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A study on Agriculture Farmers and Digital India Programme

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ABSTRACT

In India Agriculture is the backbone of India's economy, India's agriculture, spanning diverse climatic zones, supports various crops. However, 85% of farmers are smallholders with less than 2 hectares, and only 49% of farmland is irrigated, leaving many dependent on erratic monsoons. Additionally, 52% of agricultural households face debt, highlighting the sector's challenges despite its critical economic role. The goal of the digital India programme is to help India become a technology-enabled society with a knowledge-based economy. One of the stated objectives of the digital India initiative is to encourage faceless, paperless, and cashless transactions. The Unified Payment Interface is a service that promotes cashless transactions and seeks to transform India into a cashless society. Rural people face significant challenges in successfully implementing digital literacy, digital infrastructure, and internet connectivity in order to achieve a cash-free or electronic payments society throughout the country. Sustainable output and farmer income growth necessitate a shift away from the input-intensive technologies that have dominated Indian agriculture since the start of the green revolution. This study is being conducted with the specific goal of understanding agriculture famers in India and

digital India programme, and to determining the rural economy, skills, and knowledge needed in connection with opportunities and challenges. The current papers address the issues of farmers' earning capacity and development in brief.

INTRODUCTION

Agriculture is the fundamental foundation of India's economy, employing a large proportion of the population, particularly in rural areas, and contributing approximately 15-20% of national GDP. It supports a wide range of crops, including cereals, pulses, fruits, and vegetables, due to India's diverse climatic zones. However, the sector faces numerous challenges, including small and fragmented landholdings, limited irrigation coverage, reliance on monsoon rains, and financial burdens due to debt. Most Indian farmers are small and marginal, with less than two hectares of land, limiting productivity and income. Climate change exacerbates these problems, as erratic weather patterns and natural disasters reduce crop yields. In recent years, the government has implemented schemes such as PM-KISAN and the Pradhan Mantri Fasal Bima Yojana to provide financial assistance, crop insurance, and subsidies. Technological advances, such as digital platforms and precision farming, are gradually changing the industry. The emphasis on sustainable practices, such as organic farming and water conservation, is also gaining popularity. Despite its challenges, agriculture remains critical to India's food security and economic development, with reforms and innovations promising farmers a brighter future.

India's agriculture supports a wide variety of crops, including cereals, pulses, fruits, and vegetables, owing to its 15 distinct agro-climatic zones and varied climatic conditions. However, the sector faces significant challenges. Around 85% of farmers are small and marginal, owning less than 2 hectares of land, which limits their productivity and income. Irrigation coverage extends to only about 49% of the net sown area, leaving the remaining farmland dependent on monsoon rains, which are often unpredictable. Additionally, nearly 52% of agricultural households in India are in debt, with many relying on informal sources of credit, exacerbating financial instability in rural areas.

Digital India is the government of India's flagship programme, with the goal of transforming India into a digitally empowered society and knowledge economy. Digital India is a programme that encompasses several Government Ministries and Departments(*Di-Initiatives | Digital India Programme | Ministry of Electronics & Information Technology(MeitY) Government of India*, n.d.). It weaves a large number of ideas and thoughts into a single, comprehensive vision, from which each can be implemented as part of a

larger goal. Each component stands alone, but is also part of a larger picture. The entire government will be responsible for implementing Digital India, with the Department of Electronics and Information Technology providing overall coordination.(Muniraju & Hariprasad, 2019)

E-governance initiatives in India took a broader dimension in the mid 1990's for wider sectoral application with emphasis on citizen-centric services (*An Assessment of Financial Literacy of Farmers and Its*, 2013). The major ICT initiatives of the government included, inter alia, some major projects, such as railway computerization, land record computerization etc., which focused mainly on the development of information system. Later on many states started ambitious individual e-governance projects aimed at providing electronic services to citizen.(Ndiege et al., n.d.)

