



## Research on Challenges of Farmers in Rural Areas of North 24 Parganas, India and Prospects of E-commerce in Agriculture

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### Abstract

The pandemic situation of COVID-19 has highlighted the importance of agriculture and farmers in our society and has constructed a way to accelerate the process of digitalization. When the pandemic crisis will come to end, countries will be reprioritizing and pressurizing their values and investing accordingly. In this reprioritizing process, agriculture will gain the focus. A questionnaire-based survey was conducted to get an outline picture of the challenges and issues of the farmers of North 24 Parganas and the need for an e-commerce platform. A questionnaire-based survey was conducted, collecting the data from experienced farmers and business experts in agriculture. The qualitative method has been used to find solutions for the farmers to uplift their social and financial lives. After compilation of the data, it shows that e-commerce is a beneficial way to reach a large number of customers in this pandemic situation.

**Keywords:** Agriculture, COVID 19, Food System, Food Supply Chain, E-Commerce, North 24 Parganas

### Introduction

Agriculture is critical to providing people with food security and sustainability. The agriculture sector is facing many limitations and challenges. Over the last few decades, innovation has continued to improve field facilities, resulting in increased productivity.

The process of digitalization is impacting every aspect of our lives. Different types of digitalization started in the agricultural sector like artificial intelligence, sensors, data processing, the internet, global positioning systems, system integration, and so on (Chou & Chou, 2000; Pujari, 2004).

The objective of our research is to identify the challenges which are being faced by farmers in North 24 Parganas and the prospect of e-commerce in agriculture. The data was collected from 21 people, which included experienced farmers and experts in the agricultural business. To our knowledge, it is the very first research conducted on farmers in North 24 Parganas during the pandemic situation of COVID-19 (NABARD, 2020), which is playing a key role in the acceleration of digitalization.

Our research starts by representing the actual challenges faced by farmers in a brief description. Then there are the details and findings of the questionnaire (Hsieh, 2005; D'Silva, D'Silva & Bhuptai, 2010).

## **Literature Review**

### *Challenges and Prospect of Farmers*

When we discuss agriculture, we cannot ignore some facts like the impact of trends and influence, the growth of the population, the ageing of the population, and the process of urbanization. In the coming years, this trend will contribute to changes in the process of agriculture and the food system.

The main problems that agriculture will face in the future are a growing population and a growing need for food.

According to the United Nations projection in 2019, the population of the world will grow from 7.7 billion in 2019 to 8.8 billion by the end of 2030, 9.7 billion in 2050, and by 2100 it will reach 10.9 billion.

In the year 2011, the population of North 24 Parganas was 10 million; in 2030, the population will be 12 million approximately; and by the end of the year 2101, the population will be 21.5 million.

How can we be sure that this growing population's basic or physiological needs will be met and that there will be enough food for everyone in the next 50 years?

In the recent decade, the urban population has been growing steadily due to rural poverty, lack of jobs, and poor infrastructure with an ageing population. This will influence food consumption behavior, which is leading to many issues in logistics, which needs extremely thorough and careful planning (Rust & Chung, 2006).

Nowadays, the use of fertilizers, irrigation, pesticides, and agricultural land expansion has made it possible to supply the rapid growth of the population. We have to keep in mind that the intensification of soil use, degradation of soil, deforestation, land loss by erosion, Stalinization, sea-level rise, and other issues are combined all together and raise new challenges in agricultural productivity in the long term (Ozok, Oldenburger, Salvendy, 2007; Pyun, Scruggs, Nam, 2002).

The globalisation process introduced capital concentration, free movement of goods and products, service availability, information, and technology, which are influencing the dynamic nature of agriculture. Globalization and liberalisation have helped increase the investment in agriculture, food industry development, and international trade of food growth.

The pandemic situation has shut down globalisation and forced people to focus on the nearest and local markets for an undetermined period (Rust & Chung, 2006).

Nowadays, with the help of drones, which are being used to plant seeds where people and tractors don't have access, technology innovation can irrigate the soil and plantation, real-time information about crops, identification of diseases and weeds, application of pesticides and fertilisers in a precise way, data analysis and action plan recommendation (Mitra, 2013; PTI, 2016).

