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A study on role of information and communication technology (ICT) in agriculture development of Patan district

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Abstract

Today India is passing through the phase of communication revolution, which has brought about a significant growth of media in mass communication. It has become an important part of development initiatives in health, nutrition, agriculture, family planning, education, community economy and world empowerment. There are many ways in which Information Technology can be used to exchange the information rather effective communication like information kiosks which provide not only the basic services like email, helps in education, health services, Agriculture and Irrigation, online trading, community services etc. The present study aims to study the agriculture development with the emergence of the new communication technology. The study is being undertaken to know how agriculture development is possible through an effective communication tools that is ICT (Information and Communication Technology).

ICT includes communication device or application, encompassing cellular phones, computer, internet and network hardware and software, satellite systems and so on, as well as the various services and applications associated with them, such as videoconferencing and distance learning. Therefore, the present investigation was undertaken to study about how the use of ICT helps in agricultural development in rural areas. For the present study for knowing the use of ICT among the farmers, Patan district of Gujarat is being chosen. The study was conducted on local farmers and agents of seeds company ICT experts and age group from 20 years to 55 years.

Keywords: ICT, agriculture, Patan, farmers

Introduction

Agriculture is one of the most important sectors in India, and could benefit tremendously with the applications of ICTs especially in bringing changes to socio-economic conditions of poor in backward areas. Agriculture constitutes a major livelihoods sector and most of the rural poor depend on rain-fed agriculture and fragile forests for their livelihoods. Information and Communication Technology (ICT) has been considered as a tool that can be used to achieve development goals in developing countries. These technologies may help to fight against illiteracy, disease, unemployment, poverty, agriculture and other development problems. Agriculture plays a vital role in the society and the economy of the country. Nowadays, more and more new advanced technologies are used for agricultural development, such as satellites, the Internet, mobile phone and social media. The use of the technologies and divides in both developed and developing nations can be used to improve agricultural information and farming methods with transformational development (Lu, 2001). In India around 70% of population earns its livelihood from agriculture. According to census 2011, 68.9 percent (83.3 Crore) population is still rural. The agriculture sectors more than half the output of the Indian economy. (Kurukhetra, June 2015).

Agriculture needs continuous diffusion of new technology to meet global food security, poverty reduction and environment sustainability. According SECC data (2011), released on 2015, in India total households is 24.39 crore, out of 17.91 crore lived in rural area, among them 10.69 core called deprived households (Kurukshetra, September 2015). The SECC data indicates that 31.26 percent of rural households are belonging under poverty. The life of main earner is highly insecure and uncertain income. Due to globalization, urbanization and demand of high value product global scenario has been change in the context of agriculture. ICT (Information communication technology) help to provide knowledge to the door step of farmers. It provides information related to weather/climate information, fertilizers

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consumption, online land registration, pest management and price output in the markets etc. Every level of government offices are connected with a network, to provide information to the farmers. Agriculture expert, VAW (Village Agriculture Workers), Krishak Sathi, development officers and stake holder are teaching farmers, to adapt new methods of agriculture. In India teledensity has rapidly increased, in rural area teledensity is increased twice as per 2015 government report (Kurukshetra, February 2016). Rural farmers access information regarding agriculture through Short Message Service (SMS), Voice over call on their mobile phone. The Central government collaborating with the state government has been introduced in various ICT Centres equipped with PCs, telephone, internet, broadband connection and with development officer e.g. e-choupal, cyber dhaba, IFFCO-ISRO GIS project, Gyandoot project, A Market, Vistanet etc. Knowledge based information provided through various web and mobile based web portal, farmer's web portal (www.farmer.gov.in), mKisan portal (www.mkisan.gov.in), Kisan Call Centres. These portal are facilitating knowledge based information and advisory through subject experts. Department of Agriculture & Cooperation has developed more than 80 portals, websites and mobile based applications, with the collaboration with National Informatics Centre. The important portals are, Seednet, Dacnet, RKVY, ATMA, NHM (National Horticulture Mission), Intradac, NFSM (National Food Security Mission) and APY (Acreage, Productivity and Yields). Maximum percentage of inhabitant make livelihood through agriculture. This research has given importance to know about the various projects of ICTs in agriculture development. Special ICTs projects in Gujarat and how the government and private organization design programmers to reach the rural farmers. ICT and Agricultural development. ICTs in agriculture have the potential to facilitate greater access to information that drive or support knowledge sharing. ICTs essentially facilitate the creation, management, storage, retrieval, and dissemination of any relevant data, knowledge, and information that may have been already been processed and adapted (Bachelor 2002; Chapman and Slay maker 2002; Rao 2007; Heeks 2002).

Through the public private partnership, private initiatives and government programmes are made for agriculture development. But in Indian still in growing stage and evolving as an emerging trend the benefit of ICT is yet to reach all the farmers.