Digital Payment

Payment and Settlement Systems Act, 2007 (PSS Act, 2007) defines Digital Payments/electronic funds transfer as any transfer of funds by way of instruction, authorization or order to a bank to debit or credit an account maintained thereupon bank through electronic means and includes point of sale transfers; ATM transactions, direct deposits or withdrawal of funds, transfers initiated by telephone, internet and, card payment.(Pontoh, 2020)

Digital payments are often done by different modes like NEFT, RTGS, IMPS, debit and credit cards, UPI etc. In India volume segment of digital payments is dominated by Debit Cards, PPIs and IMPS and constitute almost 50 you take care of the whole volume. (*Top UPI Payment Apps in India That You Can Try*, n.d.). While, value segment is dominated by RTGS and NEFT and constitute about 53 you take care of the whole value of Digital Payments. Digital transactions per capita increased from 2.38 transactions per capita in fiscal year 2014 to 22.42 in fiscal year 2019(Singh, 2017).

Digitalization of Rural India

India's rural population is an important part of the country's economy, accounting for approximately 46% of the national income. It has been estimated that approximately 66% of India's population lives in rural areas, and despite the rise in growing urbanization, rural India will continue to account for a significant portion of India's population in the coming decade, making it critical to improve digital infrastructure throughout the country, particularly in rural India(Tripathi & Prasad, 2010).

Digital Literacy

Digital knowledge entails having the skills required to live, learn, and perform job duties in a society where communication and knowledge are increasingly delivered via electronic mediums such as internet platforms, social media, and mobile devices(Gaurav & Singh, 2012)

In India, there are more than 6,50,000 villages and 2,50,000 panchayats, with 3 million panchayat members. Approximately 40% of the population lives below the poverty line, the illiteracy rate exceeds 25-30%, and digital literacy is almost non-existent among more than 90% of the Indian population. While the country has the world's second fastest-growing mobile market, it falls behind when it comes to internet access. Connecting the community and its members to the world via the Internet has become increasingly important for community vitality, development, and social progress in recent years.

According to the IAMAI report, there were approximately 30 million internet users in rural India in December 2011. Mobile internet access, community centers, and cyber cafes are the primary drivers of the 50% increase, which is expected to reach 45,000,000 by December 2012. However, empowering rural communities with ICT remains a difficult task, but many of us have dedicated time and energy to empowering troubled communities. (Gaurav & Singh, 2012)

Double Farmer's Income

Historically, India's agricultural development strategy has been primarily focused on increasing agricultural output and improving food security. This strategy involved increasing productivity through better technology and varieties, as well as increasing the use of quality seed, fertilizer, irrigation, and agrochemicals, among other things.(Bhaskar et al., 2014)

The strategy did not explicitly acknowledge the need to increase farmer income and did not include any direct measures to improve farmer welfare. The experience shows that, in some cases, increased output leads to a similar increase in farmer income, but in many cases, farmer income does not increase significantly as output grows. The net result has been that farmer incomes have remained low, as evidenced by the prevalence of poverty among farm households. In this context, Prime Minister Narendra Modi's goal of doubling farmers' income by 2022-2023 is critical to promoting farmer welfare, reducing agrarian distress, and achieving income parity between farmers and those working in non-agricultural professions.

Unified Payments Interface

The National Payments Corporation of India (NPCI), an RBI-regulated entity, developed the Unified Payments Interface (UPI), an instant payment system. UPI is built on the IMPS infrastructure and allows you to transfer money instantly between any two bank accounts.The Unified Payments Interface (UPI) is a system that integrates multiple bank accounts into a single mobile application (from any participating bank), combining several banking features, seamless fund routing, and merchant payments under one hood. It also accepts "Peer to Peer" collect requests, which can be scheduled and paid as needed and convenient.(*UPI: Unified Payments Interface - Instant Mobile Payments | NPCI*, n.d.)

REVIEW OF LITERATURE

Chitla Arathi (2017)Studied that impact of digitalization on rural India and viewed that digital India initiation will prepare India for knowledge based transformation and be available of good governance to citizen.

Ragavendra Nayak (2018) "A Conceptual Study on Digitalization of Banking - Issues and Challenges in Rural India"- Pointed out that implementation of digitalization to rural banking can bridge the gap between rural and urban area as it promotes higher level of investment activities.

