Critical Analysis & Review Report on

Primary Sector of Economy - Agriculture

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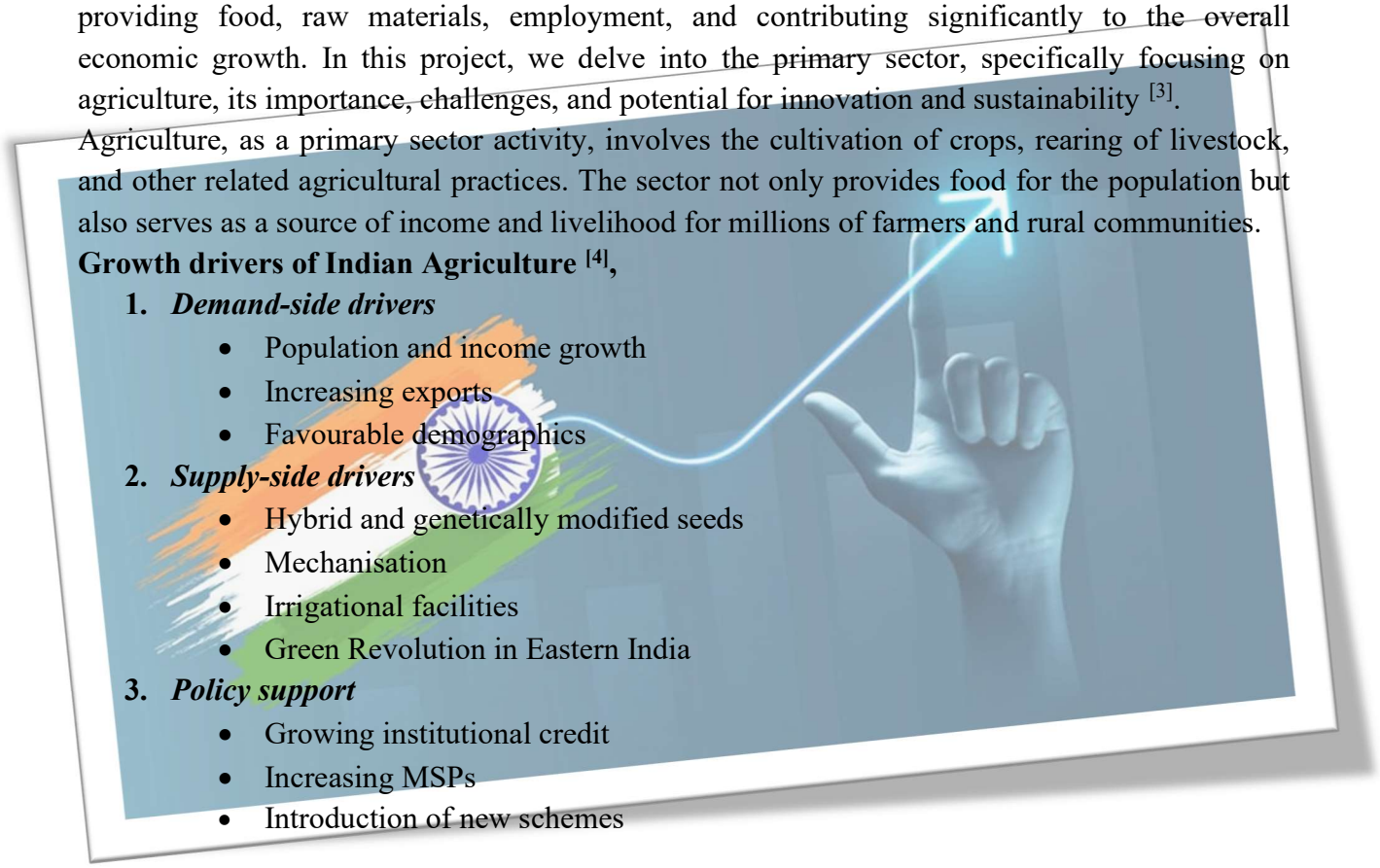
Introduction

The primary sector of the economy, which encompasses agriculture, plays a pivotal role in the development and sustenance of any nation. Agriculture forms the backbone of many economies, providing food, raw materials, employment, and contributing significantly to the overall economic growth. In this project, we delve into the primary sector, specifically focusing on agriculture, its importance, challenges, and potential for innovation and sustainability [3].

Agriculture, as a primary sector activity, involves the cultivation of crops, rearing of livestock, and other related agricultural practices. The sector not only provides food for the population but also serves as a source of income and livelihood for millions of farmers and rural communities.



Growth drivers of Indian Agriculture [4],

1. ***Demand-side drivers***
   - Population and income growth
   - Increasing exports
   - Favourable demographics
2. ***Supply-side drivers***
   - Hybrid and genetically modified seeds
   - Mechanisation
   - Irrigational facilities
   - Green Revolution in Eastern India
3. ***Policy support***
   - Growing institutional credit
   - Increasing MSPs
   - Introduction of new schemes

