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# Impact of COVID19 on Agriculture Sector

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**Abstract:** COVID-19 pandemic has brought the varied modification within the Indian agricultural system extensively throughout the year. Still, within the recent quarterly GDP estimates post-COVID state of affairs showcase their strengths and resilience in Indian agriculture, to register a positive growth of three.4% throughout the fiscal year 2020–21. The sole sector that accustomed get on the positive growth of five.8% witnessed the downfall by a pair of.5 % point. During this context, we tend to aim to synthesize the impact on the Indian agricultural system viz., production, selling and consumption followed by a collection of potential ways to recover and prosper post pandemic. There area unit several Survey findings indicate that the pandemic has affected production and selling through labour and provision constraints, whereas the negative financial gain shock restricted access to markets and enlarged costs of food commodities moving the consumption pattern. There area unit even the farmers facing the high % of loans and face major money downside. The pandemic wreaked a considerable physical, social, economic and emotional disturbance on all the stakeholders of Indian agricultural system. Seizing the crisis as a chance, the state declared a raft of measures and long-pending reforms. We tend to propose associate eight strategy starting from social safety nets, family farming, monetizing buffer stock, staggered acquisition to secondary agriculture to revive and prosper post-pandemic.

## I. INTRODUCTION

Most of the countries in the world are affected due to the COVID19 pandemic and India is one of them. According to the research India has over 3.48 crore COVID-19 cases and near about 4.79 lakh deaths which is really a very big count for a country. A pandemic can cause a great loss in the economies of the country due to lost of Human lives compared to the other natural calamities. The pandemic causes a great disruption in the demand and supply in the food necessity and impacting the Global supply chain. And due to such a shortage in the supply chain the wholesaler and retailers procure from the other available resources and also sometimes increase the rate of the product which cause adverse effect and the country may also plunge into recession.

Due the speedy increase within the COVID-19 cases the Indian Government ordered a nationwide internment from twenty five March 2020 as a protecting live that once someday began to have an effect on the economy as well as the agricultural sector. The Agricultural sector registered a growth within the cultivation before the nationwide internment declared within the country, however once the internment there was a decline of two.5% purpose thanks to the COVID-19 pandemic. The reverse labour migration junction rectifier to inadequacy of labour that affected harvest of the winter. Provide of the perishable things were affected heaps by giving a difficult to the food and nutrition security of the weaker section of the society. As Per the govt report tonnes of food grains was wasted, the food grains were wasted within the storage structures and government warehouse. The COVID-19 evoked internment exacerbated food loss at production, marketing, distribution and wastage at unit consumption level. As an example, thanks to lack of demand and supplying, food commodities like milk, vegetables and fruits were wasted at farm level whereas distribution of milk by the Anand Milk Union restricted (AMUL) – the most important milk cooperative in India – was additionally affected. Not solely this one company however more industries and company has face a similar issue.

Besides the pandemic making a panic state of affairs, locust infestation from East Africa to Asian nation had a harmful result on agriculture. COVID-19 has came out with issues and most imbalance in the Indian agricultural system for us to know and be prepared against future shocks. Short-run brick is vital associate degreed an utmost priority, because the pandemic, though on the face of it subsiding, may well revive, poignant the economy together with agriculture; hindering food security and livelihoods. During this context, the paper aims to focus on the impact of COVID-19 on the Indian agricultural system together with potential methods.

There was a lot of problem which occurred in the COVID-19 pandemic which was not prior predictable. The stock of the grains and the other important and day to day daily usage stuffs, economy of the country, the increase in the rate of unemployment, the loss of the Agricultural sector, the loss of the farmers and their families. Due to the pandemic and the crisis along with it, many of the farmer and the other people has committed suicide because of the food and capital scarcity. Hence here we give the solutions for the problems which has been occurred during the pandemic so that we can handle the situation of the country and the other sector of the country if in future we again face any such pandemic

## II. IMPACT OF COVID-19 ON THE INDIAN AGRICULTURAL SYSTEM: PRODUCTION, MARKETING AND CONSUMPTION

Agricultural production depends on the four factors of production, together with land, labour, capital and organization/enterprise. Among these factors, the study is making an attempt to hide the impact of COVID-19 on agricultural labour forces, mediator input provide, and export and import restrictions. Finally, the assembly and distribution state of affairs were discovered, with government measures enforced to attenuate the agricultural losses.

