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SOCIO-ECONOMIC IMPACT OF E-GOVERNANCE ON AGRICULTURAL GROWTH IN INDIA: A CASE STUDY OF WESTERN UTTAR PRADESH

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ABSTRACT

To provide food security, nutritional security, poverty reduction, and sustainable development in India, agriculture is a vital component of the country's economy. It provides 17.32 percent to GDP and gross value addition of about 23.82 lakh crores INR.The Green Revolution, the Evergreen Revolution, the Blue Revolution, the White Revolution, the Yellow Revolution, the Bio-technology Revolution, and the Information and Communication Technology Revolution are some of the milestones in the Indian agricultural growth. On the other hand, information and communication technologies (ICTs) are critically analyzed in this article, in an effort to shed light on what is happening at ground level within the agricultural sector of both the country and specifically Western Uttar Pradesh.The facts are evaluated by usingsamplingmixfrom the villages, farmers, related apex bodies,concernedofficers and some of e-governance experts. The primary level opinions were gathered using questionnaires, interview schedules and spot observation of the tools and techniques of the e-governance. The research ended up with important conclusion that there is still a long way to go with regard to the execution of the e-governance tools at ground level. The traditional practices in the sector still overshadowed the e-

governance in the sector. Though, there are some positive aspects also in the development of the agricultural sector, but still the main stakeholders are not connected as per the expectation of the executives of this mission in the country. As per the data it is evident that there are around 66% farm workers who have no idea about that information and the communication sources provided by the government to facilitate the agricultural & allied sectors.

INTRODUCTION:

There are variances in India's agricultural techniques.Each plant has the unique characteristics, and in their growththe location plays an important part. A technique can be improved through the sharing of information amongst persons working in agriculture from across the world. Because of it, people are now more aware of how to exchange information with one other. Information technology (IT) has become a bridge for individuals from all over the world, connecting them.

Indian agriculture has seen a number of important milestones, such as: the green revolution, the evergreen revolution, the blue revolution, and the white and yellow revolutions, as well as biotechnology and information and communication technology revolutions. Information technology enables new ways for precision agriculture, such as automated farm machinery that applies fertilisers and pesticides to the soil and plants. Agricultural animals are fed and tracked with the use of electronic sensors and ID systems. Globally, the practice of selling or purchasing online has become increasingly common.As a result, the Internet has presented us with a perfect opportunity to communicate. In addition to the Kisan Kerala,Aaqua, ITC-e-choupal,Rice knowledge management portal, Mahindra Kisan Mitra, e-krishi portals and the IFFCO Agri-portal as well as the M.S. Swami Nathan research foundation (MSSRF) and Indian Space Research Organization village resource centers, among others, ICT measures have been taken by both the central and state governments as well as private organisations to promote agriculture. However, we will focus on a few notable and recent ones that may not have been included in this list.

Rural India is Being Transformed by Digital Technology:

As a result of its apparent benefits in terms of health, education, financial services, and career opportunities, etc. Provides services for evaluating and managing projects, which can help to fill in the gaps. Three types of ICT services are available for rural areas:

1. Empowerment-oriented solutions
2. Those who are willing to assist others.
3. Some of them promote the growth of the market

In terms of empowerment, e-choupal is a great model to follow. Farmer's receive timely and relevant information allowing them to obtain higher profits on their crops. Due to its community-centric strategy, it also offers additional services to farmers, such as insurance and farm management practices, among other services.

Through the use of IT, e-governance provides openness and accountability for the public. If e-governance is implemented successfully, it will eliminate malpractices and create guarantee of legitimate ownership. AADHAR is also an excellent evidence of an information and communication technology solution that attempts to offer access to monetary advantages by verifying the right identification, and in this manner, rural economies are also developing.

- For example, village and heritage tourism in distant regions of the country has accelerated in recent years due to the increased awareness produced by web portals, attracting more people than in the past.
- E-commerce has made it possible for a significant number of craftsmen in rural regions to set up agro-based small businesses. As a result of promoting their products on the internet, weavers in the north eastern states are able to earn a living.
- The rural market in India is changing as a result of good accessibility. Farmers may take advantage of FMC's services with the aid of IT and obtain a higher price for their goods.
- To transform the rural life, we must wait several years for progress to take place.
- In this way, information technology has the potential to transform rural living and pave the way for greater rural development.
- With 104 out of 1,000 homes in Maharashtra having Internet access in cities, it was followed by Kerala and Himachal Pradesh at 95 each, and Haryana at 81.5.