Gaurdas Sarkar(2020) Pandemic COVID 19 and rural economy of India -Pointed out that consideration of regional economic development may act as engine to face challenges and to make India self-reliant through the implementation of decentralised planning.

Shamsher Singh(2017)"Study of Consumer Perception of Digital Payment Mode" -It was pointed out that demographic factors, with the exception of education, have little impact on the adoption of digital payments, and that the only significant difference seen by the respondents is their educational degree. It appears that the customer's degree of education has an impact on digital payment adoption.(Shamsher Singh,2017)

Jumardi and Pontoh, Grace T and Nirwana , Nirwana(2020)"The Effect of Self-Efficacy, Trust and Lifestyle on Intention to Use Digital Financial Transaction Service" In order to encourage and increase the intensity of e-payment usage, behavioural factors such as self-efficacy, trust, and lifestyle users can provide a useful understanding and framework to digital financial service providers regarding aspects of services that must be improved in implementing digital financial transaction services. (Jumardi and Pontoh, Grace T and Nirwana , Nirwana, 2020)

METHODOLOGY

The data used for the study is secondary data comprising of official websites, journals, magazines and articles. Since the data is secondary it is more dependable and reliable. The present study covers only the impact of digital India programme in order to know challenges and opportunities of agriculture farmers which helps to enhance income level of farmers.

OBJECTIVE OF THE STUDY

- To understand major government initiative, which helps to digitalization of rural India.
- To know the opportunities available for farmers to economically stable.
- To know the challenges faced by the rural farmers in the process of digitalization.
- To determine possible measure to enhance the farmers income.

SCOPE OF THE STUDY

The topical scope of the present study is confined to the "Agriculture Farmers and Digital India Programme". The analytical scope of the present study opportunities, challenges of digital India impact on rural economy and measures to overcome challenge.

Initiative under Digitalization of Rural India

1. **Bharatnet :**

   Aims to provide internet access access to 2,50,000 gram panchayats across India via a fiber optic network. The National Optical Fibre Network (NOFN) is an ambitious project aimed at sparking a wireless broadband revolution in rural areas. NOFN was envisioned as an information superhighway, with a robust middle-mile infrastructure providing broadband connectivity to Gram Panchayats.

   The whole initiative is funded by the Universal Service Obligation Fund (USOF), which was established to improve telecom services in rural and remote areas of the country. The goal is to improve the delivery of e-governance, e-health, e-education, e-banking, Internet, and other services to rural India.

2. **Common Service Centre :**

   The Common Services Centre Scheme is one of the objectives mode indicates under the Digital India programme. CSCs are centers that will provide e-governance and related services to rural

areas. CSCs serve as access points for the delivery of essential public utility services, social welfare schemes, healthcare, financial, education, and agriculture services, as well as a variety of B2C services to citizens in the country's rural and remote areas.

3. **Universal Access To Mobile:**

   It aims to provide mobile access to over 55,600 villages that currently lack mobile coverage.

4. **Digitalization of Post Offices:**

   Digital transformation of post offices includes the establishment of centralized data centers, the networking of all post offices, and the ability to accept digital payments.

Opportunities for Farmers in Digital India

Digital India provides ample of opportunities for economic development and up liftment of Indian farmers, following are the various fields in which the farmers can enhance their agricultural activities.

1. **e-NAM:**

   Electronic-National Agricultural Market. The government intends to create a uniform electronic infrastructure services that will allow farmers to sell their produce to buyers across the entire nation. The National Agricultural Market (eNAM) is a virtual marketplace for commodities used in agriculture in India. It aims to connect all two lakh fifty thousand gram panchayats in the country, thereby improving communication in India and achieving the digital India campaign goal.

2. **National Mission on Agricultural Extension and Technology :**

   The mission's goal is to improve agricultural extension so that farmers can receive appropriate technology and improved agronomic practices.