### A. Agriculture Labour Force

- 1) Indian farmers are mostly dependent on the in area labour and agricultural machines owners who take care of the process like land preparation, planting, irrigation, harvesting, and post harvesting activities.
- 2) Due to social distancing measures across the countries the agricultural labour forces could not move. It had two effects: The first was that it disrupted the agricultural production system, and the second one was that it harmed vulnerable livelihoods of agricultural labourers.
- 3) Nonetheless, a sudden COVID-19 infestation will make it more vulnerable than other sectors of labour. Many studies have additionally shown the vulnerability of agricultural labour thanks to COVID-19.
- 4) In step with the report, titled “COVID-19 lockdown: Impact on Agriculture and Rural Economy”, the imprisonment has resulted in an exceedingly severe crisis of resource for several daily labourers and wage earners within the country.
- 5) It additionally noted that the imprisonment was obligatory once the country was already Janus-faced with associate new scenario with relation to rural employment in Asian nation.

### B. Conciliator Input Supply

- 1) Intermediate inputs embrace plant food, pesticides, seeds, feeds, and power provide.
- 2) Throughout the COVID-19 pandemic, farmers were confronted with issues across the country once shopping for fertilizers, pesticides, diesel, and alternative inputs for growing cereal rice.
- 3) Fish farmers, hatcheries, nurseries, traders, and feed dealers square measure realizing difficulties in reaching markets to get inputs and sell their production amid the COVID-19.
- 4) However, transportation offices square measure a big issue of approach and relations in numerous elements of the state.
- 5) On the opposite hand, the restrictive atmosphere of foreign agricultural negotiator merchandise, particularly High-Efficiency Irrigation Systems appliances, can seemingly place nice stress on Indian farmers.
- 6) Another cooking issue for farmers is their exploitation at the hands of agricultural trade importers World Health Organization can mint sensible cash during this pandemic crisis.

## III. AGRICULTURAL PRODUCTION AND DISTRIBUTION

Agriculture remains the foremost important sector for the economy of India, and alternative countries with a contribution of sixteen.0% severally, of the national gross domestic product. The explosive infestation of COVID-19 affected agricultural production and distribution across the country. Crops, livestock, vegetables, fruits, and fish square measure all affected from the farm to the fork.

### A. Major Crops

- 1) The issue began with a nationwide internment. The situation analysis for major food crops throughout a internment demonstrates that restricted quality and fewer transportation systems have a control on the gather of major food crops in elite countries.
- 2) During the recent times of pandemic, crop production has distorted demand–supply dynamics within the rice market of India that ultimately has created a synthetic worth hike within the finish market.
- 3) The farmers ought to count a ten times higher value for labour and transport compared with the traditional time and square measure even mercantilism their output at value worth or less to chop their losses In India, media report shows that producers and farmers could have lost a minimum of Bureau of Intelligence and Research two hundred billion throughout the internment amount. Livestock Along with the main food crops, the eutherian mammal sector was affected severely.
- 4) Thanks to the disruption of the availability chain, demand is falling. Farmers' losses have raised thanks to declining demand and therefore the nature of perishability.
- 5) In India, about 350,000 farmer square measure troubled to keep up their existence. Each day, 27,000 tonnes of milk go unsold.



- 6) In some areas, the worth of milk has fallen to its limit.
- 7) They even cannot earn enough cash for purchasing feed and medication for his or her cows.
- 8) There have been several cows' loss due to matters. The farm space is incontestable an amalgamated image of India. Inside of the internment declaration, milk costs began to plummet as workplace flasks, cafés, and sweet retailers stay closed.
- 9) Some milk was utilised to milk powder and unfold it, of that there square measure presently huge volumes available.
- 10) Over 1,000,000 little poultry ranches have closed down and an outsized portion of the 1,000,000 folks operating within the space became unemployed.
- 11) This likewise influenced the feed manufacturers known with poultry; farmers off orders and a few farmers even buried their chickens alive.
- 12) Approximately one hundred ten million farmers are full of the falling consumption of milk and meat. Every day, thousands of litres of milk square measure wasted. Farmers suffer important losses as a results of the suspension of milk sales.
- 13) The cows' markets square measure closed and milk sales have born by seventieth.