Agriculture and Information Communication Technology (ICT):

Agribusiness and ICT appear to be the world's most dispersed knowledge sets in India. Most rudimentary and fundamental professions are in farming, whereas information technology is the most complex and contemporary. To be sure, farming is vital to the survival of life on earth, and it is crucial that technological advancements in agriculture assist in the improvement of farming so that it can produce better.As a result of e-Agriculture, farmers have better access to pricing information, agricultural information, national and international markets, increased production efficiency, and a "conducive policy climate." When it comes to e-Agriculture, the key components are soil management, water management, seed management, fertilizer management, pest management, harvest management and post-harvest management. It makes use of a wide range of technologies, including remote sensing, computer simulation, wind speed and direction assessments, soil quality tests, crop yield predictions, and IT-based marketing and sales strategies, among many others.

LITERATURE REVIEW:

For this research following related literatures were reviewed to get a research idea as well as the research gap related to this research problem.

Yadav Nikita et al, International Journal of Computer Applications (0975 – 8887) Volume 53-No.7, September 2012, discusses the newest technological developments that the government of most of the country has accepted in this article. E-Governance: Past, Present, and Future in India This project's conclusion is that e-government has made government operations more efficient and transparent for its citizens. Additionally, we've put up a comprehensive list of e-government initiatives now being utilised in India and beyond. Open Source and Cloud Computing technologies have been used to improve E-Governance.

P. K. Suri et al 2017, 'Introduction to E-Governance', 10.1007/978-981-10-2176-3_1, In book:Strategic Planning and Implementation of E-Governance, There is an overview of the history and growth of e-governance in India in this chapter. In the e-Kranti component of the recently announced 'Digital India Programme', it highlights key existing and new e-governance initiatives ranging across multiple government entities. Indian e-governance projects linked to agriculture are highlighted, as well as the obstacles associated with executing such efforts. Also

included is a list of some of the most popular agriculture-related grassroots projects in India. Using worldwide surveys, the e-readiness level of India is determined. In addition, it focuses on the book's main themes, including developing insights about situation–actor–process interplay in e-governance context, exploring the suitability of the conventional planning and implementation framework for handling the dynamic context of e-governance, and creating strategic alliances.

Yadav, Kiran et al 2014, 'E-Governance in India: Opportunities and Challenges', Advance in Electronic and Electric Engineering.ISSN 2231-1297, Volume-4, Number6,pp.675-680,© ResearchIndiaPublications. When it comes to E-Government, the technology and procedures employed give a road map for effective delivery of services at the doorstep. For every country's future, the usage and penetration of E-Government is critical. A country's progress may be measured by the extent of its e-government. Because of the single-window supply of services, it has reduced corruption and empowered citizens.For the Indian government, e-governance presents a number of issues. e-use governances for the government and citizens of India is explored in this study. As a result, we aim to identify the areas that would benefit from e-governance policies, as well as provide a comprehensive list of E-Government initiatives that are presently being used in India today.

Shalendra et al 2011;
(July 2011), 'ICT Initiatives in Indian Agriculture -An Overview' Indian Journal of Agricultural Economics 66(3):489-497, Over 60% of the Indian population is employed in the agriculture sector, which produces around 17% of the country's overall gross domestic product (GDP). The fundamental issue facing policymakers is the development and deployment of better tailored technologies that are particular to agro-climatic conditions, farm size, and degree of agricultural development. If you're planning to disseminate market knowledge, it's crucial that you first determine what information the end user requires. Agriculture in India is undergoing significant changes as a result of changes in the economic and commercial environment. Farmers and other stakeholders will be able to make the best decisions if they get timely, relevant, and reliable information. For this information to be delivered efficiently, ICT should play a key role.

SharmaPayal et al 2011, (2011), 'E-Governance in India is the Effectual and Challenging Approach to Governance'. International Journal of Business Management&Economic Research,Vol2(5),2011,297-304, ISSN: 2229-624. For the purpose of this study, the authors sought to examine the effectiveness of e-governance for the Indian government as well as its citizens. We aim to determine which sectors have profited from e-governance and which have not, and why. As a result of secondary data and a literature study, we are evaluating the efficacy of e-government. It was also noted that there are obstacles to e-governance that limit its efficacy. Finally, conclusions and results relating to e-governance techniques will discussed.

