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Issues and challenges due to COVID-19 in agriculture and environment for the sustainable development

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Abstract
The COVID-19 epidemic has wreaked havoc on Indian agriculture system. As it prevailed, the balance of the world is wavered to a great extent and there by many problems has emerged. The epidemic wrought chaos on all stakeholders in the Indian agriculture sector on a physical, social, economic and emotional level. The supply of perishable goods was particularly disrupted, posing a threat to the food and nutritional security of the most vulnerable members of society. Sustainable agriculture focuses on producing long-term crops and livestock while having minimal effects on the environment and also focuses on maintaining economic stability of farms and helping farmers improve their techniques and quality of life. In India, the COVID-19-induced shutdown affected food markets, forcing people to make healthy food choices. Consumers prioritized what they actually needed over what they wanted.
The pandemic scenario improves air quality in many cities across the world, decreases Greenhouse gas, reduces water pollution and noise and relieves strain on tourist sites, which may even aid in the ecological system's restoration. COVID-19 also has certain negative implications, such as an increase in medical waste, haphazard usage and disposal of disinfectants, masks and gloves and a constant load of untreated wastes harming the environment and biodiversity. By keeping all these objectives in mind, the paper briefly explains about the agriculture and environmental issues and challenges faced during COVID- 19 lockdown.

Keywords: Agriculture, farmers dispute, COVID-19, Environmental assessment, Environmental sustainability, Positive impacts and negative impacts

Introduction
Agriculture is extremely important to India's economy and serves 54.6 per cent of total workforce is engaged in agriculture and allied sector activities (Census2011) and contribute 17.8 per cent of the nation's Gross Value Added (GVA) in 2019-20 (current prices). Given the importance of the agriculture industry, the Indian government has taken numerous efforts to ensure its long-term growth. Agriculture is the first and foremost occupation of the people living in India and considered agriculture as backbone of the country. Especially the small and marginal scale famers are practicing organic farming with the limited resources in their fields. Organic foods are made out of natural and organic components grown according to organic agricultural standards. They don't have any artificial preservatives; therefore, they can last a long time. Farming has altered dramatically over time. Organic farming has suddenly mushroomed in the midst of COVID -19. Organizations and people are strongly urged to use (Do It Yourself) DIY ways to cultivate clean produce in rented lands across India.
Corona viruses are a type of virus that belongs to the Corona virinae subfamily of the Corona viridae family and emerged in Wuhan, Hubei Province, China, in December 2019 and quickly spread around the world. Due to the unusual outbreak of COVID-19, almost every big and small cities and village in the affected countries were under partial or total lockdown for a long period of time, ranging from a few weeks to a few months. Industrialization and urbanization, which are the primary producers of massive Green House Gas (GHG) emissions, are at the core of environmental pollution.

The fall in GHG levels is the result of lockdown and social distancing policies implemented by governments around the world to stop the spread of the coronavirus. These restrictions have a significant impact on the country's key business operations. This resulted in a significant decrease in particulate matter and nitrogen dioxide (NO2) concentrations in China, as well as a reduction in air pollution in Europe. As a result, agriculture had impact both positively and negatively on the environment and human health.

Furthermore, increased usage of personal protective equipment (e.g., face masks, hand gloves), their haphazard disposal, and the creation of a large volume of hospital trash have severe environmental consequences and thereby the soil was degraded, dumping of masks and other wastes in the agricultural lands has high impact in the organic lands. Impact on soil and water ecosystems was adversely affected, even-though the air, water, soil and noise pollution were greatly reduced but organic farmers still face issues and thereby reducing the sustainable development. There are many methods to increase the sustainability of agriculture. When developing agriculture within sustainable food systems, it is important to develop flexible business process and farming practices. Agriculture has an enormous environmental footprint, playing a significant role in causing climate change, water scarcity, water pollution, land degradation, deforestation and other processes, it is simultaneously causing environmental changes and being impacted by these changes.

Materials and Methods

This research was carried out by searching through published literature, case studies, and information from various government and non-government organizations reports and official websites. Scientific literatures were gathered in an ad hoc way using electronic means from Science Direct, Springer, PubMed, Taylor and Francis, ISI Web of Knowledge, Research Gate, and Google Scholar databases. This study combines and displays data and information important to the environmental effects of COVID-19 and meets the study goals from a vast number of investigations.

Results and Discussion

Agriculture and Environmental issues and challenges during COVID-19

The COVID-19 worldwide disruption has had a number of consequences for the ecology, environment and agriculture. Air quality has improved in many cities and water pollution has decreased in many regions of the world, as a result of mobility restrictions and a major slowdown in social and economic activity. During COVID-19, the issues like food security, public health, employment and labour issues, particularly employee health and safety was increasing day to day. Adhering to workplace safety and health practices and ensuring access to decent work and the protection of labour rights in all industries will be crucial in addressing the human dimension of the crisis. In India, COVID-19 epidemic has impacted all levels of the agricultural value chain. Farmers have had difficulty obtaining agricultural supplies owing to vendor's unwillingness to establish their stores, despite the fact that the sale of inputs was exempt from limitations.

