Short Research Article

Impact of COVID 19 on Agriculture: Role of ICT interventions during the Pandemic in India

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ABSTRACT

The study aims to focus on the impact of COVID 19 on agriculture and food systems in India. 14 million to 22 million people faced extreme poverty across the globe and many low- and middle-income countries have to witness about 25% decline in agri-food exports. Negative effect of COVID 19 created temporary restrictions in physical movement which ultimately made the communication delay in many functionaries involved in Farming. Henceforth, there existed a communication gap among the farmer groups. The dynamic roles of Information Communication Technology in different sectors made agriculture a stable domain. The study followed purposive sampling and secondary data collection. The mobile app features developed for farmers, distributors, and producers together valuable data, observe fields, and manage crops to optimize the processes. In the light of our investigation, we conclude that Information Communication and Technology is highly necessary to fill the gap in receiving the advisory services for farming community and advices related to supply chain management. Providing advisory support to farmers with useful and practical agricultural information can improve their economic development and eventually give a good impact on the country. This paper provides insights into how Information Communication and technologies can promote in solving the agri and allied sector related glitches like soil degradation, excessive water, emissions, pollutions, the market place, etc.

Key words: Pandemic, Food Security, and Indian Economy

INTRODUCTION

The COVID-19 outbreak has taken the ecosphere completely unmindful, exposing the vulnerability of agricultural system along with public health in surviving with these pandemics in specific and a great loss to food security in country. Immediate preparation, response and recovery at local, national and international levels are the only solution in this status quo. Similarly, India also fallen short in all the sectors, which has accelerated COVID-19 to spread like wildfire across hundreds of countries, affecting lakhs and killing thousands. International Food Policy Research Institute (2020) projected that even under an effective COVID-19 containment scenario, 14 million to 22 million people have to face extreme poverty across the globe and many low- and middle-income countries have to witness about 25% decline in agri-food exports. Addressing the COVID impact requires all of us to work together across all sectors and local

and international borders to mitigate the immediate impacts of the pandemic and to reshape food systems and support healthy diets for all people. The Covid-19 pandemic has impacted the supply chain worldwide and some international industries have been scale back to the domestic level.

1.1 Impact of COVID 19 on Agriculture and Food Security

The food security and nutrition risks of these dynamics are serious. Already, before the outbreak of the pandemic, according to the latest State of Food Security and Nutrition report (FAO *et al.*, 2020), some two billion people faced food insecurity at the moderate or severe level. The pandemic has also resulted in an increase in the use of single-use plastic food packaging and carrier bags, which are not easily recycled (Vanapalli *et al.*, 2020). Farmers are a crucial part of the supply chain who have to adapt to a new and uncertain future. Fortunately, in these few years before the pandemic, farmers and the agribusiness industry were actively embracing technologies. These disruptions to supply chains affected food availability in some cases, especially where foods were not able to reach markets, which in turn put upward pressure on prices of some scarce goods, as outlined below. The quality of food environments was also affected, leading to some shortages in fresh fruits and vegetables. During the high period seeds and other farm inputs have to reach to the farmers according to the season, while India needs about 250 lakh quintals of seeds.