BhatiaAmbika et al 2016, (2016)'Rural Development through E-Governance Initiatives in India', OSR Journal of Business and Management (IOSR-JBM)e-ISSN:2278-487X,p-ISSN:2319–7668, As one of the fastest growing economies in Asia, India is home to 70 percent of the population, which puts pressure on the government to spend more on rural development. ICT is a significant enabler of rural livelihoods and contributes to the elimination of poverty. The use of ICT in rural regions can increase their productivity. The Government of India has a lofty goal of changing citizens' interactions with the government into an electronic format through

numerous E-Governance projects such as E-Choupal, Akashganga, Gyandoot, Tata Kissan Kendra, Kissan Call Centres, etc. The government will be able to assure greater openness and better administration as a result. ICT activities have contributed to rural development, and this article attempts to identify some of the building elements that have led to that growth.

OBJECTIVES OF THE STUDY:

The major objectives for the aforesaid study are as follows:

1. To evaluate the status of e-governance in agricultural sector in India.
2. To evaluate farmers' attitudes regarding the implementation of information and communication technologies in India.
3. To analyze the actual benefits availed by the farmers using different initiatives taken by the government.
4. To suggest and recommend some of changes or improvements in the execution of e-governance at the ground level in agricultural sector.

RESEARCH METHODS:

To fulfil the above objectives the researcher adopted both primary and secondary sources of data. For primary data 600 farmers were evaluated to know about the changes on their socio economic status. The sample frame was western Uttar Pradesh; thereby the major data were from Aligarh, Meerut, Saharanpur and Moradabad Districts. Which was further subdivided into 2 blocks from each districts as quota sampling. Within the quota sampling the target populations were randomly evaluated in different strata.

The penetration of market forces in rural India is rising, and this is a potential market. ICT gives an excellent platform in India because of its various cultures and languages. As a result, rural regions will benefit from considerable uplift and sustainable growth in the future. Agribusiness is not immune to the impact of ICTs. ICTs today have the potential to transform the lives of farmers and agrarians through enhancing access to information and knowledge sharing.They have the potential to alter farmers' perceptions, behaviours and knowledge. Farmers feel empowered and are able to take proper action when necessary. It has gone a long way since the introduction of ITC efforts such as Krishivihar and the e-kutir, the e-Sagoo, and the ICT models AGROWEB, Agropedia, AgrInnovate etc. in Indian agriculture. Agricultural production might be improved with the use of IT in the face of climate change and shrinking cultivable land.

RESULTS ON THE BASIS OF DATA ANYLYSIS:

Several initiatives have been launched by the state and central governments in India in order to address the numerous difficulties that the country's agriculture industry faces. There is an E-Agriculture component in NeGP's (National E-Governance Plan) Mission Mode Project, which aims consolidate prior learnings, bring together fragmented initiatives, and enlarge them to include all of the country. It will be operationalized by the Department of Agriculture and Cooperation (DAC).

Information to farmers on seeds, fertilizers, pesticides:

- Farmers are informed about government programmes.
- Soil suggestions for farmers
- Crop management information.

- Agricultural weather and marketing information
- The government is taking measures to offer farmers with e-aid.

National Policy for Farmers, 2007 and ICT in Agriculture:

A National Commission on Farmers was set up by the Indian government in 2004 under the direction of Dr. M.S. Swami Nathan. India's "National Policy for Farmers, 2007" was prepared and adopted by the Government of India based on suggestions and comments made by the Commission in its Revised Draft National Policy for Farmers and by different central ministries and departments as well as state governments. New technologies that can assist increase production per acre and per liter of water are needed.To begin an "Evergreen Revolution" capable of boosting productivity in perpetuity, biotechnology, information and communication (ICT), renewable energy technologies, and space applications, as well as nanotechnology, are needed. Broadband penetration is a primary objective of the 2012 National Telecom Policy. Cellular phones are referred to be a tool for socio-economic empowerment for citizens.

