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INDIAN AGRICULTURE: DEVELOPMENT IN PRESENT SCENARIO

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ABSTRACT:

Agriculture is the backbone of Indian Economy. About 65% of Indian population depends directly on agriculture and it accounts for around 22% of GDP. Agriculture derives its importance from the fact that it has vital supply and demand links with the manufacturing sector. During the past five years agriculture sector has witnessed spectacular advances in the production and productivity of food grains, oilseeds, commercial crops, fruits, vegetables, food grains, poultry and dairy. India has emerged as the second largest producer of fruits and vegetables in the world in addition to being the largest overseas exporter of cashews and spices. Further, India is the highest producer of milk in the world.

The history of Indian agriculture:

The post-Independence history of Indian agriculture can be broadly grouped into four periods. Before describing them, I should mention that during the colonial era famines were frequent and famine commissions were abundant. The growth rate in food production during the 1900-1947 periods was hardly 0.1 per cent. Most of the important institutional developments in agriculture emanated from the recommendations of famine commissions. The great Bengal Famine of 1942-43 provided the backdrop to India's Independence.

The first stage 1947-64 this was the Jawaharlal Nehru era where the major emphasis was on the development of infrastructure for scientific agriculture. The steps taken included the establishment of fertilizer and pesticide factories, construction of large multi-purpose irrigation-cum-power projects, organization of community development and national extension programmes and, above all, the starting of agricultural universities, beginning with the Pant Nagar University established in 1958, as well as new agricultural research institutions, as for example the Central Rice Research Institute, Cuttack, and the Central Potato Research Institute, Shimla. During this period, the population started increasing by over 3 per cent a year as a result of both the steps taken to strengthen public health care systems and advances in

preventive and curative medicine. The growth in food production was inadequate to meet the consumption needs of the growing population, and food imports became essential. Such food imports, largely under the PL-480 programme of the United States, touched a peak of 10 million tonnes in 1966.

The second stage 1965-1985 This period coincides with the leadership of Lal Bahadur Shastri and Indira Gandhi, with Morarji Desai and Charan Singh serving as Prime Ministers during 1977-79. The emphasis was on maximizing the benefits of infrastructure created during step-I, particularly in the areas of irrigation and technology transfer. Major gaps in the strategies adopted during step-I were filled, as for example the introduction of semi-dwarf high-yielding varieties of wheat and rice, which could utilize sunlight, water, and nutrients more efficiently and yield two to three times more than the strains included in the Intensive Agriculture District Programme (IADP) of the early 1960s. This period also saw the reorganization and strengthening of agricultural research, education and extension, and the creation of institutions to provide farmers assured marketing opportunities and remunerative prices for their produce. The National Bank for Agriculture and Rural Development (NABARD) was set up. All these steps led to a quantum jump in the productivity and production of crops such as wheat and rice, a phenomenon christened in 1968 as the Green Revolution. C. Subramaniam (1964-67) and Jagjivan Ram provided the necessary public policy guidance and support. The Green Revolution generated a mood of self-confidence in our agricultural capability. The gains were consolidated during the Sixth Five Year Plan period (1980-85) when for the first time agricultural growth rate exceeded the general economic growth rate. Also, the growth rate in food production exceeded that of the population. The Sixth Plan achievement illustrates the benefits arising from farmer-centered priorities in investment and in the overall agricultural production strategy.

The third stage: 1985-2000 This was the era of Rajiv Gandhi, P.V. Narasimha Rao and Atal Bihari Vajpayee, with several other Prime Ministers serving for short periods. This phase was characterized by greater emphasis on the production of pulses and oilseeds as well as of vegetables, fruits, and milk. Rajiv Gandhi introduced organizational innovations like Technology Missions, which resulted in a rapid rise in oilseed production. The Mission approach involves concurrent attention to conservation, cultivation, consumption, and commerce. Rain-fed areas and wastelands received greater attention and a Wasteland Development Board was set up. Wherever an end-to-end approach was introduced involving attention to all links in the production-consumption chain, progress was steady and sometimes striking as in the case of milk and egg production. This period ended with large grain reserves with the government, with the media highlighting the co-existence of “Grain Mountains and hungry millions.” This period also saw a gradual decline in public investment in irrigation and infrastructure essential for agricultural progress as well as a gradual collapse of the cooperative credit system.