#### IV. FRUITS, VEGETABLES, AND OTHERS

- 1) Countrywide internment throws vegetable farmers at vulnerable scenario. Fruit and vegetable farmers square measure particularly vulnerable as these destructible things cannot be keep for a protracted time.
- 2) In India, almost 8,500 tonnes of vegetables enter national capital town daily, however this has born to 200–300 tonnes currently due to the coronavirus crisis and that they square measure sold-out at 1 / 4 of their traditional worth.
- 3) Therefore, most of them square measure unable to even recover their investments during this gift situation of COVID-19.
- 4) In India, the arrival of major cereals, fruits, and vegetables on the market remittent by regarding five.55%, leading to a rise within the average retail value of food things for domestic customers and a decrease in value realization for farmers.
- 5) This may have an effect on the planting of summer and kharif fruits and vegetables.
- 6) In the absence of labour and suggests that of transportation, many Republic of India farmers square measure looking at another disaster, observance their turn out rot in their fields.
- 7) Consultants believe that the development can have cascading effects on the region's food security. Farmers square measure involved that if they're unable to properly pluck mangoes and also the provide chain is non continuous, they're going to suffer vital losses.

##### A. Export and Import Restrictions

- 1) Agricultural production and trade square measure expected to be suffering from several policy measures (e.g., higher controls on shipment vessels) that aim to avoid the unfold of COVID-19.
- 2) Producers of fish, crab, Associate in Nursing shrimp face vital economic losses as results of an export ban.
- 3) To fulfill domestic demand, many governments round the world have obligatory export restrictions on food merchandise.
- 4) Russia restricts grain exports, and Vietnam and Republic of India have already stopped exportation rice the termination of rice grain exports from the world's biggest bourgeois is permitting rival countries like Kingdom of Thailand to extend exports within the short term and raise international costs, that forces many poor customers in continent to pay higher costs (Maji et al., 2020).
- 5) It's foreseeable that we have a tendency to square measure seeing the international costs of rice and wheat rise sharply. this can be a chilling reminder of the worldwide food value crisis of 2007– 2008 (Agrilinks, 2020).
- 6) On the opposite hand, several put reliable fruits, vegetables, fish, and farm merchandise face a price-dropping downside because of shortages of consumers. each export business, as an example, Pakistan's fruit and vegetable association (PFVA) fears the impact of the coronavirus, that has seen Asian country shut its borders, and international airlines suspend services, might price the business up to US\$150 million just about seventieth of Bangladeshi crabs square measure exported to the Chinese market. Bangladesh's crab business is suffering as a results of export bans in China and Europe.

##### B. Policy

- 1) Policy responses to the pandemic play a significant role within the outcome to deal with the impact of COVID-19 on the agricultural sector, the governments of South Asian countries enforced a spread of policy measures.
- 2) “National Agricultural Mechanization Policy-2020” during which the most vision was “Transition to economical, profitable and industrial agriculture through agricultural mechanization and making certain property food and nutrition security” (National Agricultural Mechanization Policy, 2020).

- 3) On the opposite aspect, the Indian government has unbroken its target the Inhume two-dimensional figure linkages of the agricultural organizations, property and resource management, larger investment priorities in rural areas, a lot of incentives, and on risk management (Agriculture Policy: Vision 2020, 2020).
- 4) Pakistan's new agricultural policy can target increasing innovation and technology based mostly agriculture, focusing agriculture subsidies to socio-economic teams, increasing public investments on infrastructure, and guarantee food accessibility to all or any segments of the population (Agriculture and Food Security Policy, 2020).
- 5) Policy has been developed to combat the pandemic crisis wherever these countries' main priority is to feed all the individuals.
- 6) Per the measures taken by the country's government (Table 1), studies show that Bangladesh prioritizes agricultural mechanization.
- 7) Republic of India is golf shot a lot of stress on the event of allied enterprises' infrastructure, as well as market structure.
- 8) On the opposite hand, Asian country is attempting to rehabilitate.