The benefit of ICTs is yet to reach all the farmers, especially those who are marginal or sharecropper and living in remote part of the country are not getting this service or its better to say they are not availing this due to poor economic conditions, communication barrier and social constraint. Other factors are illiteracy, language barrier, poverty, unwillingness to adopt the new technologies and shortage of government official in agriculture department.

Scope and Significance of the study

Indian government focus on "Digital India" programme. The aim is to make them able to access government services and its related services. By the end of 2019 the Digital India programme envisages that 2,50,000 Indian villages will enjoy broadband connectivity and universal phone connectivity. The study has focused the use of ICTs to access agriculture information in the part of Patan. The study focuses on use of ICTs by information providers and how they diffuse information to access utilization of agriculture the rural farmers of Patan and also how farmers of Patan in rural

remote area access information and utilize the benefit of ICTs in agriculture development.

Impact of ICT Application in Agriculture

It is to be mentioned that the ICT offers a variety of programs both for the social development and the Economic development. An assessment of the impact was felt essential so as to determine whether there is any significant change on the part of the farmers before and after their ICT application in Agriculture. It is to be noted that a change which a farmers does not possess before ICT application in Agriculture may take place in the farmers after his ICT Application in Agriculture (Banerjee, 2011). The researcher, through his observations and interaction with the farmers, has identified eight economic and social traits which the farmers may or may not possess before their ICT application in Agriculture. As such, the economic and social traits for the purpose of the study include productivity improved, avoiding buying on credit, comfortable life, reduction in poverty, house modified, liberal spending, change in the life style and maintenance of children improved (Venkatesh *et al.*, 2012).

Literature Review

Among the various researches conducted on subject related to this work, the works are very much related to communication ICT and role of ICT in rural development in the field like health sanitation, agriculture, education, and economy they are: Gupta (2006) ^[1], point out the role of information and communication in social and economic development of individual, society and nation this book examine the exiting field of development communication and illustrates how this field of the study is composed and telecommunication are consider central to rural and nation development and also discussed the biases of the development, communication technology for gender; folk media and development communication.

Sharma (2004) ^[2], in his work bring out communication age centre on the evaluation of electric information technology (IT) help in processing of information had dominated the 21st century and will continue to dominate in the future too. The information and technology has been a technician synthesis of computer and communication technologies it impact in lives. The service of mankind with the influence on all aspect of society it's helping from last few decades. It is continuously improving the lives of people growth of campaign and changing the society by improving communication and its media. Mohanty and Bohra (2006) ^[3], highlights, the role of ICT all across the globe with the emergence of various technologies ICT played a significant role which has not only made access across the globe easier but has facilitated integration of thought, process synergies in working methods and place, participation and democratic function approach in learning and the enhancing organisation transparency increasing awareness to and application of e-governance has opened newer vistas of management system and facilitation strategies.

To discuss about development communication in rural sectors, Dasgupta, Choudhary & Mukhopadhyay (2007) ^[4] point out the concept with reference to media for agriculture development. While discussing communication models for technology transfer and research and development, they discuss how to generate and transfer of adoption technologies needs for reconstructing the models of agriculture communication. Advantage of communication technologies help in rural development and advantage of information

technology in agriculture development and impact broadcasting and tuning for farming.

In his work Bhatnagar and Schware (2006) ^[5], emphasize the successful use of information and communication technologies (ICT) in rural development. It begins with an introductory chapter which traces the history of the use of ICT in rural India. It examines some of the problems that have afflicted the implementations rural development programmes and show ICT application could help overcome them in future.

Narula (2011) ^[6], discuss about the Dynamic of development and dysfunction of development. She also cited how these two aspects are facilitated and impeded by Development Communication models operating in specific society at a particular point of time is presented development communication challenges, Technological challenge; Reach & strategies for development.

Melkote & Steeves (2001) ^[7] basically highlight the challenge for communication research in developing countries in the design of strategies that bear in mind colonial past and semi-feudal, semi-capitalist world. They present to focus on how to transcend the negative aspect of these realities. Necessity of new techniques of communication for grass root level development and how information and communication technologies work for rural development and communication strategies for empowerment.

Green (2001) ^[8] Mainly focuses the field of communication and technology. Green examines the technologies of communication from things we don't even think of as technology, like the alphabet or electricity. Though to the rapidly developing world of cyber space she argues that technology is never natural rather it is closely linked to culture, society and government Green looks at what drives technological change, showing that the adoption of technologies culture coexist and interact, industrial culture and now techno-culture, while other are left out or even damage.