Problems in Indian Agriculture Sector,

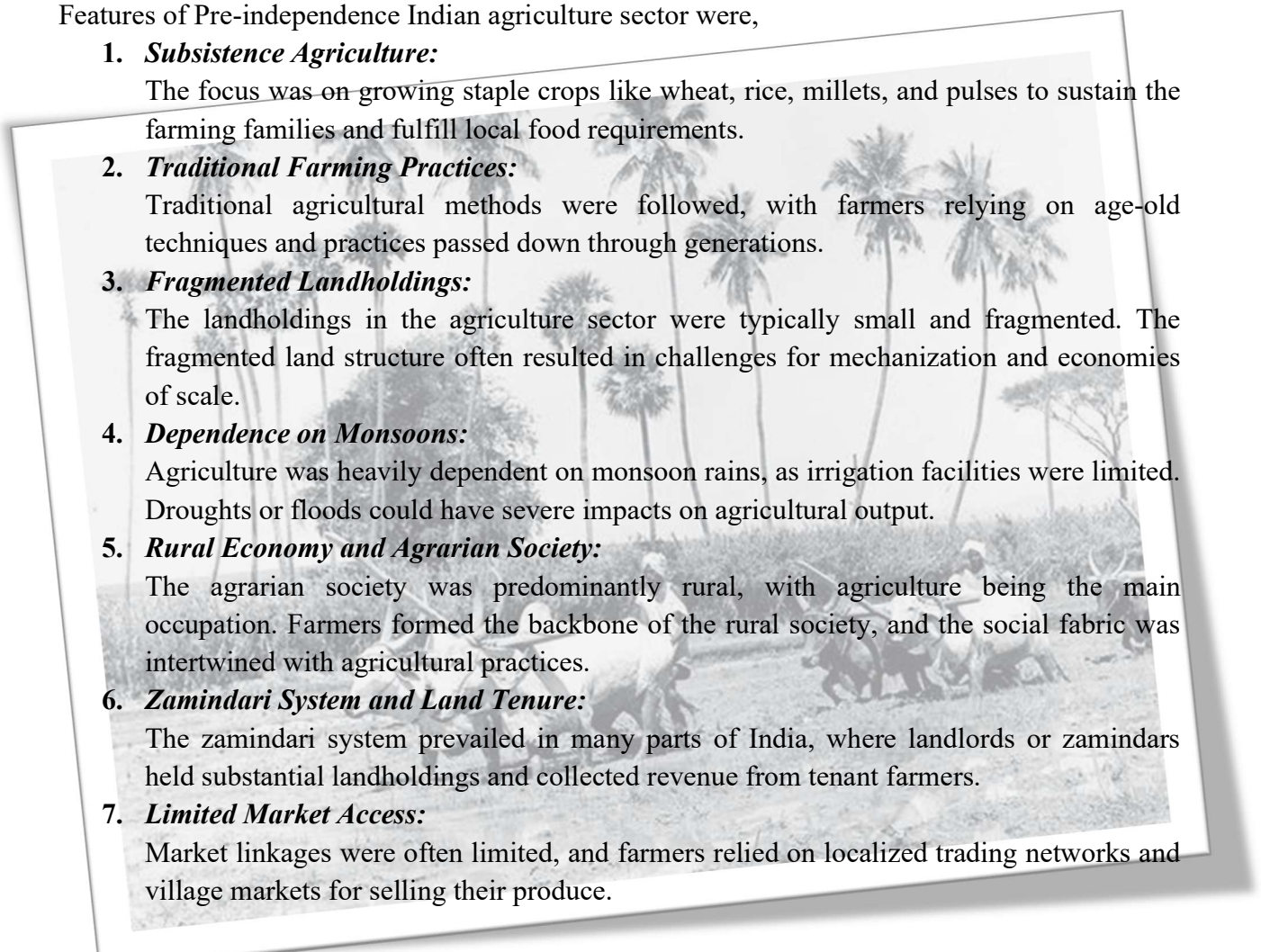
1. ***Productivity Levels are very low***
2. ***Inadequate irrigation facility***
   Out of the gross sown area of 192 million ha, rain fed agriculture contributes to 60 per cent of the gross cropped area and 45 per cent of the total agricultural output.
3. ***Competitiveness of Farmers***
4. ***Fragmentation of land holdings***
   In 1991-92, the share of the bottom half of the rural households in the total land ownership was only 3% and the top 10% was as high as 54%.
5. ***Lack of crop insurance mechanism to Farmers***
   In India, the net sown area is around 140 mha and the gross cropped area hovers between 190-200 mha, but insured area is only 15 mha.
6. ***Farmer's suicide***
7. ***More spending on Subsidy***
   If we add the allocations of the five concerned ministries for FY16, it is roughly Rs 2.3 lakh crore.

Pre-Independence India (before 1947):

Before the time of independence in India, the agriculture sector played a vital role in the country's economy and livelihoods. The agricultural practices prevalent during that era were largely traditional and relied on age-old methods and techniques. The sector was predominantly characterized by subsistence farming, with a significant portion of the population engaged in agricultural activities. Agriculture was primarily focused on the cultivation of staple crops such as wheat, rice, millets, and pulses. The majority of the farming was rain-fed, depending heavily on monsoon rains for irrigation. The landholding patterns were characterized by small and fragmented plots, which often limited productivity and hindered economies of scale. Farming methods were labour-intensive, with the use of traditional tools and practices passed down through generations. Farmers faced numerous challenges such as limited access to modern inputs, credit, and technical knowledge. The agricultural sector before independence played a crucial role in sustaining the Indian population, providing employment, and serving as the backbone of the rural economy.

Features of Pre-independence Indian agriculture sector were,

1. ***Subsistence Agriculture:***
   The focus was on growing staple crops like wheat, rice, millets, and pulses to sustain the farming families and fulfill local food requirements.
2. ***Traditional Farming Practices:***
   Traditional agricultural methods were followed, with farmers relying on age-old techniques and practices passed down through generations.
3. ***Fragmented Landholdings:***
   The landholdings in the agriculture sector were typically small and fragmented. The fragmented land structure often resulted in challenges for mechanization and economies of scale.
4. ***Dependence on Monsoons:***
   Agriculture was heavily dependent on monsoon rains, as irrigation facilities were limited. Droughts or floods could have severe impacts on agricultural output.
5. ***Rural Economy and Agrarian Society:***
   The agrarian society was predominantly rural, with agriculture being the main occupation. Farmers formed the backbone of the rural society, and the social fabric was intertwined with agricultural practices.
6. ***Zamindari System and Land Tenure:***
   The zamindari system prevailed in many parts of India, where landlords or zamindars held substantial landholdings and collected revenue from tenant farmers.
7. ***Limited Market Access:***
   Market linkages were often limited, and farmers relied on localized trading networks and village markets for selling their produce.



These key features laid the foundation for subsequent agricultural developments and policy interventions in the post-independence era.