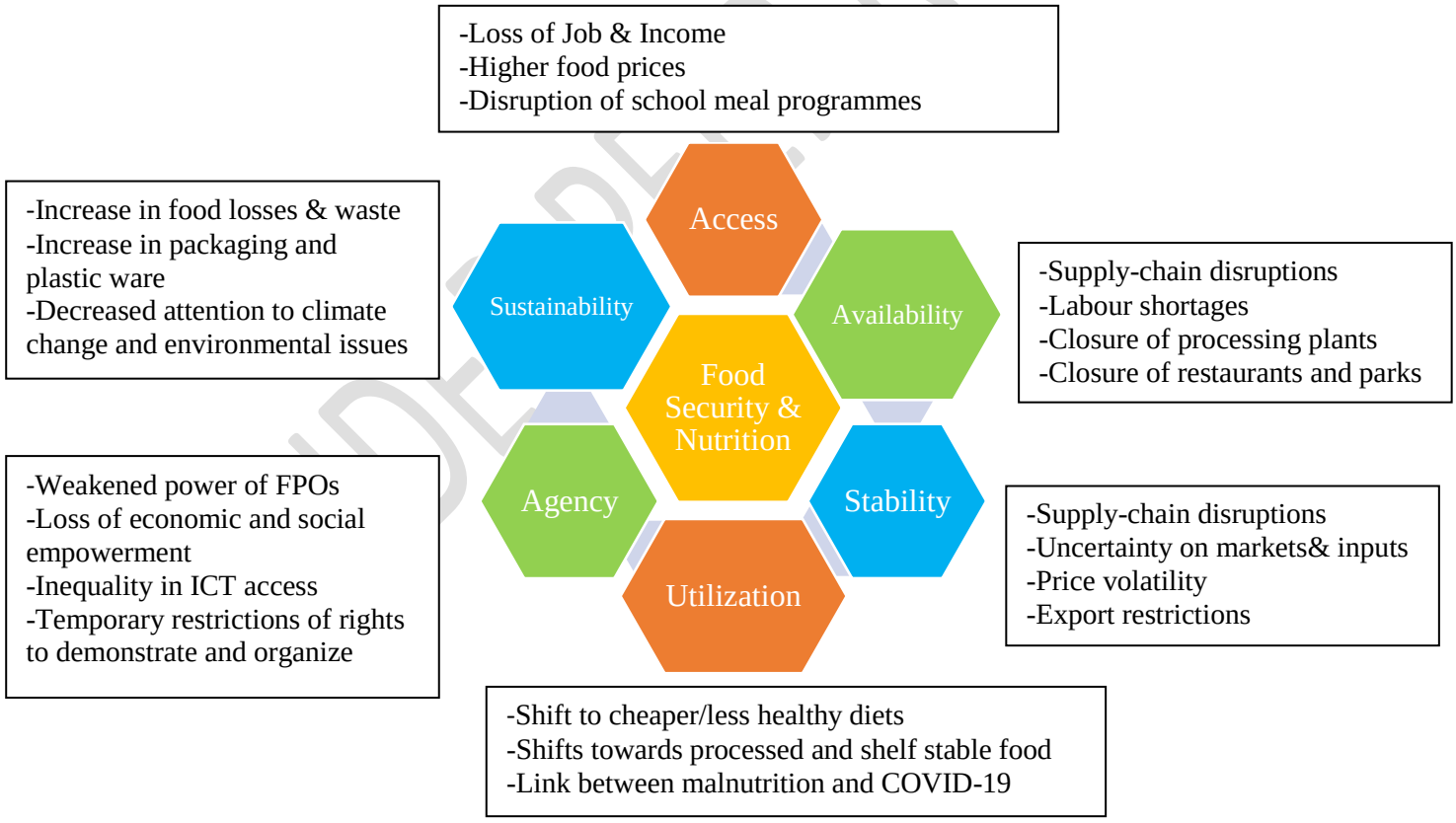
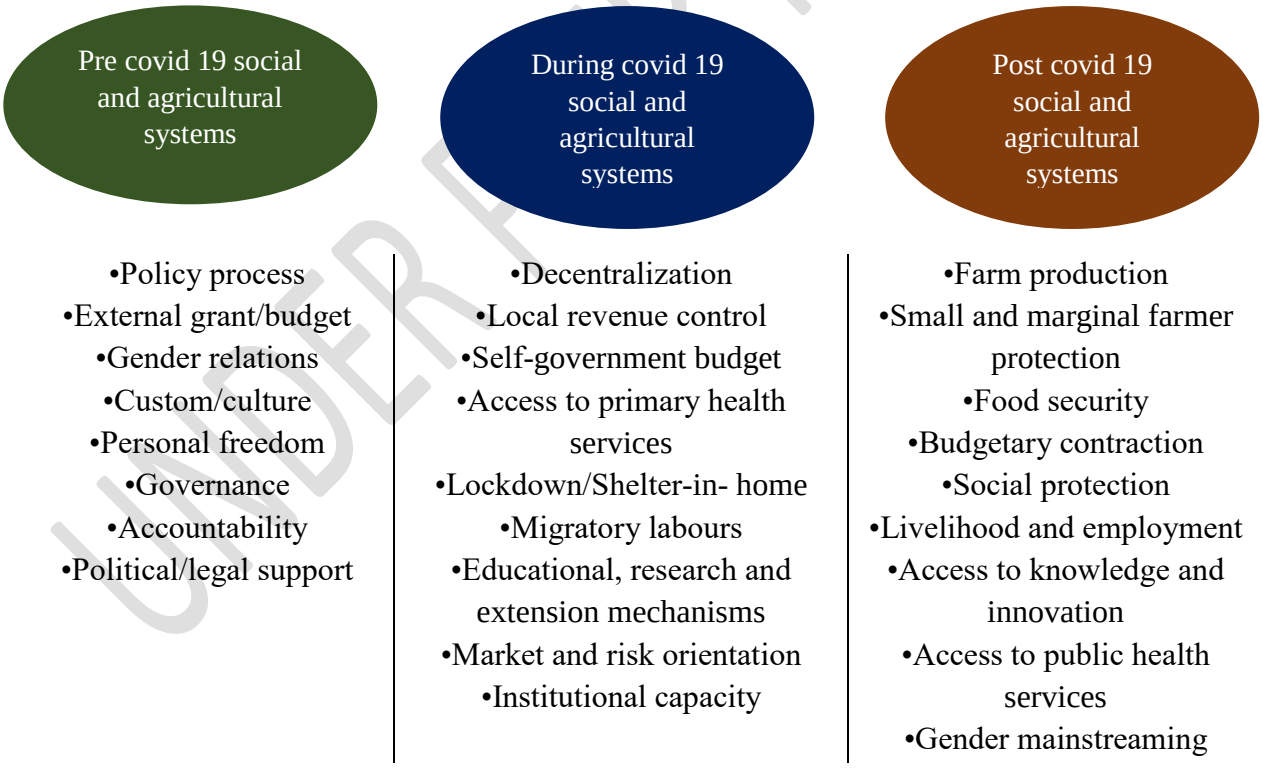