## **Results and Discussion**

### *Ecommerce of Agricultural Products in North 24 Parganas*

According to the analysis which was performed by the professional services of Kolkata Municipality Corporation (KMC), Kolkata has many companies which are delivering their products and services through the e-commerce platform, but few of them are using the e-commerce platform for agricultural products. These businesses are typically collected from the city's surrounding rural areas and only deliver in the city's urban areas. They do not cover the total area of West Bengal (PTI, 2015).

Due to the lack of competition from e-commerce companies in the area of the agricultural sector, only a few of them can cover the total area of the state of West Bengal.

The district of North 24 Parganas presents a huge potential area to be developed for e-commerce in the agricultural sector. Based on facts and advantages, the region of North 24 Parganas poses an important profile in agriculture because of the good condition of the environment, fertile soil, availability of fresh water, climate condition, and the old tradition of working on land, which is called the 'Zamindar'. The availability of high-speed internet existence in rural areas of North 24 Parganas will be highly appreciated to use the application or websites to flourish the e-commerce platform.

Globally, digitalization and industry will collaborate and contribute to accelerating innovation in the sector of the agriculture sector. It's a matter of time to adapt and reach a whole new level of agriculture sector development in North 24 Parganas (Hsieh, 2005).

### *Challenges and the Prospect of E-commerce in Agriculture in Farmer View*

To analyse the challenges, it is critical to consider how the agriculture system is viewed through the eyes of a farmer in the solution known as e-commerce; what limitations and challenges they face; and what opportunities and scope of development can be anticipated in the future. To find out if a survey has been done through a questionnaire in a quantitative method, was created, distributed, and collected. A few of the questionnaires were distributed online, and the remaining were done face-to-face, and the collected data were further analyzed.

During the investigation of the questionnaire session, the 21 respondents from several areas of North 24 Parganas, of which 18 were farmers of big, medium, and small farms, and 3 were business experts.

In the questionnaire, there are 4 identification questions and 9 open questions that are related to e-commerce in agriculture.

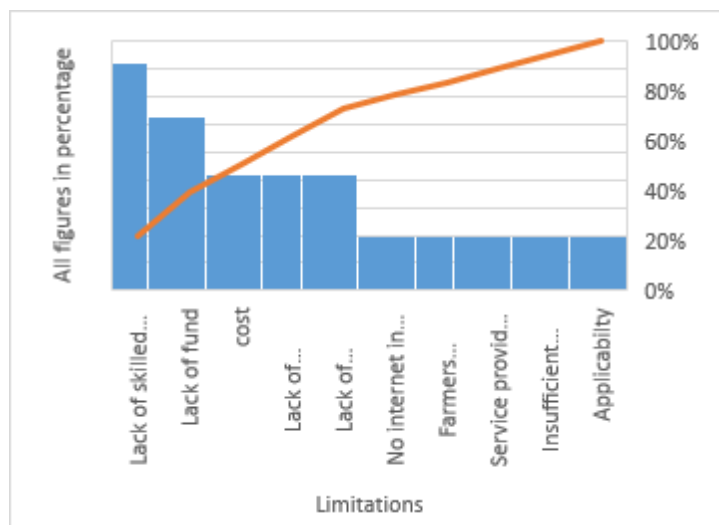
100% of the participants agreed in the survey that e-commerce is an opportunity for agricultural activities, and none of the participants considered e-commerce as a threat. Farmers believe that e-commerce can help them maximise efficiency in their agricultural activities.

Participants were asked to define the term "e-commerce platform" in agriculture. Many of them expressed absolute necessity (26.3%), necessity (21.1%), efficiency (26.3%), and also helped farmers with development, evolution, future, and profitability (Ozok, Oldenburger, Salvendy, 2007; Chanana & Goele, 2012).

