REACH AND USE OF ICT IN AGRICULTURE SECTOR IN MADHYA PRADESH

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Abstract **The economic and social growth of any country is of utmost importance for its development. Development strategies, including ICTs for development, should serve growth and need of the poor, as they perceive them. The development of ICTs has not been a priority in many rural areas for long because primary infrastructure and social services such as roads, electricity, education, and health services are in such demand. It is perhaps wrongly assumed that demand for ICTs is much lower. ICTs deliver clear gains for rural households. Studies of impacts of ICTs on rural households have shown a wide range of positive impacts, including time and cost savings. If we talk about one of the most important sector of society which is agriculture, we get interesting relationship between ICT and agriculture. Agriculture plays an important role in the Indian economy. Agricultural sector is characterized by numerous challenges in terms of unpredictable weather/rainfall conditions, erratic power supply, substandard seeds, no availability of the required quality and quantity of fertilizers/pesticides, good storage gowdowns, transportation faclities etc. amongst others. All these factors affect the agricultural productivity and thus the farmers' income. The Indian government has initiated various policies and practices to help the farming and rural communities. It has established special departments and research institutes to look after the agricultural sector. It has also developed irrigation facilities, agricultural marketing, rural godowns, cold storage, etc. to support agriculture. With respect to rural financial institutions, the multi-agency approach was adopted to meet the credit requirements of the rural areas. Various private and non-governmental organizations play a vital role to help the rural populations.**

Keywords: **ICT, Reach, agriculture, Development, Rural household.**

INFORMATION & COMMUNICATION TECHNOLOGY (ICT) IN AGRICULTURE

The term ICT is a broader term of Information Technology (IT), to explicitly include the field of electronic communication, notwithstanding IT. The term IT is defined as "the review, design, development, implementation, support or management of computer based data systems, especially software applications and computer hardware". IT deals with the use of electronic computers and computer software to convert, store, protect, process, transmit and retrieve data, securely. ICT is in this manner used as an umbrella term that includes any communication device or application, encompassing radio, television, cellular phones, computer and network hardware and software, satellite systems et cetera, and additionally the different services and applications associated with them, for example, video conferencing and distance learning. ICTs or Information and Communication Technologies are

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emerging as a vital instrument for the development of societies and as main impetuses in the economies worldwide. ICTs are not any more confined to help top of the line research and development; the new technologies have made critical improvements in the life-styles and the efficiency-levels of all sectors of economy. The positive effect of ICTs is most visible in service-sector, where the efficiency levels have gone very high. ICTs had made tremendous effect in all aspects of financial life of the people because of its multipurpose advantages and services and also arrangements, for example, e-commerce, e-governance, e-education, e-medication, e-medical discussion etc. It has reduced the distance of the world, enabling snappy access to data, and made a single social gathering comprehensively. ICT includes both networks and applications. It includes fixed, wireless and satellite communications, broadcasting networks. Well known applications are Internet, information base management systems and multimedia tools. ICT additionally covers telephone, fax, TV, Mobile, Internet, Websites, ISDN, email, LAN, WAN, Video Conference, Satellite Communication, Scanners, DVDs, CDs, OPAC, WEBOPAC, Printers and Computers. The use of data and communication technologies has become increasingly vital in special libraries. Special libraries are changing over to ICT based resources and services at an accelerated pace. E-diaries, CD-ROM databases, online databases, eBooks, web based resources and a variety of other electronic resources are quick replacing the customary resources of special libraries.

ICT in simple terms can be defined as the basket of technologies, which help or support in storage, processing of Data/Information, or in dissemination/communication of information/data, or both. ICT in this way comprises technologies, for example, desktop and smart phones, peripherals and connections to the Internet that are intended to satisfy data processing and communication functions. ICTs connote the use and utilization of computers, telecommunications and microelectronics in the procurement, storage, retrieval, transfer and dissemination of data.

OBJECTIVES

The main objective of this research is to get an understanding of reach of information and communication technology in the agriculture segment in Madhya Pradesh. The main objectives of this research work are mentioned below.

- To know about the reach and use of information communication technology in Madhya Pradesh.
- To find out the use of information communication technology in various agriculture sectors.
- To understand what are the problems and opportunities associated with the ICT in Madhya Pradesh.