3. **Bharat Nirman:**

   Bharat Nirman is an initiative to construct and enhance basic rural infrastructure. The scheme aims to provide telecommunications facilities in remote regions. It plans to increase rural telecommunications facilities by 40%. This initiative plays an important role in the overall digital transformation process of rural India.

4. **Kisan Call Centre :**

   The kisan call centre (KCC) scheme was launched by the government as a creative ideas and modern scheme for swiftly providing highlighting information and support to farmers via the vast telecommunications network.

5. **Kisan Credit Card:**

   To promote the digital integration of Indian farmers through electronic payments, the union government launched the Kisan Credit Card. This will serve to promote electronic payment methods among the poorest members of society and make short-term loans more affordable. Farmers can use this scheme to get loans for crop, animal, and fish farming at a maximum interest rate of 4% if they repay them on time.

6. **Soil Health Card:**

   Soil quality management is part of the National Mission for Sustainable Agriculture, which aims to render farming more productive, sustainable, and climate-resilient. It also helps to implement a comprehensive soil health management process.

7. **M-Kisan Portal:**

   Mobile-based applications for farmers- the mkisan SMS portal has been designed to provide a quantum leap in coverage of farmers and geographical areas through timely, specific, holistic, and need-based knowledge dissemination among farmers.

CHALLENGES

The main challenges of farmers for digitalization of farming activities:

- Lack of farming automation and mechanization. Most problematic is the farmers' reliance on traders, commission agents and moneylenders for credit.
- Inadequate access to resources and infrastructure. In many remote rural locations across the country, strong and reliable internet connectivity is not available. That, in turn hampers the attempts to apply smart agriculture techniques at such places.
- Market Risk – The market risk include absence of market, poor price realization, high transportation cost and poor bargaining power due to small size of marketed surplus, leading to low and unstable farm incomes of producers.
- Lack of relevant customized information which causes poor decision making in crop selection and price mechanization process by the farmers.
- Poor actionable insights of modern agriculture system and innovative technology to assist decision making.
- Lack of real time intervention and support. The problems of small farmers livelihood is aggravated due to small farmers suffering from several production risk such as drought, flood, lack of adequate use of inputs, poor extension leading to large yield gap and crop failure etc.

- Inadequate risk mitigation tools and profit enhancement mechanism.
- Lack of accurate modern farm and farmer's data. The modern, connected agriculture farm has, literally, millions of data points. It is difficult to monitor and manage every single data point and reading on a daily/ weakly basis over the entire growing seasons.
- Illiteracy level and lack of financial inclusion among the rural people.
- Technical failures and resultant damages. If there is a mechanical breakdown in the hardware, or a farming IoT unit or sensor malfunction – serious crop damages can be the result.

Measures to be taken to protect rural economy and enhance the agriculture farmers income :

- Effective implementation of government schemes to create employment opportunities for migrated people to rural area.
- To channelize funds in research and development for exploring new venture of rural production.
- To ensure the food security by providing food to the poor in the form of relief.
- To provide financial support in order to encourage rural entrepreneurship.
- To identify new area of agricultural production like agriculture allied activities which have possibility of sustained market.
- To implement decentralized agriculture planning to boost agriculture income

CONCLUSION

India will have over seven hundred million users of the internet by 2020, making it one of the world's largest and fastest growing digital markets. Consumers in the urban region drove much of the significant growth in the digital economy. However, as the government pushes for financial inclusion, rural India is also embracing the digital economy. According to the TRAI report, rural internet subscribers account for more than 38% of total internet subscribers in the country as of March 2020, up from approximately 32% in March 2017. The "Digital India" programme One of the programme's primary goals is to improve the country's digital infrastructure, particularly in rural India. To increase digital awareness, the Indian government established the "Pradhan Mantri Gramin Digital Saksharata Abhiyan" as part of the digital India initiative.

Based on the preceding discussion, it is clear that Indian farmers have more opportunities to double their income levels through digitalization of farming activities, which supports the rural economy while also posing numerous challenges in the implementation process. The country's economic policy environment must be favorable for organizations to succeed in today's global market.

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