The fourth stage: 2001 to the present day Despite the efforts of Prime Ministers Atal Bihari Vajpayee and Manmohan Singh, this phase is best described as one characterized by policy fatigue, resulting in technology extension and production fatigues. No wonder that the farmers, who keep others alive, are now forced to take their own lives and 40 per cent of them want to quit farming, if there is an alternative option. The agricultural decline is taking place at a time when international prices of major food grains are going up steeply, partly owing to the use of grain for ethanol production. Land for food versus fuel is becoming a major issue. For example, the export price of wheat has risen from \$197 a tonne in 2005 to \$263 a tonne in 2007. Maize price has gone up from about \$100 a tonne in 2005 to \$166 a tonne now. International trade is also becoming free but not fair. Compounding these problems is the possibility of adverse changes in rainfall, temperature, and the sea level as a result of global warming. Melting of Himalayan ice and glaciers will result in floods of unprecedented dimensions in north India. If agricultural production does not remain above the population growth rate and if the public distribution system is starved of grain, there is every likelihood of our going back to the pre-Independence situation of recurrent famines. The grain mountains have disappeared and we are today in the era of diminishing grain reserves, escalating prices, and persistence of widespread under-nutrition.

India's main export partner: India is diversifying its export markets. The EU remains its top market, accounting for 16% of the value of export sales in 2003-2005, although this is a decline from 21% a decade ago. ASEAN is in 2nd place with 14%, although its share has also fallen.

Status of Agriculture in India: In 2007-08, India achieved a record food grain production of 227 million tonnes, posting a growth of 10 to 12 million tonnes in excess of the previous fiscal. With an added two to three million tonnes during the Rabi season, it would touch 230 million tonnes a landmark in food grain production. The agri-biotech sector in India is growing at a whopping 30 per cent since the last five years, and it is likely to sustain the growth in the future as well. The food processing sector, which contributes 9 per cent to the GDP, is presently growing at 13.5 per cent against 6.5 per cent in 2003-04, and is going to be an important driver of the Indian economy.

India is the largest producer of coconuts, mangoes, bananas, milk and dairy products, cashew nuts, pulses, ginger, turmeric and black pepper. It is also the second largest producer of rice, wheat, sugar, cotton, fruits and vegetables. Agricultural production is likely to increase significantly during fiscal year 2009. Centre for Monitoring Indian Economy (CMIE) has projected a growth of 3.2 per cent during fiscal year 2009, for the GDP of agriculture and allied sectors. The allied sectors comprising livestock, forestry and logging, and fishing are likely to see a growth of 4.8 per cent during fiscal year 2009.

India's exports of agricultural and processed food products posted a 38 per cent increase in the 2007-08 fiscal, bolstered by an increase in shipments of coarse cereals like maize, jowar and barley.

Export figures for agricultural products touched US\$ 6.59 billion in 2007-08, against US\$ 4.79 billion in the previous fiscal. Acreage under horticulture which includes fruits, vegetables, spices, floriculture, and plantations was around 20 million hectares in 2006-07- India is the second largest producer of both fruits and vegetables in the world and the National Horticulture Mission (NHM) AIMS at doubling horticulture production by 2012.

India is the largest producer of milk in the world, and is likely to become the second largest dairy products producer in the coming years. It is the second largest producer of fruits and vegetables. It is home to the largest number of livestock in the world. It is the third largest producer of food grains. It has the third largest output of fish. With above 9500 species from medicinal and aromatic plants, India is truly a treasure trove of spices, accounting for 25-30 per cent of the world's production. India is the largest producer, consumer and exporter of spices, with major spices produced being black pepper, cardamom (small & large), ginger, garlic, turmeric, chili etc.

Salient Features of Indian Agriculture

(a) Subsistence Agriculture: As mentioned earlier, most parts of India have subsistence agriculture. This type of agriculture has been practiced in India for several hundreds of years and still prevails in a larger part of India in spite of

The large scale change in agricultural practices after independence.

(b) Pressure of population on Agriculture: Despite increase in urbanization and industrialization, about 70% of population is still directly or indirectly dependent on agriculture.

(c) Mechanization of farming: Green Revolution took place in India in the late sixties and early seventies. After more than forty years of Green Revolution and revolution in agricultural machinery and equipments, complete mechanization is still a distant dream.

(d) Dependence upon monsoon: Since independence, there has been a rapid expansion of irrigation infrastructure. Despite the large scale expansion, only about one third of total cropped area is irrigated today. As a consequence, two third of cropped areas is still dependent upon monsoon. As you know, monsoon in India is uncertain and unreliable. This has become even more unreliable due to change in climate.