SIGNIFICANCE OF THE STUDY

This study has a wider scope for the government academicians and researchers who can use this study for planning, implementation and for the further researches. This study presently focusing on Reach and Use of ICT in Agriculture sector in Madhya Pradesh. Aim of the study is to know about the reach and use of information communication technology in Madhya Pradesh in agriculture sector and to find out the use of information communication technology in various agriculture sectors.

This study will be helpful for the students of mass communication, media

IT students and researchers to understand the subject and its details.

REVIEW OF LITERATURE

The researcher has reviewed so many research papers, books and articles to reach up to the actual scenarios of the ICT and its application in the field of agriculture. Researcher also explored several authentic online platforms, websites, portal to collect various relevant data helpful for the research. Apart from all these sources researcher also covered some magazines, write ups and important quotes which are relatable to the research topic.

The report 'ICTs' e – choupal : A platform Strategy for Rural Transformation' (October 2005) prepared by S. Sivakumar, CEO of International Business Division, ICT Limited and Ravi Anupindi from University of Michigan, USA, Discussed the e – choupal platform and how it facilitated farmers to sell produced agriculture items through online transactions and the benefits they were getting from ICT services.

"Information and Communication Technologies (ICT) and sustainable Development" by Amrita Singh, this research suggests to make ICT work for poverty reduction and development, it need both affordable, market driven infrastructure and multi stakeholder efforts at all levels to help poor, disadvantaged and marginalized people use the whole range of ICT according to their priorities and demands. This suggests that, in a country like India, where a vast section of the population is below the poverty line, ICT offers a chance to empower these people and transform them into productive human capital.

Information and Communication Technology in Development: A Comparative Study of Madhya Pradesh and West Bengal by- Mr. Subrata Kumar Dutta.

ICT Initiatives & Projects in M.P. for Agricultural Development

Gyandoot: Technology for the Masses

The term "Gyandoot" is a Hindi word that means 'messenger of knowledge'. The project Gyandoot is additionally based on the same concept whereby it tries to spread the knowledge and data to the remotest of the villages in the locale with the help of modern information and communication technology. Understanding the inherent benefits that data technology to raise their level of general awareness and to enhance their capabilities.

The project was implemented in January 2000. The project used the same technology as used in Internet to interlink villages and the government. The main difference was that Gyandoot was linked through LAN and could operate just inside the village. The effort of the government to spread the use of this technology to the remote areas was well appreciated at international level and earned the project the prestigious honor "Stockholm Challenge Award 2000" in June, 2000. Gyandoot was declared winner "In broad daylight Service and Democracy" category out of 109 IT projects from everywhere throughout the world the project has likewise been awarded "CSI-TCS National IT Award" for best IT usage, instituted by the Computer Society of India, for the year 2000.

EKVI Project

'EKVI' project is an e-Agriculture Marketing project taken up the by the Government of Madhya Pradesh, India as part of its e-Governance initiative for facilitating the farmers of the state to take informed decisions to sell their produce.

The project has been conceived and executed by Madhya Pradesh Agricultural Marketing Board and Madhya Pradesh Agency for Promotion of Information Technology (MAP_IT) on Build-Own-Operate (BOO) basis with a Consortium of vendors.

The project can be easily replicated in all states/countries including the educationally and economically backward ones. It can be concluded that for the success of a project, the implementation has to be carefully monitored and guided by professionally qualified, committed independent consultants who act as facilitators amongst the private agencies involved and the Government agency that is replicating the project.

E-Anugya for M.P. State Agriculture Marketing Board

Through an online system achieve T3.

- T- save time in issuing and verification of document.
- T- bring in transparency in operations.
- T- should be tamper resistant.

e – Cooperatives

Objectives:

The objective of the project is to automate the functions of the Department of Cooperation and provide the G2C Services

e-Crop Cutting Experiments

Information System for National Crop Insurance Scheme (G2G)

Objectives:

- To provide insurance coverage and financial support to the farmers in the event of failure of any of the notified crop as a result of natural calamities, pests and disease etc.
- To provide Patwari-Halka and Tehsil-wise Average yield per hectare based on the Results of Crop Cutting Experiments.
- Unicode compliant.
- Various State and District Level Queries and Reports for effective Monitoring.
- District Level & State Level Module are available.

e-Farm Machinery

Objectives:

- To automate workflow of Testing Activities of Farm Machinery Implements
- To Reduce hassles in Manual processing of Farm Machinery Implements For Providing Fast transmission
- For Bringing Transparency and Accountability through ICT

RESEARCH METHODOLOGY AND TOOLS OF THE RESEARCH

This study comprises of both quantitative and qualitative data. The research includes primary as well as secondary methods as mentioned below:

Primary Methods

In this research, Survey method was used for collecting the primary data. For surveying the research area, researcher has used **sampling technique.**

The stratified random sampling technique was applied for the study, in the selection of ultimate type of respondents**.** The sampling has also been done on cluster and strata level not only to differentiate but to analyse the respondents quantitatively and qualitatively.

Researcher organized a survey in the research area's universe i.e. agriculture and used Cluster sampling at primary level for farmer group.

The researcher has used **survey method** to collect primary data.

Tools of Data collection

The researcher prepared a questionnaire after doing a lot of literature review. The points emerged from the review of literature were noted down and then questions were prepared keeping objectives of the study in view.

Tools of Data Analysis

In order to achieve the objectives of the study and to find out the reach and use of ICT in agriculture sector in M.P., the statistical package for social sciences (SPSS) was used to do the required statistical analysis

Research Design

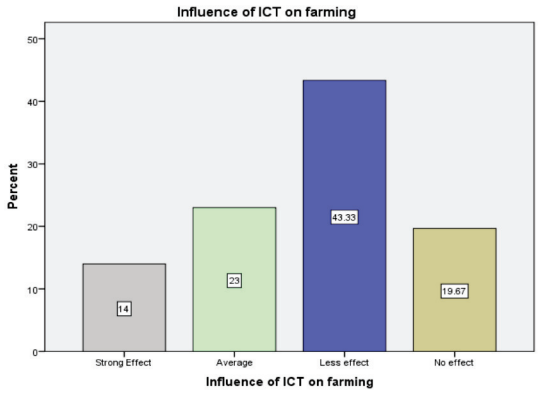
To fulfil the aim of the study, researcher has used **Descriptive Research Design.** In descriptive research design, researcher has used **cross-sectional research design** for the study. This design helped the researcher to describe the level of information in target universe.

Secondary Method

The source of secondary data are the ICT and communication related books, national and international journals, state government policies, documents, survey reports, MP government portals and websites, newspaper reports and articles.

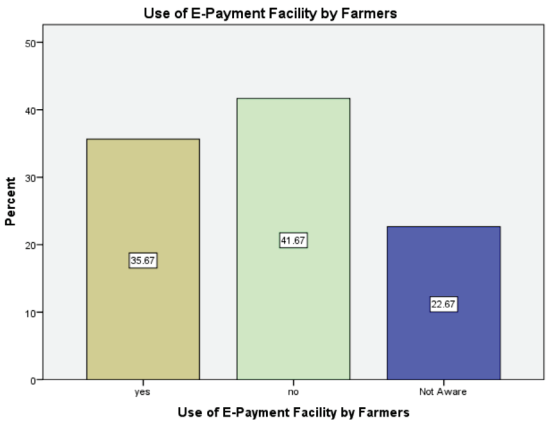
DATA ANALYSIS AND INTERPRETATION

1 Influence of education and knowledge of ICT on farming



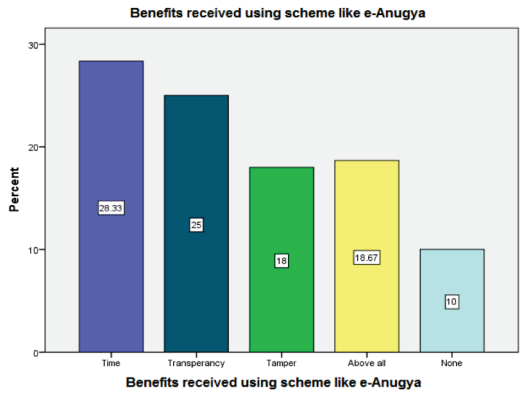
Researcher wanted to understand about the influence of ICT on agriculture sector with this analysis. About 14% of the farmers accepted that ICT has influence over farming with its ICT activities. For 23% of the farmers, ICT has average influence over agriculture and does not have much impact over the aspect of successful change maker. 43.33% of the respondents said ICT has less effect on agriculture and it has no remarkable effect which could be considered as a successful tool of development in this sector. The role of ICT can be considered as negligible on the basis of influence and action.

