, trade, employment or whatever.

ICT application in rural development may be classified as those that: provide decision support to public administrators for improving planning and monitoring of development programmes: improve services to citizens and bring in transparency, empower through access to information and knowledge and help in training to improve the functioning of developmental organizations and expand employment opportunities in rural areas.

Rao (2004)²⁰ in his study discussed the role of Information and Communication Technologies (ICTs) for rural communities. The paper highlights the factors preventing rural communities from reaping the benefits of information technologies (ICTs) and technological innovations to access

them. It defines the community information systems and lists selected successful models outside India. Despite the limitations in basic infrastructure and low level penetration of information technology in India more than fifty grass root projects are using modern ICTs for the benefit of rural communities. The author describes selected community projects in India. Also identifies the bottlenecks in, possible solutions for and observations of the initiatives of rural projects. The paper concludes that creating information rich societies is a key element of poverty reduction and sustainable development. Community network centers can play a key role in meeting the socio-economic aspirations of rural communities by successfully addressing the "eight Cs" of success in the digital age: connectivity, content, community, commerce, capacity, culture, co-operation and capital.

Neelameghan (2004)²¹ has done a great attempt to differentiate the different levels of application and limitations of Information and Communication Technologies. The author declares in his article that, in many countries of the world, has a much greater financial investment in the ICT sector for the production, services and R&D. There is a significant increase in the range of applications of ICTs in various sectors of the economy. A larger proportion of the workforce in the developed countries and in many of the developing countries too is involved in information generation, storing, and organizing, retrieving, preparation of information products, dissemination and other related services.

The author opined that the trend is that during the next decade, about 25 percent of all conventional publications and audio, video records will be produced and stored in digital form. Convergent technologies –text, audio, video, TV- will facilitate virtual teamwork, global access to experts, video conferencing, saving travel and multiple conferences cost. Some of these trends are likely to continue for another couple of decades at least.

Jangid (2004)²² in the paper revealed that information technology is not the panacea for every problem in society. It is just a tool not the solution to all the problems. While we can do little as far as the psychological impact of IT is concerned, certainly the harmful effects originating out of the cyber crimes can and should be definitely dealt with by the government. IT should be seen as having a tremendous job potential. IT doesn't mean anything for poor nations without basic infrastructure like water and electricity. The author suggests that the content of the internet and medium of language doesn't support the cause of the masses in Indian context. Hence it is urgent to customize the internet's content and providing meaningful information which will benefit the rural and tribal areas. The government should apply a two pronged strategy by facilitating easy and cheap access to the internet by the common man and carrying out the necessary infrastructural reforms to support the information revolution thus bridging the gap between the haves and have nots.

Srivathsan (2004)²³ in his paper provide an overview of the KISSAN-Kerala project that is jointly developed and managed by the Indian Institute of Information Technology and Management – Kerala, Department of Agriculture of the Kerala Government and the Kerala Agriculture University. It is a project that supports effective IT facilitated extension services where extension officials are backed by specialized groups of agriculture consultants or experts interacting over a Knowledge Management Portal run by the project. This networked consulting is strengthened by building awareness through a mass media television program in Agriculture called Krishi Deepam that is composed and run by the project team. The paper also provides a number of actionable areas and national initiatives that need to be taken up for effective uses of IT facilitated services in Agriculture. These are based upon the concepts developed and experience gained in the KISSAN project. The paper also makes a case for commencing an advanced postgraduate and

research institute is commenced at the national level in the area of Applied Information Systems and Management in Agriculture.

Shukla (2005)²⁴ in the paper uncover a plethora of ICT emergence as a technology of the new millennium in developing countries. Against the backdrop of the ongoing ICT boom, this paper made an attempt towards studying its applications and usage for the rural communities focusing on how it can help in aligning the key factors and reduce the problems of alienation, fragmentation and dislocation of knowledge. It also draws attention to the need for a greater focus on grassroots, community-driven projects and initiatives involving ICTs. The paper concludes by raising some issues regarding the use of ICTs and suggesting ways of achieving an integrated Rural Development approach, in a given nation or region by collaborative participation of agencies, organizations and government machinery in the formulation and evaluation of national ICT policies. In all how ICTs would improve the quality of their livelihoods are addressed here.