(e) Variety of crops: Can you guess why India has a variety of crops? As mentioned in the beginning of the lesson, India has diversity of topography, climate and soil. Since India has both tropical and temperate climate, crops of both the climate are found in India. There are very few countries in the world that have variety comparable to that of India. You would realize that when we would discuss the different type of crops in detail. Look at the table No.1 to get an idea.

(f) Predominance of food crops: Since Indian agriculture has to feed a large population, production of food crops is the first priority of the farmers almost everywhere in the country. However, in recent years, there has been a decline in the share of land used for food crops due to various other commercially most advantageous uses of these lands.

(g) Seasonal patterns: India has three distinct agricultural/cropping seasons. You might have heard about *kharif*, *rabi* and *zaid*. In India there are specific crops grown in these three seasons. For example rice is a *kharif* crop whereas wheat is a *rabi* crop.

Indian Agriculture: Issues

While there are a number of factors responsible for the present state of agriculture in India, the following seven issues merit attention on priority:

1. Declining Productivity and Increased Variability: Indian agricultural production, of late, has been characterized by sharp variations due to unpredictable nature of monsoon. For instance, food grains production in the country varied between 174.19 million tonnes in 2002-03 (the lowest in the last 12 years) and 212.20 million tonnes in 2003-04, (the peak production attained so far). Similar variations can be observed in the production of non-food grains as well. It turns out that the variability of agricultural production in the 1980s was as much as five times the average variability recorded in the overall GDP during 1992-93 to 2002-03. Such wide variations in agricultural production underline the rain dependence of the Indian agriculture, thereby underscoring the need for improving the irrigation facilities. In 1998-99 only 39.2 per cent of the gross cropped area in the country was under irrigation.

2. Decline in Capital Formation: During the 1990s, a steady downturn in investment rates was experienced by the agricultural sector, mainly in public investment. The ratio of public sector capital formation in agriculture to Gross Public Sector Capital Formation declined from 17.7 per cent in 1980-81 to only 4.1 per cent in 2000-01. Although the private sector capital formation in agriculture has been on the rise during the past decade, it has not been able to meet the shortfall on account of the corresponding decline in public investment. The inadequacy of new capital formation has slowed the pace and pattern of technological change in agriculture with adverse effects on productivity. To rejuvenate agricultural growth, the declining trend in public investment needs to be corrected.

3. Inadequate Credit Delivery: Although the ratio of agricultural credit to agricultural GDP has increased from 5.4 percent in 1970s to 8.7 per cent in 2001-02, it may be noted that agricultural credit as a proportion to total credit has declined from 20.5 per cent to 10.5 per cent during the same period indicating lower deployment of credit in agriculture. Moreover, the extent of credit deployed from out of deposits mobilized in rural areas has fallen rapidly as reflected in the Credit-Deposit ratio which declined from 65 per cent in mid-1980s to around 42 per cent now.

4. Decline in credit to small borrowers: Besides the overall decline in agricultural credit, what is even more worrisome is the decline in the number of small loans (of up to Rupees 25,000). These are essentially informal sector loans which slipped from a peak of 62.55 million in March 1992 to 37.22 million in March 2002. Their share in total bank credit also declined from 25 per cent to only 6 per cent during the same period. Thus, it seems that brunt of credit squeeze in agriculture is being faced by small farmers.

5. Sub-Optimal Use of Inputs and Adoption of Technology The imperative of stabilizing and augmenting agricultural yields is also evident from the fact that there is less scope for increasing area under cultivation of various crops. Further, apart from the decline in land-holding size, there is increasing cost of production and depletion of ground water. Increase in agricultural production would therefore have to emanate from improvements in productivity from the existing cultivated area through use of location-specific high yielding varieties, balanced fertilizer doses, effective transfer of technology and timely supply of all inputs. There is also an urgent need to increase the availability of farm electricity power to boost productivity.

6. Unsatisfactory Spread of New Technology: One of the main reasons for the low levels of yield in Indian agriculture has been the unsatisfactory spread of new technological practices, including the adoption of High Yielding Varieties (HYV) of seeds and usage of fertilizers, inadequate spread of farm management techniques and other practices such as soil conservation and crop rotation.