## V. IMPACT OF COVID-19 SECOND WAVE ON INDIA'S AGRICULTURE

For agriculture to create a positive contribution to GVA this year, the unfold of COVID-19 in rural India must be prevented by victimization all potential means that when the primary wave of COVID hit India from Jan to June , agriculture clothed to be a bright spot. The Economic Survey calculable that India's GVA for the complete economy can contract by seven. 2 % in 2020-21, primarily thanks to a steep decline within the half of the FY. In this mayhem caused by the nationwide imprisonment, agriculture was the sole bright spot and it's calculable that the GVA for agriculture clocked a positive growth of three.4 % at constant (2011-12) costs.

Can the agriculture sector be a saviour once more once the second wave of COVID-19 has hit India with rather more intensity than the primary wave? this point, it looks that rural India has not been spared. A report highlighted the pitiful state of affairs in numerous districts of Uttar Pradesh; albeit the state administration was still in denial of the seriousness of the epidemic. Further, a recent CRISIL report has additionally plumbed AN alert regarding the second wave rising in rural India as its share of infection has up from twenty one % in March to thirty % in April.

In giant components of India, the rabi crop has for the most part been harvested. Up to April thirty, 28.039 million tonnes of wheat had been procured. UP was way behind its target of five.5 million tonnes, whereas state, like in 2020, had procured solely 3,000 tonnes of wheat. In Madhya Pradesh, the APMC mandis area unit closed since April seventeen. Chana costs were at the start ruling (in March) on top of the MSP of Rs 5,100 per quintal. Currently that physical mercantilism is basically absent in MP, it's feared that the costs can come back down and farmers can then expect Nafed to acquire chana at the MSP. In Gujarat, geographical area and Rajasthan additionally, most APMC markets aren't conducting any business.

Similarly, if the COVID-19 state of affairs in rural districts of agricultural states deteriorates a lot of well, the farmers United Nations agency haven't oversubscribed their crop until now are forced to sell it to the village level traders, United Nations agency can provide them costs not up to the MSP. for instance, farmers could ought to sell wheat at Rs 300 to Rs 500 but the MSP of Rs 1,975 per quintal. The southwest monsoon continues to be a month away for southern states and it'll hit north India solely by July So, there's still your time within which management over COVID-19 will still make sure that kharif sowing doesn't suffer.

After the collapse of AN abrupt nationwide imprisonment last year from March twenty four to could thirty (which caused immense migration to villages), the central government is justifiedly reluctant to impose the same demanding imprisonment across India. As a result, the availability chains aren't nonetheless terribly badly wedged, and also the movement of agricultural manufacture from manufacturing regions to intense regions is continuous. There would be disruption of demand because the second wave has severely wedged the richer intense categories in cities. The Indian Meteorologic Department (IMD) has expected a traditional monsoon this year. If the COVID-19 state of affairs is brought in check by native level lockdowns and accelerated vaccinations, the farmers are ready to plant kharif crops. The Centre's vaccination strategy issued on April twenty one is blemished each in respect of equity and potency. Several economists and alternative public health specialists have recommended that it must amendment desperately. The Supreme Court has additionally intervened within the matter once it aforementioned it.

"Do not leave the immunizing agent evaluation and distribution to the manufactures, this is often equity over public goods".

It would be within the interest of the agricultural and additionally rural economy that the Centre, instead of the states, talk terms the value of the vaccines with the 2 domestic producers, whereas guaranteeing a good come on investment to the immunizing agent makers. The Centre ought to place orders with makers so allot identical to the states equitably employing a clear mechanism.

Besides, it might be impractical to permit vaccination of solely people who submit a web request that web property is required. Rural areas are going to be at a large disadvantage if this policy isn't modified.

For agriculture to form a positive contribution to GVA this year, the unfold of malady in rural areas must be prevented by exploitation all attainable suggests that.

The 3 farm laws hastily enacted in September were stayed by the Supreme Court on Gregorian calendar month 2021 associate decreed a skilled committee was started.