Mohan (2005)²⁵ tries to evaluate the implementation of the first phase of the Akshaya project from the angle of private partners who were key to implementing the first phase of the project which had the twin objectives of creating a network of Akshaya centres and providing e literacy to people. These two objectives could be achieved to a large extent in phase one. State patronage for the private entrepreneurs was crucial for the success of phase one of the Akshaya project. Yet, the pilot implementation of the e-governance project suffered from poor vision, litter content development effort, lack of administrative reforms , poor funding, inadequate involvement units of government etc. There is need to revamp the entire project in the light of the initiatives at the national level to integrate e-governance infrastructure for nationwide use.

Mutalik (2005)²⁶ discusses the phenomenon of rural development as a result of physical, technological, economic, socio-cultural factors in the article, “*symbiosis of libraries and rural development*”. The author tries to analyse the physical, electronics, vocational and knowledge connectivity as envisaged by the President of India as PURA model. The article refers to the agricultural and industrial revolutions and its impact in mankind. The author also discusses the needs of rural population to help in their physical, mental, social well being. The author gives emphasis on the role of education and libraries to transform rural community as connected learned community, making library as the nodal agency for providing free and unlimited access to knowledge, thought, culture and information. And the article also citing some case studies to take computers and digital technology to the grassroots of the society.

Mathur and Ambani (2005)²⁷ in their paper said that the application of ICT solutions for the development of rural India and other developing countries opens up a vast range of possibilities. Giving an opportunity to the vast majority of the population living in rural areas, to cross the digital divide to obtain access to information resources and services provided by ICT is the next revolution waiting to happen. Although this is a development issue, it is just not the government, non-government organizations or the rural masses that have a role to play. Private profit-making institutions can develop solutions to capture the hitherto unrecognized markets, make profits and at the same time aid the rural societies. The new technologies being developed can help surmount barriers present in providing information resources at a low cost and make applications feasible and profitable. The paper presents some cases where ICT has been effectively used for the benefit of the rural societies and analyzes the opportunities that lie in this sphere. The cases range from successful use of ICT in governance, to ICT solutions for improved profits to ICT in microfinance. A case of an initiative by a large mainstream

corporation to reach out to the rural sector, help in development and realize profits mutually is also presented. The projects discussed should generate more interest and facilitate private investment in the hitherto virgin territory. A large number of hurdles still remain but creative ideas, breakthrough ICT technologies and committed organizations can usher in the next revolution in the developing world.

Veeranjaneyulu and Uma Devi (2005)²⁸ have conducted a study on *'need for developing creative abilities among rural youth of Andhra Pradesh towards selecting relevant books for personality development'*. The authors state that, information being power, its proper dissemination makes a society egalitarian. An open house information system is a powerful tool in the hands of the people leading to greater transparency, accountability and efficiency at all levels. It should be mandatory on the part of the government to release such information at all levels not only sector wise but also project wise. The rural community especially rural youth needs information for research. They are supposed to develop a creativeness among rural youth in selecting a relevant book for their personality development.

While most of the rural youth are diverting their minds towards antisocial activities and crimes, the library and information services play a dominant role in the provision for education, information and recreational requirements of the society. Library is an instrument or an agency for social change. An integrated rural library system can be adopted for cultivating creative abilities among rural youth towards selecting relevant books for their personality development. The authors suggest that the rural youth has to take every advantage by utilizing the village libraries not only for their personality development but also to create awareness among illiterates by educating them and to develop reading habits among the semi -literate.

Ravindranath Tagore, the world famous poet, is also considered as the pioneer of rural development programmes in India. He started rural reconstruction project at Srinikethan in 1921 aiming to make villagers self reliant and self-respecting, and competent to make efficient use of resources for the fullest development of their physical, social, economic and intellectual potential and abilities; and to get them acquainted with the cultural tradition of their own . For this purpose Tagore laid full emphasis on collection and dissemination of information. **Ray and Biswas (2005)**²⁹ in their paper made an attempt to highlight how information on rural Bengal was collected; disseminated and utilized for preparing rural development plan and its implementation. It also tries to highlight the function of the rural reconstruction centers to the dissemination of information to rural masses.

Bajpai and Upadhyay (2005)³⁰ in their paper suggest that information is very essential for national development, without right and timely information; no progress is possible for any kind of work. The policy makers should recognize the library as an agency of vital importance in providing information, which is an essential ingredient to the welfare and development of the tribal community. Information is collected from published and unpublished sources and organized as files, directories, leaflets, pamphlets, displays, and exhibits, audio- visual aids. The information is served as advice counseling support practical aid, referral services etc. Majority of people live in rural places. Thus development in rural areas is the urgency of the time for overall development of the nation. Therefore rural development information networks are the backbone in this regard.

