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Information and Communication Technology (ICT)

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Introduction

Agriculture is the backbone of any country and India is blessed to have agriculture as the main occupation of a large population. The phrase ICT was coined by Stevenson in his 1997 report to the government. The developments in ICT have revolutionized agricultural operations many folds. Be it the meteorological information, soil health, seed health, fertilizer application or even the insect attack on the crops, all are being regulated by the ICT applications in one form or other. Our today's farmer is well informed about the use of new technologies in agriculture and is very efficiently utilizing the information in an intelligent way. The use of Information Technology has made our farmers SMART, i.e., they are Self-Monitoring, Analyzing and Reporting through the use of adequate Technology. The scientists are using ICT tools to reach the farmers on their fields and our farmers has brought their knowledge to the labs for further growth and development in the field of agriculture.

Developing country like India are though able to achieve self-sufficiency in food production after green revolution but they are in threat to maintain this self-sufficiency as they are likely to face food shortages in near future because of the population growth rate which is too high as compared to food production rates. Thus, the demand of continuous increasing population can be fulfilled with the help of ICT as a tool of revamping extension network of the country. ICT is emerging as an important tool for the development of societies and are the driving forces in the world economy. ICT is used to accelerate the food growth rate by using technologies to perform tasks like predict weather conditions, insect-pests and disease forecasting learn about the latest methods to improve farming productivity. Smart Farming represents the application of modern Information and Communication Technologies (ICT) into agriculture, leading to what can be called a Third Green Revolution. Following the plant breeding and genetics revolutions, this Third Green Revolution is taking over the agricultural world based upon the combined application of ICT solutions such as precision equipment, the Internet of Things (IoT), sensors and actuators, geo-positioning systems, Big

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Data, Unmanned Aerial Vehicles (UAVs, drones), robotics, etc.Information and communication technologies (ICT) can be used to advance climate-smart agriculture, which is defined as actions that "seek to increase sustainable productivity, strengthen farmers' resilience, reduce agriculture's greenhouse gas emissions and increase carbon sequestration, while it strengthens food security and delivers environmental benefits". ICT as tools for land use planning and management and as risk management tools for climate change adaptation. The importance of ICTs is not the technology as such, but it's enabling function in access to knowledge, information and communications, increasingly important elements in today's economic and social interactions.

Importance of ITC

- It initiates new agricultural and rural business-like e-commerce, realty business for satellite offices, rural business, and virtual corporation of small-scale farms.
- It supports analysis on optimum farm production, disaster management, agri-environmental resource management etc., exploitation tools like geographic Information systems (GIS).
- It improves farm management and farming technologies by economical farm management, risk management, effective data or data transfer etc., realizing competitive and property farming with safe product.
- Empowerment of Stakeholders (Government officers, Research, Education & Extension Scientists, farmers and different service suppliers like Community data centers.
- Development of information Management, call Support and consolatory Systems to strengthen Extension services and additionally used for Farmers Redressal system.
- Efficient management (Development, Conservation, allocation and utilization) of resources.
- Improved productivity and profit of farmers through higher consultatory systems

Use of ICT

❖ **Digitization of Land Records**

✓ It includes geological information regarding the shape, size, soil type of the land; and economic information related to irrigation and crops.

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- ✓ Ensure efficient, accurate, transparent delivery mechanism and conflict resolution in ownership.
- ✓ Provide electronic record of rights (ROR) to land owners at nominal rates u Information empowerment of land owners.
- ✓ Low cost and easily reproducible data for reliable and durable preservation.
- ✓ Integration with other data sets towards comprehensive LIS Some of the initiatives in various states include, Rajasthan: Apna Khata; Chhattisgarh: Bhuiyan; Haryana: Jama bandi; Himachal Pradesh: HimBhoomi; Karnataka: Bhoomi; Kerala, Madhya Pradesh, Odisha: Bhulekh; Uttar Pradesh; Uttarakhand: Dev Bhoomi and West Bengal: Bangla Bhumi.

❖ **Agricultural Commodity Trading**

The Government of India in 2003-04 had initiated major steps towards introduction of futures trading in commodities, which included removal of prohibition on futures trading in all the commodities by issue of a notification and setting up of the National Level Commodity Exchanges, such as National Commodity & Derivatives Exchange Limited (NCDEX), Multi Commodity Exchange of India Limited, National Multi Commodity Exchange of India Limited (NMCE).

Information Dissemination/ICT initiatives for agriculture in India

IKSL, AGMARKNET, Digital Mandi, eArik, Akashganga, Kisan Call Centers, AGRISNET, Digital Green, eSagu, aAQUA (Almost All Questions Answered), Fisher, Friend Mobile Advisory KCC, m-Kisan portal/SMS portal, Mahindra Kisan Mitra, Village, Knowledge centers, Warana Wired Village Project, iKisan, Reuters Market Light.