2 Usage of ICT services like E-Payment by farmers



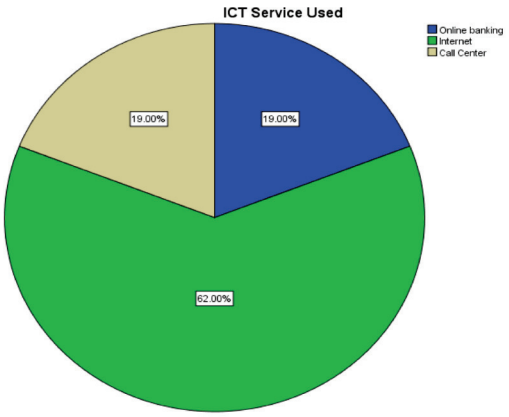
Researcher also tried to analyze that how much the respondents are accustomed with the popular ICT application based scheme of e-payment. It was asked to the farmers that do they use e-payment service to get their yield returns, 35.67% of the farmers responded positively. 41.67% of the respondents replied negative they have not used e-payment facility to get returns of their crop yields.

3 Benefits received using the Agriculture scheme like e-Anugya



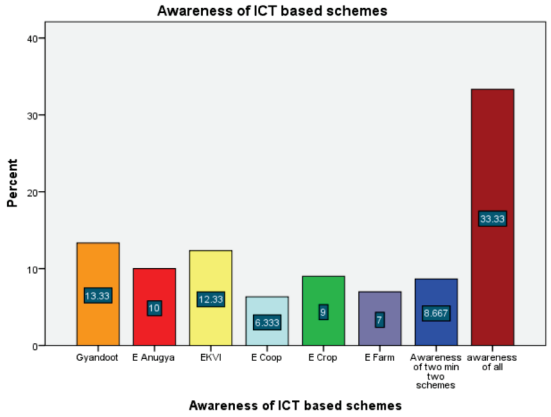
In above table and chart the researcher analysed the respondents' response on what kind of benefits they received from some popular schemes. As the government started the scheme with some certain aims like time saving, transparency and tamper, researcher enlisted all as the variables of the study. Around 28.33 % of the respondents told that while using the ICT scheme like e-Anugya they got benefit in terms of time. 25% said they got transparent service due this application and 18 % respondents said that they faced less tamper factor due this application.

4. Different ICT services used by farmers



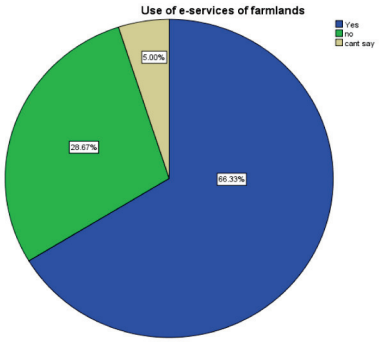
On this survey, researcher tried to explore more about usage of different ICT service amongst the farmers. Researcher found a mixed response. Around 19% of the respondents were using the online banking facility of the ICT application by the government. 62 % of the respondents were accustomed with the use of internet for their agriculture needs.

5. Awareness of ICT Based schemes



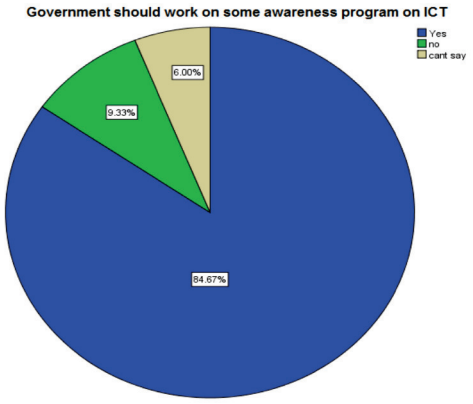
In this Analysis the researcher asked respondents about all the existing ICT based schemes she could collect in this research. Gyantdoot stood with 13.33 % awareness ratio in the complete data. E Anugya 10 %, EKVI 12.33%, E Crop 6.33%, E Cooperative 9%, E Farm Machinery 7%. Researcher also tried to check actually how many respondents are aware of minimum two schemes in all and 8.67% people replied positively.