Midda and Mukhopadyay (2006)³¹ were given a thorough knowledge about the significance of computer and internet in education, in the article “*information and communication technology in e- education*”. The authors said that ICT has added a new dimension to education. The invention of

computer, the internet and www can be used in education electronically known as e- education. From that paper we have considered how e- education can be used for an institute of higher education (learning) and thereby improving the quality of education and life long education for all. Section two of the article describes current or new methods of teaching like web based and e-learning along with modern teaching aids, section three is devoted to IT and digital library which play an important role in e-education, section four is devoted to library and information literacy in the promotion of life long learning which is equally important for enhancement of e education, section five is the conclusion mainly deals with e-earning in Indian scenario.

Kuriyan, Toyama and Ray (2006)³² in their paper examined the social and political challenges related to the implementation of information and communication technology (ICT) kiosk projects for rural development in India. The paper focuses on the Akshaya project, a franchise of rural computer-service kiosks, which was implemented in Kerala as public-private sector collaboration. The Akshaya project has the twin goals of social development through increased access to computers for rural people and financial viability through market-driven entrepreneurship. Using interview and participant observation methods, the authors examine the challenges that state actors and entrepreneurs face in simultaneously addressing social and financial sustainability. The preliminary evidence suggests that there is a tension between these goals at a macro level (within the state) and a micro level (for entrepreneurs and potential consumers) that makes it difficult to run a financially self-sustaining ICT kiosk project that also meets social development goals. The paper demonstrates that the implementation of ICTs for development is not simply a technical process of delivering services to the poor, but is a highly political process that involves tradeoffs and prioritization of particular goals to attain sustainability. Branding this project is a challenge for the state and entrepreneurs due to consumer perceptions of

what development is, with particular expectations of state provided services, versus what business is.

Surendra Kumar and Kumar (2006)³³, has attempted to give an account of operational mechanism, monitoring & reporting of kisan call centers in Madhya Pradesh and Chandigarh. The article also gave an account of role of state agriculture universities, Krishi Vigyan Kendra, e-governance projects and village public libraries and information centers as components of ICT. The authors describes that, India's 70% population lives in villages and its economy are dependent on agriculture. However, the agriculture sector of our country has been most neglected since ancient period. After the era of green revolution that had made the country self sufficient in food grains. It reveals the importance of agriculture and made us to realize that without the development of this sector the economy of farmers can not be improved. The article also discusses the role of newer ICT projects such as HP i-community, Kuppam, Drishtee, M S Swaminathan Research Foundation, Tara Haat, and Rural Development through Educational System (RDES). Gyandhoot, Ikisan, E- choupal and Kissan Call Centers etc. is increasing rapidly.

Rao (2006)³⁴ has made a study on implementing information and communication technologies in agricultural development in India; according to the author knowledge is an increasingly significant factor of production in modern agriculture. Information and Communication Technologies (ICTs) can accelerate agricultural development by facilitating knowledge management. Based on an evaluation of several ICT initiatives in rural India, a framework to guide policy and implementation of ICTs in Indian agriculture is proposed. In this framework, agricultural development is visualized from two perspectives, rural incomes and livelihoods perspective at the farm level, and a sustainability perspective at the regional level. The

implementation of ICT is proposed in three unique institutional environments: (i) closed vertical supply chain network for agribusiness enterprises, (ii) an open chain network with dynamically evolving partners and supply chain situations for the public, non-governmental and multilateral organizations, and (iii) a spatial data services network to address natural resources management and sustainability concerns. Each environment is assessed to identify its appropriate business models centered around ICTs required technologies, scope for up-scaling the models, and required institutional and policy initiatives. The author opined that, in the future, as ICT infrastructure grows and connectivity and hardware costs decline, the critical constraints are likely to be the development of appropriate policy and institutional environments for the creation and delivery of information and knowledge to the end users. Through the article the author forwarding the suggestion of a significant policy, institutional networking and capacity building initiatives will be required at various levels to overcome the constraints and effectively integrate ICTs into the agricultural development process in India.