Singhal & Rogers (2011) ^[9] assert that, new information communication change the pace of human interaction across the world. They coined the world as "Global Village" where entire world connected with each other's. He mention that, in India a long way to achieving Information society, but a huge numbers of workers employed in information sectors to provide information from the ground level. Information plays a crucial role in the development process. How the new technologies and its various applications i.e. radio, TV, cable, telecommunication, computers, and the internet are rapidly leading India towards becoming an information society. They describe the concepts "Informatisation" strategies it is the process through which communication technologies are used as a means of furthering socio-economic development. They mention various Indian communication revolutions, including proliferation of telephone, internet and software for growth of entrepreneurship, venture capital, and supportive government policies and networking between Indian entrepreneur in Silicon Valley and their Indian Based counter parts.

Hanson & Narula (2012) ^[10] states that, a true product of the information society in itself and subject to typical problem of postal service, telephony, and international computer transfer. How to several countries are responding each other due to pressure from information society. They explore the Current scenario of developing countries, infrastructure development policy, social systems and models of information technologies and society. How society accepts technologies in lifestyle and social system, needs of the various society in world perspectives.

Koshore and Gupta ^[12], reports the availability, use and information seeking behaviour of a farming community with special reference to Information and Communication Technologies (ICTs). It fills a research gap by examining what people do with a medium when they have access to it, rather than looking at barriers surrounding the use of ICT and digital divide issues arising due to differential access and capabilities. The study conducted in a state in North India, and provides insights into intentions and factors surrounding the use of various media by farmers. It highlights the socio-cultural context within which information seeking and use occurs in rural India.

Kauffman and Kumar (2008) ^[13] in their work described a new approach to measuring the macro level impacts of ICTs across a range of development areas. The indirect effect to one area on others is taken into consideration by a simultaneous equation model that permits the inclusion of multiple development areas. The model is applied to data pertaining to four development areas in 64 countries: trade flows, agricultural productivity, R&D, and quality of life. ICT readiness is found to have a positive association with trade flows and R&D, but the impact depends on the country's development level. The strengths and limitations of this modeling approach, and the implications of the results, are assessed.

The objectives of the study are

1. To Know the ICT's application in agriculture in Patan block.
2. To find out role of ICTs in agriculture development.
3. To evaluate the people's awareness towards ICTs application in agriculture development.

Research Methodology

The present study has been done by collecting both primary and secondary data. The secondary data has been collected through different source of materials, portals, websites and other exiting records:

1. National and state government agriculture portal.
2. Policy and act of Gujarat Government.
3. Different Schemes and Projects on ICT under Government of Gujarat.

The other relevant data has been collected from various books, magazines, official records, research paper, internet, journals, news articles and other exiting sources of data.

Sample Design: To study the role of ICT in an area like Patan. In the sample has been designed as per the feasibility of the research conducted in the stipulated time.

Population of the Study: The population of the study are farmers, agriculture labours.

Sample Area: Patan block play significant role in maize production. About 80% of people are directly connected with agriculture and agro based industries which provide livelihood to the inhabitants of the block. Gram Panchayat and small villages are emphasized who are big and small farmers.

Sample Size: The sample size consist sample from Farmers, Government officials.

Sample Selection: The sample was drawn through simple random sampling methods. Through stratified random

sampling methods farmers have been selected from each village.

Two types of methods are selected to collect the data to conduct the research. The data has been collected in different phase as per needs from different villages of Patan Block.

Primary Data Collection: The primary data has been collected through two methods survey and observation. Through schedule, data has been collected from the farmers of selected villages. From each village ten farmers has been taken. Questions has been prepared with both close ended and open ended in the questionnaire.

Data analysis

Data are analyzed appropriate methods. Data collected from both Panchayat are averagely analyzed. To know the difference a comparative analysis has also been done. To test the quantity of data Statistical software has been used.

Farmers are having multiple media habits don't confine with single media. An average 18% consumes only on electronic media (TV and radio), 5% only folk media, 43% both electronic and folk, 4.2% print and electronic, 2.75% print, electronic and folk, 3.5% electronic and internet 0.45% only print and 5.35% all types of respectively. Here more than 8% of farmers have used Internet. Hence influence of electronic media (TV and Radio) and folk media is higher than other media.

Media consumption is almost equal in both sides because farmers spending their rest time on entertainment. Only spending on entertainment average percentage is 38%, 2.5% only news programme. Information oriented they willfully go through the agro based information and news channel. As a result farmers are curiously searching information as per their needs through media.

DD Kisan, India's one of the completely agro based channel. The channel has broadcasting only agriculture based programmes, but an average 33% people are known about the channel, while rest farmers have no idea about its existence and importance.

49% of farmers get climate/weather related info with the observation and asking from educated friends or ICTs users. 3% of farmers have learns through media i.e. news or weather forecast of radio or television or newspapers. Only 1.25% through the help ICTs application, 24% throughout various sources like friends, relatives, and family members those are ICTs users, observation and tools of media, 9% of them access through media and ICTs application. Hence, 10.25% an average of farmers using ICTs application for gets weather/climate info.