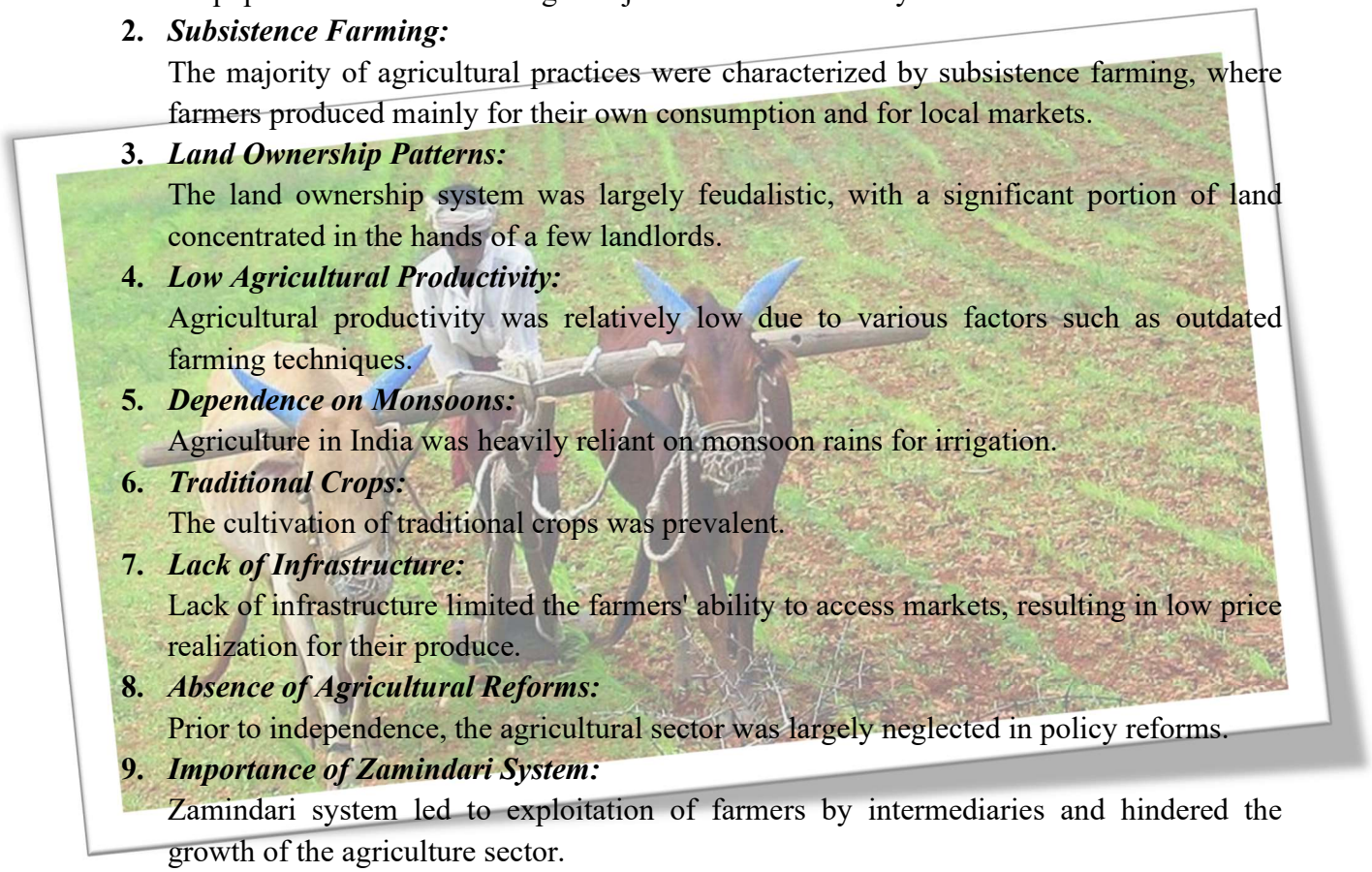
Post-Independence India (1947 – 1960s):

At the time of India's independence in 1947, the agriculture sector played a vital role in the country's economy. Agriculture was the primary occupation for the majority of the population, providing livelihoods to millions of people.

The agricultural practices during that period were predominantly traditional and heavily dependent on monsoon rains. Farmers relied on age-old techniques and limited access to modern machinery, which resulted in low productivity and yield fluctuations. The land distribution system was highly unequal, with a significant portion of arable land held by a few landlords, leaving many farmers with small and fragmented plots. Farmers often relied on local moneylenders who charged exorbitant interest rates, trapping them in cycles of debt. The absence of organized marketing channels and price stabilization mechanisms subjected farmers to volatile and uncertain market conditions, resulting in exploitation and low profitability.

Features of Post-independence Indian agriculture sector were,

1. ***Dominance of Agriculture:***
   Agriculture was the backbone of the Indian economy, employing a significant portion of the population and contributing a major share to the country's GDP.
2. ***Subsistence Farming:***
   The majority of agricultural practices were characterized by subsistence farming, where farmers produced mainly for their own consumption and for local markets.
3. ***Land Ownership Patterns:***
   The land ownership system was largely feudalistic, with a significant portion of land concentrated in the hands of a few landlords.
4. ***Low Agricultural Productivity:***
   Agricultural productivity was relatively low due to various factors such as outdated farming techniques.
5. ***Dependence on Monsoons:***
   Agriculture in India was heavily reliant on monsoon rains for irrigation.
6. ***Traditional Crops:***
   The cultivation of traditional crops was prevalent.
7. ***Lack of Infrastructure:***
   Lack of infrastructure limited the farmers' ability to access markets, resulting in low price realization for their produce.
8. ***Absence of Agricultural Reforms:***
   Prior to independence, the agricultural sector was largely neglected in policy reforms.
9. ***Importance of Zamindari System:***
   Zamindari system led to exploitation of farmers by intermediaries and hindered the growth of the agriculture sector.
10. ***Limited Access to Credit:***
    Small and marginal farmers faced challenges in accessing formal credit facilities from banks, leading them to rely on local moneylenders who charged exorbitant interest rates.



