Impact of Information and Communication Technology (ICT) in Rural Development

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Abstract: Realizing the importance of ICTs in rural development in the economy, several government projects have been implemented to achieve universal access to ICT but simultaneously there is also need to analysis the impact of these implementations.The concepts, methods and applications involved in ICT are constantly growing in rural daily lives. Besides, rural development in India is one of the most important factors for growth of the economy. This paper investigates the impact of ICT on rural developmentalong with the selected factors i.e. economic, socio-cultural and agriculture infrastructures which are independent andso associated with information technology whereas wholesome rural development has considered as a dependent factor. Outcome of multiple regressions shows association between dependent variable (rural development) and independent perceived factors (economic, socio-cultural and agriculture facilities) are pretty much significant as the beta value are 0.714, -0.289 and -0.417 and p-value is less than 0.05 level. The selected area has been witnessed to use traditional technology whereas demand is increasing to make the best use of information and communication technology because ICTsare changing every sphere of rural lives. Due to tremendous progress in ICT there is a big impact on the rural areas and rural development especially in agricultural and allied services but combining ICT in rural development can not only speed up the development process but it can also fill the gaps between the educationally and technologically backward and forward sections of the society.

Keywords: e-commerce, e-learning, Information technology, e-agriculture, rural development.

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1. Introduction

As a phenomenon, rural development is the end-result of interactions between various physical, technological, economic, social, cultural and institutional factors.Rural development is an integrated process, which includes social, economical, political and spiritual development of the poorer sections of the society. Rural development can be defined as, helping rural people set the priorities in their own communities through effective and democratic bodies, by providing the local capacity; investment in basic infrastructure and social services, justice, equity and security, dealing with the injustices of the past and ensuring safety and security of the rural population, especially that of women. Moreover, inclusive rural development is more specific concept than the concept of rural development. In broader terms, inclusive rural development is about improving the quality of life of rural society (C. Abhishek, 2014).

Information and communication technologies (ICT) are transforming all human activities, including agriculture which is the mainstay of rural India. One of the main reasons for the inequitable distribution of economic gains between the haves and have-not is the gap in access to information. ICT plays an important role in bridging this gap and eventually will help in poverty alleviation. Farmers can get access to knowledge to improve their production and even get better price for their produce through variety of ICT systems.

The advancements in ICT can be utilized for providing accurate, timely, relevant information and services to the farmers, thereby facilitating an environment for more remunerative agriculture. ICT is a powerful

and productive system which can accelerate economic and social development in rural areas. The use of ICTs could therefore complement the conventional agricultural extension methods in rural areas in India. One of the most effective tools of ICT is the internet, which has seen a remarkable growth in our country in the last one decade. In this issue specialists on the subject discuss the growth of internet in rural India and how it is actually working on the ground. However, despite the thunderous growth in ICT technology one of the main problems in adoption of ICT in rural segments are ICT illiteracy, availability of relevant and localized contents in their own languages, easy and affordable accessibility. Community radio is another technology which is being used by the rural people in their local language. In this issue we discuss about the Community radio as well (G., Archana. 2012).

An integrated framework for ICT interventions in rural areas will undeniably pave the way towards sustainable rural development. Moreover, to break the vicious circle of rural poverty and to bridge the digital divide and empower the rural communities - ICT-intervention has proved its effectiveness in the sphere of capacity-building of rural communities for breaking these barriers. So, the government, technology industry and society should work together to deploy ICT to accelerate economic and social development in rural areas.

India is a country of villages and about 50% of the villages have very poor socio-economic conditions. Since the dawn of independence, concerted efforts have been made to ameliorate the living standard of rural masses. So, rural development is an integrated concept of growth and poverty elimination has been of paramount concern in all the consequent five year plans. Rural development programs comprise of following:

a. Provision of basic infrastructure facilities in the rural areas e.g. schools, health facilities, roads, drinking water, electrification etc.

b. Improving agricultural productivity in the rural areas.

c. Provision of social services like health and education for socio-economic development.

d. Implementing schemes for the promotion of rural industry increasing agriculture productivity, providing rural employment etc.

e. Assistance to individual families and Self Help Groups (SHG) living below poverty line by providing productive resources through credit and subsidy (A.Chauhan, 2014)

2. Review of Literature

Agrawal Sangita (2016) studied the role of ICT in solving the problems of rural economy in India. Its main aim is to analyze and examine the impact of ICT on rural infrastructure growth and development. She also discussed the various positive and negative trends of this technology to carry various rural development operations.