Agriculture Extension officers are provides information directly to the farmers regarding new techniques and new way of cultivation. At initial stage extension officers are gain knowledge with the help of ICTs application after that information has disseminates to the entire farming community. As a result 18.56% famers increased their income with help of extension workers and ICTs applications.

Findings and Conclusion

Media usage is higher among the farmers; nearly majority of them consume on media, it's may be traditional or folk media, electronic media or new media. As per the data more or less farmers habits on multiple types of media. Among them around 11% farmers are using internet. An average 17% of

them access media for agro based knowledge, left percentage of them using for other purpose such as, entertainment, News, and other types of contents. Among the media users, around 38% know about the DD Kisan Channel. Those are known about the DD Kisan Channel around 60 percent are watching the channel regularly.

Here at Patan an average 12.50% of farmers" using ICTs application to know about climate/weather info. Some of them are getting information from the ICTs, media, and by the observation. In Patan basically farmers are learned cultivation techniques from the ancestors and friends. ICTs help them some extent to learn cultivation process. Basically information is transporting from extension offices or agriculture experts to the farmers. New innovation techniques, use of modern technologies, high yielding seeds, usage of improve quality of fertilizers, pesticides management and other techniques-generally diffuse from one to more and again more to more. In Patan 8% of farmers access all types of information through the help of ICTs application and also all those sources. At the initial stage extension officers, stake holders, and experts are gain trends through ICTs tools, in next stage they teach farmers through field visit, demonstration and workshop. Mobile phone works as tools of ICT in Patan block, an average 85.12% farmers using mobile phone. Among them 20.50% having smart phone whe other having normal phone, tab user is zero. Mobile phone generally using here for communication with friends of relatives and the percentage is 36%, and 23.29% using for communication and entertainment (Play game, listen music, watching video such types), an around 41% using for gather information regarding agriculture. Internet users hike slowly in Patan, lack of proper broadband connectivity, weak mobile network strength create barriers to access internet. In spite these 58.35% of farmers using internet, out of 22.3% smart phone users. Among the 58% internet users, 62.50% farmers browse agriculture related content throughout internet. But only 3% of them regularly visits and know, farmers portals and such types of websites.

Only 38% of farmers know about Kisan Call Centres, others are have no idea about it. Among 65.8% have registered their mobile no on KCC, in between 65.8% of registered farmers 75% get regular SMS from KCC. In Gujarat's government free mobile distribution programmes for Kisan Credit card holders, nobody availed mobile phone in Patan Block. Laptop and PCs are rarely used in this region some people get information from the agriculture officers or Village Level Workers (VLW), Krishak Sathi, Village Agriculture Workers (VAW) and those regularly visit block agriculture office.

ICTs application such as mobile phones helping farmers to changes the exiting attitudes. Through mobile phone farmers make interaction with market holders, Kisan Call Centres, share information with friends, question answer with extension officers and browse internet on smart phone. Above all helps them to change the traditional pattern of cultivations.

References

1. Gupta O. Encyclopedia of Journalism and Mass Communication: Radio and Television. New Delhi: Isha Book Publisher, 2006.
2. Sharma D. Communication and IT Age. Mumbai: Himalayan Publishing House, 2004.
3. Mohanty L, Bohra N. ICT Strategies for School A Guide For School Administration. New Delhi: Sage Publication, 2006.

4. Dasgupta D, Choudhary S, Mukhopadhyay SD. Development Communication in Rural Sector. Delhi: Abhijeet Publication, 2007.
5. Bhatnagar S, Schware R. (Ed). Information and communication technology in development. New Delhi: Sage Publication, 2006.
6. Narula U. Development Communication: Theory and Practice. New Delhi. Har-Anand Publication, 2011.
7. Melkote SR, Steves HL Communication for Development in third World. New Delhi: Sage Publication, 2001.
8. Green L. Communication Technology and Society. London: Sage Publication, 2001.
9. Singhal A, Rogers EM Indian Communication revolution: From Bullock Carts to Cyber Marts. New Delhi: Sage Publication, 2011.
10. Hanson J, Narula U. New Communication technologies in Developing Countries. Routledge, Publication New York, 2012.
11. Ghosh A. Communication Technology & Human Development: Recent Experience in India Sector. New Delhi: Sage Publication, 2006.
12. Koshore D, Gupta B. ICT for agriculture Development: A study in Indian Himalayan Region. The Electronic Journal of Information Systems in Developing Countries, 2006, 48.
13. Kauffman RJ, Kumar K. Impact of Information and Communication Technologies on Country Development: Accounting for Area Interrelationships. International Journal of Electronic Commerce, 2008, 13.