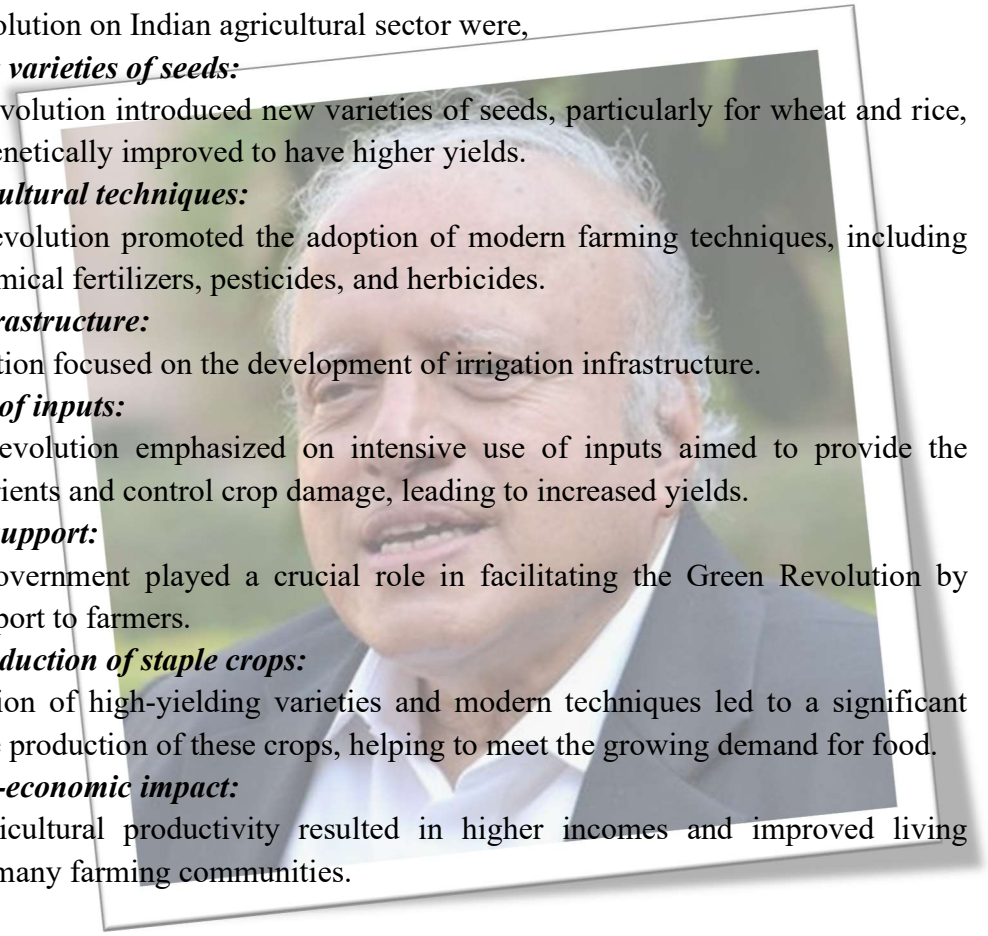
Era of Green Revolution (1960s - 1980s):

The Green Revolution in India refers to a series of agricultural initiatives and technological advancements implemented during the 1960s and 1970s. The aim was to increase agricultural productivity and transform India from a food-deficient nation to a self-sufficient one. The Green Revolution primarily focused on the production of wheat and rice. One of the pioneers of the Green Revolution in India was ***Dr. M.S. Swaminathan***, an eminent agricultural scientist. He played a crucial role in the development and dissemination of HYVs of seeds, which had shorter growth cycles, higher yields, and resistance to pests and diseases.

The Green Revolution also brought about social and economic changes. The introduction of new agricultural technologies created employment opportunities in rural areas. Farmers who adopted the modern techniques experienced higher incomes and improved living standards.

While the Green Revolution brought immediate gains in terms of increased production, it also had some unintended consequences. The intensive use of chemical fertilizers and pesticides led to environmental concerns, such as soil degradation and water pollution. Additionally, the focus on a few crops and regions led to imbalances in the agricultural sector, with other crops and regions being neglected.

Effects of Green Revolution on Indian agricultural sector were,



1. ***High-yielding varieties of seeds:***
   The Green Revolution introduced new varieties of seeds, particularly for wheat and rice, which were genetically improved to have higher yields.
2. ***Modern agricultural techniques:***
   The Green Revolution promoted the adoption of modern farming techniques, including the use of chemical fertilizers, pesticides, and herbicides.
3. ***Irrigation infrastructure:***
   Green Revolution focused on the development of irrigation infrastructure.
4. ***Intensive use of inputs:***
   The Green Revolution emphasized on intensive use of inputs aimed to provide the necessary nutrients and control crop damage, leading to increased yields.
5. ***Government support:***
   The Indian government played a crucial role in facilitating the Green Revolution by providing support to farmers.
6. ***Increased production of staple crops:***
   The introduction of high-yielding varieties and modern techniques led to a significant increase in the production of these crops, helping to meet the growing demand for food.
7. ***Positive socio-economic impact:***
   Increased agricultural productivity resulted in higher incomes and improved living standards for many farming communities.

Green Revolution also had some negative consequences, including environmental concerns such as soil degradation, water depletion, and increased reliance on chemical inputs. It also contributed to income disparities and inequality among farmers.