National mission on agricultural extension and Technology:

In order to enhance farmers' access to technology and better agronomic practices, the mission would reorganize and boost agricultural extension. An effective mix of physical outreach and interactive methods of information dissemination, ICT use and popularization as well as capacity building and institution strengthening is envisaged to promote mechanization, availability of quality seeds, plant protection etc. and encourage Farmers to form Interest Groups (FIGs) in order to achieve these goals (FPOs).

- Tele-density in rural regions has grown under Bharat Nirman. Farmers receive the appropriate information at the right time from this base, which is being utilized to deliver service.
- It was in 2009 that the Universal Service Obligation Fund (USOF) introduced the Wireless Broadband Program (WBP). Bharat Broadband Network Limited manages the National Optical Fiber Network (NOFN), which is also funded by USOF. Rural India will be able to access a wide range of services because to the NOFN's bandwidth.
- USOF's Sanchar Shakti initiative includes a mobile value-added services (m-VAS) pilot project for rural women's self-help groups (SHGs). SHGs are given with information in local languages based on their behaviours using SMS, outbound dialers (OBDs), and an Integrated Voice response system (IVRS) (IVRS).
- As a single point of contact for NREGS information, Bharat Nirman Kendra will also give feedback on the program's effectiveness. The goal is to gradually transition from wage work to self-employment by providing rural people with skill development facilities and, in the process, offer a boost to the rural economy through skill development. Eventually it might become a centre for electronic study or an electronic learning centre.
- Smart Cards, Internet Kiosks, and mobile phone messaging are being used for agricultural credit. As well as the delivery of all social security benefits to all rural regions via electronic benefit transfer. Agricultural community can benefit from cashless transactions with Kisan card system that is mobile-enabled.
- In India, the Kisan Financing Card combines information and communication technology (ICT) to supply farmers with inexpensive credit. When the Reserve Bank of India (RBI) and NABARD launched it in 1998-99, it aimed to assist farmers in obtaining timely and enough loans.

- The Kisan Credit Card gives farmers access to cash credit without having to go through the time-consuming bank credit screening procedure again, saving them time and money. During a poor harvest, repayment can be postponed, and extensions of up to four years are available. The card has a three-year expiration date and must be renewed every year. Slips, cards, and a passbook are used for withdrawals.
- Krishi Vigyan Kendra and Kisan Choupal have been a successful model in Bihar. In a selected hamlet, the scientists in agriculture and related enterprises have assessed the farmers' needs.
- When it comes to the Kisan Chouapl, information technology is used to encourage debate, discussion, and problem-solving by displaying technical films to farmers, movies, etc. at the beginning of the Choupal Farmers have become more conscious of cropping methods and innovative approaches as a result of this. This has also made it easier for the technology to reach a larger range of farmers.
- In order to get professional assistance on numerous issues linked to agriculture and associated industries, farmers can call the tollfree hotline 1800-180-1551.
- When a farmer opts in to get SMS messages from specialists, scientists, and officers at various levels, he will continue to receive informational or service-related SMS messages on his cellphone. Farmers' choices in terms of language are taken into account while customizing communications.
- The site is integrating existing datasets about farmers that are held by the federal and state governments. Whoever hasn't signed up for the system has to do so. It is possible to register by contacting the Kisan call centre on the toll-free number, by using the web site, or even via SMS.
- Agriculture, including horticulture and animal husbandry, dairying and fishing are among the services offered by the portal' It delivers information not just about production, but also about marketing, weather forecasts, soil testing, and other topics.
- Using the Sandesh Pathak application, collaboratively created by C-DAC Mumbai, IIT-Madras, IIIT Hyderabad, IIT Kharagpur, and C-DAC Thiruvananthapuram, farmers who may have trouble understanding SMS messages would be able to hear the messages read aloud to them. It can be used by those who are unable to read. Farmers make up a major portion of the population. This software will read aloud every SMS message they get, whether it contains agricultural advice or not.
- It's an Indian-language SMS Reader that can be downloaded from the Mobile Seva Project's App Store.
- According to the Indian Government, the app would let farmers receive messages that may include: guidance to handle farming problems such as pest or disease control; weather forecasts; and updates on newest technologies for boosting production, among other things.

Village Knowledge Centre (VKC)

As an information distribution centre, the Village Knowledge Centre (VKC) provides access to the most up-to-date information/knowledge accessible in the field of agriculture, from crop production through commercialization. To oversee its activities, each VKC is overseen by a VKC In-charge.