7. Low availability of farm electricity power: The availability of farm electricity power in the country continues to be low. During 2000-01, it was as low as 1.35 kilowatt/hectare in India as compared with some of the developed nations, such as Japan (8.75 kw/ha), Italy (3.01 kw/ha), France (2.65 kw/ha), the United Kingdom (2.5 kw/ha), and Germany (2.35 kw/ha).

8. Distortionary Pricing and Subsidies: The Minimum Support Price (MSP) mechanism was put in place to provide assured incomes to producers. However, during the 1990s, substantial increases in MSPs of rice and wheat have significantly distorted the incentives provided to these crops at the cost of other crops. At the same time, power subsidy provided for irrigation has further tilted the incentives against rain dependent crops like pulses and oilseeds. These distortions have obstructed efforts aimed at diversification of crops.

9. Untapped Exports Potential In recent period India has emerged as a leading producer of many agricultural products in the world. India is now the largest producer of coconut, areca nut, cashew nut, ginger, turmeric, black pepper, and the second largest producer of fruits and vegetables. This progress on the domestic front has, however, not been translated into enhanced exports of these commodities. Exports of agricultural products generally displayed a relatively lower rate of growth except for a brief period in mid-1990s. While exports of traditional commodities such as tea, coffee, rice, spices and oil meal have decelerated, sharp expansion was observed in exports of high value and processed agricultural products

such as fruits and vegetables, processed fruits, juices, and meat and meat preparation. In order to realize the huge potential of exports which has so far been untapped, particularly in respect of processed foods, it is imperative that domestic controls are removed expeditiously and adequate rural infrastructure is in place which would ensure efficient warehousing, processing, packaging, storage and related research. It is now agreed that Indian agriculture has vast business potential, especially in the food processing sector, in view of the substantial production of fruits and vegetables and milk and other animal food products in the country. However, tapping this business potential in food processing industry requires that Indian food exports should comply the codex alimentary norms.

Major Challenges Faced By Indian Agriculture

If we look at the challenges faced by Indian agriculture, we can broadly group them into two categories. One category belongs to the problems that have been long standing. Second category of problems is new and has been emerging from the prevailing agricultural practices, system, changing climate and economy. Let us discuss the major challenges in detail:

1. Stagnation in Production of Major Crops: Production of some of the major staple food crops like rice and wheat has been stagnating for quite some time. This is a situation which is worrying our agricultural scientists, planners and policy makers. If this trend continues, there would be a huge gap between the demand of ever growing population and the production. Nobody wants India to go back to a situation that was prevailing in our country prior to Green Revolution. Try to find out what was the situation during pre-Green Revolution period.

2. High cost of Farm Inputs: Over the years rates of farm inputs have increased manifold. Farm inputs include fertilizer, insecticide, pesticides, HYV seeds, farm labour cost etc. Such an increase puts low and medium land holding farmers at a disadvantage.

3. Soil Exhaustion: On one hand green revolution has played a positive role in reducing hunger from India. On the other hand it has also led to negative consequences. One of which is Soil exhaustion. Soil exhaustion means loss of nutrients in the soil from farming the same crop over and over again. This usually happens in the rain forest.

4. Depletion of Fresh Ground Water: The second major negative consequence of green revolution is depletion of fresh ground water. You would remember that areas where green revolution was successful, it was due to the use of chemical fertilizers and irrigation. Most of the irrigation in dry areas of Punjab, Haryana and Western Uttar Pradesh was carried out by excessive use of ground water.

Today fresh ground water situation in these states is alarming. In the coming few years if this type of farming practice continues, these states are going to face water famine.

5. Adverse impact of Global Climatic Change: Among various challenges, global climatic change is the recent one. It has been predicted that its impact on agriculture would be immense. Since, 70% of Indian population is engaged in agricultural activities, you can imagine the consequences. It is predicted that due

to climate change, temperature would increase from 2°C to 3°C, there would be increase in sea level, more intense cyclones, unpredictable rainfall etc These changes would adversely affect the production of rice and wheat. Specifically, rise in temperature in winter would affect production of wheat in north India. Production of rice would be affected in coastal areas of India due to ingress of saline water and increase of frequency of cyclones.

6. Impact of Globalisation: You can see the effect of globalisation on the farm sector in India. All developing countries have been affected by it. The most evident effect is the squeeze on farmer's income and the threat to the viability of cultivation in India. This is due to the rising input costs and falling output prices. This reflects the combination of reduced **subsidy** and protection to farmers. Trade **liberalization** exposes these farmers to competition from highly subsidized production in the developed world.

