

A Study on Role and Applications of ICT in Development of Rural Areas

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Abstract

India is an extremely diverse country with a number of disparities and divides and rural-urban divide is one among many such divides. About 68% of Indian population live in rural areas and is dependent mostly on a stressed agrarian economy. The rural-urban divide is as much a socio-economic and political divide as it is geographical one. Rural areas represent a traditional, unskilled or semi-skilled, poverty stricken and mostly agricultural dependent population. India being a developing country can't rely on its urban manufacturing and services sector alone and rural areas must see development.

ICT can be an easy set of tools that can act as a springboard for the democratic and sustainable development of rural India. ICT can be used in e-governance i.e. regulation, capacity building and policy making thus, leading to the participation of rural people in democracy and decision making. It can be used in disaster management and early warning systems at this period of time when whole world is facing challenges from climate change. Environmentally sustainable farming solutions and information about the market price volatility can be made available to rural farmers in real time. Not only in agricultural sector but ICT can be used also for social and political development.

ICT can help in financial inclusion and hence in rationalizing of food subsidies. This, currently is being promoted under JAM (Jandhan Aadhar mobile) trinity. ICT is likely to help in eliminating identity frauds, wastage, leakage and delays in PDS system. BPL population can be informed through SMSs about the arrival of food grains. This will ensure accountability, transparency and grievance redressal.

ICT can also be used as an important base for political reforms not only in rural but also in urban areas. It can bring revolution by cashless transactions thereby saving time of people and reducing opportunity costs. It can become a tool for women empowerment by promoting their products worldwide through e-commerce. ICT is surely a weapon to fight growing challenges in rural areas and hence, preparing them for an unpredictable global change.

Keywords: ICT, Agrarian Economy, E-Governance, Capacity Building, Cashless Transactions etc

Introduction

Rural area is a geographic area that has few homes or other buildings and is located outside Town and Cities. More Than 68% of Indian Population living in rural areas and is dependent on agriculture. They earn their livelihood by producing and maintaining the crops. Their primary source of wealth is cultivating the land.

ICT (Information and Communication Technology) is a set of tools that are used in rural areas for the development of villagers and farmers. ICT include Computer Hardware, Computer Software, Radio, Television, Mobile Phones, Digital Camera, Wi-Fi, Projectors and other application Software's that are used for

exchanging and sharing information with each other.

ICT provides a platform in which all the farmers/villagers can earn their livelihood easily without wasting of their time, crops and other products. Farmers who do not have proper knowledge of cultivation of crops, seeds, and watering should suffer from many threats from poor Soils, Droughts and Pests.

ICT provide a mechanism in which all the government Sponsored Schemes made for farmers /Villagers should be implemented So that farmers can avail full benefits of such schemes i: e PMMY (Pardhan Mantri Mudra Yojna), PMMY(Pardhan Mantri Awas Yojna) , KCC(Kissan Credit Card) , SGSY,SC/ST/OBC and DRI (Differential Rate of Interest).With the help of ICT farmers can avail credit facilities from the bank/financial institutions with a very low rate of interest to enhance their products and cultivating the crops.

ICT can help in financial Inclusion and hence in rationalizing of food subsidies.ICT provide online Job card verification and organize seminars/camps to aware the farmers/Villagers for the same.ICT used a process/application called JEO-TAGG which is used to avoid the duplicity in payments of MGNREGA and SBM.

ICT can act as tool for women empowerment by promoting their products worldwide through E-Commerce.ICT provide all the banking facilities i: e E-Banking, Mobile Banking, E-Billing and other mobile Applications such as PAYTM, Airtel Money, State Bank Buddy, JKBank Mpay for the farmers, So that their time and money saved and all the transactions/Recharges should takes place at their homes without visiting to the Bank.

ICT provide overall information of weather and climate change to farmers during their season of crops So that best mechanism for pests, Droughts, Cloud Burst, and other natural calamities should be framed and implemented.

Literature Review

The main focus here is the use and implementation of ICT in rural areas and

agricultural sector. The development in rural areas has been increased as compared to previous years. The farmers now used ICT techniques and procedures to enhance their products and maintain the cost and quality of their products. ICT provides the training to the villagers/farmers/women's to promote their products online and exchange information with rural development administration.ICT also provide the training to the farmers and women entrepreneurs who want to run their Small businesses by availing the credit facilities through various Training Institutes of Banks.