The committee submitted its report back to the Supreme Court on March thirty, however the matter has not been listed for hearing and therefore the report of committee has not been discharged publicly domain. The Centre has additionally not shown any urgency to barter with farmers. The global costs of commodities square measure ruling high. The farmers have an opportunity of making the most of the export of cotton, guar gum, maize and soyabean in Kharif crops.

#### *A. Social Safety Nets*

The immediate clean up production resulting in job and financial gain loss and demand recession. The loss of food and wastage that affected the food and nutrition specifically within the space that square measure weaker were affected tons within the pandemic length. During this situation the govt. and personal sector ought to manage the food loss and waste, and conjointly revive the demand and food intake.

To manage the waste material at unit level, implementation of fine food management practices like preparation of searching lists and designing the course of meals square measure advocated. There square measure n variety of use ment schemes WHO may employ migrants WHO have come to their own villages and direct transfers may place money into the hands of poor WHO don't have access to the use plans. as an alternative, distribution of 'food coupons' or 'combo packs' comprising a basket of products particularly bio fortified foods like metallic element and iron wealthy cereals and millet can facilitate the state towards the pathway in making certain nutrition security.

#### *B. Price and Revenue Risk Management*

COVID-19 had less or negligible result on food costs. However, food costs square measure affected by high volatility that interprets into worth risk to farmers.

The government ought to contemplate fixing a worth stabilization fund to insulate farmers from the value risk. Further, crop insurance in Republic of India usually covers solely the yield risk; COVID-19 has conferred the government a chance to remodel the crop insurance theme that covers the revenue risk of farmers.

Or else, farmers and customers will avail the advantages of futures commercialism to shop for or sell the standardized artefact contracts at a pre-decided worth for delivery within the future. To satisfy the contract size set by the artefact exchanges, Farmer Producer firms will remodel themselves into aggregators.

#### *C. Shifting the Focus from Primary to Secondary Agriculture*

COVID-19 evoked internment has discontinuous agricultural labour markets that witnessed vast reverse migration. A survey reports that forty fifth of the migrants came home throughout internment. Structural weakness within the system ought to be addressed to alter recognition of farming as associate enterprise. Processes that add price to primary agricultural production systems and enterprises that supply raw materials from crop residues, by-products and waste from primary agriculture ought to be promoted. For example, cotton stalks have a wider and untapped scope to be used as soft and onerous boards, paper and pulp manufacture. Fast analysis on high-end secondary agriculture product is desperately required. Development of fruit-based frozen dessert, changing bamboo or wood waste to fancy decoration, preparation of sweets from bovine milk, use of natural fibres and culled potato to organize bio-plastics, cellulose extraction from fruit in the altogether wastes and bio-ethanol production are some examples. Further, innovations within the post-harvest technologies of healthful and aromatic plants that offer raw materials to flavorer medicines, prescription drugs, cosmetics, and food flavour industries may increase export potential and build employment.

#### *D. Family farming*

In strategizing to strengthen the agricultural sector, we must pay attention to the concept of sustainability. Nothing comes closer as family farming to the exemplar of sustainable food production. Family farmers not only produce food; they save biodiversity, produce nutritious and local foods, develop new strategies and develop innovations to tackle social, economic and environmental challenges. FAO suggests affirmative policies to support family farmers as a solution to the unsatisfactory world food system in which one-third of the food produced goes to waste.

#### *E. Collective Farming*

Crop farmers ought to heed the booming cases like farm cooperatives to extend productivity and profits. Not like cereals, pulses and vegetables, milk costs weren't stricken by the imprisonment. The procurement, processing, and distribution network of farm cooperatives resisted the exogenous shock. Crop farmers ought to move either as cooperatives or farmer producer organizations or farmer producer corporations and add the network of the international food system. Through aggregation, economies of scale will be ensured. Nudging by the union government on the principles of cooperative political orientation is needed for land reforms and contract farming. These steps along can have the potential to beat challenges of production and selling risks of the farmers.