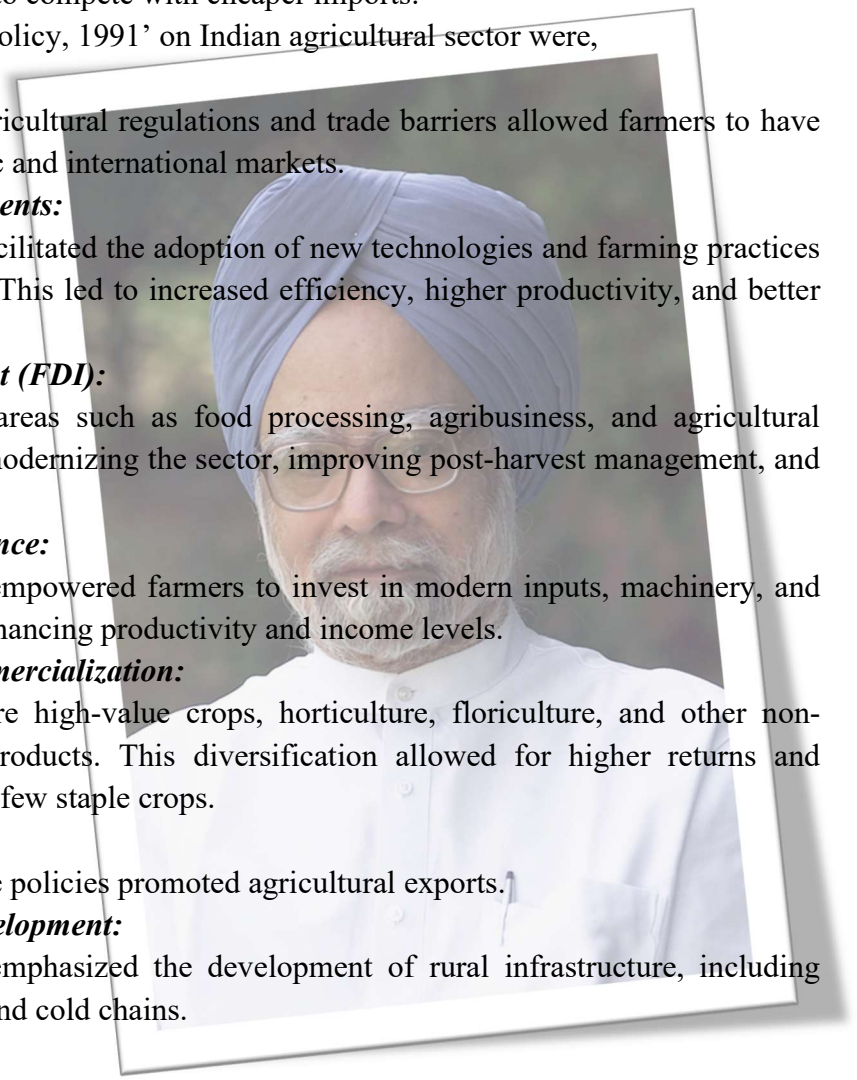
Effect of "New Economic Policy, 1991" (1991 - 2010s):

"New Economic Policy, 1991" or "Liberalization, Privatization, and Globalization (LPG)," had a significant impact on the agriculture sector. These reforms aimed to liberalize the Indian economy, reduce government intervention, promote market-oriented policies, and integrate India into the global economy. While the reforms brought about several positive changes, their impact on the agriculture sector was both transformative and challenging.

One of the key reforms was the dismantling of the system of agricultural subsidies and price controls. The government reduced input subsidies, including fertilizer and irrigation subsidies, and gradually removed the system of minimum support prices (MSP) for agricultural produce. These changes aimed to promote efficiency, encourage market forces, and reduce the fiscal burden on the government.

Another significant impact of the 1991 reforms on the agriculture sector was the opening up of the Indian economy to global trade. The removal of trade barriers and the liberalization of agricultural imports exposed domestic farmers to international competition. While this provided opportunities for agricultural exports and access to new markets, it also posed challenges for domestic farmers who struggled to compete with cheaper imports.

Key effects of 'New Economic Policy, 1991' on Indian agricultural sector were,



1. ***Market liberalization:***
   The removal of many agricultural regulations and trade barriers allowed farmers to have greater access to domestic and international markets.
2. ***Technological advancements:***
   The economic reforms facilitated the adoption of new technologies and farming practices in the agriculture sector. This led to increased efficiency, higher productivity, and better crop quality.
3. ***Foreign direct investment (FDI):***
   Foreign investments in areas such as food processing, agribusiness, and agricultural infrastructure helped in modernizing the sector, improving post-harvest management, and enhancing value addition.
4. ***Access to credit and finance:***
   Access to formal credit empowered farmers to invest in modern inputs, machinery, and infrastructure, thereby enhancing productivity and income levels.
5. ***Diversification and commercialization:***
   Farmers began to explore high-value crops, horticulture, floriculture, and other non-traditional agricultural products. This diversification allowed for higher returns and reduced dependence on a few staple crops.
6. ***Agricultural exports:***
   The liberalization of trade policies promoted agricultural exports.
7. ***Rural infrastructure development:***
   The economic reforms emphasized the development of rural infrastructure, including roads, storage facilities, and cold chains.

Effect of "Demonetization, 2016" (2016 - 2020):

Demonetization, which refers to the sudden withdrawal of high-denomination currency notes from circulation, was implemented in India in November 2016. While its primary aim was to curb black money, corruption, and counterfeit currency, the move had various effects on the agriculture sector.