Mehtha and Kalra (2006)³⁵ tries to discuss in their paper, that Information and Communications Technology (ICT) can reduce poverty by improving poor people's access to education, health, government and financial services. ICT can also help small farmers and artisans by connecting them to markets. India has been a breeding ground of such innovative ICT projects in the rural areas by the government and private enterprises. But these projects have either been geographically restricted to certain areas or have not been successful in reaching out to every individual in the social pyramid. This paper analyses some of the initiatives taken up by the institutions and organizations, and identifies the problems faced by these initiatives in achieving the targeted objectives, respectively. The paper then identifies technological solutions to the various problems experienced and

gives an insight into the ways ICT technologies can be successfully and efficiently implemented in achieving the social objectives with which they are identified.

Raman Nair (2006)³⁶ in his study evaluated, farmer oriented information resources available in agricultural sector and outside as well as awareness about them among farmers and public, their accessibility relevance and service. The study based on a survey conducted among the institutions as well as expected user community representing various spheres of activity interested in small scale agriculture. The findings of the study revealed that information resources and services in agricultural sectors are mostly restricted to scientists. It was found that within the limitations that existed village libraries contained substantial quality of agricultural information materials in local language and script product for the use of the farmers and non -specialists. They deal with the situations and crops of the region. Psychological barriers are absent among farmers approaching village libraries. Their timing and location is also convenient to the farming community. Various recommendations are made on the basis of the study to extent the agricultural information services to the farmers and public living in remote areas using existing infrastructures.

Patil and Ambekar (2006)³⁷ made a paper to assess the application of ICT for rural development. The authors suggest that the villages epitomize the soul of India. With more than 70% of the Indian population living in rural areas, rural India reflects the very essence of Indian culture and tradition. A holistic development of India as a nation rests on a sustained and holistic development of rural India. Information and communication technology (ICT) has emerged as effective facilitator in the development of any society and is a prime driving force in the growth of economies worldwide. In this context ICT have a lot to offer for developing the rural sector. The paper

highlights the impact of ICT efforts on agriculture, health, women empowerment, panchayati raj etc. The paper provides an account of some of the major initiatives, particularly those touching the rural domain. It also highlights the impact of ICT efforts on the rural society.

Sharma (2006)³⁸ in his article deals with the role of Sarva Shiksha Abhiyan (SSA) promotion of literacy and rural library development in Madhya Pradesh. The author describes the objectives of SSA and Padma Badna Movement. The prime motive of Padma Badna Sangh (PBS) movement is to generate and develop reading habits among rural community to make system or policies so that villages can regularly study in library. The author also tries to discuss the role and responsibilities of social animator in PBS. In the field of library development the SSA has done a wonderful job with the help of Padma badna Sangh. Because each Padma Badna Sangh runs a library in rural areas of Madhya Pradesh and now more than 47,000 such rural libraries in the state are established to make the people aware.

Kurian (2006)³⁹ described the various governance reforms in Kerala. It stated that the Information and Communication Technology Industry has been found to be ideal for Kerala in terms of its potential to generate opportunities and employment with little pressure on land, environment and other resources. This is one of the most people-friendly and environment-friendly industries of modern times. The author said that Government of Kerala acknowledges the critical importance of Information and Communication Technology as an instrument for the State's overall development and remains deeply committed to its use, both as a crucial engine of economic growth and as a tool for increasing productivity, speed and transparency in governance and improved quality of life for the common man. The article also portrayed the e-governance initiatives undertaken by the state till then and their status at the particular point of time.

Litten (2007)⁴⁰ in the article, *strategy and tactics to achieve effective IT governance*, states that IT in governance is currently a hot topic and has been for some time. A consensus has formed that it should be an important area of focus for any organization interested in increasing the business value derived from their investment in IT. The article explains what IT governance essentially means and describes various steps to implement IT governance effectively.

Senevira (2007)⁴¹ made a study in 10 districts among the rural communities in Sri Lanka. The objective of the study was to investigate the community information needs of the rural citizens and the way they consult channels, difficulties encountered in the process and the status of information provision within the rural sector in Sri Lanka. The paper dealt with behavioral patterns of rural people in looking for information and its influence in selecting necessary information channel in the process of information seeking. The study indicates that there is an information flow at institutional level and community level (village). There are two main categories of information providers identified at the rural setting: a) Institutions and b) individuals. Under these two categories there were sub categories and which were separately analyzed in the study. Recognizing the information providers paved the way to identify how ordinary rural citizens depend upon or consults different channels in looking for information. According to the responses received regarding the channel consulted in obtaining a certain category of information, a "channel depending rate" was able to determine against each information need. It was seen that, ordinary people have been consulting formal as well as informal channels, which were more comfortable, convenient and trustworthy to them.