G. Gulati, Archana (2012) studied that India has achieved tremendous increase in rural tele-density and the government's focus is now squarely on rural broadband. Going ahead, apart from ubiquitous and affordable access to ICTs, greater emphasis must be placed on the availability and relevance of services and content in local language or multi-media/accessible format as per needs of target beneficiaries. Also, capacity building of various stakeholders to use ICTs is essential for the goal of ICT enabled rural development to be achieved. This requires a shift in focus away from purely technology related issues to the evolution of policies, strategies and schemes that ensure cross-sectoral and multi-stakeholder

involvement and engagement including most of all the local communities and target beneficiaries.

Hazare Anupam (2012) concluded that the development of a society largely depends on the access to information and so far in rural India. ICT has greatly facilitated the flow of information and knowledge offering the socially-marginalized and unaware community unprecedented opportunities to attain their own entitlements.

Mukherjee Sushmita (2011) concluded that Information and Communication Technology has great relevance in today's world. If implemented properly ICT can surely bridge the gap between economically and technology backward and forward classes. With the IT boom in India technology is easily accessible to the government machineries with relevantly cheaper and convenient manner. Proper training and implementation of ICT programs in simple way and language which is easily understandable by the rural people can surely bring about revolution in rural development.

3. Need of the Study

Rural development has always been an important issue in all discussions pertaining to economic development, especially for developing country like India. The study is an attempt to analyze the ICT factors and how this new age technology is helping rural development of Shekhawati area to live a better life.

4. Objectives of the Study

In the light of above review of literature, issues raised the following objectives of the present study:

a. To understand the concept of rural development with special references the role of information and communication technologyinrural development of the areas.

b. To study the various types ofeconomic, socio-cultural and agri-infrastructure factors of the study area.

c. To find out the impact of information and communication technology factors on rural development of the area.

5. Hypotheses of the Study

Ho1: Uses of information and communication technology on selected factorsi.e. economic, socio and agriculture infrastructure has not significant in wholesome rural development.

Ha1: Uses of information and communication technology on selected factorsi.e. economic, socio and agriculture infrastructure has significant in wholesome rural development.

6. Research Methodology

a. Collection of data: The study based on both primary and secondary data. The primary data collected through a structured questionnaire and by holding interview with various categories of convenience corporate respondents.

b. Tools of analysis: The collected data recorded, analyzed and interpreted in the significant manner with the help of SPSS 20 and some statistical tools like reliability test and regression.

c. Sample size: For the purpose of study Udaipur districts selected in the state of Rajasthan. A total of 100 respondents were covered by the study but only 91 respondents have attempted all the statements and hence, the analysis was confined to these respondents only. The questionnaire consists of two sections. The first part consists of six questions about demographic information of the respondents show table-1. Second part consists of eighteen statements, to study the impact of ICT factors on rural

development with help of various economic, socio and agriculture factors at individual level. For analyzing each statement Likert five point scale has used.

d. Period of study: The data was collected during the month of Jan 2017 to April 2017.

7. Data Analysis and Interpretation

Table 1
Demographical Description

Factors	Classification	Frequency	Percent
Gender	Male	64	70.32
	Female	27	29.67
	Total	91	100
Age	Under 30	11	12.00
	30-40	22	24.20
	40-50	37	40.70
	Above 50	21	23.10
	Total	91	100
Education	Secondary	52	57.15
	Graduate	15	16.45
	Post graduate /others	24	26.40
	Total	91	100
Occupation	Agriculture	63	69.24
	Self-employed	15	16.48
	Service	13	14.28
	Total	91	100
Language known	Hindi	28	30.75
	English	45	49.45
	Local	18	19.80
	Total	91	100
Income level	Up to 10,000	58	63.80
	10,000-30,000	19	20.80
	Above 30,000	14	15.40
	Total	91	100