Key effects of 'Demonetization, 2016' on Indian agricultural sector were,

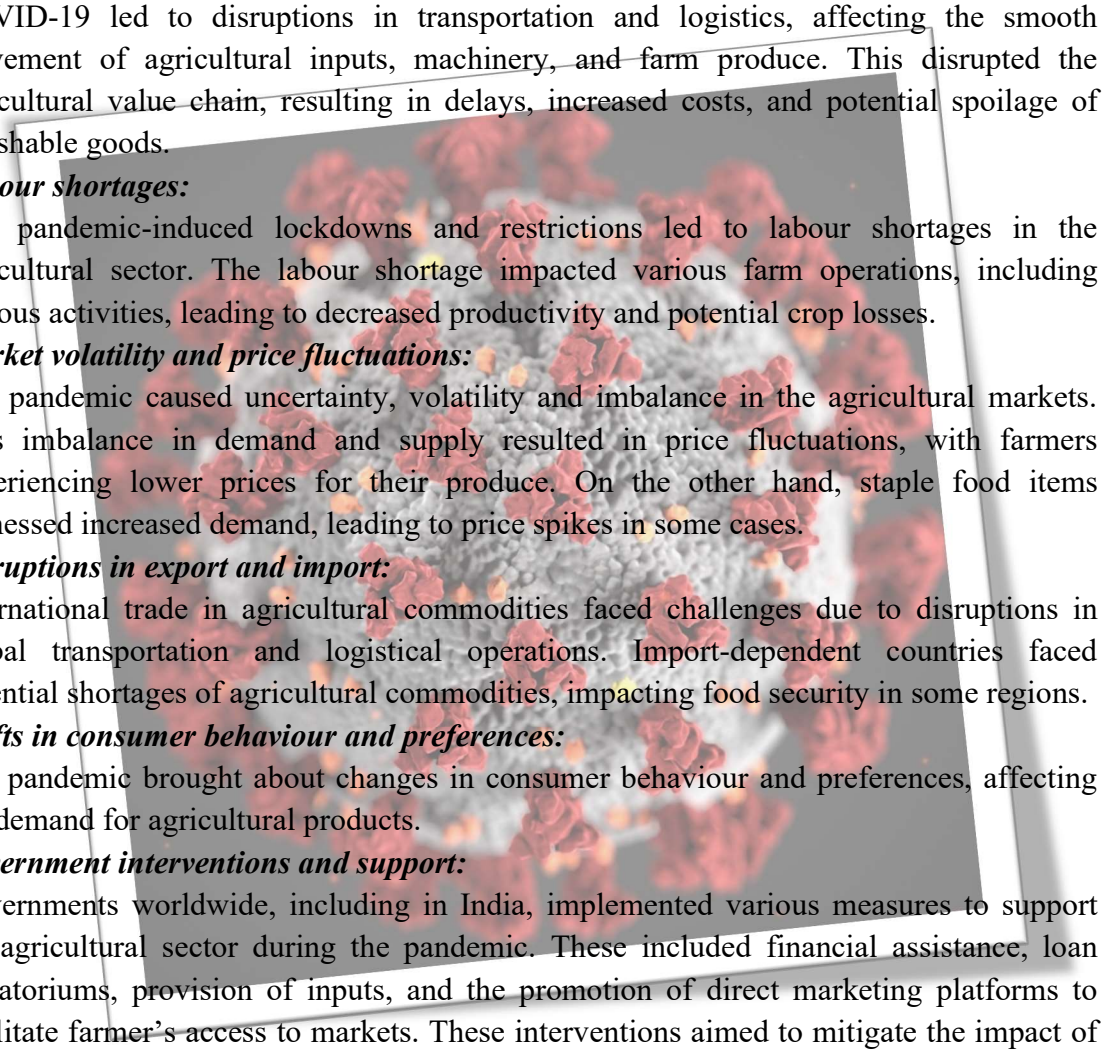
1. ***Cash-dependent sector:***
   The agriculture sector in India heavily relies on cash transactions, especially in rural areas. Demonetization caused a severe liquidity crunch as the high-value currency notes were invalidated overnight. Farmers faced challenges in carrying out day-to-day operations, such as purchasing seeds, fertilizers, and paying laborers, as they predominantly relied on cash transactions.
2. ***Price volatility:***
   The sudden cash shortage and disruption in market operations led to price fluctuations in the agricultural market. With limited cash in circulation, farmers struggled to find buyers for their produce, resulting in reduced demand and lower prices. The lack of liquidity and uncertainty in the market made it difficult for farmers to negotiate fair prices, negatively impacting their income and profitability.
3. ***Supply chain disruptions:***
   The agricultural supply chain, including transportation, warehousing, and marketing, experienced disruptions due to cash shortages. Farmers faced difficulties in transporting their produce to markets and accessing storage facilities. This resulted in spoilage of perishable agricultural goods, adding to the financial losses suffered by farmers.
4. ***Impact on credit availability:***
   Demonetization also affected the availability of credit for farmers. As banks and financial institutions were occupied with the process of currency exchange and depositing old notes, the focus on extending agricultural loans decreased temporarily. Farmers who relied on informal sources of credit were particularly affected as moneylenders and local financiers also faced a liquidity crunch.
5. ***Shift towards digital payments:***
   One positive effect of demonetization on the agriculture sector was the increased adoption of digital payment methods. As cash became scarce, farmers and traders began exploring digital platforms and mobile-based payment systems. This shift towards digital transactions aimed to enhance transparency, reduce corruption, and improve financial inclusion in the agricultural sector.

Overall, demonetization had a disruptive impact on the agriculture sector in India. The immediate cash crunch, price volatility, supply chain disruptions, and limited credit availability created challenges for farmers. However, the move also pushed for the adoption of digital payment systems, which could have long-term benefits in improving transparency and financial inclusion in the agricultural sector.

Effect of "COVID-19" (2019 - 2021):

The COVID-19 pandemic had a significant impact on the agricultural sector worldwide, including in India. Key effects of the pandemic on the Indian agricultural sector:

1. ***Disruptions in the supply chain:***
   COVID-19 led to disruptions in transportation and logistics, affecting the smooth movement of agricultural inputs, machinery, and farm produce. This disrupted the agricultural value chain, resulting in delays, increased costs, and potential spoilage of perishable goods.
2. ***Labour shortages:***
   The pandemic-induced lockdowns and restrictions led to labour shortages in the agricultural sector. The labour shortage impacted various farm operations, including various activities, leading to decreased productivity and potential crop losses.
3. ***Market volatility and price fluctuations:***
   The pandemic caused uncertainty, volatility and imbalance in the agricultural markets. This imbalance in demand and supply resulted in price fluctuations, with farmers experiencing lower prices for their produce. On the other hand, staple food items witnessed increased demand, leading to price spikes in some cases.
4. ***Disruptions in export and import:***
   International trade in agricultural commodities faced challenges due to disruptions in global transportation and logistical operations. Import-dependent countries faced potential shortages of agricultural commodities, impacting food security in some regions.
5. ***Shifts in consumer behaviour and preferences:***
   The pandemic brought about changes in consumer behaviour and preferences, affecting the demand for agricultural products.
6. ***Government interventions and support:***
   Governments worldwide, including in India, implemented various measures to support the agricultural sector during the pandemic. These included financial assistance, loan moratoriums, provision of inputs, and the promotion of direct marketing platforms to facilitate farmer's access to markets. These interventions aimed to mitigate the impact of the pandemic and ensure the stability of the agricultural sector.