Sharma (2007)⁴² has conducted a study on information needs and sharing pattern among rural women in Madhya Pradesh. The study is based

on the 145 rural women respondents of Gwalior districts of Madhya Pradesh. The main objective of the study is the examination of information needs of the rural women community under study. It also intended to find out the nature, sources and purpose of information, which they required. And try to analyzing the time and money spent for gathering most reliable sources of information. It consists of review of related literature and scope of the study. Analysis of data reveals that majority of the women are getting information through television (93.7%), 35.17 percent of the women under study are consulting religious leaders for their information needs. Study reveals that 81.37 percent respondents share information with their family members. Field and well are the most common places for sharing information, all women are familiar with telephone while only 33.79 percent women used telephone facility, and 2.75 percent rural women are familiar with internet.

Singh (2007)⁴³ in his paper mainly aimed to study the present status of telecommunication infrastructure in India. The paper also provides an overview of the uphill journey of Indian telecom sector. The telecom services have been recognized the world over as an important tool for socio-economic development of a nation. Telecommunication is one of the prime support services needed for rapid growth and modernization of various sectors of the economy. It has become especially important, in recent years, because of enormous growth of information technology and its significant potential for the impact on the rest of the economy. Therefore, making the development of an adequate telecommunication infrastructure has become one of the major goals of policy makers. The adequate level of telecommunication infrastructure in a country is necessary both from a policy and a business point of view. Government of India has already taken number of initiatives in this direction. As a result telecommunication infrastructure has registered a remarkable growth in India.

Baljit, Patel and Suhag (2007)⁴⁴ made a study on the role of credit institutions in rural poverty alleviation in Hisar district of Haryana. Credit is one of the important inputs for Rural Development. The results will largely depend on the effective use of credit, and linkages developed with other requirements for the enterprise. The study on the rural credit from various agencies such as commercial banks, regional rural banks, cooperative banks and District Rural Development Agency (DRDA) under poverty alleviation programmes is carried out in two blocks of Hisar district of Hisar I and Hisar II of Haryana. From six villages of the two blocks, 150 respondents were covered for primary investigation for the five year period of 1999-2004. Focus of the study is an analysis of credit disbursement pattern in rural areas under various programmes, and the impact of these schemes on poverty alleviation. Credit disbursement has declined over years, and nearly 50 percent of the beneficiaries are yet to cross the poverty line even after the use of credit for a few years. Lot more effort is needed to improve the economic performance of the rural poor in the two blocks studied.

Ashokan (2007)⁴⁵ in the paper discuss the nature and pattern of outpatient health care expenditure based on a cross-sectional household survey in rural Kerala, India. The study was conducted in Kasaragod district in the state of Kerala, which was formerly a taluk of south canara district of the erstwhile Madras Presidency in British India. There are 75 revenue villages in Kasaragod taluk and 31 in Hosdurg taluk. In Kasaragod taluk, 34 villages have primary health centres and the rest have no such facilities. In Hosdurg taluk only 24 villages have primary health centres. Both the taluks, therefore, have two types of villages, those having Primary Health Centres (PHC) and those not having Primary Health Centres. Two villages each from the PHC villages and one each from the non -PHC villages were selected. The sample, thus consist of six villages, selected randomly. The present study adopts the sample survey data as the appropriate methodology to

measure out -of -pocket health care expenditure. The average out patient expenditure is estimated at Rs.244 and it consistently increases as we move up the socio-economic groups. The dominant private sector provider controls about four –fifth of the health care services and the private health expenditure is more than four times the public health expenditure. Gender differences in health expenditure unfold the need for addressing gender specific issues in national and regional health policies.

Thammi Raju and Sudhakar Rao (2007)⁴⁶ in their study reveal that the extension services are not reaching the needy farmers at the right time in right form in the traditional extension system due to various reasons or drawbacks such as high cost, irrelevance of message to a particular client, erosion of message, inability to cover all the farmers, low extension contact intensity etc. Information Technology (IT) is one of the new frontier areas, whose potential is unlimited in an agricultural sector, which is transforming into hi-tech commercial agriculture. The various issues pertaining to the planning, development and use of IT enabled services in farm extension viz, individual, institutional, situational, infrastructural, human resource development and extension system as a whole were analyzed, synthesized and discussed based on review of several research articles. The initiatives required are also discussed at appropriate places.

