

## PROVIDING SOLUTIONS TO THE FARMERS THROUGH ICT IN INDIA

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### ABSTRACT

New media or Information and communication technology (ICT) tools have penetrated into every sphere of our lives. Interaction between human beings and new media has become inevitable. Infact new potentials of ICT tools are being explored. One such usage or potential being focused on by many nations is 'Using ICT for development.' 'Knowledge is Power' is the notion behind using ICT for development. Like every economy, Indian economy has set of complex sectors too. Agriculture sector however is a key sector of Indian economy as a large number of the population is dependent on it. However, Indian agriculture sector is facing number of problems. Infact to the extent that 'whether or not Agriculture is a viable vocation in today's times?' has become a debatable question. Hence this research paper is written with the intent to highlight those problems and provide ICT based solutions for those problems. A literature review was conducted and secondary data was used for the purpose of the study. Government initiatives, initiatives by the NGOs and those that can be taken by individuals on personal level have been discussed. The extent and potential of ICT for development of an economy is great provided it is implemented at the right place, at the right time and in the right manner. The content of this paper is original and is part of my PhD research work in progress.

**KEYWORDS:** ICT For Development, ICT And Agriculture, ICT Solutions To The Farmers, Problems And ICT Based Solutions For Agriculture.

### INTRODUCTION

"Development is neither a simple, nor straightforward linear process. It is a multi-dimensional exercise that seeks to transform society by addressing the entire complex of interwoven strands, living impulses, which are part of an organic whole". (Haqqani 2003:xi).

### INDIAN ECONOMY AGRICULTURE SECTOR

Agriculture sector is key sector of the Indian

Economy as a large number of populations is dependent on it. Mahatma Gandhi has said, "Agriculture is the backbone of the Indian Economy". It is the principle source for more than 55% of the population to sustain their livelihood. Yet agriculture's share in the economy is declining. Indian economy has both organized and unorganized sectors. Services sector is the largest sector of our economy and has a share of 53%.

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However the contribution of the agriculture sector in the economy is merely 17%.

## **INFORMATION AND COMMUNICATION TECHNOLOGY (ICT)**

ICTs can be defined as technologies which perform mainly four major functions i.e. capturing, storage, processing and manipulation, transmit and display. It is an umbrella term which covers any communication device or application encompassing; radio, T.V., cellular phones, computer & network hardwares and softwares, satellite systems, etc, as well as various services and applications.

The interaction between human beings and media is inevitable. Now, ICT tools have penetrated our lives. These ICT tools are catering and fulfilling different types of needs of humans. In this 21<sup>st</sup> century humans are exposed to not just one but multiple ICT tools. Hence, ICT is now being used to convey development messages. ICTs provide equal opportunities of development to all without any discrimination. It covers a huge population and overcomes geographical, social, economical barriers and boundaries.

## **REVIEW OF LITERATURE**

Government of India has initiated Digital India programme to develop the country. Our Prime Minister Mr. Narendra Modi launched this programme on 1<sup>st</sup> of July in 2015, with the aims to bring transparency in the system by bridging the gap between the Government services and end-beneficiaries and to empower the citizens digitally.

Three important elements of digital India are creation of digital infrastructure, digital literacy and delivering services digitally. All Government ministries, departments, offices at both central and state level/ UTs have been provided ICT

infrastructure and support to deliver services, implement policies, schemes more efficiently. Digital India is a major development programme based on ICT. Bhoomi project was started by the Karnataka Government in Feb, 2001 with the aim to computerize data related to land and maintain land records. The aim was to bring in transparency, security and reliability. This project covered 6.7 million landowners and 176 taluks. The records could be easily accessed by users through a network of rural kiosks. E-sampark is another programme based on ICT to provide all kind of services from a single window. It aims at connecting all the departments and delivering services to the people transparently.

Many more ICT based initiatives are being successfully run by Government, NGOs and private companies as part of their corporate social responsibilities (CSR). Some popular Government's ICT based initiatives are Gyandoot project, Warana Wired village project, AGMARKNET, Kisan Suchna Kendra etc. Similarly some popular ICT based initiatives run in the agriculture sector by companies as CSR are e-choupal by ITC, Kisan Mitra by Mahindra, Kisan Kendras by TATA etc. Lifeline is a popular ICT based initiative run by an NGO.

## **OBJECTIVE**

- This research paper is written with an attempt to highlight problems in the agriculture sector.
- This paper attempts to suggest ICT based solutions for those problems.

## **RESEARCH METHODOLOGY**

A literature review was conducted and secondary data was used for the purpose of the study. Sources like internet, thesis, research papers, newspapers, magazines, articles etc. were used for the purpose of the study.

## **ICT FOR AGRICULTURAL DEVELOPMENT**

Indian agriculture is full of risks and uncertainties. However, ICT can be used to improve the situation. 'Knowledge is power' is the notion behind the idea of using Information and communication technology for development (ICT4D). Farmers can be empowered by providing them the necessary information digitally.

## **PROBLEMS OF INDIAN AGRICULTURE AND POSSIBLE ICT BASED SOLUTIONS**

Indian agriculture is facing many problems. Some of them are as follows along with possible ICT based solutions-

1. **HIGH INPUT COST:** Input cost of high yielding seeds, genetically modified seeds, manure, pesticides, fertilizers etc are beyond the reach of many farmer especially small farmers. Often they have to settle for poor substitutes which might instead cause harm to the soil's fertility, environment and yield. Even if they happen to acquire the superior inputs they are at a very high cost almost unaffordable without loans resulting to the vicious circle of never ending debts.  
**SOLUTION:** Farmers can connect through online forums with experts to take advice regarding inputs. They can find out about subsidies available on them under the government schemes by visiting the government portals and websites. They can call on toll free call center numbers too in case they cannot read or write for information.
2. **LACK OF PROPER IRRIGATION:** Number of farmers depends on the Monsoon for irrigating their fields which is uncertain. However, few have resorted to canals and dug up tube-wells to fulfill their requirements. Unchecked tube-wells have resulted to ground water depletion.