ICT also provides many web /mobile applications for uplifting of agriculture Business. With the use of ICT farmers need not to take the food grains and other products to markets for selling, they can use online applications and buyers can automatically approach to them within no time.ICT also provide employment/Placement opportunities for farmers/Villagers /Women's who register themselves with online job portal.

Research Methodology

This research paper is based on the secondary data collected from the online sources, different research papers and from the Google Search Engine.

Role of ICT in Rural Development

As our country is a developing country and more than 68% of population resides in rural areas so we must focus on it. Since this is the digital era and to implement the Digitalization we must use some technology.ICT (Information and Communication Technology) plays an important role in overall development of rural areas by enhancing the agriculture business and providing various services at the door steps and enabling the farmers to avail all the facilities, schemes and policies framed by the government. The ICT helps in organizing various training and awareness camps by using Slide Projectors/poster presentation to aware the villagers/Farmers living in rural areas about the proper timing for seeds sowing, climate change, pests, minerals and

fertilizers. ICT also provide the following facilities to farmers in rural areas:

- ICT provides the online services to check the food and gas subsidies.
- ICT provide the online verification of works allotted/completed under MGNREGA schemes via digital cameras and various mobile applications so that no fake payments are released.
- ICT provide the online transaction to farmers/Villagers through Business Correspondents in the villages without visiting the Banking Institutions.
- ICT is used to deliver the E-Governance facility.
- ICT is used to deliver the E-Learning Facility to improve overall teaching learning process.
- ICT also provide the radio service in which various government policies/facilities will be announced as the illiterate villagers, agriculturists and farmers are familiar of radio listening during working.
- ICT provides the information to villagers in their local language so that maximum number of peoples aware of and avail the benefits.
- ICT acts as an important tool for women empowerment by promoting their products worldwide through E-Commerce.
- ICT also helps in eliminating the identity thefts and frauds, wastage, leakage, and delays in public distribution system.
- With the use of ICT the land for building construction is properly checked i: e whether the land is earthquake prone or not.
- With the use of ICT, BPL population can be informed through SMS, s about the arrival of food grains.
- With the use of ICT, E-PDS system is derived to eliminate the identity frauds.

Role of ICT in Forests

ICT plays a vital role in protecting forests. With the use of ICT CCTV cameras installed in which there is a overall control on deforestation, smuggling of Timbers and Firewood's and encroachment of forest lands. ICT provides GPS System which help in tracking paths in dense forest areas.

Role of ICT in Education

The use of computers and internet for enhancing the quality of education by making learning more relevant to life has been seen as an ideal by educational institutions. The people living in rural areas are now in the age of electronic media. Managing of large quantities of information and communicating the same to the farmers/villagers living in rural areas is the biggest need at this time.

ICT is not limited to computers or internet. ICT range from the use of FM radio to the use of satellite for communication. With the use of ICT, the teaching will be more effective and learning will be more experimental. With the help of ICT, the students get the online study materials, lectures, notes from all over of the world within no time.

For this, ICT has been considered as an effective tool for teaching, learning and making educational process more meaningful.

Role of ICT in Health

ICT can play a vital role in improving health care for peoples living in rural areas and providing various medical facilities at their doorstep without visiting very high and costly Hospitals. With the use of ICT, Doctors/Physicians working in rural hospitals are able to diagnose the patients using his Medical Training and Internet Connection. By using ICT a neonatologist who transmits CT Scans, Ultrasound, ECG and other medical images by e-mail to various other Doctors around the world to help in diagnosing and treating premature newborns who helped him to save various lives. By giving crisp and more composed methods for getting to, conveying and putting away data, ICT can help bridge the information divides that have

emerged in the health sector in developing countries between health professionals and the communities they serve.

With the expansion of databases and other applications, ICT also offer the competence to develop health system efficiencies and avoid medical errors. ICT is used to deliver the E-health Facility. With the use of ICT, Patients are also inform through the SMS /e-mail that there medical test reports are ready.

Role of ICT in Agriculture

ICT in agriculture offers an extensive collection of solutions to some agricultural challenges. It is an emerging field focusing on the enhancement of agricultural and rural development through improved information and communication processes. E-Agriculture includes the general outline, change, evaluation and utilization of imaginative approaches to utilize ICT in rustic space, with essential concentrate on farming.