Sustainable agriculture focuses on producing long-term crops and livestock while having minimal effects on the environment and also focuses on maintaining economic stability of farms and helping farmers improve their techniques and quality of life. The main objective of sustainable development is that to develop efficient, self-sufficient and economical production systems that provide decent incomes, preserve and protect biodiversity and territories, optimize the use of natural resources and to manage the quality of air, water and soil.

Some of the major environmental issues with regard to agriculture due to COVID-19 are, as follows:

a. Increase on biomedical waste
b. Wastage of organic produce
c. Huge volume of usage of disinfections and fumigators
d. Decline in income of farmers
e. Lack of organic manures from the input dealers
f. Issue in exporting, transporting and also local market
g. Lack of technical support from the government
h. Reduction in Indian and global economy
i. Lack of labours
j. Reduction in recycling by municipality
k. Increase in non-recyclable wastes
l. Impact on soil and water ecosystems
m. Sudden surge in the food price and food security
n. Increased threat to the biodiversity

Increase on biomedical waste

Medical waste output has grown internationally since the emergence of COVID-19, posing a serious hazard to human health and the environment. Hospitals create a large amount of infectious and biological waste for sample collection of suspectedCOVID-19 patients, diagnosis, treatment of a large number of patients, and disinfection purposes. During the first phase of the lockdown, the quantity of medical waste generated in Ahmedabad, India, jumped from 550-600 kg/day to about 1000 kg/day. All these wastes will be dumped into the soil if they did not expose properly, which is more hazardous than plastic waste will not be degraded in the soil for years and so the farmers practicing farming face a severe issue as the land is polluted with wastes. As a result, medical waste (such as needles, syringes, bandages, masks, gloves, used tissue, and wasted pharmaceuticals) should be carefully managed to prevent additional infection and environmental contamination for the normal publics and farmers, which is now a global problem.

Wastage of organic produce

As we all know, the production and maintenance cost of organic produce are way high as compared to the inorganic produce. But due to restrictions in the export and import of numerous vital goods have come to a halt due to a dramatic reduction in the availability of cargo transportation services and also in the local market. Because people are afraid of purchasing the produce which leads to abundant wastage in the perishable organic foods. Large amounts of food have been wasted as a result of severe reduction in agriculture and fishery export levels as well.

Reduction in recycling by municipality

Increased urban trash output (both organic and inorganic) has direct and indirect consequences on the environment, such as contamination of the soil, water and air. Disposal of waste is a powerful tool for reducing pollution, conserving energy and conserving natural resources. Overall, the interruption of normal municipal waste management, trash recovery and recycling operations has resulted in an increase in landfilling and pollution across the world.

Huge amount of usage of disinfections and fumigators

To eradicate the SARS-CoV-2 virus, a large number of disinfectants has recently been administered to highways, business places, and residential areas. The widespread use of disinfectants may result in the extinction of non-targeted beneficial species like honey bees, lady bird beetle etc., which acts as the pollinators for these crops, resulting in ecological imbalance. Additional wastewater treatment procedures are required, which is difficult in areas where municipal wastewater is discharged directly into surrounding bodies of water and rivers without treatment and these water gets mixed up with the ground water which was used for the drinking and watering the agricultural produce.

Reduction in Indian and global economy

It is clearly obvious that the coronavirus outbreak will have long-term repercussions on the global economy, in addition to its immediate effects on lives and health outcomes. Almost all COVID-19-affected nations, industries, and whole economic, educational, religious, and sporting organisations have shut down. All of these restrictions have a detrimental impact on the global economy. Furthermore, rising costs, decreased income, and overcrowded social safety nets will further force the poorest people into poverty.

Impact on soil and water ecosystems

As it is mandatory to wash hands in every one hour with the sanitizers, soaps and other disinfectant liquids, after using it our palms are washed out. Ones we wash our hands these water in contact with the soil degrades the quality, changes the soil nature and further it will be unsuitable for production. These components after exposing to sunlight changes its property that is triclosan converts to dioxins which is highly toxic pollutant.

Decline in income of farmers

The farmers are besieging with the produce in the nearby market and some of the farmers were ready to serve for free, even though, the purchasing level was very low. Thus, the farmers were not able to meet necessary needs for his family due to tremendous decrease in the income level. Especially the small and marginal farmers face difficulties in selling and marketing their produce, which is a reason for low farm incomes.

Lack of manures from the input dealers

As lockdown was prevailed in all the areas, there was a strict restriction for opening of shops and other traders. Even after relaxation of lockdown restrictions, only essentials shop like medical, grocery, vegetable and fruit shop were allowed to open and function. Thus, due to lack of inputs for cultivation, farmers faced a major issue for the growth of their produce.