Shukla, Misra and Shukla (2007)⁴⁷ conducted a study to determine the impact of technology on social change. Ghazipur and Sultanpur districts, which fall in eastern Utter Pradesh, were selected for survey during 2003-2004. The objective was to assess the technology adoption and its impact on crop productivity and change in social- economic status of various groups of farming community in these districts. The crops covered in the survey are rice, wheat, pearl millet, maize, gram and mustard. The specific technological inputs studied included use of tractor for ploughing, high –

yielding varieties, weedicides, pesticides and mechanical harvesting category-wise by marginal, small, medium and large farmers. The productivity of almost all the crops increased with different magnitude. The quantum jump in crop yield increased the farm income manifold in both the districts, which in turn improved the socio- economic condition of the farming community. The study results clearly indicate significant change in social status of all groups of farmers in Ghazipur and Sultanpur through adoption of agricultural technology.

Ogunsola (2007)⁴⁸ have the main trust of his paper is to examine the implications and opportunities opened to Africa in the current information age- especially as they relate to the acquisition of technology for improving productivity and quality of life. It is obvious that ICT cannot offer instant cure for the challenges and concerns of any society, but the paper stresses the fact that ICT can be a tremendous enabler for the development process of society and can accelerate achievements in productivity, innovation, access to knowledge and information and in the promotion of transparency and reduction of bureaucracy. The paper points out that it is very important for African countries to find ways of making the information society more directly serve the needs of African countries domains such as poverty alleviation , education, literacy and health services. The paper finally addresses possible areas of comparative advantages that can propel Africa into being a respectable player in the global IT revolution and enhance its status in what is now widely known as the new economy. The paper finally recommends that the economy should be totally de-regularized to allow full private sector participation with a view to enabling them invest in core infrastructural sectors of the economy.

Prathap (2007)⁴⁹ discusses the agricultural youth club projects and occupational aspirations of rural youth. The author said that nearly 30

percent of the population in India is in the age group of between 15 and 24 years and a considerable proportion of them live in the villages. Nevertheless, youth in these villages are considered a group with little status, as a result of which they tend to become easy victims of exploitation, discrimination, and oppression. Such imbalances and deprivations have obstructed the occupational aspirations of young people as well. In this context the strengthening the rural youth clubs and other youth development programmes are considered a matter of vital significance to our nation. The paper to analyses these issues and suggests intensifying agricultural youth club projects in rural areas.

Gourav and Tripathi (2007)⁵⁰ suggested that Information Technology has the potential to realize the dreams of an ideal state where the citizen-government relationship is functional and efficient, oriented towards pertinent socio-economic concerns of the society. With the use of IT, we can bridge the gap between urban and rural India and also develop the whole society. It would be an India where farmers use modern techniques such as precision farming; are tech-savvy with all the weather forecasting gadgets at their disposal and are able to utilize the land to its fullest potential. The article highlights how rural India is transforming due to the government and private sector initiatives, with the help of IT.

Sharma (2008)⁵¹ made a study with objective to determine the impediments/ constraints to free flow of information and to find out the familiarity with new technologies. The scope of this study is limited to the impediments to free flow of information in rural people of Gwalior district of Madhya Pradesh. For the spatial coverage the selection of sample respondents was made from all the four blocks of Gwalior district. From each block 15 villages 12 respondents were selected for the study. Thus, a total 60 villages and 720 respondents were selected for the study. Purposive

sampling method was applied to select the villages and respondents. A schedule has been prepared for collection of data from rural people. Collected data has been analyzed using statistical techniques and presented in tabular form. The total 667 schedules were received back from respondents prefer to study reading material in Hindi language. Money and lack of time are coming in the way of obtaining required information in rural areas. Only 4.34 percent respondents are familiar with computer. There are 36.13% of the respondents are familiar with mobile; 1.94 percent respondents have taken benefit of internet technology for fulfilling their information needs. Majority of respondents (40.27%) have not taken benefits because they have not received information timely.

Geetha, Monica and Sumita (2008)⁵² in their study revealed that micro finance is such a tool which directly hits the poverty by helping poor or enabling them not only to survive but also to improve their standard of living. In this study, the authors attempts to highlight the hurdles faced by the rural poor while dealing with banks, impact of various poverty alleviation programmes initiated by banks, NGOs, and other government institutes. The analysis of the survey shows that largely the people still depends on money lenders such as friends, relatives for meeting their small and frequent loan requirement for their survival and growth. These money lenders exploit them by charging high rate of interests with no value addition.