The use of ICT as a tool of intervention in agriculture is becoming increasingly popular. Many mobile applications designed and developed in regional language to break the literacy barrier and deliver the information in most simple manner. With the use of ICT, the tracking of cattle's is easier. Each cattle is tagged with the use of RFID (Radio Frequency Identification) technology for easier identification, providing access to relevant data such as bearer's location, name of Breeder, origin of livestock, sex and date of movement. This also provides improvement in controlling disease outbreaks in livestock.

Versatile farming is a piece of E-Agriculture and compact remote gadgets have prompted the making of advancement administrations and application that are utilized inside the rural esteem chain in the created nations. In agriculture, mobile technology is more commonly used to deliver services for producers and traders.

In agriculture the use of global positioning system provides benefits in geo-fencing, map making and surveying. With the use of GPS, farmers/villagers can produce simple yet highly accurate digitized map without the help of cartographer.

To prevent an animal from wandering into farms and destroying precious crops was to tag the animals with a device that sends a text message when it crosses a geo-fence.

With the use of SMS and GPS, the animals can roam freely and the authorities are alerted whenever they are near the farm. Geographic information systems (GIS) are extensively used in agriculture especially in precision farming.

By using GPS on tractors, the entire process from leveling the field to planting the seed to irrigating the crop has been much more efficient. GPS based applications are being utilized for cultivate arranging, field mapping, soil exploring, tractor direction and soil examining. GIS is used in decision making such as what to plant and where to plant using historical data and sampling.

Role of ICT in Climate Change

With the use of ICT, weather forecasting offices use mass media to inform peoples on weather updates. It also aware the peoples about the weather hazards, various monitoring devices such as weather satellites, weather radars and wind profilers are used to monitor the weather and weather system that may affect the rural areas.

Earth simulators are used to model climate change and weather conditions. In various rural areas, where flood is major concern of farmers, some mobile services are used for flood management. These mobile services are used for weather information. ICT helps farmers by informing them about the use of flood water for crop production through simple text messages. The text messages also warn the farmers about the flood events which would help them prepare their fields and advise on how to mitigate flood damage.

ICT also helps for disaster management, relief operations and providing early warnings.

Future Scope of ICT

Tourism is the sector that has possibility of being benefitted from ICT. ICT can be an important medium for developing tourism market and improving local livelihoods. ICT will play an

important role in delivering both gender equality to minimize the growing gender gap.

ICT will also provide women new opportunities that involve sustainable livelihood and economic empowerment. Social networking sites receive lot of attention and by using social media tools to communicate with peoples across the world and the entrepreneurs/women's promote their business worldwide by saving time and money.

ICT can play a role to enable communication and interaction using mobile telephony, to fostering cooperation with wider networks of stakeholders towards actions, through social networking tools. ICT should also devise a mechanism or policy to aware the peoples about the new technologies for their upliftment and better future as many peoples in rural areas still unaware of latest technologies.

By adopting the internet of things and Big data Analytics in agriculture i:e RFID, Remote Sensing, GPS, and GIS , the information needed for improving land and water use can be collected. Farmers can accomplish extra benefits by combining enhanced utilization of fertilizers and other soil amendments, determining the economic threshold for treating pest and weed infestations, and protecting the natural resources for future use. Farmers and cultivation service providers can imagine even further improvements as GPS continues to modernize.

Conclusion

ICT is a set of tools that can act as a springboard for the democratic and sustainable development of rural India. ICT can be used for social, economic and potential development with particular emphasis on helping poor and meaningful people and communities. ICT can be used in e-governance, e-commerce, e-learning, e-agriculture, e-pds, capacity building, policy making and decision making.

ICT advancement incorporate many sorts of foundation and administrations, extending from broadcast communications, for example, voice information and media administrations to particular applications, for example, managing an

account, training or wellbeing to the usage of electronic government.

The objective of ICT is to utilize strong minimal effort advancements that can be accessible for poor and low pay groups the world over. ICT likewise utilizes advanced mobile phones about the status of yields and water system framework remotely. ICT can likewise use for preparing purposes.

ICT helps in improving literacy rates by using mobile phones and SMS and by giving disabled people a powerful tool in their battle to gain employment. ICT provide various opportunities in education and employment through training to unskilled women's /farmers. ICT tools are emerging as an area of increasing interest.

ICT helps in financial inclusion and hence in rationalizing of food subsidies. Rural peoples are most important assets of India and the Indian economy is the agrarian one, so effective use of ICT can bring rural communities closer to global economic system to further improve social and economic benefits.

ICT is surely a weapon to fight growing challenges in rural areas and hence preparing them for an unpredictable global change.

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