#### *F. Investment in Agricultural Research and Development*

The calculable annual growth (in real terms) from a pair of 14–15 to 2018–19 in agriculture and allied sectors was 2.9%. Whereas the Indian economy contracted by 23.9% within the half-moon of 2020–21, agriculture was the sole sector to register a positive growth of 3.4%. It's time to appreciate that agriculture sector might keep the expansion engine sputtering once different sectors fail to rise to the occasion despite the farmers facing monumental quantity of production and selling risks even throughout traditional times. Doubtless, inclusion of the personal sector will increase the investment flow similarly as potency in functioning of the system. Personal and government and lots of different sector like distributor, wholesaler, and education sector like faculty, coaching job categories, colleges, and different capable just like the investments in agricultural research and development, insurance, finance, mechanization, cold storage, logistics, automation, digital procurement and distribution like e-marketing should be taken up as a priority.

#### *G. Buffer Stock*

Monetizing the surplus stock within the buffer may be a possible supply of revenue for the union government. The stock command by the Food Corporation of Republic of India has future quite double the buffer stock norms and is value a minimum of value 1,50,000 crore. Monetizing the excess besides revenues, may additionally cut back Brobdingnagian maintenance and supply prices. This quantity may be invested with in promoting rural agriculture enterprises or capability building, drought proofing, etc.

#### *H. Staggered Procurement and Pricing*

During pandemic things that disrupt supply, markets, storages, etc. the government will prefer a staggered procurement and rating strategy that accounts for the brink level in price of storage particularly for staples like rice and wheat created and consumed by millions. This may conjointly encourage farmers to store the commodities at farm level, providing storage is offered, against distress commercialism.

#### *I. Reforms in Agricultural Finance*

Access to low-cost loans has got to be enabled, particularly for tiny and marginal land holders to revive the arena. Restructuring agricultural loans and compensation schedules, withholding the declaration of long-run loans as non-performing plus (NPA), interest subvention on availed loans throughout the moratorium amount etc. ought to be enforced to safeguard the livelihoods and welfare of the poor.

#### *J. Stakeholder Partnerships*

Concerted efforts and inter-institutional partnership area unit inevitable as envisaged within the property Development Goal seventeen to strengthen the weaker and vulnerable sections of the society. Neutral partnerships facilitate to bridge information the data and knowledge gaps by making awareness, investment info and Communication Technologies (ICTs) as well as social media platforms. the concept here is to teach individuals to not choose panic shopping for and signboard essential things, to keep up hygiene of market functionaries, and to sanitize market yards additionally to social distancing that area unit essential for swish functioning of the markets in function of COVID-19 crisis.

## **VI. CONCLUSION**

The world is making an attempt to cut back the impact of COVID19 on all sectors, given a lot of priority on health, food, and agriculture. due to disruptions within the agricultural labour movement, the world offer chain is beneath in threat of food insecurity, notably in developing Asian nation. The study primarily focuses on the impact of COVID-19 on agricultural production and distribution.

Agricultural production isn't solely the results of one or 2 factors correct agricultural production depends on several factors, together with negotiant inputs, agricultural labour force, and external and internal forces of country-to-country export and import things. This study tries to acknowledge of these points. This study additionally shows however COVID-19 affects the distribution of agricultural product and therefore the economic losses of farmers.

- 1) The governments of Asian nation have taken totally different measures and policies to avoid wasting the agriculture sector.
- 2) Moreover, to mitigate the semipermanent result on the agriculture sector, the subsequent recommendations from this study would support the govt. in taking necessary steps to feed the people:
- 3) To maintain the forthcoming production season, farmers' access to negotiant inputs should be a lot of targeted.
- 4) In the case of harvest, the govt. might increase farm harvester machines to mitigate labour shortages. Livestock, vegetables, and fruits producers are a lot of vulnerable as their product are spoilable in nature.
- 5) The govt and personal sectors should place a larger emphasize on the storage of those product, as a result of storage management is needed as demand is in decline in nature. For proper functioning of the provision chain, the govt might use their native (political and co- operative association) leaders to acquire the product and send them to the right place for mercantilism.

During this case, the govt. might offer provision support to them. This sort of decentralised effort will place the agricultural product within the market a minimum of the price of health hazards. Farmers should be correct agricultural selling data, which may facilitate to balance offer and demand at the aggregation purpose and save farmers from post-harvest losses.

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