Globalisation refers to the increasingly global relationships of culture, people and economic activity. **Subsidy:** A subsidy is money given by government to help support a business or person. **Liberalization:** liberty to establish any kind of economic activity at any time anywhere in the country without anticipating any kind of so called private or public restrictions.

7. Providing Food Security: Before the introduction of green revolution in India, we were not self sufficient in terms of our food grain production. Due to partition of India in 1947 the network of canal irrigation system, cotton belt and wheat bowl meant to West Pakistan which is now Pakistan. Similarly the jute belt and rice bowl was awarded to East Pakistan, which is now Bangladesh. With the introduction of green revolution, production of food grains increased substantially and India became self sufficient. However, during the last one decade the total production has become stagnant. On the other hand we have added another 16 to 18 million populations over this period. Although India has become self sufficient in good it is yet to ensure food security which is dependent upon accessibility, affordability as well nutritional value of the food available. One of the biggest challenges facing India is Providing Food Security to its population.

8. Farmers Suicide: Every suicide has a multiple of causes. But when you have nearly 200,000 of them, it makes sense to seek broad common factors within that group. The suicides appear concentrated in regions of high commercialization of agriculture and very high peasant debt. Cash crop farmers seemed far more vulnerable to suicide than those growing food crops. Yet the basic underlying causes of the crisis remained untouched. Commercialization of the countryside along with massive decline in investment in agriculture was the beginning of the decline. Withdrawal of bank credit at a time of soaring input prices and the crash in farm incomes compounded the problems. Shifting of millions from food crop to cash crop cultivation had its own risks. Privatization of many resources has also compounded the problems. The devastation lies in the big 5 States of Maharashtra, Andhra Pradesh, Karnataka, Madhya Pradesh and Chhattisgarh. These states accounted for two-thirds of all farm suicides during 2003-08. Some of the major factors responsible are indebtedness, crop failure and deterioration in economic status. Decline in social position, exorbitant

charges by local money lenders for the vulnerable farmers, chronic illness in the family, addiction etc. have made life of farmers difficult.

Government policies affecting Indian Agriculture:

Union Budget (2007-08), agriculture has got considerable attention with the various policy initiatives from the side of finance ministry. Some of the important policies are: During 2006-07 (until December 2006), 53.37 lakh new farmers were brought into the institutional credit system. A target of Rs. 225,000 crore as farm credit and an addition of 50 lakh new farmers to the banking system have been fixed for the year 2007-08. The two per cent interest subvention scheme for short-term crop loans will continue in 2007-08, and a provision of Rs.1, 677 crore has been made for that purpose.

A special purpose tea fund has been launched for re-plantation and rejuvenation of tea. Government soon plans to put in place similar financial mechanism for coffee, rubber, spices, cashew and coconut. Accelerated Irrigation Benefit Program (AIBP) has been revamped in order to complete more irrigation projects in the quickest possible time. As against an outlay of Rs.7, 121 crore in 2006-07, the outlay for 2007-08 has been increased to Rs.11, 000 crore. Rs.17, 253 crore had been budgeted for fertilizer subsidies in 2006-07. However, according to the Revised Estimates, this will rise to Rs.22, 452 crore. The National Insurance Scheme (NAIS) will be continued for Kharif and Rabi crops during the year 2007-08. The two per cent interest subvention scheme will continue in 2007-08. Rs. 100 crore have been allocated to new Rain fed Area Development Program.

CONCLUSION:

Agriculture makes the highest contribution to India's GDP. Agriculture contributes almost about 18 percent to the country's GDP. It has been seen in the last few years that the input of the agriculture sector has been declining, but it is still the biggest contributor. Agriculture occupies a prominent position in Indian policy-making not only because of its contribution to GDP but also because of the large proportion of the population that is dependent on the sector for its livelihood. The growth in population and wealth has stimulated demand to the extent that domestic production has not always been able to keep up and there is increasing speculation that the Indian economy may be overheating leading to inflation. The downside of the increased import demand and the current commodity boom is that India's food import bill will rise sharply. However it is clear that India's agricultural sector has made huge strides in developing its potential. The green revolution massively increased the production of vital food grains and introduced technological innovations into agriculture. This progress is manifested in India's net trade position. Where once India had to depend on imports to feed its people, since 1990 it is a net exporter of agri-food products. Its agriculture is large and diverse and its sheer size means that even slight changes in its trade have significant effects on world agricultural markets.

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