Sami, Iffat and Shahida (2008)⁵³ were discussed about the modern technology and the Information and Communication Technology which can be applied for the development of the rural areas in India. The authors suggest that development of a country depends on the development of all its parts. Since major part of India comprises the rural areas, the development of the country is possible only with the development of the rural areas. With the conventional methods, it is difficult to improve the rural areas. The paper

also discusses some of the areas, where ICT could be applied and make the rural masses enlightened.

Challa (2008)⁵⁴ in the article examined the attempt made by the Government of Karnataka to bridge the digital divide in the state through a unique project called Nemmadi. The major objective of the project is to empower rural citizens by offering government services at their doorstep.

Manoj, (2008)⁵⁵ in his article states that in the wake of information and communication technology (ICT) revolution sweeping across the world, the favorable situations of Kerala economy makes it the ideal location to utilise its vast and unique socio-cultural and knowledge infrastructure for leveraging the immense potential of ICT. By means of a rural development network (RDNet), Computerisation of all the 152 Blocks in the State and its networking has already been initiated. In the present study the author suggest some strategies for rural development that Kerala might adopt in the knowledge era of today; consider its special features and also replicable developments elsewhere in the world.

Babu, Nataraju, and Gokulraj (2008)⁵⁶ were conducted to know the extent of participation of beneficiaries in two Information Communication Technology project of Kerala viz., Akshaya and KISSAN Kerala. The data were gathered from a randomly selected sample of 80 respondents. The study revealed Akshaya beneficiaries had more degree of participation compared to KISSAN Kerala beneficiaries who had highest post participation scores. However, the mean participation score of KISSAN Kerala beneficiaries was higher than Akshaya beneficiaries-Majority of the beneficiaries of both the projects participated due to their self-interest.

Unnikrishnan and Sreedharan conducted a study on the application of Information and Communication Technologies (ICT) to the human

development. The authors state that ICTs are undoubtedly the most dominant technologies emerging in today's economic scenario. In the article the authors give emphasis on the IT policies in different states and application of IT for governance.

3.2. Conclusion

Effective utilization of ICT has the potential to make the rural communication in India prosperous. All efforts should be to guide the ICT initiatives with a focus on the socially deprived and economically disadvantaged sections that have not received adequate attention so far. Information systems are made of people and social structures and hence should be rooted in them. The reviews cited for the present study reveals that the inspiration regarding the applicability of technologies for the development of rural communities in India are started in 80s of 20th century. The development of the rural areas is possible only through the proper dissemination of information/ knowledge to the target group is recognized in that period. The conventional methodologies have to be replaced by modern computer technologies. The means to entrust the information or knowledge to the rural community has become the next preference to the decision makers, planners or experts working in this field. During the 1990s they have given attention to establish community/rural information centres to provide right information for the social, cultural, physical, mental and economic development of the rural masses. Neelameghan, A (1998) given a detailed proposal for Rural Development and information and communication technologies.

It can be seen from cited reviews that, various case studies have conducted in the beginning of the 21st century to ascertain the needs and sources of information among the rural people in different states of India. The application of ICT for Rural Development can possible only by the

government initiatives implemented through local self government institutions. The telecommunication infrastructure of the rural areas should be improved and the individuals need to be empowered by enhancing their capacity to access, select and utilize information in an effective manner.

Despite the limitations in basic infrastructure and low level penetration of information technology in India more than fifty grass root projects are using modern ICTs for the benefit of rural communities. A number of case studies are conducted during the period of 2004 and 2005. Most of them have given emphasis on the multi disciplinary view points of application and limitations of ICT, it includes 1) application of ICT in various sectors of the economy 2) psychological impact of IT-cyber crime 3) digital divide etc. A few studies are dealing with the role of libraries for rural development of the nation.

During the period of 2006-2007 various studies are conducted on the basis of sector wise application of ICT like ICT application for education, agriculture, poverty eradication, women empowerment and governance.

The survey of related literature reveals that there are several relevant studies are conducted on application of Information and Communication Technologies for the different aspects of Rural Development. The scope for further advancement in rural development in the Kerala is quite vast. No such studies are conducted on the basis of Kerala. And it is really appreciable in the overall achievements of the state in adopting and implementing various ICT initiatives.

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