In conclusion, the COVID-19 pandemic had multifaceted impacts on the agricultural sector, ranging from disruptions in the supply chain and labour shortages to market volatility and shifts in consumer behaviour. The sector faced challenges in maintaining productivity, ensuring food security, and adapting to changing market dynamics. However, government support and resilience within the agricultural community played a crucial role in mitigating the adverse effects and sustaining agricultural activities during these challenging times.

"New Agricultural Reforms, 2020" (2020 - 2021):

In recent years, the Indian government introduced a series of agricultural reforms through three key laws:

1. **Farmer's Produce Trade and Commerce (Promotion and Facilitation) Act**
   Under this act, farmers can engage in trade and sell their produce directly to buyers, including processors, exporters, wholesalers, and retailers. It promotes the creation of alternative marketing channels. The act also prohibits state governments from levying any market fees, cess, or other charges on such trade outside the APMC mandis.
2. **Farmers (Empowerment and Protection) Agreement on Price Assurance and Farm Services Act**
   Under this act, farmers have the freedom to enter into written agreements with buyers, processors, wholesalers, exporters, and large retailers. These agreements can be for the production, purchase, sale, or supply of farm produce at pre-agreed prices. The act provides assurance to farmers regarding the minimum price and terms of payment for their agricultural produce.
3. **Essential Commodities (Amendment) Act**
   The amendment to the ***Essential Commodities Act, 1955*** aims to liberalize the regulatory framework for essential commodities. It removes several agricultural commodities like cereals, pulses, oilseeds, edible oils, onions, and potatoes from the list of essential commodities.

These reforms were aimed at liberalizing and modernizing the agricultural sector by promoting private investment, removing barriers to trade, and enabling farmers to engage in contract farming.

However, these agricultural reforms faced significant backlash and led to widespread protests by farmers across the country, primarily in the states of Punjab, Haryana, and Uttar Pradesh. The protesters argued that the new laws would dismantle the existing government-regulated agricultural markets, known as ***Agricultural Produce Market Committees (APMCs)*** [7], and leave them vulnerable to exploitation by private corporations. They raised concerns about the potential for ***reduced income***, ***loss of bargaining power***, and the ***dismantling of the minimum support price (MSP) system***, which ensures a minimum price for certain crops.

The protests gained momentum and drew international attention, with farmers organizing sit-ins, tractor rallies, and road blockades. The protests became one of the largest movements by farmers in recent history [6].

The government engaged in multiple rounds of negotiations with farmer unions to address their concerns. Some amendments were proposed, but the negotiations have yet to yield a comprehensive resolution that satisfies all stakeholders. The protests continue, with demands ranging from complete repeal of the laws to more substantial changes and assurance of MSP. The protests reflect the deep-seated concerns of farmers regarding the potential impact of the reforms on their livelihoods and agricultural practices. The protests have also raised broader issues related to agrarian distress, farmer indebtedness, and the need for comprehensive agricultural reforms that consider the diverse needs of farmers across the country.

Gross Domestic Product (GDP) Analysis (1960 - 2021):

From the 1960s to the 1980s, the agricultural sector in India experienced significant growth, primarily driven by the Green Revolution. This period witnessed the adoption of high-yielding crop varieties, increased use of fertilizers and irrigation, and government support for agricultural development. As a result, agricultural GDP saw a substantial increase, contributing significantly to the country's overall GDP [8].

However, from the 1990s onwards, the share of agriculture in India's GDP started declining. This decline can be attributed to various factors, including the expansion of non-agricultural sectors, urbanization, and the overall diversification of the Indian economy. Industrialization and the services sector gained prominence, leading to a shift in focus and resources away from agriculture.

Furthermore, fluctuations in agricultural GDP can also be observed due to external factors such as monsoon variability and natural disasters, which significantly impact agricultural output. Periods of drought or excessive rainfall can lead to crop failures, affecting the sector's contribution to GDP.

As we can see from Fig.1 that involvement of Primary sector in GDP contribution starts decreasing (Fig. 1) or, we can say that gap between Total GDP and Agricultural GDP starts increasing (Fig. 2) which was governed by various factors as follows:

1. ***Diversification of the economy:***
   India's economy underwent a significant shift from being primarily agrarian to becoming more diversified, with the growth of industrial and services sectors. This diversification led to a relative decrease in the share of agriculture in the overall GDP.
2. ***Growth of other sectors:***
   The industrial and services sectors experienced substantial growth during this period, fueled by economic reforms and technological advancements. Industries such as manufacturing, construction, and information technology expanded rapidly, contributing to a larger share of the GDP.
3. ***Technological advancements:***
   The adoption of modern agricultural practices and technologies, including the Green Revolution, resulted in increased agricultural productivity. While this led to growth in agricultural output, it also reduced the sector's share in the GDP due to the faster pace of growth in other sectors.
4. ***Urbanization and migration:***
   India witnessed significant urbanization and rural-to-urban migration after 1975. As people moved from rural areas to cities in search of better opportunities, the proportion of the population engaged in agriculture decreased.
5. ***Government policies and investments:***
   The government's focus on industrialization and urban development resulted in greater emphasis on promoting manufacturing and services sectors. Policies and investments were directed toward these sectors, which further contributed to the declining share of agriculture in the GDP.