Decreasing water table is another serious problem giving rise to further problems.

**SOLUTION:** Farmers can contact experts regarding irrigation problems if any in their area via phone calls or Whatsapp based groups. Infact they can learn about water resources management without causing harm to the environment. Many videos can be accessed on platforms like Youtube and new innovative ways can be learnt. They can even find out regarding complaint cells using ICT where they can register their problem. They can even find out about government schemes related to irrigation using ICTs.

3. **LACK OF MECHANIZATION:** Majority of the farmers are not able to afford the machineries used for farming and end up doing each step manually. Such labour intensive efforts are unnecessary and result in low yield & affecting the health of the farmers creating further health expenditure. The same efforts can be better utilized somewhere else.

**SOLUTION:** Farmers can make online forums and connect with farmers around their areas using ICT platforms and can share the cost of purchasing machineries and use it turn by turn. In this manner cost can be divided and benefits can be enjoyed mutually. They can even find out about the schemes, subsidies and loan information using ICTs.

4. **SOIL EROSION & DEGRADATION:** The soil erosion takes place because of wind & water. Continuous use of harmful chemicals & pesticides degrade the quality of the soil and reduce its productivity. If the productivity of the soil is lost, no matter how much effort is put in, it will not be fruitful.

**SOLUTION:** Farmers can find out about soil testing centers and procedure of getting free soil test through websites, call centres or through other platforms using ICTs. They

can even learn about techniques and methods that can be used to avoid soil degradation and maintenance of soil health. They can even connect with experts to seek advice for ways to replenish soil nutrients.

**5. IMPROPER MARKETING FACILITIES:**

Generally farmers in India are illiterates; hence they are not properly aware of the marketing system. They may not know what to be done with their produce & end up selling to the local dealers or middlemen. These local dealers or middlemen have good understanding of the marketing system & often exploit the poor farmers buy not paying them what they deserve to earn extra profit margin for themselves.

**SOLUTION:** Farmer can find out about market rates, place and new ways of processing a produce in order to fetch better prices using ICTs. They can even find out about subsidies and minimum prices fixed by the government for every produce and escape from the clutches of the middlemen. They can directly connect with clients too using ICTs and avoid exploitation.

**6. LACK OF STORAGE FACILITIES:**

The storage facilities in rural regions is either inadequate or in bad condition. Very small numbers of people are able to avail the storage & godown or warehouse facilities. The number of such warehouses is also less and hence the farmers are forced to sell their produce at whatever price they can fetch. Some of them who are able to hire such warehouses have to suffer losses because of poor conditions like moisture, rats etc in the warehouses.

**SOLUTION:** Farmers can find out about the Government warehouses near their location using ICTs along with the rates and procedure of renting them. Farmers can avoid damage and loss of produce by taking advices from experts regarding packaging

and storage depending on the kind of produce.

- 7. INADEQUATE CAPITAL:** Like any other industry, agriculture too requires good capital investment for good output. But majority of the farmers are not in a state to invest much money. They can barely live their livelihood; they do not have the kind of capital investment required and end up taking loan from banks or other money lenders. But paying back the loan becomes a big trouble for them as their income is uncertain and at a lot of risk.

**SOLUTION:** Farmers can use ICTs seek information regarding loan schemes. They can take advices regarding management of funds from experts using ICTs. They can learn ways to increase their profits and decrease their cost of production and losses to get rid of the problems like insufficient capital.

- 8. UNORGANIZED SET UP:** There are inadequate checks and barriers. Very few are inadequate number of agencies & bodies which could keep a check whether MSP outlets are opening on time, cold storages are being properly maintained or if there are malpractices like hoarding, adulteration etc going on or not. There are no checks on the practices by middlemen as well. Insurance sector completely neglects them & focuses only on urban people.

**SOLUTION:** Farmers can connect through ICTs and complaint regarding any kind of exploitation or malpractices if they come across any due to the unorganized set up in the agriculture sector. Concern authorities and departments can be traced using ICTs and can be communicated.

## DISCUSSION

All the above problems can be solved if the farmers get the right information, at the right time, at the right place. Various ICT tools and

platforms can be used such as Whatsapp, Youtube, Facebook, SMS, calls, e-mails, web pages, web forums, applications etc. However, the biggest problem is lack of awareness. If the farmers are informed and made aware about ways they can improve their situation, things will change. Information and communication technology can play a vital role. The ICTs can help educate farmers about agricultural techniques, modern methods of cultivation, optimum utilization of the available resources; facilities given by the Government which is at their disposal, conditions will improve. If the farmers are aware of their rights they will demand for it.

## CONCLUSION

Development of Indian economy cannot be leveled unless rural India develops, and development of rural India is dependent on the development of the agriculture sector. Providing knowledge using ICT to the farmers to make them digitally empowered is the way to go. Potential of ICT is great and only a little portion of it is being harnessed at this point of time. A lot can be done if benefits of ICT are fully harnessed. ICT can play a role of a catalyst in the process of rural development, and hence, overall development of the economy can be achieved.

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