Issue in exporting, transporting and also local market for agricultural produce

Some of the obstacles experienced by agro-product exporters include operations at major ports due to a lack of enough staff. Inability to get paperwork due to a lack of Cargo Handling agents. Long-distance truck movements from manufacturers to LCS, Railway Yards, and ultimately to departure ports continue to be disrupted. Exporters have been compelled to deliver documents due to disruptions in international courier services. Because there is expected to be reduced demand in many nations, exports are likely to be affected. Export orders have been halted, trade exhibitions have been postponed, and the payment cycle has been stretched from 60 days to 90 days and in certain cases to six months.

Lack of labours for agriculture

The majority of agricultural labour comes from Eastern Uttar Pradesh, Bihar, and Jharkhand, as well as sections of Madhya Pradesh that have been forced to relocate owing to COVID increases. Migrant workers are unlikely to return early, and those who are remaining under compulsion may shift first if the lockdown is eased, which will have an impact on output.

Lack of technical support from the government for the farmers

Due to COVID-19 the meetings, trainings and demonstrations classes was not able to conduct in the provinces. In some offices the meetings were arranged online but due to lack of technical knowledge famers was not able to attend or either join the meetings.

Increase in non-recyclable wastes

Meals and online shopping increased as a result of the increased home delivery during the lockdown, necessitating a lot more plastic packing. Food stores have started utilizing single-use plastic bags at checkout lines instead of reusable paper bags, which had been gradually becoming the standard prior to the epidemic, due to an increase in health concerns. Due to the COVID-19 problem, the production and disposal of surgical masks, gloves, protective equipment and body bags has grown, yet all of the trash created ends up in landfills and polluting the environment.

Sudden surge in the food price and food security

As a result of lockdown and decreased human movement there is a drastic change in the price of the commodities. Some supply chain operations, such as meat processing and dairy, are being harmed by a lack of employees and transportation and that have caused to broken down in some regions, and while local supply chains are reorganizing to accommodate this occurrence, prices have risen in some circumstances. In most countries, the issue was not a food security crisis, but the rising food prices rather a decrease in income. Increases in unemployment and poverty, diminish food spending, increase hunger and malnutrition. At the same time, there are concerns that supply factors may deteriorate as a result of reduced investment, labour shortages, and other issues of supply chain logistics.

Increased threat to the biodiversity

As the lockdown was extending in the country, the physical environment is also affected as many plants and animals exploited. During the pandemic (COVID-19), many wild animals species killed by the locals for consumption which contributed to the overexploitation of biodiversity resources for their survival. Besides, natural resources extracted for traditional medicines. On a quest to find treatments for the pandemic and related chronic diseases by traditional healers, concoctions made from parts of wild animals and some forest trees. All these methods can cause harm to the environment.

Conclusion

Agriculture plays an important role in rural development by reinforcing the penchant for sustainable grow and its role for

ecosystem conservation. It can provide quality food without adversely affecting the soil's health and the environment. The regime in India had severely deteriorated, with all pollutant levels and the Air Quality Index above the acceptable limits. The COVID-19 pandemic has a big negative influence on agriculture sector. Food safety and security were greatly threatened due restrictions on mobility, interaction of people and reduced purchasing power of people. The root cause for this issue was poverty, lower incomes, greater job insecurity, more perilous immigration and legal status than the general population, which suggest additional relative financial risks resulting from the burden of medical costs. Therefore, the measures taken by governments to stop the spread of the Corona-19 virus, first of all influenced negatively global food supply systems. The major consequence of the COVID-19 lockdown can be seen in the air quality, which is being felt by everyone and documented in different government publications. There is positive as well as negative impacts on environment and other well beings of the earth.

Reference

1. A Kumar, MA Malla, Dubey A. With Corona Outbreak: Nature Started Hitting the Reset Button Globally. Front. Public Health. 2020;8:569353.
2. Ankit Kumar A, Jain V. Environmental impact of COVID-19 pandemic: More negatives than positives. Environmental Sustainability; c2021.
3. Annual Report. Cooperation & Farmers Welfare Ministry of Agriculture & Farmers Welfare. Department of Agriculture. Krishi Bhawan, New Delhi; c2020-21. https://censusindia.gov.in/2011-common/censusdata2011.html
4. Rahman MM, Bodrud-Doza M, Griffiths MD, Manun MA. The Lancel Global Health COVID-19: Perspectives from Bangladesh. Biomedical Waste amid; c2020.
5. Responding to the impact of the COVID-19 outbreak on food value chains through efficient logistics. Global Forum Food Security and Nutrition. FAO; c2020.
6. Rume Tanjena SM, Didar-Ul I. Environmental effects of COVID-19 pandemic and potential strategies of sustainability. Heliyon. 2020;6(9):e04965.
7. Isalm SMD, Rahman SH, Azam G. Municipal solid waste management using GIS application in Mirpur area of Dhaka city, Bangladesh. Pollution. 2016-2020;2(2):141-151.
8. Somani M, Srivastava AN, Gummadivalli SK, Sharma A. Indirect implications of COVID-19 towards sustainable environment: an investigation in Indian context. Bioresource Technology Reports. 2020;11:100491.