6. Usage of e-services for farmland like Khasra, Mapping or Farming land confirmation



As information about land is of highest importance in the profession of a farmer hence, researcher asked farmers about the previous use of e-services related to farmland. About 66.33% of the respondent replied with yes as they used and also accustomed with the purpose of ICT services for land details. But 28.67% of the respondents were not aware about the application of ICT implemented for the calculation of land data and detailing of the farmland.

7. Viewpoints on government should work on some awareness program on ICT



As per researcher's view, it is important to know if the government is making efforts to make ICT schemes more popular. For this issue a question was structured and she received a remarkable response. About 85% of the respondents replied that the proper promotion of these policies is needed.

FINDINGS AND CONCLUSION

The researcher started its study with some certain objectives to explore the reach and use of ICT in Madhya Pradesh in agriculture sector. It was an interesting study of collecting information about the reach and use of ICT in this sector. For the execution of this research, researcher designed a methodology for collecting primary data and applied survey method and sampling technique at the initial stage. After collection of data researcher analyzed the secondary data through content analyses method and also analyzed the survey data using technical tool of research SPSS software.

Findings

The main findings of the study are listed below:

a. When it was asked to the farmer respondents whether ICT is required or not to get good yield of crop and prosperity in agriculture, researcher got satisfactory answer. 57.3% farmers said 'yes' it is very important. This shows the positivity towards usage of ICT.

b. When in another question it was asked about whether they are using ICT services like E-payment, then 35.7% respondents said 'yes' which is acceptable to some extent. However, majority 41.1% have not used this service. This shows a fall in the usage of E-payment which demonstrates that government is lacking behind on it for which they should take an initiative on a large level. Only 22.7% farmers replied with 'no'.

c. To find out further on the usage of Kisan Call center, result was very positive and satisfactory. 57% respondents said 'yes', they have used Kisan call center. 21% have never used this and 22% were unaware of it. It's found that the government is also lacking to some extent. It is suggested to M.P. government that they should work more on the awareness and promotional activities among them which is also given in Suggestions section of the study by researcher.

d. One another important question asked to them that was to understand

about the awareness of different ICT based schemes which determine the reach more than use. Mixed results were found on this which is not found to be actually good enough. There are various government schemes which are running in the state such as – Gyandoot, E-Anugya, EKVI, E-Crop cutting, E-farm machinery, E-cooperative etc. Only 13.3% farmers were aware about Gyandoot, 10% were aware about E-Anugya, 12.3% about EKVI, 6.3% about E-cooperative, 9% about E-crop cutting, 7% for E-farm machinery, 8.7% about minimum 2 schemes and 33.3% were aware about all schemes.

Conclusions

When the researcher analyzed the results obtained for agriculture sector, it was found that government of Madhya Pradesh is already running various ICT based projects in the state. Several ICT based application and schemes have been launched by the government. The patterns of schemes are totally followed by the tools of information, communication and technology. Government has tried to focus on programmes which can make the processing and system of work more easy and transparent through applying ICT.

Government implemented programmes like Gyandoot, e-KVI, e-Cooperative, e-crop cutting, e-cooperative, e-farm machinery, awareness of minimum two schemes etc. It was found during analyses the programmes which are more concerned with the direct needs of the farmers got more positive response. Like e-cooperative, e-Gyandoot etc. but as the farmers are not very much aware about ICT as a tool of development the government has to take more precise steps to make them more comfortable to understand the services of ICT in agriculture sector.

It was found during study though the schemes actually launched properly but any promotion, awareness and training program of these programs were not found on higher level. The lack of promotion policy from government regarding ICT schemes has been observed on remarkable level. Taking the referral of our research title we can say, the reach and use of ICT in agriculture can be explained in its developing process. Though the implementation programs of the ICT schemes have been taken place but for its reach there is a large avenue which is not covered. Even for the use of these there is no proper program.

Limitations

This research is limited up to the reach and use of ICT on agriculture area only and there are various other areas which can be covered. The researcher has comprised several technical devices and processing used during ICT communication but didn't delve deeply to explore more about the technical part of ICT.

Considering the geographical aspect of the research, we find that it is limited up to the region of Madhya Pradesh only in its analytical and evaluation terms.

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