Table-1 shows 91 samples chosen for the study, 64 respondents were males and 27 respondents were females, 11 respondents belonged to the age group of under 30year, 22 respondents to 30-40, 37 respondents to 40-50, and 21 respondents were above 50. 52 respondents are in category of secondary, 15 are graduate, and 24 are post graduate /others in the category of education. Occupation was divided into agriculture, self-employed and services with number of respondents 63, 15 and 13. 28 respondents are well verse with language Hindi and 45 with English and 18 are local language only. Income level was divided into three categories, 58 respondents come in income level of up to 10,000, 19 respondents are between 10,000-30,000 and 14 respondents are above 30,000 level of income.

Table 2
Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.764	.757	18

To test the reliability of selected statements, Cronbach Alpha has calculated that revealed a score of 0.764 in above table 2, showing that the statements were reliable enough for further analysis. In order to test the hypothesis, a series of regression were used to analyze the relationships between the predictors (independent variables) and the dependent variables. The hypotheses and results are as follows:

Table 3
Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.736[a]	.542	.526	.91672

a. Predictors: (Constant), economic, socio, agri-infrastructure

Table 4
ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	85.517	3	28.506	33.920	.000[b]
	Residual	72.272	86	.840		
	Total	157.789	89			

a. Dependent Variable: rural development

b. Predictors: (Constant) economic socio, agri infrastructure

Table 5
Coefficients[a]

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	3.745	.369		10.142	.000
Economic	.714	.079	.703	9.010	.000
Socio	-.289	.077	-.305	-3.739	.000
Agri-infrastructure	-.417	.092	-.378	-4.558	.000

a. Dependent Variable: rural development

In the above tables the result of multiple regressions shows value of R and R^2 are 0.736 and 0.542 which is quite momentous whereas association between dependent variable (rural development) and independent perceived factors (economic, socio-cultural and agriculture facilities) are pretty much significant as the beta value are 0.714, -0.289 and -0.417 and p-value is less than 0.05 level. Thus, we reject

the null hypothesis and predict that there is significant impact of using information and communication technology factors i.e. economic, socio-cultural andavailability of agriculture infrastructure on rural development. The selected area has been witnessed to use traditional technology whereas demand is increasing to make the best use of information and communication technology because (ICTs) are changing in every sphere of rural lives. Due to tremendous progress in ICT there is a big impact on the rural areas and rural lives especially in agricultural field and allied services.

8. Limitations and Future Direction

The survey was conducted among a group of respondents from a small district of Rajasthan so the results should be interpreted with caution, particularly with respect to the generalization of research findings of rural development as a whole. Next, the sample size itself is relatively small. Future research needs to focus on a larger cross section of respondents and more diversified random samples to verify the wholesome development of rural areas.

9. Conclusion

The present study is an attempt to know how information technology is playing a significant role in the development of the rural society.The concepts, methods and applications involved in ICT are constantly growing in daily lives of rural and it is one of the most important factors for growth of the economy.

The role of information technology in rural is to provide people with information of any kind they require i.e. agriculture production, demand for rural goods, banking facilities, living standard and social status, level of awareness regarding health facilities, access of various government utility schemes, crop management and storage facility, online agriculture market, consultation by kishan call centers for farming community, database management through IT. Availability of internet has proved its significance on various walks of rural life. Improved internet awareness in rural areas was credited to the fast growth experienced in the state.Moreover, India has witnessed tremendous increase in rural tele-density and the Government's focus is now squarely on rural broadband availability.

Information and communication technology has great relevance in rural development. The study is based on selected independent variables i.e. economic, socio-cultural and availability of agriculture infrastructures with reference to ICT which were very significant and explained rural development, which was considered as dependent variable. The momentum has also begun to deploy more and more ICT especially in rural areas and to make the best use of it because rural development aims at improving rural livelihoods in an equitable and sustainable manner. In nut shall it can be concluded that usingICT and its awarenesson selected factors could be significant and important for wholesome rural development.

10. References

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