Figure1: Impact of Covid 19 food system dynamics on six dimensions of Food Security

1.2 ICT interventions during Pandemic

Since purchasing technologies and farm management software is a pricey decision, moving directly to a smaller scale of agricultural apps becomes a strategic alternative. Especially variety of apps are available in the market and they can be installed on many platforms like Androids and IOS. Usage of plenty of mobile apps have appeared for individual farmers and demand is still increasing particularly in the pandemic situation. This trend has given room for mobile apps developers to meet farmers' demands of production and consumption aligned to sustainable development (UN, 2020) One popular article has reported the rapid growth of agriculture technologies and predicted technologies like IoT devices, drones, and software to be worth over $15 million by 2025. Because, everything may wait, not the farming season and hunger. A complete seed production ecosystem is complex and requires the help of allied sectors such as transport, testing labs and the packaging industry. However, fear spreads faster than COVID-19. Central and State governments of India have already announced exemptions for the agriculture sector viz. seeds, labourers, and other farm activities. Special packages have also been allotted for different sectors as well as railways have been fixed firmly to ease transport logistics. Despite of these, in certain areas roads are blocked and movement of labour is not allowed. Transport services are not allowed to operate after all (Singh, 2020).



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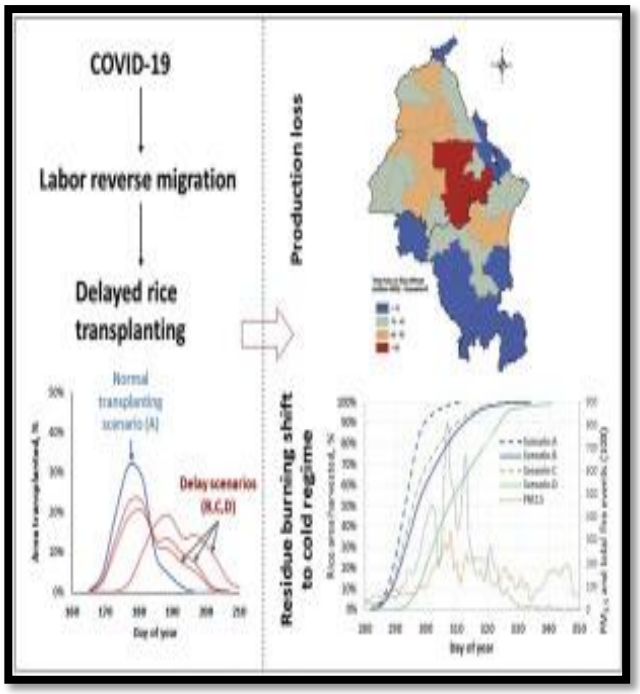

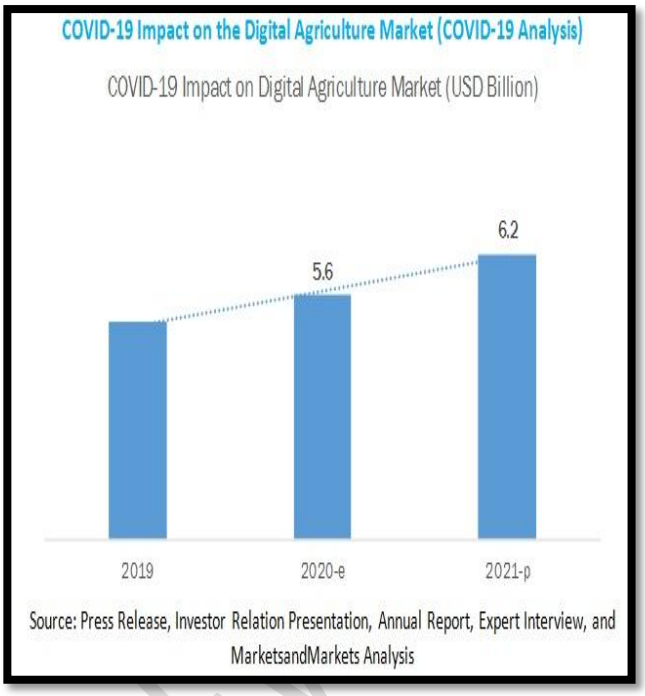

Fig: 2. Figure showing the impact of Covid 19 in delayed transplantation of rice and Digital Agriculture Market

MATERIALS AND METHODS

Secondary data was collected for the study. Agriculture sector is also not far behind with the inculcation of digital mode of teaching and learning with the conventional teaching mode. Descriptive research design has been followed for the study. The researcher had gone through many valid sources in detail to make the study more authentic.