When they were asked about their perception of the use of e-commerce platforms in agriculture today and in the near future, all the participants provided good and positive feedback, and some relevant answers are as follows:

- The use of e-commerce platforms in agriculture today is a delicate topic for the farmers of North 24 Parganas due to the costs. Only the owners of large farms can afford these costs. Today, the benefits of e-commerce platforms are known to everyone, but very few of them will be able to support this investment financially. In the future, I have faith and believe that the e-commerce platform will not be missing any opportunities to earn profit.
- Today, it will help to increase the capital income and help the farmers to make decisions about what and when to produce to get the maximum profit. In the future, we hope to see the use of e-commerce platforms in the agriculture sector on a large scale.
- An e-commerce platform is a tool that will help farmers reach their maximum production and sales potential (D'Silva, D'Silva & Bhuptai, 2010).

While we discussed limitations and challenges, they face, 41.2% of the participants claimed that the scarcity of labor, 31.6% of participants expressed that there is a lack of financial funds, and 21.1% the e-commerce platform cost.



**Figure 1: Limitations and Challenges Faced by Farmers**

The analysis of the limitations and challenges of the implications of e-commerce platforms in agriculture would be incomplete without identifying a way to assist farmers in overcoming the identified obstacles.

Here are some things that have been found to help speed up the use of e-commerce platforms in their work:

More information is available through a free helpline, advertisements, and marketing activities.

- Demo
- Short training
- Easy and friendly interface in the local language
- Government investment
- Lower cost
- Easier access to a video demonstration of every step and process in the local language
- Targeted fund

The expansion in the number of participants to the questionnaire will bring more quality value to the research and will contribute to a more improved overview.

### *Research Techniques*

The study of the bibliographical method was used to understand the recent specialty literature, sharpen knowledge, and gain some good understanding in this field. The qualitative method was used to analyse the questionnaire survey in this research.

The questionnaire survey was done face-to-face, and some of them were sent online to targeted farmers to obtain data that was analyzed.

The main objective of this research was to get an overall picture of the limitations, challenges, and prospects of e-commerce platforms in agriculture by analysing the collected data, which was obtained from the area of North 24 Parganas farmers and experts. This research aims to develop and progress in a direction that will maximise the potential of research and innovation to promote growth and be able to maintain a certain rate or level of societal transition, as well as to develop a project with transparent results from research and innovation activities that will provide a clear solution for better operations of green and digital, social value chain innovations.

The research and the future projects are being anchored in this pandemic situation of COVID-19, which helps agriculture and digital recovery, which will increase societal resilience in agriculture.

The future project will target the component impact of fertilisers and harmful nutrients, as well as the reduction and cessation of pollution, by utilising an e-commerce platform as a digital solution within a pilot scenario demonstration, with a focus on the three basic aspects listed below:

- Alignment of the three dimensions to maintain a certain level:
  - Economic
  - Social
  - Climate or environment
- Maximum synergisms
- To address specific limitations and challenges; To plan a mixed innovation appropriately

As a scope, we can consider the pilot demonstrating the solution is focused on an innovation that will increase the capacity to recover quickly from the difficulties of the food system to consider.

- Reduction of losses and wastage
- Reducing the Green House Gas emission
- Increase in energy efficiency in processing by reducing energy use in the physical market
- Reducing the use of fertilisers will result in less pollution and a reduced loss of nutrients
- Identification, explanation, and quantification of the solution to expected impact

## **Conclusion**

Agriculture is considered the main occupation and also considered one of the main pillars of society and has been shaped by the digital era. Big data, the internet, sensors, and other high-end technology are changing the way we feed the growing population.

After conducting a survey and research among the farmers and experts in North 24 Parganas, we discovered the challenges and limitations that they are facing in this pandemic situation, as well as their need to accelerate the acceptance of e-commerce platforms. The lack of skilled labour and transportation costs is the biggest concern for farmers. A digital tool, i.e., an e-commerce platform, does not require any specific skills and competencies. The second important challenge is the lack of financial funds. The lack of financial funds generated from the losses from past transactions is a small and medium-sized farmer, who should be profitable and be able to afford these implications and changes.

## **Conflict of Interest**

The authors declare that they have no conflict of interest.

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