Village Resource Centers (VRC):

Knowledge/Expert Centers including Agricultural Universities, Skill Development Institutes, and Hospitals are connected to VRCs via telecommunication. In the areas of agriculture/horticulture, fisheries, livestock, water resources, telehealth, awareness programmes for women's empowerment and microcredit/microfinance as well as skill development/vocational training for livelihood assistance the VRCs have implemented over 6500 programmes. VRC services have been used by more than five thousand persons.

More advanced use of ICT in farming:

Using a smart phone to monitor and operate crop irrigation systems is becoming increasingly common. An irrigation system may be controlled remotely, rather than having to go to each field, with the proper equipment.

- As a result of moisture sensors in the ground, it is possible to determine the amount of moisture present at a given depth in the soil. A pivot irrigation system allows for more exact management of water and other inputs such as fertilizer.
- As a result of the use of GPS mapping and variable rate technology, a farmer is able to determine where he needs to apply more or less fertilizer, depending on the soil's needs. This technology may also be used to document field conditions like as yield and moisture. It can also be used to create a map of the field's drainage.

1. Apps that assist farmers in identifying pricing for their crops, distributing their products and receiving soil reports are being developed by firms.
2. One vegetable farmer outside of Hyderabad is using webcams to monitor his crops and to access the knowledge of experts without having to send them to the field.

Benefits of E-Aid to Farmers:

The agriculture industry has benefited from the introduction of information technology. Here are only a handful of its impacts:

- **Improved decision making**
- **Better planning**
- **Modern farming methodologies**
- **Community involvement**
- **Agricultural breakthroughs**
- **Agriculture for everyone Precision Agriculture (PA)**

Problems in Effective Use of Technology:

Rural India would benefit greatly from e-Agriculture after the initial hurdles are overcome. Agriculture has a number of challenges to overcome such as connection in rural regions, the cost of providing services and the requirement for basic computer skills and literacy.Some of those problems are:-

- However, the technology is still a long way off, and many farmers are still unaware of such breakthroughs in agriculture technology. The distribution of technology around the country is not consistent. Affluent farmers, such as those in Punjab, Haryana and Maharashtra, are subsidised, while farmers in underdeveloped regions continue to use age-old practices and expertise.
- Farmers that are already wealthy exploit technology to their advantage, allowing them to thrive even more. Once again, small and marginal farmers are being left out of the development process.

- Agricultural farmers have low literacy rates, resulting in a surge of middlemen that provide ICT services to farmers. Some feel that they also manipulate the facts for their personal gain.
- In addition, the rural ICT infrastructure is not homogeneous and there is a lot of regional inequality.

CONCLUSIONS:

After evaluating the current status of Western Uttar Pradesh in India, it is found that the conditions are not as very acceptable as it was expected. Following major findings were concluded:

- Farmer's weren't aware of the many digital policies and assistance given by the central and state governments.
- This is the mission Farmers appear to be the ones who are most familiar with Digital India, but they lack direction or assistance on how to get the most out of it..
- Government may link farmers and place them on one platform with the aid of E-Governance and ICT technologies. Creating such a platform would help to increase transparency between these two organisations.
- Government of India has taken a big step in the direction of farmers. But using ICT technologies and government's beneficiary programmes would offer greater strength to the farmer, which is actually needed by the Indian government.
- For both the government and the farmer, having an online seed market is a win-win situation. E-governence can play a significant part in this. As a result of e-governance, farmers and government can communicate more effectively.
- It also facilitates online seed market communication and is economically advantageous for both government and farmers.

Governments' Issues:

- It's unclear how many farmers are interested in this programme.
- Farmer programmes are provided by the government, however there is a lack of confidence in commercial transactions between the government and farmer..
- Farmers are unable to acquire government-provided services or programmes due to budgetary constraints.

Farmers' Issues:

- They are completely unknown to the farmer.
- There was no method for the farmer to receive any information connected to the many sorts of programmes and information that were accessible to him because he didn't receive any notifications from the government.
- Money is a concern for farmers once again. This is due to the fact that most farmers do not have the funds to purchase these seeds from the government.
- The fact that farmers have to pay for government services is not unusual. Instead of buying seeds from Krishi Center, farmers would prefer to borrow seeds from these private stores.

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