RESULTS AND DISCUSSIONS

3.1 ICT interventions to help the farmers during and in post COVID-19 crisis:

Mississippi University Extension revealed that, in the time of COVID-19, extension agents are no longer delivering in-person training, providing technical support on a host of matters at distance basis. To keep people informed on COVID-19, Extension faculty and administration members sharing messages through webinars, written communication, and/or technical assistance over phone (Buys, 2020). Where, University of Delaware has specialists in food safety, child development, family science, health literacy, etc. They are also making connections through video, social media, and print resources in this crisis period (Extension Disaster Education Network, University of Delaware, 2020).

Indian extension experts also have to come forward to join their hands in this life-threatening period. Extension system in India with the large networks from KVKs, state and central agricultural universities, to ATMA, ATARI and ATIC can help the farmers by giving advices for maintaining their daily sanitized lives along with farm operations. Indian

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Council for Agricultural Research (ICAR) have taken the mission to train the farmers about the varying agricultural operations and to make them attentive of social distancing, covering faces, maintain washing of hands-on regular basis with the help of behaviour change communication. Thus, dissemination of right information and awareness using the right channels at this stretch of pandemic are the key goings-on being performed by the Indian agricultural extension professionals (Pandav et al., 2020).

3.2. ICT interventions and access to digital agri-solutions

Digital agriculture can help to offer a wide range of support to address the impacts of COVID-19 on agricultural production, labour availability, input supply, and logistics. In China agricultural drone helped to address labour constraints and to reduce human contact amid COVID-19. Thus, drones and other digital extension tools can help farmers adopt labour- and input-saving practices and link farmers to buyers and logistics services that will reduce the impacts of control measures related to COVID-19 on aggregators and supply chains.

Government of India also launched a new app *"Kisan Rath"* on 18th April, 2020. Indian Council for Agricultural Research has issued an agro-advisory system to maintain cleanness and social distancing (Singh, 2020). Thus, public-private partnerships and investments in prevailing agricultural technology plans hasten these solutions faster to help more people manage this pandemic situation due to COVID19. Besides, toll-free help lines in local languages must be started to answer the queries regarding government initiatives and for opposition recompence purpose and other farming related evidence (Padhee, 2020).

Fig: 3. Agro-advisory services through *KISAN RATH APP* launched by GoI

Some government organisations are also helping farmers for digital agri-solutions through ICT platforms e.g., Haritha Kerala Mission is arranging online classes on vegetable

farming topic using Facebook live (Maji et al., 2020). Though, recently the government of India has exempted farming operations, farm workers, custom hiring centres of farm harvesters and implements as well as mandis and procurement agencies from the lockdown rules (PTI, 2020).

Fig: 4 Pictures depicting the logo of Haritha Kerala Mission

3.3 Providing timely information: Farmers need credible information tips and advisories to continue their practice. The ICAR-IVRI has developed comprehensive advisories on various facets of safe and hygienic milk, meat, and egg production as well as handling and marketing to deal with lockdown situations. ICAR has accommodated to the current lockdown situation by sharing these advisories via various online channels, including social media, Facebook, WhatsApp and YouTube. The pandemic has compelled us to explore these channels even more to remain connected with the farmers and other stakeholders. EAS is increasingly depending on these online resources.

Fig: 5 Advisory services of ICAR-IVRI through Mobile apps, Facebook and Watsapp

CONCLUSIONS

National and International development agencies must be in the front line to mobilize efforts to mitigate the penalties of COVID-19 on food and agriculture sector and, most significantly, to guard the food security of world population. And in this mission along with the government decisions, agricultural research and extension wings have to come forward to help the farmers in the field, manufacturers of agro-chemicals and the logistics, otherwise, it will be grim to manage.

Thus, effective communication and decision-making systems must be reinforced instantly and extension personnels can help in this regard to save agriculture sector from the noticeable impact of COVID-19. Through Information Communication and Technology, the delay in communication among the farmers about market prices became negligible. Besides, there should be solid network of SAU, ICAR and other agricultural institutions to strengthen then stakeholder network which would help the farmers in getting advisory services in-time. Hence, more number of socio-economic research are needed incorporating Indian data for designing socio-economic models for India for coping with coronavirus crisis, without further delay.

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