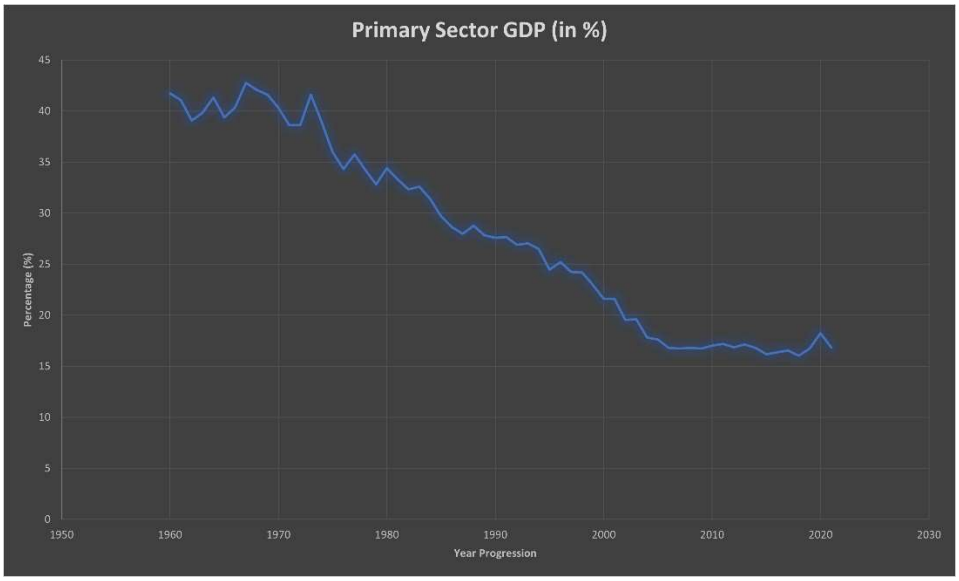


Fig 1. Variation Percentage of Primary Sector GDP in Total GDP of India, World Bank [1]

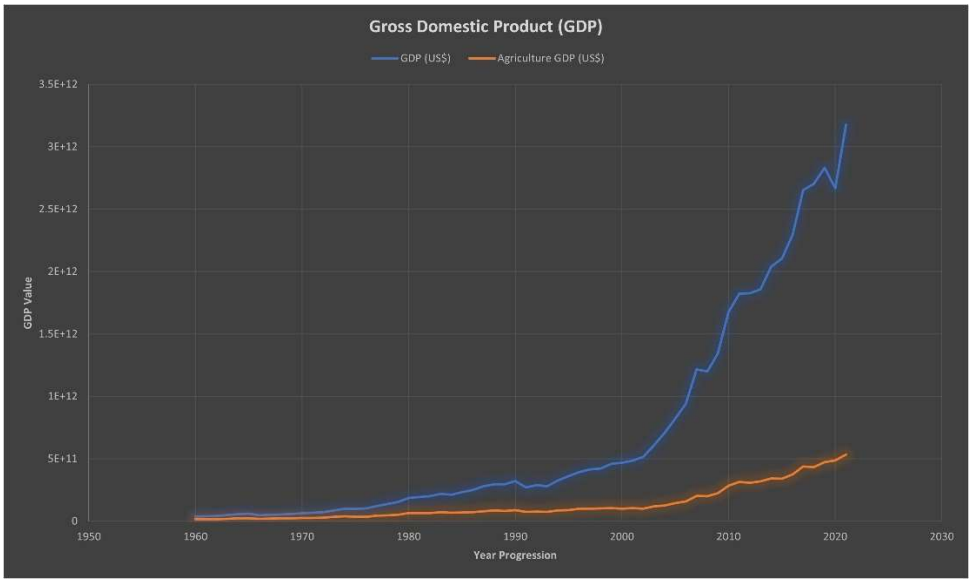


Fig 2. Comparison chart for Total GDP and Agricultural GDP in US dollars, World Bank [1]

Recent policy actions taken by the Government [2]

1. ***Paramparagat Krishi Vikas Yojana, 2015***
   Develop sustainable organic farming models that combine traditional knowledge and modern science to ensure long-term soil fertility building, resource conservation, and aid in climate change adaptation and mitigation. It allocated a sum of Rs 5,300 crore.
2. ***Pradhanmantri Gram Sinchai Yojana, 2015***
   Implemented to expand cultivated area with assured irrigation, reduce wastage of water and improve water use efficiency.
3. ***The Mahatma Gandhi National Rural Employment Guarantee Act* (updated), *2005***
   Provision of at least 100 days of work that provides guaranteed wage in a financial year.

Future ideas to implement for Agricultural Growth:

1. ***Direct Cash Transfer***
   We should reorient food and fertiliser subsidies by moving to cash transfers to identified beneficiaries. This will help in reducing leakages and will also help in curbing corruption and will make process more transparent.
2. ***Open markets***
   Farmers must have the freedom to sell their produce to anyone, anywhere. Taxes, levies and commissions on agricultural commodities across states need to be rationalized to less than 4 per cent, currently it is ranging from less than 2 per cent in Gujarat to about 14.5 per cent in Punjab.
3. ***Special agriculture zones (SAZs)***
   SAZs should be designed to conserve prime farm land so that we do not revert to a ship-to-mouth existence.
4. ***Mandatory rainwater harvesting*** in all farms for crop-life-saving irrigation if there is a prolonged dry spell. Wherever farms are small, community rainwater harvesting can be promoted. Equity in water-sharing is essential for cooperation in water-saving. Some method of community management, like a ***pani-panchayat***, will be useful.
5. In case there is a prolonged dry spell between rains, seedlings may wither. Therefore, ***seed banks with alternative short-duration crops*** should be built up and the choice of alternative crops could be according to both home needs and market demand.
6. ***Contingency plans to adapt to different weather probabilities*** should be prepared jointly by agriculture universities and farmer's associations. Women farmers in particular should be consulted. Unless such joint work is promoted, the technical advice may remain on paper.
7. Our grain reserve is dwindling and climate change is posing unforeseen threats. Thus, ***codes of coping with weather probabilities like drought, flood and good weather should be prepared jointly by scientists and farmers***. Eternal vigilance is the price of stable agriculture and sustainable food security. This will call for an inter-disciplinary monsoon management strategy.

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